

Deconstructing Environmental Risk in Corporate Sustainability Reporting: A Qualitative Study of Flood Risk Representation in Sumatra

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ABSTRACT

This study examines how environmental risks, particularly flood risk, are represented in corporate sustainability reporting in Sumatra. Using an interpretive qualitative approach, the study applies qualitative document analysis and Derridean deconstruction to sustainability disclosures from four corporate entities operating in forestry and pulp, metals and mining, electric power generation, and agriculture and plantations. The findings indicate that, in the cases examined, environmental responsibility is predominantly communicated through organizational initiatives, compliance activities, conservation programmes, and operational risk management, while broader ecological interdependencies and cumulative environmental risks receive comparatively less explicit representation. Flood risk is frequently framed through climatic, technical, or operational narratives rather than broader relationships among land use, watershed conditions, ecological degradation, and corporate responsibility. The study concludes that sustainability reporting may enhance environmental visibility while simultaneously limiting the visibility of broader accountability relationships, highlighting the need for more substantive sustainability accounting that connects corporate disclosures with environmental dependencies, impacts, and risks.

ABSTRAK

Penelitian ini mengkaji bagaimana risiko lingkungan, khususnya risiko banjir, direpresentasikan dalam pelaporan keberlanjutan korporasi di Sumatra. Dengan menggunakan pendekatan kualitatif interpretif, penelitian ini menerapkan analisis dokumen kualitatif dan dekonstruksi Derrida terhadap pengungkapan keberlanjutan dari empat entitas korporasi yang bergerak di sektor kehutanan dan pulp, pertambangan logam, pembangkitan tenaga listrik, serta pertanian dan perkebunan. Hasil penelitian menunjukkan bahwa, pada kasus yang dianalisis, tanggung jawab lingkungan terutama dikomunikasikan melalui inisiatif organisasi, aktivitas kepatuhan, program konservasi, dan pengelolaan risiko operasional, sementara keterkaitan ekologis yang lebih luas dan risiko lingkungan kumulatif relatif kurang direpresentasikan secara eksplisit. Risiko banjir cenderung dibingkai melalui narasi iklim, teknis, atau operasional daripada melalui hubungan yang lebih luas antara penggunaan lahan, kondisi daerah aliran sungai, degradasi ekologis, dan tanggung jawab korporasi. Penelitian ini menyimpulkan bahwa pelaporan keberlanjutan dapat meningkatkan visibilitas lingkungan sekaligus membatasi visibilitas hubungan akuntabilitas yang lebih luas.

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INTRODUCTION

Flood risk has become an increasingly important environmental and socio-economic concern in Sumatra, where changes in rainfall patterns, land-use transformation, ecosystem degradation, and pressure on watershed systems have intensified concerns about environmental vulnerability (Abdo, 2020; Amandaria et al., 2025; Sugianto et al., 2022). Flooding is often presented as an extreme climatic event, yet its occurrence and consequences are also shaped by the condition of ecological systems within which economic activities take place. In Sumatra, extensive land-use transformation involving forestry, mining, plantations, and infrastructure development has altered landscapes and watershed conditions (Juniyanti et al., 2026; Merten et al., 2021; H. Wu et al., 2026). This study does not seek to establish causal relationships between specific corporate activities and individual flood events. Rather, it focuses on how environmental risks associated with such ecological conditions are represented, framed, and communicated through corporate sustainability reporting.

Sustainability reporting is expected to provide stakeholders with information about corporate environmental impacts, dependencies, and risks. Through frameworks such as the Global Reporting Initiative (GRI) and sustainability-related reporting requirements in Indonesia, corporate disclosures are intended to enhance transparency and support accountability for environmental and social impacts (Li et al., 2024; Massari & Giannoccaro, 2023; Pinheiro & Ramalho, 2025). From an accounting perspective, such disclosures are particularly relevant because they may extend the visibility of environmental matters beyond conventional financial reporting and provide information about risks that may affect organisational resilience and long-term value creation. However, the existence of sustainability disclosures does not necessarily ensure that environmental risks are represented in substantive or accountable ways. Previous studies have shown that corporate sustainability reporting may emphasise policies, programmes, commitments, and performance indicators while providing limited visibility of complex or cumulative ecological impacts (Böhling et al., 2019; Erin et al., 2022; Manes-Rossi & Nicolo', 2022; Sumarta et al., 2023).

This tension is particularly relevant to environmental risks that extend beyond organisational boundaries and are difficult to translate into conventional accounting categories. Environmental degradation, biodiversity loss, ecosystem disruption, and watershed vulnerability may develop cumulatively over time and involve multiple actors, while their consequences may not correspond to clearly identifiable present obligations or reliably measurable financial amounts. Consequently, environmental risks may remain visible as narrative concerns within sustainability reporting without becoming equally visible as matters of corporate accountability, environmental liabilities, or organisational dependencies. This creates an important accounting problem: sustainability reporting may increase the quantity of environmental information available to stakeholders while simultaneously shaping which environmental risks are recognised, prioritised, or rendered less visible (Atif & Ali, 2021).

Existing sustainability accounting research has examined environmental disclosure, ESG reporting, corporate legitimacy, and the quality and quantity of sustainability information. However, less attention has been given to how corporate sustainability reporting discursively constructs environmental risk, particularly when ecological risks are cumulative, systemic, and spatially interconnected. Prior research also tends to evaluate reporting through the extent, quality, or completeness of disclosure, rather than examining how particular environmental risks are framed through language and how alternative meanings may be marginalised or excluded. In the context of Sumatra, this gap is particularly significant because flood risk is embedded within complex relationships among ecosystems, land use, watershed conditions, and economic activities. A deconstructive perspective is therefore relevant because it enables analysis not only of what sustainability reports disclose, but also of the assumptions, binary

oppositions, contradictions, and absences through which environmental responsibility is constructed (Gan, 2025; He et al., 2024; W. Wu et al., 2026).

This study addresses this gap by examining how environmental risk, particularly flood risk, is represented in corporate sustainability reporting through qualitative document analysis and Derridean deconstruction. The analysis focuses on four corporate entities operating in sectors that are closely connected to Sumatra's ecological landscape: forestry and pulp, metals and mining, electric power generation, and agriculture and plantations. Rather than determining whether these corporations caused specific flood events, the study investigates how sustainability narratives construct relationships among environmental responsibility, ecological risk, and corporate accountability. The study contributes to critical sustainability accounting by shifting attention from the volume or quality of environmental disclosure toward the discursive construction of environmental visibility. By integrating insights from critical accounting, legitimacy perspectives, political ecology, and natural capital accounting, the study further examines how sustainability reporting may simultaneously make certain environmental responsibilities visible while limiting the visibility of broader ecological interdependencies and accountability relationships.

LITERATURE REVIEW

Accounting Boundaries and Environmental Accountability

Environmental liability represents an important boundary between ecological impacts and formal accounting recognition. In accounting terms, environmental liabilities generally arise when environmental impacts generate present obligations that can be identified and, where applicable, reliably measured. This recognition logic provides a mechanism for translating environmental consequences into organisational responsibilities and, ultimately, accounting information. However, many ecological impacts are cumulative, indirect, and uncertain, making them difficult to accommodate within conventional recognition criteria. Long-term ecosystem degradation, biodiversity loss, and changes in watershed conditions may therefore remain outside formal liability recognition even when they create material environmental and organisational risks (Bebbington et al., 2023).

Sustainability reporting partly extends the boundaries of conventional financial reporting by providing narrative and non-financial information about environmental impacts, risks, and corporate responses. However, the expansion of disclosure does not necessarily eliminate the boundaries of accounting accountability. Sustainability reports may emphasise policies, programmes, commitments, and performance indicators without translating ecological impacts into clearly defined organisational obligations or measurable environmental liabilities (Pollman, 2022; Vardon et al., 2025). From a critical accounting perspective, this distinction is important because reporting is not a neutral process of representing an already existing reality. The categories, measurements, and boundaries used in reporting influence which environmental matters become visible and accountable, while other impacts may remain peripheral or externalised (Comin et al., 2019).

This tension creates a potential gap between environmental disclosure and environmental accountability. Environmental risks may be acknowledged narratively while remaining weakly connected to corporate obligations, financial consequences, or long-term ecological dependencies. Consequently, sustainability reporting may increase the visibility of environmental concerns without necessarily expanding the accountability boundaries through which those concerns are recognised. This study therefore approaches sustainability reporting not only as a mechanism for communicating environmental performance, but also as a discursive practice that constructs the boundaries of environmental visibility and responsibility (Sinkovics et al., 2021).

Natural Capital, Biodiversity, and Ecological Risk

The limitations of conventional accounting recognition are particularly evident in the treatment of biodiversity and natural capital. Corporate activities depend upon ecosystem services and natural resources, while simultaneously affecting forests, water systems, soil, habitats, and biodiversity. Nevertheless, biodiversity is frequently represented in sustainability reporting through conservation programmes, commitments, and qualitative narratives rather than as a component of corporate dependencies, impacts, and risks with explicit economic implications (Bebbington & Unerman, 2017; Böhm et al., 2022). The resulting disclosure may communicate environmental concern without fully representing the ecological systems upon which organisations depend.

Natural capital accounting seeks to address this limitation by recognising the value and condition of natural resources and ecosystem functions within decision-making processes. However, the integration of natural capital considerations into corporate reporting remains uneven, and the relationship between ecological degradation and organisational risk is not always explicitly articulated. As a result, biodiversity loss and ecosystem disruption may continue to be treated primarily as reputational or compliance concerns rather than as interconnected environmental dependencies and risks (Amidjaya et al., 2023; Badura et al., 2024).

This issue is particularly relevant to flood risk. Forest degradation, land-use transformation, soil compaction, and changes in watershed conditions may alter ecological systems that regulate water flows and retain water. The ecological consequences of such changes are not necessarily attributable to a single organisation or event, but emerge through cumulative interactions across landscapes and institutional boundaries. From a natural capital perspective, the omission of these interdependencies limits the ability of sustainability reporting to represent how corporate activities depend upon and affect ecological systems. From a critical accounting perspective, it also raises questions about which environmental relationships are made visible within corporate reporting and which remain external to organisational accountability (Chopra et al., 2024; O'Dwyer & Unerman, 2020).

Flood Risk as a Systemic Ecological Risk

Flood risk can be understood as a socio-ecological phenomenon shaped by interactions among climatic conditions, land use, watershed characteristics, infrastructure, and patterns of economic activity. Political ecology provides a useful perspective for examining these relationships because it situates environmental risks within broader social, economic, and institutional processes rather than treating ecological events as isolated natural occurrences. In this perspective, changes in forests, rivers, soil conditions, drainage systems, and land use may alter the ecological conditions within which flood vulnerability develops (Merten et al., 2021; Umar & Dewata, 2018).

This perspective does not imply that corporate activities directly cause specific flood events. Rather, it highlights that environmental risks can emerge through cumulative processes that extend beyond the boundaries of individual organisations. Such risks create a particular challenge for sustainability reporting because corporate disclosures are generally structured around organisational boundaries, while ecological processes operate across landscapes and interconnected systems. Consequently, sustainability reporting may describe climate events, disaster responses, or environmental programmes without explicitly representing the broader ecological relationships in which environmental risks develop.

The resulting tension between ecological interdependence and organisational reporting boundaries provides the central theoretical problem of this study. If environmental risks are systemic and spatially interconnected, but corporate reporting is organised primarily around individual organisations, sustainability disclosures may selectively represent environmental

responsibility. The question is therefore not only whether companies disclose environmental information, but how sustainability reporting constructs, stabilises, and limits the meaning of environmental risk and accountability (Aguilera et al., 2021).

An Integrated Theoretical Perspective on Symbolic Sustainability Reporting and Environmental Accountability

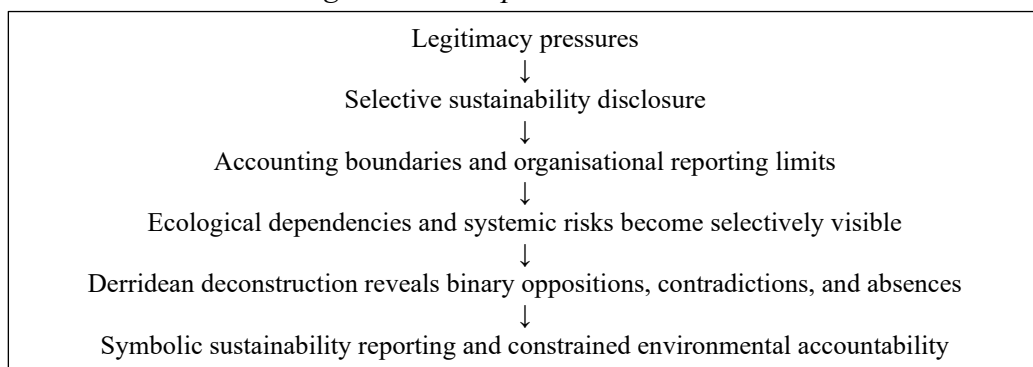
This study integrates five theoretical perspectives to explain how sustainability reporting may simultaneously enhance environmental visibility and constrain broader environmental accountability. Legitimacy Theory explains the organisational motivation to communicate environmental initiatives and commitments that support a socially acceptable corporate identity. Critical Accounting highlights that reporting categories and recognition boundaries are socially constructed and may determine which environmental impacts become visible as matters of accountability. Political Ecology extends the analysis beyond organisational boundaries by locating environmental risks within broader socio-ecological and political relationships. Natural Capital Accounting highlights corporate dependencies and impacts on ecosystems, biodiversity, and natural resources that may remain underrepresented in conventional accounting and sustainability disclosure (Böhling et al., 2019; Manes-Rossi & Nicolo', 2022; Nor Ahmad et al., 2022).

Derridean deconstruction provides the analytical mechanism through which these perspectives are connected. Rather than assuming that sustainability reports communicate a single and stable meaning, deconstruction examines the binary oppositions, contradictions, absences, and marginalised meanings through which environmental responsibility is constructed. In this study, oppositions such as sustainability/degradation, responsibility/externality, and climate event/ecological risk are examined to identify how certain meanings are privileged while others become less visible (Riduwan & Andajani, 2025).

The integrated framework proposes that Legitimacy Theory creates pressure for organisations to communicate credible sustainability narratives; Critical Accounting explains how reporting boundaries determine what can be recognised and made accountable; Political Ecology reveals that ecological risks extend beyond organisational boundaries; and Natural Capital Accounting identifies the environmental dependencies and impacts that conventional reporting may underrepresent. Derridean deconstruction then examines how these tensions are resolved within sustainability narratives through selective visibility, omission, and the privileging of particular interpretations of environmental risk. The resulting process may produce symbolic sustainability reporting, in which environmental initiatives and commitments are highly visible while broader ecological dependencies, cumulative risks, and accountability relationships remain comparatively less visible.

Accordingly, this study conceptualises environmental accountability as the outcome of a tension between what ecological systems require organisations to recognise and what reporting systems allow organisations to make visible. The conceptual relationship can be expressed as follows:

Figure 1. Conceptual Framework



This framework positions sustainability reporting as more than a communication mechanism. It is understood as a site where environmental risks are interpreted, prioritised, and given meaning. The framework therefore provides a basis for examining how corporate sustainability disclosures may construct environmental risk and accountability, particularly when ecological processes such as flood risk extend beyond the organisational boundaries within which reporting is produced.

METHOD

Research Design and Case Selection

This study adopts an interpretive qualitative approach using qualitative document analysis to examine how environmental risks are represented in corporate sustainability reporting. The approach is based on the premise that sustainability reports are not neutral descriptions of environmental performance, but organisational texts through which corporations construct, frame, and communicate relationships with environmental and social concerns. Accordingly, the study does not seek to establish causal relationships between corporate activities and specific flood events or to quantitatively evaluate environmental performance. Instead, it examines how environmental risks, responsibilities, and ecological relationships are represented and given meaning within corporate sustainability narratives.

The research objects were selected through purposive theoretical sampling. Four corporate entities were selected to represent sectors with distinct but ecologically interconnected relationships with Sumatra's landscapes and watershed systems: forestry and pulp, metals and mining, electric power generation, and agriculture and plantations. The selection was guided by three criteria: (1) the entity operates in or is associated with areas characterised by significant ecological pressure and flood vulnerability; (2) its sector is relevant to land use, natural resources, water systems, or ecological transformation; and (3) publicly accessible sustainability or related corporate disclosures were available for systematic textual analysis. The selection of both public and non-public entities was intentional. While public companies are subject to formal sustainability reporting requirements, non-public entities operating in environmentally sensitive sectors provide additional perspectives on how environmental responsibility is constructed beyond the reporting boundaries of listed companies.

Table 1. Name of Entity, Status, and Industry Sector

Entity	Status	Industry Sector
Company 1	Public Entity	Pulp & Paper/Forestry
Company 2	Non-Public Entity	Metals & Mining
Company 3	Non-Public Entity	Electric Power Generation
Company 4	Non-Public Entity	Agriculture & Plantations

Source: Data Processed, 2026

The entities are anonymised as Company 1 to Company 4. Anonymisation was adopted to maintain analytical neutrality and to focus the analysis on broader patterns of sustainability reporting rather than evaluating or assigning responsibility to individual organisations. Although the documents analysed were publicly available, anonymisation was considered appropriate to reduce potential reputational implications and to avoid presenting the study as an assessment of legal or environmental liability. The study therefore analyses the documents as representations of corporate discourse rather than as evidence of legal responsibility or environmental causality.

Data Sources and Analytical Context

The primary data comprise publicly available corporate sustainability reports and related disclosures produced by the four selected entities. Where relevant, these materials were complemented by annual reports, ESG disclosures, official corporate websites, and other publicly accessible corporate information. The documents were treated as textual representations through which organisations communicate environmental commitments, risks, impacts, and responses.

Sumatra constitutes the empirical context of the study because the region has experienced substantial land-use transformation, ecological pressure, and recurrent flood risk. However, the geographical context is not treated solely as a physical research location. It is also approached as a representational space in which relationships among forests, rivers, biodiversity, land use, and flooding are constructed through corporate reporting. This distinction is important because the study examines how sustainability reports represent ecological risks rather than independently verifying the physical environmental conditions described in those reports.

Data Analysis and Deconstructive Procedure

Data analysis employs a Derridean deconstructive approach informed by the understanding of sustainability reporting as a text in which meanings are multiple, relational, and potentially contradictory (Derrida, 1974, 1978). Deconstruction is used to examine how sustainability claims are constructed through binary oppositions, including sustainability/degradation, responsibility/externality, and climate event/ecological risk. The analysis focuses on how particular meanings are privileged and stabilised, while alternative meanings, contradictions, or ecological relationships may be marginalised or omitted.

The analytical process consisted of five stages. First, the researchers conducted familiarisation with the selected documents and identified dominant sustainability claims, including statements related to sustainable forestry, responsible mining, renewable energy, and sustainable agriculture. Second, open coding was conducted by breaking relevant textual material into units of meaning. Coding focused on statements concerning environmental impacts, ecological risks, corporate responsibilities, environmental initiatives, biodiversity, climate-related events, and relationships between corporate activities and environmental conditions. Third, axial coding was used to group related codes into broader analytical categories and identify relationships among recurring themes. Fourth, deconstructive reading examined binary oppositions, contradictions, suppressed meanings, and assumptions presented as self-evident within the sustainability narratives. Fifth, cross-case comparison was conducted to identify recurring patterns and differences across the four entities.

To strengthen analytical consistency, a coding guide was developed around the research questions and refined during the analysis. Each relevant textual segment was reviewed in relation to its surrounding narrative context and the original source document. The analysis was iterative, allowing codes and interpretations to be revisited when contradictory or alternative meanings emerged. An audit trail was maintained to document the movement from textual evidence to coding, categorisation, and interpretation. Reflexive consideration was also maintained throughout the analytical process to recognise the researchers' interpretive position and reduce the risk of treating analytical interpretations as objective facts.

The four analytical categories—factual, distortion, concealment, and fabrication—were developed as study-specific analytical categories rather than being treated as direct categories established by Derrida. They were derived from the deconstructive reading of the documents and informed by critical accounting perspectives on selective representation, omission, and the construction of organisational legitimacy. Factual refers to verifiable descriptive claims explicitly stated in the documents. Distortion refers to the discursive reduction or reframing of

broader ecological conditions into narrower technical, managerial, or operational issues. Concealment refers to the absence or marginalisation of potentially relevant ecological concerns within otherwise extensive sustainability narratives. Fabrication refers to sustainability claims or representations that appear insufficiently supported by the ecological context or evidence presented in the analysed documents. These categories were used as interpretive tools to compare how environmental risks and responsibilities were constructed across cases, rather than as definitive judgments of corporate misconduct or factual falsification.

The interpretation of distortion, concealment, and fabrication was based on comparison between sustainability claims and the broader textual context of each document. Representative excerpts and references to the relevant report sections are presented in the Results and Discussion to maintain an explicit evidentiary link between the original documents and the researchers' interpretations. The analysis therefore distinguishes between what is explicitly stated in the reports and the researchers' subsequent deconstructive interpretation. This procedure is intended to strengthen transparency and prevent analytical conclusions from being presented as independent evidence of environmental causality.

Trustworthiness and Ethical Considerations

The trustworthiness of the analysis was strengthened through triangulation across sustainability reports and related corporate disclosures, iterative review of coding and interpretations, cross-case comparison, and maintenance of an audit trail. Interpretations were continuously checked against the original documentary evidence and the surrounding textual context. The use of multiple document types and comparison across four sectors also helped identify whether particular patterns were case-specific or appeared across different reporting contexts. Given the interpretive nature of the research, the study recognises that deconstructive analysis involves researcher judgement; therefore, reflexivity and explicit separation between textual evidence and analytical interpretation were maintained throughout the process.

Ethical considerations were addressed despite the exclusive use of publicly available documents. The study did not involve human participants or collect personal data. The selected entities were anonymised to maintain analytical neutrality and minimise potential reputational implications. The analysis does not seek to establish legal responsibility, determine environmental liability, or demonstrate that specific corporate activities caused individual flood events. Instead, it critically examines how ecological risks and environmental responsibilities are represented, framed, and communicated through corporate sustainability disclosures.

RESULTS AND DISCUSSION

Sustainability Reporting as Symbolic and Legitimacy-Oriented Disclosure

The cross-case analysis indicates that sustainability reporting across the four entities predominantly constructs sustainability through organizational initiatives, commitments, and procedural indicators rather than through explicit representations of cumulative ecological risk. Reported activities include forest rehabilitation, water-quality monitoring, environmental certification, biodiversity conservation, and community programs. These disclosures provide visible evidence of environmental engagement, but their relationship with broader landscape transformation and systemic ecological vulnerability is less explicitly articulated. Table 2 summarizes the dominant sustainability claims identified across the four cases and the contradictions revealed through deconstructive analysis.

Table 2. Symbolic Construction of Sustainability

Company	Dominant Sustainability Claim	Representative Trace in Disclosure	Deconstructive Code	Environmental Dimension Less Visible
Company 1	Sustainable forest management	Erosion control and rehabilitation initiatives	Distortion	Natural forest loss and watershed degradation
Company 2	Harmony with nature / responsible mining	Freshwater management and river-discharge monitoring	Fabrication	Broader hydrological disruption and pollution
Company 3	Renewable energy	Environmental monitoring and operational risk management	Concealment	River fragmentation and sedimentation
Company 4	Sustainable agriculture	Replanting and certification initiatives	Distortion	Drainage alteration and runoff

Source: Data Processed, 2026.

The deconstructive analysis suggests that sustainability claims operate as privileged centres of meaning through which the entities construct environmentally responsible organizational identities. The claims of sustainable forest management, responsible mining, renewable energy, and sustainable agriculture establish a positive semantic framework within which environmental responsibility is made visible. At the same time, the analysis identifies contrasting environmental meanings—including deforestation, river fragmentation, soil degradation, and hydrological alteration—that receive comparatively less explicit representation within the dominant sustainability narratives.

This finding does not imply that the four entities provide no environmental information. Rather, it indicates a pattern of selective visibility. Environmental initiatives are presented as identifiable corporate actions, whereas broader ecological processes are more fragmented across the reports or addressed through technical and managerial language. From a Derridean perspective, the meaning of sustainability is therefore produced not only through what is explicitly stated but also through the relationship between visible claims and less visible environmental conditions.

The pattern is particularly relevant to critical accounting because it demonstrates how reporting can shape the boundaries of environmental accountability. When sustainability is primarily communicated through programs, certifications, and procedural indicators, stakeholders may obtain information about corporate initiatives without necessarily gaining an integrated view of how organizational activities relate to broader ecological risks. The findings therefore support the argument that sustainability reporting can simultaneously serve informational and legitimacy-oriented functions, with the latter becoming more pronounced when environmental narratives are disconnected from the structural conditions in which ecological risks emerge (Al-Shaer et al., 2021; Böhling et al., 2019).

The four cases should not, however, be interpreted as evidence that sustainability reporting is inherently symbolic. Instead, the findings indicate that, within the documents examined, sustainability narratives tend to privilege organizational responses over broader ecological interdependencies. This distinction is important because it positions the study's contribution not in questioning whether corporations disclose environmental information, but in examining how the boundaries of disclosure influence the visibility of environmental accountability.

Environmental Risk Disclosure Without Explicit Liability Recognition

The second pattern concerns the distinction between acknowledging environmental risk and recognizing environmental responsibility in accounting terms. Across the four cases,

environmental risks and operational disruptions are disclosed in various forms, including weather-related risks, slope instability, water discharge, operational disturbances, and flood-related disruptions. However, the reports do not explicitly connect these risks to environmental liabilities or to broader cumulative ecological obligations.

Table 3. Environmental Risks Without Explicit Liability Recognition

Company	Environmental Risk Disclosed	Dominant Framing	Deconstructive Code	Less Visible Environmental Dimension
Company 1	Weather-related risk	Climate variability	Concealment	Relationship between land-use change and flood vulnerability
Company 2	Slope instability and water discharge	Engineering and monitoring	Distortion	Broader watershed instability
Company 3	Environmental and operational risk	Technical risk management	Distortion	Long-term river-system alteration
Company 4	Flood-related disruption	External climatic event	Concealment	Relationship between plantation hydrology, drainage, and runoff

Source: Data Processed, 2026.

The findings indicate that environmental risk disclosure does not necessarily translate into the recognition of environmental responsibility. For example, Company 4 acknowledges environmental and land-management risks within its plantation operations and refers to practices such as the management of riparian zones, ground cover crops, and naturally regenerated trees. However, the documents examined do not explicitly connect these practices to broader questions concerning plantation hydrology, drainage, runoff, land-cover change, and regional flood vulnerability (*Company 4, p. 89-90*). Similarly, Company 3 presents hydrological risks within a technical risk-management framework, while the broader ecological implications of altered river systems and sedimentation are not explicitly connected to environmental liability (*Company 3, p. 99-106*).

The same analytical pattern is observed in Companies 1 and 2. Both companies acknowledge environmental risks and impacts through formal systems of environmental management, biodiversity protection, water management, restoration, monitoring, and regulatory compliance. However, these disclosures largely remain framed within organizational management systems and operational controls, with less explicit articulation of cumulative ecological responsibility extending beyond the boundaries of individual sites or operational risk categories. (*Company 1, p. 44-47 and p. 67-72; Company 2, p. 41-44*). These findings are significant because they reveal a distinction between risk visibility and accountability visibility. An environmental risk may be visible as a disclosure item while the underlying question of who bears responsibility for the risk remains less explicitly articulated.

From an accounting perspective, this distinction is important. The absence of explicit environmental liability recognition in the sustainability reports does not necessarily demonstrate that no legal or accounting liability exists. Rather, it indicates that the sustainability disclosures examined do not translate cumulative and uncertain ecological risks into an explicit representation of corporate obligations. This finding therefore concerns the representational boundary of sustainability reporting, rather than a definitive conclusion about the legal or financial existence of environmental liabilities.

The result extends the discussion of accounting boundaries developed in the literature review. Environmental risks that are disclosed only as operational, climatic, or external disruptions may remain disconnected from the measurement and recognition systems through which corporate financial consequences are evaluated. The resulting gap is not simply between

"disclosed" and "undisclosed" information, but between environmental risk as a narrative object and environmental responsibility as an accountable corporate obligation. From a critical accounting perspective, this distinction also illustrates how reporting categories can influence the construction of responsibility. When ecological risks are classified primarily as external conditions or technical operational risks, the organizational boundaries of accountability may remain narrower than the ecological boundaries within which those risks emerge. The findings therefore suggest that the challenge for sustainability accounting is not only to increase the volume of environmental disclosure, but also to strengthen the connection between environmental risks, corporate dependencies, impacts, and accountability (Roszkowska-Menkes et al., 2024).

Biodiversity Disclosure and the Limited Visibility of Natural Capital

A third pattern concerns the representation of biodiversity. Across the four cases, biodiversity-related information is primarily communicated through conservation activities, tree planting, rehabilitation, species monitoring, and certification initiatives. These disclosures demonstrate that biodiversity is recognized as a legitimate sustainability concern. However, the analysis indicates that biodiversity is less frequently represented in terms of its broader ecological functions, economic dependencies, or implications for corporate risk.

Table 4. Biodiversity Disclosure and Natural Capital Visibility

Company	Biodiversity Narrative	Contrasting Trace	Deconstructive Code	Less Visible Ecological Dimension
Company 1	Reforestation and plantation forestry	Emphasis on plantation-based rehabilitation	Distortion	Ecological functions of primary forest systems
Company 2	Tree planting and wildlife monitoring	High freshwater dependence	Fabrication	Species-specific habitat and ecosystem impacts
Company 3	Environmental stewardship	Hydropower operations	Concealment	River-dependent ecosystems
Company 4	Sustainable plantation management	Flood-related environmental vulnerability	Distortion	Soil, wetland, and watershed functions

Source: Authors' analysis of corporate sustainability disclosures, 2026.

The findings suggest that biodiversity is frequently constructed as a visible object of corporate commitment through measurable activities such as tree planting, habitat rehabilitation, species monitoring, conservation programmes, and restoration initiatives. However, the disclosures examined less explicitly connect these activities to the broader ecological systems—including hydrological, watershed, and landscape-level processes—upon which corporate operations and surrounding communities depend (*Company 1*, p. 67–72; *Company 4*, p. 108–149; *Company 2*, p. 41–44 and p. 80; *Company 3*, p. 99–106).

This distinction is particularly important from a natural capital perspective. Biodiversity is not only an ethical or conservation concern; it also forms part of the ecological systems that support water regulation, soil stability, habitat provision, and other ecosystem functions. When these functions are absent from corporate reporting, biodiversity may remain disconnected from discussions of operational dependence, environmental risk, and long-term business resilience.

The findings should not be interpreted as evidence that the four companies have failed to value biodiversity in every aspect of their internal decision-making. Rather, the analysis indicates that such valuation is not clearly visible within the sustainability disclosures examined. This

distinction is methodologically important because the study analyzes reporting practices rather than internal accounting systems (Dasgupta, 2021; Ding et al., 2026).

The deconstructive reading therefore identifies a tension between biodiversity as a reported commitment and biodiversity as an economically and ecologically significant dependency. In the former, biodiversity is made visible through measurable activities such as the number of trees planted, areas rehabilitated, or species monitored. In the latter, the ecological functions that connect biodiversity to watershed stability, natural capital, and environmental risk remain comparatively less visible. The result is a form of selective representation in which the corporate response to biodiversity is easier to identify than the broader ecological value and dependencies associated with biodiversity (Du et al., 2025; Vardon et al., 2025).

This finding reinforces the relevance of natural capital accounting to sustainability reporting. The issue is not simply whether nature should be assigned a monetary value, but whether corporate reporting can adequately represent organizational dependencies and impacts on ecological systems. Without such integration, biodiversity may remain positioned at the periphery of corporate risk management, despite its relevance to long-term ecological resilience and business continuity.

The Discursive Construction of Flood Risk as External and Uncertain

The fourth and most direct finding concerns the representation of flood risk. Across the four cases, flooding is predominantly presented through the language of weather variability, operational disruption, technical risk management, or external climatic shocks. The reports examined do not consistently articulate the broader relationship between flood vulnerability and land-use transformation, watershed conditions, or ecological degradation.

Table 5. Discursive Framing of Flood Risk

Company	How Flood Risk Appears	Dominant Framing	Deconstructive Code	Less Visible Structural Dimension
Company 1	Weather-related operational risk	Natural variability	Concealment	Land-use change and slope vulnerability
Company 2	Water and slope monitoring	Technical control	Distortion	Catchment-level ecological change
Company 3	Operational risk	Engineering and technical management	Concealment	River-flow alteration
Company 4	Flood-related disruption	External climatic shock	Concealment	Plantation drainage and watershed interactions

Source: Authors' analysis of corporate sustainability disclosures, 2026.

The deconstructive analysis identifies a recurring opposition between flooding as an external event and flooding as a systemic environmental risk. The first framing privileges climatic variability and uncertainty, positioning flooding outside the immediate boundaries of corporate responsibility. The second would recognize flood vulnerability as emerging through interactions among climate, land use, ecosystems, infrastructure, and governance. In the documents examined, the latter perspective is comparatively less explicit.

This finding provides an important qualification to the notion of flood risk as "unpredictable." The study does not claim that floods are fully predictable or that individual corporate activities directly cause specific flood events. Rather, the findings indicate that the representation of flood risk as external and uncertain may be reinforced through reporting practices that separate environmental disruption from broader ecological relationships. In this sense, unpredictability is not treated here as a purely physical property of flooding, but as a discursive characteristic that can be strengthened when corporate reports emphasize external climatic conditions while providing limited discussion of cumulative ecological vulnerability.

From a critical accounting perspective, this distinction has implications for environmental accountability. When flood risk is framed primarily as an external shock, the

organizational response is more likely to focus on preparedness, operational continuity, or post-disaster assistance. When flood vulnerability is considered within a broader socio-ecological system, however, questions of corporate dependency, impact, and responsibility become more visible. The findings therefore suggest that sustainability reporting can influence not only what information is communicated but also how the boundaries of environmental responsibility are conceptually drawn (Andrikogiannopoulou et al., 2022; Bingler et al., 2024; Ge & Luo, 2026).

Post-Disaster Corporate Responses and the Continuity of Environmental Framing

To examine whether these reporting patterns extend beyond formal sustainability disclosures, the study also considered corporate responses to the “2025 Sumatra floods” as supplementary documentary evidence. These materials were not treated as equivalent to sustainability reports but were used to examine whether similar patterns of environmental framing appeared in post-disaster communication.

Table 6. Corporate Responses to the 2025 Sumatra Floods

Company	Representative Corporate Response
Company 1	<i>(Post Disaster Media Evidence, 2025a)</i> "...fully supports this process and will act cooperatively and transparently in the implementation of the audit and evaluation,..." The statement further refers to compliance with permits, procedures, laws, and regulations and to the application of sustainable forest management principles.
Company 2	<i>(Post Disaster Media Evidence, 2025b)</i> "Company 2 continues to closely monitor the situation and coordinate with the relevant authorities. We reaffirm that the safety and integrity of the ... are fully maintained to support the continuation of operational activities."
Company 3	<i>(Post Disaster Media Evidence, 2025c)</i> The company's Social and Communications Manager stated that operational activities prioritize environmental management principles and comply with requirements contained in the relevant environmental permit.
Company 4	<i>(Post Disaster Media Evidence, 2025d)</i> . The company's VP of Corporate Communications stated that the company had fulfilled relevant requirements, including permits and environmental impact analysis, and described assistance provided through its Social and Environmental Responsibility program.

The post-disaster responses provide supplementary evidence of a recurring discursive pattern across the cases. Corporate communications and responses predominantly foreground regulatory compliance, cooperation with government authorities, operational or emergency continuity, public safety, and humanitarian assistance. Company 1 emphasized cooperation and transparency in the government-ordered audit and reaffirmed compliance with permits, regulations, and sustainable forest management principles. Company 2, meanwhile, emphasized public safety, emergency response, logistical assistance, restoration of access, and coordination with relevant stakeholders. In the case of the Company 3 and Company 4, public reporting similarly foregrounded legal compliance and the status of operational permits amid broader ecological scrutiny. These responses constitute legitimate dimensions of corporate crisis management. However, the discursive emphasis on compliance, coordination, continuity, and assistance may also shift attention away from broader questions concerning the structural relationship between corporate activities, ecological transformation, and regional vulnerability.

The importance of these materials therefore lies not in demonstrating corporate causality but in illustrating how environmental responsibility is communicated during a period of heightened ecological attention. The dominant emphasis on compliance, response, and assistance may reproduce the same organizational framing identified in the sustainability reports, in which environmental risk is addressed primarily through managerial action rather than through broader discussions of ecological interdependence and accountability. Taken together, the findings suggest a pattern of discursive continuity across sustainability reporting and post-disaster corporate communication. Environmental risks are made visible through

organizational responses, while the broader ecological relationships within which those risks emerge remain less explicitly articulated. This pattern is consistent with the study's theoretical framework: legitimacy-oriented communication provides a mechanism for maintaining organizational credibility; critical accounting highlights the role of reporting boundaries in shaping accountability; political ecology situates environmental risk within broader socio-ecological relationships; natural capital perspectives draw attention to ecological dependencies that remain underrepresented; and Derridean deconstruction reveals how these tensions are produced through selective visibility, absence, and binary oppositions.

The findings therefore suggest that the central issue is not simply the presence or absence of sustainability disclosure. Rather, it concerns what sustainability reporting makes visible, what it leaves at the margins, and how these representational choices shape the boundaries of environmental accountability. Across the four cases, sustainability is most clearly represented through identifiable corporate initiatives and responses, while the cumulative and systemic dimensions of ecological risk are comparatively less visible. The study consequently interprets symbolic sustainability reporting not as evidence of deliberate corporate deception, but as a discursive configuration in which organizational sustainability narratives may coexist with limited representation of broader ecological dependencies and responsibilities (Berg et al., 2024; Bertomeu & Marinovic, 2016; Böhling et al., 2019; Ge & Luo, 2026; Manes-Rossi & Nicolo', 2022; Nor Ahmad et al., 2022).

CONCLUSION AND SUGGESTIONS

This study examines how environmental risks, particularly flood risk, are represented in corporate sustainability reporting in Sumatra. Using qualitative document analysis and Derridean deconstruction, the study analyses sustainability disclosures from four corporate entities operating in forestry and pulp, metals and mining, electric power generation, and agriculture and plantations. The findings indicate that, in the cases examined, environmental responsibility is predominantly communicated through organisational initiatives, compliance activities, conservation programmes, and operational risk management, while broader ecological interdependencies and cumulative environmental risks receive comparatively less explicit representation. Flood risk is frequently framed through climatic, technical, or operational narratives rather than through broader relationships among land use, watershed conditions, ecological degradation, and corporate responsibility. The study does not establish that individual corporate activities caused specific flood events; rather, it shows how sustainability reporting may construct environmental risks in ways that limit the visibility of broader accountability relationships. The central conclusion is therefore that the challenge lies not simply in the absence of environmental information, but in the selective construction of environmental visibility within corporate reporting.

Theoretically, this study contributes to critical sustainability accounting by integrating Legitimacy Theory, Critical Accounting, Political Ecology, Natural Capital Accounting, and Derridean deconstruction to explain the relationship between symbolic sustainability reporting and environmental accountability. Legitimacy Theory explains the emphasis on visible environmental initiatives and sustainability commitments, while Critical Accounting highlights how reporting boundaries shape the visibility of environmental responsibility. Political Ecology situates ecological risks within socio-ecological relationships that extend beyond organisational boundaries, whereas Natural Capital Accounting draws attention to corporate dependencies and impacts on ecosystems, biodiversity, and natural resources. Derridean deconstruction connects these perspectives by revealing how sustainability meanings are constructed through selective visibility, binary oppositions, contradictions, and absences. From an accounting perspective, the findings suggest that environmental risks may be disclosed narratively without being translated into explicit representations of environmental obligations,

dependencies, or liabilities. Regulators and standard setters should therefore encourage reporting that more clearly connects environmental impacts, dependencies, and risks with broader ecological contexts and emerging sustainability reporting frameworks, while corporations should strengthen disclosures concerning the relationships among operational activities, environmental dependencies, ecological risks, and organisational responsibilities.

Future research should examine larger and more systematically selected samples across industries and geographical contexts, including comparative studies of listed and non-listed entities. Research combining document analysis with interviews involving corporate managers, regulators, local communities, environmental organisations, and other stakeholders could provide perspectives beyond corporate narratives and strengthen understanding of environmental accountability. Interdisciplinary studies integrating sustainability reporting with spatial analysis, hydrological modelling, environmental impact assessment, or other environmental datasets could further examine relationships between corporate activities, ecological conditions, and flood vulnerability while maintaining a clear distinction between discursive interpretation and causal environmental assessment. Future studies should also investigate whether emerging sustainability reporting standards and natural capital accounting frameworks genuinely expand the boundaries of environmental accountability or primarily introduce new forms of sustainability disclosure. Such research could further develop the integrated theoretical framework proposed in this study and clarify how accounting can better represent environmental dependencies, impacts, risks, and responsibilities in the context of systemic ecological change.

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