

ESG DISCLOSURE ANALYSIS: A PERSPECTIVE ON SUSTAINABILITY AND GREENWASHING RISK

¹NURHAYATI SOLEHA
²HERLIN TUNDJUNG SETIJANINGSIH
³MOHD HAFIZ BIN BAKAR

¹Universitas Sultan Ageng Tirtayasa, Jl. Raya Jkt No.3, Banten, Indonesia

²Universitas Tarumanagara, Jl. Letjen S. Parman No. 1, Jakarta, Indonesia

³Universiti Teknologi MARA, Jalan Ilmu 1/1, Selangor, Malaysia

nurhayatisoleha@untirta.ac.id

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Abstract: *This study evaluates the quality of Environmental, Social, and Governance (ESG) disclosures in a major Indonesian mining company and examines the consistency between sustainability claims and reported performance. It addresses a gap in prior research by investigating the temporal dynamics of ESG reporting quality and greenwashing strategies, particularly how business transformation and rebranding influence the temporal development of greenwashing indicators in an emerging-market mining context. Using a descriptive qualitative approach, the study applies content analysis of Sustainability Reports and Annual Reports from 2022 to 2024. The single-case longitudinal design enables an in-depth assessment of ESG narratives, disclosure consistency, selective reporting, and potential discrepancies between sustainability claims and reported performance that may indicate greenwashing. The findings show that ESG disclosure improved in scope and narrative intensity, particularly after the company's corporate identity transformation and reaffirmation of its Net Zero Emissions commitment. However, coal production remained central to operations despite the stated strategic shift toward non-coal businesses. These findings suggest that ESG disclosure may serve as a legitimacy and impression-management tool when sustainability narratives are insufficiently supported by performance-based evidence. The study contributes to stakeholder theory by providing a structured framework for identifying greenwashing risks and ESG decoupling during corporate transformation.*

Keywords: Emerging Market, ESG Disclosure, Greenwashing, Mining Industry, Sustainability

INTRODUCTION

Over the past few decades, global attention has turned to environmental, social, and corporate governance (ESG) issues, and this attention has grown substantially. Humanity now faces pressing challenges, including climate change, declining biodiversity, and widespread environmental pollution. Corporations have come to acknowledge their role in promoting

environmental and social sustainability (Xu et al. 2024). This growing awareness has encouraged companies to adopt sustainability practices that enhance transparency, accountability, and stakeholder engagement, while stakeholder pressure further motivates firms to improve ESG disclosure quality (Steelyana and Raharjo 2024).

The widespread adoption of sustainability reporting frameworks, particularly

the Global Reporting Initiative (GRI) Standards, reflects organizational efforts to standardize ESG reporting and enhance the quality, consistency, comparability, and credibility of disclosed information ([Friske et al. 2024](#); [Macneil et al. 2021](#)). Recent research demonstrates that high-quality ESG disclosure enhances business transparency, builds stakeholder trust, and reduces the risk of greenwashing ([Friske et al. 2024](#); [Hu et al. 2024](#)).

Sustainability reporting among Indonesian listed companies has shown a significant improvement during 2022–2024. According to the Indonesia Stock Exchange (IDX), for the 2022 reporting year, 842 companies (approximately 90% of around 936 companies) submitted sustainability disclosures in a standalone sustainability report or as part of the annual report. For the 2023 reporting year, increasing to 882 companies (approximately 94% of around 938 companies). Furthermore, Hasan et al. (2026) reported that 847 out of 955 listed companies (88.7%) disclosed sustainability for the 2024 reporting year. Among these companies, 296 companies (approximately 31% of all IDX-listed companies, or 35% of companies publishing sustainability reports) issued standalone sustainability reports prepared in accordance with the Global Reporting Initiative (GRI) Standards. Indicate that, although sustainability disclosure has become a common practice, the adoption of internationally recognized reporting standards in standalone sustainability reporting remains relatively limited. Various regulatory measures and initiatives have catalyzed this progress, including OJK's 2023 ESG Reporting platform, designed to enhance data transparency.

The mining industry, especially coal mining, has emerged as a focal point in sustainability discussions. This sector significantly contributes to environmental degradation through ecosystem destruction, air pollution, and waste generation, all of which adversely affect community well-being

([Zharfpeykan 2021](#)). According to data from the Indonesian Ministry of Environment and Forestry (KLHK), cumulative deforestation is estimated at 10–11 million hectares over the past two decades (2004–2024). The main sectors contributing to this deforestation are plantation expansion, agriculture, forest and land fires, and mining. The mining industry can contribute to deforestation by clearing mining sites and constructing haul roads, production facilities, and supporting infrastructure, leading to the loss of forest cover, habitat fragmentation, soil degradation, and disruption of the hydrological functions of forest areas. Growing pressure from investors, regulators, local communities, and consumers has compelled mining companies to enhance their transparency and accountability by providing more thorough ESG disclosures ([Talbot and Barbat 2020](#)).

Nevertheless, greater disclosure volume does not necessarily translate to higher quality or more credible information, as ESG reporting may also serve strategic legitimacy purposes and create potential gaps between sustainability narratives and actual corporate practices ([Dhiba et al. 2025](#); [Steelyana & Raharjo 2024](#); [Xu et al. 2023](#); [Lagasio 2024](#)). Greenwashing, where companies project an environmentally responsible image without corresponding actual performance, has emerged as a significant concern among researchers and practitioners in sustainability reporting ([Leonhardt and Guertler 2025](#)). In carbon-intensive industries such as mining, ESG disclosure may be particularly vulnerable to greenwashing because firms face strong legitimacy pressures while managing the environmental impacts of their core operations ([Severiano et al. 2024](#); [Fikru et al. 2024](#)).

The credibility of ESG disclosure has become an increasing concern because ESG information may influence stakeholder perceptions and firm legitimacy, while insufficient alignment between ESG claims and actual performance may reduce disclosure credibility ([Dhiba et al. 2025](#)). Meanwhile,

[Zharfpeykan \(2021\)](#) investigated ESG disclosures in the Australian mining and metals sector, revealing that, despite increased ESG reporting, numerous companies emphasized favorable information while downplaying or omitting negative aspects, especially environmental violations. [Brito et al. \(2022\)](#) examined Brazilian mining firms and discovered that sustainability reports could facilitate greenwashing, with independent verification proving insufficiently effective at detecting such practices. ESG-washing risks arise when companies emphasize sustainability narratives without sufficient alignment with measurable ESG outcomes. [Lagasio \(2024\)](#) highlights that detecting ESG-washing requires evaluating inconsistencies between corporate sustainability claims and actual performance indicators, while [Sneideriene and Legenzova \(2025\)](#) emphasize the increasing complexity of greenwashing practices and the importance of developing more systematic assessment approaches.

In Indonesia, greenwashing in the mining sector has begun to attract scrutiny. The mining industry has claimed its commitment to energy transition and sustainability, while simultaneously expanding coal production. This disconnect between sustainability rhetoric and operational reality prompts critical questions regarding ESG disclosure credibility and the prevalence of greenwashing within Indonesia's mining industry. PT ABC offers a compelling case for investigation. As one of Indonesia's leading coal producers, the company underwent a corporate identity transformation in 2024, rebranding from XYZ to ABC to signal its commitment to sustainability and business diversification beyond coal. The firm has publicly pledged to achieve Net Zero Emissions and transition toward more sustainable operations. Yet operational figures reveal that coal production continues to dominate its business activities, prompting questions about whether sustainability claims align with actual performance.

This investigation holds importance for multiple reasons. First, the existing literature contains a gap regarding ESG disclosure dynamics in Indonesia's mining sector, particularly regarding corporate transformation and Net Zero commitments. Earlier research has predominantly examined developed nations ([Talbot and Barbat 2020](#); [Zharfpeykan 2021](#)) or employed cross-industry quantitative methods ([Ching and Gerab 2017](#); [Ignatov and Rudolf 2023](#)) leaving detailed case studies of Indonesian mining companies relatively scarce. Second, this study offers new insights by examining the evolution of ESG disclosure and greenwashing strategies, thereby providing a deeper understanding of how a company uses ESG reporting as a compliance mechanism and greenwashing risk. Third, the research applies stakeholder theory to interpret disclosure motivations and patterns while systematically identifying greenwashing indicators.

This study aims to develop a comprehensive understanding of ESG disclosure quality in sustainability reports in an Indonesian mining company, i.e., PT ABC. The study purposefully uses a comprehensive single-case design because its objective is to identify the organizational context, longitudinal patterns, and possible differences between ESG disclosures and reported sustainability performance and to detect greenwashing indicators of the company. By analyzing corporate reports in conjunction with external and organizational evidence, prior research has shown that a single-company case study can offer theoretically significant insights into selective disclosure, symbolic sustainability, and greenwashing strategies ([Nor Ahmad et al. 2022](#); [Siano et al. 2017](#); [Vigneau and Adams 2023](#)).

Content analysis serves as the methodological approach for evaluating the quality of ESG disclosure and associated internal processes ([Susanto et al. 2024](#)). High-quality sustainability reporting reflects transparency levels and reporting practice

maturity, potentially influencing management and shareholder decisions toward greater sustainability while enabling stakeholders to conduct more informed company assessments ([Torelli et al. 2020](#)).

Stakeholder Theory and ESG Disclosure

This study draws on Stakeholder Theory, which argues that companies are responsible not only to shareholders but also to stakeholders affected by corporate activities ([Freeman 2015](#)). In the context of ESG disclosure, firms provide information to meet stakeholder needs and respond to stakeholder influence. These stakeholders include employees, customers, suppliers, governmental bodies, NGOs, and broader communities. NGOs serve as independent monitors and intermediaries by representing community concerns, evaluating corporate environmental and social impacts, and encouraging companies to provide more transparent, complete, and credible ESG information. Through advocacy, public campaigns, collaboration with policymakers and the media, and the publication of independent assessments, NGOs can increase stakeholder awareness and exert pressure on firms to improve both sustainability disclosure and actual ESG performance ([Li et al. 2021](#); [Sisaye 2021](#)). Companies that engage stakeholders more effectively tend to produce more material and higher-quality ESG disclosures ([Henriques et al. 2022](#); [Torelli et al. 2020](#); [Xu et al. 2024](#)).

Stakeholder theory helps explain why ESG disclosure varies considerably across companies and industries because firms face different levels of stakeholder pressure and expectations. Stakeholder pressure, particularly from shareholders, contributes to variations in sustainability reporting quality ([Steelyana and Raharjo 2024](#)). Stakeholder pressure may also encourage firms to strategically manage ESG communication, particularly when maintaining legitimacy becomes critical. Thus, stakeholder-oriented disclosure does not always guarantee

substantive sustainability improvements and requires evaluation of the consistency between disclosure practices and actual ESG outcomes ([Nasih et al. 2024](#); [Xu et al. 2023](#)). Firms operating in sectors with substantial social and environmental impacts, mining being a prime example, face heightened stakeholder pressure demanding enhanced transparency and accountability ([Zharfpeykan 2021](#)). [Meutia et al. \(2022\)](#) found that companies employ materiality analysis in sustainability reporting to pinpoint issues most relevant to stakeholders, though the quality of such analyses remains inconsistent.

However, stakeholder theory acknowledges that firms may strategically deploy ESG disclosure to manage specific stakeholder perceptions, potentially leading to greenwashing practices ([Ordóñez et al. 2021](#)). [Xu et al. \(2024\)](#) documented a disconnect between stakeholder needs and actual reporting practices among Chinese companies, suggesting ESG disclosure often represents strategic responses to government policy priorities rather than genuine efforts to meet stakeholder requirements. Stakeholder theory thus offers a comprehensive framework for understanding ESG disclosure motivations and patterns, highlighting both the importance of managing diverse stakeholder relationships and the potential for greenwashing practices to emerge.

ESG disclosure involves reporting non-financial information covering corporate performance across environmental, social, and governance dimensions. The ESG concept has evolved from earlier Corporate Social Responsibility (CSR) practices into a more structured, measurable framework for assessing corporate sustainability and responsibility ([Bao et al. 2024](#); [Hu et al. 2024](#)). Within the mining industry context, ESG encompasses critical aspects including emissions management, water and waste handling, community relations, and board control structures. Literature indicates that ESG reporting has shifted from ad hoc CSR narratives toward formal sustainability reports

and standardized reporting adoption, with growing emphasis on materiality, verification, and linkages to Sustainable Development Goals (SDGs) in mining company disclosures ([Hu et al. 2024](#)). The mining sector possesses unique characteristics shaping material ESG priorities for extractive companies. Research identifies high-impact domains spanning environmental, social, and governance areas ([Woźniak et al. 2022](#); [Zharfpeykan 2021](#)).

Mining companies face significant pressure from various stakeholders to improve ESG performance and transparency due to their substantial operational impacts on the environment and communities. ESG importance in this sector stems from several factors, including operational risks, reputation concerns, and capital access. Environmental or social incidents can trigger significant financial losses, regulatory penalties, and reputational damage ([Ivic et al. 2021](#); [Zharfpeykan 2021](#)).

ESG Disclosure in the Mining Sector

[Zharfpeykan \(2021\)](#) conducted a comparative analysis of voluntary sustainability reporting in Australia's mining/metals and financial services industries from 2011 through 2019. His study found that mining/metals companies leaned toward representative disclosure, revealing more environmental aspects, including unfavorable indicators and violation-related information. Conversely, financial services firms only excelled in neutral social indicators, tending toward greenwashing. Following the 2016 GRI materiality principle clarification, financial services disclosure quality declined while mining/metals remained unchanged.

[Talbot and Barbat \(2020\)](#) assessed water disclosure credibility in mining through qualitative content analysis of 58 sustainability reports based on GRI (G4). The research discovered that mining companies frequently disclose information inconsistent with GRI guidelines, and external verification fails to enhance disclosed water performance data

quality. The study also identified corporate use of neutralization and obfuscation techniques to justify negative water-related information.

In addition, [Amoako et al. \(2017\)](#) analyzed sustainability reporting on the websites of five plants operated by Newmont Mining Corporation across five continents. The research found that sustainability reporting consisted primarily of narratives, with limited physical measures and minimal financial information. Although all five plants employed similar headings, content varied, with reports from Australia, South America, and Africa proving more comprehensive than those from Asia and North America. This variation was linked to the institutionalization of location-specific characteristics, including managerial discretion, legislation, and community pressure.

ESG Disclosure and Greenwashing Risk

Through content analysis of mining sector sustainability reports, [Leonhardt & Guertler \(2025\)](#) uncovered patterns of corporate greenwashing, revealing various ways companies mislead both shareholders and stakeholders regarding their environmental performance through disclosure practices that echo earlier greenwashing controversies. A notable finding was the persistent lack of clarity and transparency throughout these reports. This concern was further substantiated by [Brito et al. \(2022\)](#) examined socio-environmental reports from Brazilian mining companies to pinpoint greenwashing vulnerabilities, with evidence emerging that corporate socio-environmental reports (RCS) can serve as vehicles for greenwashing. The study's conclusion pointed to a troubling reality: independent verification processes demonstrate limited effectiveness in curbing such practices. In addition, [Ignatov and Rudolf \(2023\)](#) analyzed over 11,000 US company 10-K reports from 2013 to 2018, employing MSCI ESG performance scores. His study discovered empirical evidence supporting signaling theory for voluntary ESG disclosure across most industries. However, mining

companies that are not environmentally friendly showed excessive environmental reporting, which was done to improve their public image and mitigate risk.

Disclosure Quality and Reporting Standards

The relationship between materiality assessment and stakeholder engagement was examined by [Torelli et al. \(2020\)](#) through content analysis of sustainability reports. Their statistical analysis highlighted the significance of industry context, GRI Standards application, and stakeholder engagement in the reporting process, proving essential for achieving high levels of materiality application and high-quality report for stakeholders. Building on this, [Henriques et al. \(2022\)](#) assessed sustainability reporting quality and stakeholder engagement in the Iberian paper sector, finding that companies more diligent in following GRI/IIRC standards and more engaged with stakeholders demonstrated higher materiality levels, indicating better quality non-financial reports. Portuguese companies tended to implement GRI guidelines and engage stakeholders more directly, resulting in higher quality non-financial disclosure compared to Spanish companies. Further contributing to this line of inquiry, [Friske et al. \(2024\)](#) analyzed sustainability reporting standards and GRI compliance ratings, providing insights into variations in GRI standards implementation and their implications for sustainability reporting quality.

METHOD

A qualitative descriptive approach through case study methodology forms the foundation of this research. Qualitative methods were chosen for their suitability in exploring complex phenomena within real-world settings, especially when seeking to understand how and why ESG disclosure occurs ([Yin 2018](#)). Case study methodology enables in-depth analysis of a single unit of analysis, PT ABC, across a defined time frame (2022-2024), focusing on a comprehensive understanding of ESG

disclosure dynamics and possible greenwashing practices.

This research employs a longitudinal design to examine how ESG disclosure evolved over three years and to detect patterns, trends, and shifts in corporate sustainability reporting. Such a longitudinal perspective matters for grasping how corporate transformation affects ESG disclosure and for evaluating whether sustainability claims align with actual performance through time.

Research Object

PT ABC, formerly known as PT XYZ, serves as the research object. This company was selected based on several considerations. First, PT ABC is one of the largest coal producers in Southeast Asia, with annual production in the tens of millions of tons. This makes it a relevant case for analysing ESG disclosure and potential greenwashing as a major player in the industry with a significant environmental impact.

Second, the company underwent a corporate identity transformation in 2024, changing its name from PT XYZ to PT ABC as part of a rebranding strategy emphasizing commitment to sustainability and business diversification. The company needs ESG disclosure, as one of the requirements to get foreign funding by issuing bonds to add working capital. It provides an interesting context for analyzing how ESG disclosure is used as a legitimate tool.

Third, PT ABC provides an analytically relevant case because the company has announced a Net Zero Emissions commitment while undertaking a strategic transformation from a predominantly thermal coal-based business toward a more diversified portfolio comprising metallurgical coal, mineral processing, and renewable energy. The coexistence of an explicit sustainability commitment, a major corporate restructuring, and continuing exposure to coal-related activities provides an appropriate setting for

examining whether substantive operational and financial changes support the company's transition narrative. Coal production and coal-derived revenue are therefore relevant for assessing the persistence of carbon-intensive business dependence and the pace of portfolio transformation. However, they are not used as standalone measures of Net Zero achievement. The credibility of the Net Zero commitment is assessed more comprehensively through changes in absolute GHG emissions and the alignment of capital expenditure with renewable energy and other low-carbon activities.

Fourth, the company consistently publishes comprehensive Sustainability Reports and Annual Reports, providing adequate data for longitudinal content analysis. Finally, as a publicly listed company on the Indonesia Stock Exchange, this case is relevant for understanding ESG disclosure practices within the context of Indonesian regulations and stakeholder expectations.

Data Collection

This research utilizes secondary data sourced from the company's public documents, namely Sustainability Reports (SR) and Annual Reports (AR) from 2022 to 2024. Sustainability Reports and Annual Reports were selected as primary data sources because they represent official documents published by the company to communicate performance and strategy to stakeholders. Sustainability Reports specifically provide detailed information about ESG disclosure, while Annual Reports provide information about financial and operational performance that can be used to assess consistency with sustainability claims. In addition, this research also employs supporting data from press releases and official company announcements, relevant regulations (OJK regulations, IDX policies), news and media articles about the company, and sustainability reporting standards (GRI Standards, TCFD).

The data collection method in this research is content analysis of the identified

documents. Content analysis represents a systematic research method for analyzing written communication content to identify patterns, themes, and meanings in text ([Krippendorff 2018](#)). Some studies have used content analysis to explore ESG disclosure and greenwashing identification ([Leonhardt and Guertler 2025](#); [Talbot and Barbat 2020](#); [Zharfpeykan 2021](#)).

ESG Disclosure Framework

Qualitative content analysis was conducted to identify and categorize ESG disclosures based on the dimensions of E (Environmental), S (Social), and G (Governance). The analytical framework was developed based on GRI Standards and current literature on ESG disclosure in the mining sector. The Environmental (E) dimension encompasses greenhouse gas emissions (Scope 1, 2, 3), energy consumption and energy intensity, water use and wastewater management, waste management (hazardous and non-hazardous), biodiversity conservation, land reclamation and rehabilitation, and climate change mitigation and adaptation efforts.

The Social (S) dimension covers employment practices (number of employees, diversity, turnover), occupational health and safety (OHS), employee training and development, community development, human rights, and industrial relations. The Governance (G) dimension includes corporate governance structure, board composition and independence, risk management systems, business ethics and anti-corruption, regulatory compliance, and transparency and accountability.

For each sub-dimension, ESG disclosure was identified by the presence of disclosure (disclosed/not disclosed), type of disclosure (narrative, quantitative, or combination), level of disclosure detail (general, specific, highly detailed), presence of targets and commitments, and presence of actual performance data.

Disclosure Quality Assessment

ESG disclosure quality was assessed based on criteria adapted from [Zharfpeykan \(2021\)](#) and [Khatri and Kjærland \(2023\)](#). A Completeness Score was calculated, which is defined as the percentage of disclosed ESG sub-dimensions, expressed as a proportion of the total relevant sub-dimensions. ESG disclosure quality is measured using the following method:

1. Disclosure Level

Level of disclosure for each item, categorized as: Level 0: No disclosure; Level 1: General narrative disclosure; Level 2: Specific narrative disclosure; Level 3: Quantitative disclosure without methodological details; Level 4: Quantitative disclosure with methodological details and verification.

2. Disclosure Balance Assessment

Disclosure balance was assessed through manual content analysis by classifying ESG disclosure units into positive, neutral, and negative categories ([Einwiller and Carroll 2020](#); [Hahn and Lülfs 2014](#); [Zharfpeykan 2021](#)). These categories refer to the substantive orientation of the disclosed information rather than its linguistic sentiment ([Kang and Kim 2022](#)). A sentence was used as the primary coding unit, while the surrounding paragraph was considered when additional context was required. A disclosure was classified as “positive” when it reported achievements, improvements, target attainment, awards, or favorable ESG outcomes. A disclosure was classified as “neutral” when it described policies, governance structures, methodologies, programs, commitments, or future targets without indicating a favorable or unfavorable performance outcome. A disclosure was classified as “negative” when it reported adverse impacts, incidents, regulatory violations, sanctions, deteriorating performance, missed targets,

operational failures, or unresolved challenges.

Disclosure balance was interpreted descriptively based on the relative distribution of these categories. A report was considered more balanced when it disclosed material adverse impacts, setbacks, failures, and unmet targets alongside favorable achievements. Balance did not require an equal proportion of positive and negative information because the occurrence and materiality of positive and negative events may differ across reporting periods ([Einwiller and Carroll 2020](#); [Hahn and Lülfs 2014](#)).

3. Consistency Score

Consistency of methodology and reporting format across periods. The transition received a consistency score when sufficient explanations or cross-references were provided to support comparison across reporting periods. Unexplained changes in measurement methods, reporting scope, or boundaries were assessed separately as inconsistencies.

Identification of Greenwashing Indicators

Greenwashing indicators were identified based on a framework developed from the literature ([Brito et al. 2022](#); [Leonhardt & Guertler 2025](#); [Talbot & Barbat 2020](#)).

1. Indicator of Selective Disclosure: Excessive emphasis on positive information, minimization or omission of negative information, and imbalance in ESG dimension disclosure.
2. Indicator of Vague Claims: Use of ambiguous and non-specific sustainability claims, lack of operational definitions for sustainability terms, and use of jargon without a concrete explanation.
3. Indicator of Lack of Evidence: Claims not supported by quantitative data, absence of measurable targets or timelines, and no

- clear monitoring and evaluation mechanisms.
4. Indicator of Inconsistency: Inconsistency between sustainability narratives and operational data, inconsistency between commitments and resource allocation, and inconsistency across reporting periods.
5. Indicator of Obfuscation: Use of techniques to hide or obscure negative information, presentation of complex data without adequate context, and use of misleading visualizations.

Claims versus Actual Performance

This analysis was conducted by comparing sustainability claims presented in Sustainability Reports with actual performance data reported in Annual Reports. The focus of analysis includes:

1. Net Zero Emissions Commitment versus Coal Production
Analysis of coal production trends (volume, revenue contribution); Analysis of greenhouse gas (GHG) emission trends; and Analysis of investment in low-carbon technology vs. coal expansion.
2. Non-Coal Business Transformation versus Operational Reality
Analysis of business portfolio (coal vs. non-coal); Analysis of capital expenditure allocation; and Analysis of revenue and profit contribution from each business segment.

3. Environmental Claims versus Environmental Performance Data
Analysis of energy and water consumption trends; Analysis of waste production trends; and Analysis of achievement of established environmental targets.

RESULTS

Table 1 demonstrates consistent improvement in completeness scores across all ESG dimensions from 2022 to 2024. The Environmental dimension shows the largest increase (+13%), reflecting the company's focus on environmental disclosure within the context of transformation and Net Zero Emissions commitment. The Governance dimension maintains the highest completeness score throughout all years, indicating that governance disclosure has reached relative maturity. Overall ESG completeness score rose from 74% in 2022 to 83% in 2024, demonstrating significant expansion in disclosure coverage. However, increased disclosure coverage should not automatically be interpreted as evidence of improved sustainability performance. Previous research indicates that firms may increase ESG disclosure intensity as a response to stakeholder expectations while maintaining gaps between reporting narratives and substantive changes in business practices (Xu et al. 2023; Nasih et al. 2024; Lagasio 2024).

Table 1. Development of ESG Disclosure Completeness Score

Dimension	2022	2023	2024	Change 2022-2024
Env.	72%	78%	85%	+13%
Social	68%	71%	76%	+8%
Gov.	81%	83%	87%	+6%
Overall	74%	77%	83%	+9%

Sources: data processed

Table 2. Average Disclosure Level per ESG Dimension

Dimension	2022	2023	2024	Change 2022-2024
Env.	2.8	3.1	3.4	+0.6
Social	2.6	2.8	3.0	+0.4
Gov.	3.2	3.3	3.5	+0.3
Overall ESG	2.9	3.1	3.3	+0.4

Note: Disclosure Level: 0 = No disclosure; 1 = General narrative; 2 = Specific narrative; 3 = Quantitative without methodological details; 4 = Quantitative with methodological details and verification.

Table 2 reveals an improvement in average disclosure levels across all ESG dimensions. Overall ESG disclosure level increased from 2.9 in 2022 to 3.3 in 2024, indicating a shift from predominantly narrative disclosure toward more quantitative disclosure. However, the average disclosure level remains below 4, suggesting that many disclosures still lack adequate methodological details and independent verification.

Table 3 presents the distribution of positive, neutral, and negative ESG disclosures. These categories represent the substantive orientation of the disclosed information rather than linguistic sentiment. Positive disclosures decreased from 68% in 2022 to 62% in 2024, while neutral disclosures increased from 28% to 32% and negative disclosures increased from 4% to 6%. This pattern indicates a modest improvement toward more balanced reporting, as the dominance of favorable information declined and the disclosure of neutral and adverse information increased. Nevertheless, the reports still exhibit a degree of disclosure imbalance and a potential risk of selective reporting, although this was not treated as conclusive evidence of greenwashing.

Analysis of Methodology Consistency

Analysis of reporting methodology consistency across periods shows mixed results:

1. Consistent: Measurement methodologies for Greenhouse Gases (GHG) emissions, energy and water consumption, and Occupational Health and Safety Services

(OHS) indicators remained relatively consistent across periods, facilitating temporal comparability.

2. Inconsistent: Several indicators experienced methodological or scope changes without adequate explanation, complicating comparability. For instance, Scope 3 emissions coverage was newly disclosed in 2024, with no historical data for prior years.
3. Standard Changes: The transition from GRI G4 to the GRI Standards applied in 2023 was not classified as a reporting inconsistency because it resulted from changes in the GRI reporting framework rather than an arbitrary methodological change by the company. The company adjusted its reporting practices to comply with the prevailing GRI requirements while continuing to use the same GRI-based reporting framework. Although the transition affected the numbering, terminology, structure, and presentation of certain indicators, the fundamental environmental, social, and governance disclosure categories remained broadly comparable. Therefore, this transition was treated as a legitimate standards-based adjustment and received a consistency score when the reports provided sufficient explanations, cross-references, or information that enabled comparison with previous reporting periods.

Table 3. Disclosure Balance Assessment

Information Type	2022	2023	2024
Positive	68%	65%	62%
Neutral	28%	30%	32%
Negative	4%	5%	6%
Overall	100%	100%	100%

Sources: data processed

Analysis of Claims versus Actual Performance Consistency

Analysis of consistency between sustainability claims presented in Sustainability Reports and actual performance reported in Annual Reports and operational data reveals several significant contradictions.

Net Zero Emissions Commitment versus Coal Production

The company consistently emphasizes its commitment to Net Zero Emissions with a target achievement year of 2050. In 2024, following corporate identity transformation, the Net Zero narrative became more prominent, with disclosure of a transition roadmap that includes interim emission reduction targets: 30% by 2030, 60% by 2040 (from 2020 baseline). Investment in renewable energy and low-carbon technology, carbon offsetting programs through reforestation and conservation, and Exploration of Carbon Capture and Storage (CCS) technology.

Table 4 demonstrates that the company's transition should be evaluated by considering operational dependence, emissions performance, and capital allocation together. Coal production increased from 52.5 million tons

in 2022 to 54.8 million tons in 2024, while coal continued to account for most of the company's revenue, despite its contribution declining from 87% to 82%. These results indicate that coal-related activities remained operationally significant during the observation period. Given the company's stated transformation away from thermal coal, the production and revenue data are relevant for assessing the scale of existing coal dependence and the pace of business portfolio transformation.

More importantly, absolute GHG emissions increased from 3.8 million tons CO₂e in 2022 to 4.0 million tons CO₂e in 2024. Unlike coal production, which primarily reflects operational dependence, the increase in absolute emissions provides more direct evidence that measurable progress toward emissions reduction had not yet occurred during the observation period. Although capital expenditure allocated to New Energy and Infrastructure increased from 10% to 16%, the majority of capital expenditure remained associated with coal-related mining, logistics, and power activities.

Table 4. Coal Production and Revenue Contribution

Indicator	2022	2023	2024	Change 2022-2024
Coal Production (million tons)	52.5	55.2	54.8	+2.3
Revenue from Coal (Trillion Rp)	78.3	82.1	79.5	+1.2
% Revenue from Coal	87%	85%	82%	-5.0
Total GHG Emissions (million tons CO₂e)	3.8	4.1	4.0	+0.2

Sources: data processed

Table 5. Capital Expenditure Allocation

Investment Category	2022	2023	2024	Average
Mining & Logistics (Coal)	72%	68%	65%	68%
Power (Coal-fired Power Plants)	18%	20%	19%	19%
New Energy & Infrastructure	10%	12%	16%	13%

Taken together, these findings indicate a gap between the pace of the company's stated transition and its measurable operational, emissions, and investment outcomes. Continued coal production alone does not invalidate the company's long-term Net Zero commitment. However, its combination with increasing absolute GHG emissions and the continued concentration of capital expenditure in carbon-intensive activities indicates that the transition had not yet progressed at a scale comparable to the prominence of the company's Net Zero and green-transformation narratives. Because the separation of the thermal coal business occurred in 2024, these findings are interpreted as evidence of limited progress during the observation period rather than as proof that the long-term transition commitment will not be achieved.

Table 5 shows that although capital expenditure allocation for New Energy & Infrastructure increased from 10% in 2022 to 16% in 2024, the majority of investment (average 87%) remains allocated to coal business (mining & logistics, and coal-fired power plants). Investment in renewable energy, despite increasing, remains relatively small and does not yet reflect substantive transformation toward non-coal business.

Analysis of Consistency between NZE Claims and Operational Reality

- Significant inconsistencies exist between Net Zero Emissions (NZE) claims and operational reality:
1. Fundamental contradiction: The Net Zero Emissions commitment is difficult to

reconcile with increased coal production and coal's dominance in business structure and investment.

2. Ambiguity in roadmap: The presented Net Zero Emissions (NZE) roadmap does not concretely explain how the company will drastically reduce emissions while maintaining high coal production. Reliance on CCS technology is still in exploratory stages, and carbon offsetting creates uncertainty about target achievement.
3. Extended timeline: The 2050 Net Zero target (26 years from now) provides enormous flexibility and reduces short-term accountability. The 2030 interim target (30% reduction) also appears unambitious given actual emission increases during 2022-2024.

Non-Coal Business Transformation versus Operational Reality

The 2024 corporate identity transformation was accompanied by strong narratives about business transformation toward a more diverse and sustainable portfolio. The company emphasizes:

1. Diversification into renewable energy business (hydro, solar).
2. Expansion into critical minerals for energy transition (nickel, copper).
3. Development of energy transition supporting infrastructure.
4. Vision to become a "leading sustainable resources company".

Table 6. Profit Contribution per Business Segment

Business Segment	2022	2023	2024	Average
Mining (Coal)	82%	80%	78%	80%
Power (Coal-fired Power Plants)	12%	13%	14%	13%
New Energy & Infrastructure	6%	7%	8%	7%

Table 6 shows that profit contribution from the New Energy & Infrastructure segment remains very small (7% average), while the Mining (coal) segment still dominates with an 80% average profit contribution. Despite marginal increases in New Energy & Infrastructure contribution, this change is highly gradual and does not yet reflect substantive transformation.

Renewable Energy Project Status

Detailed analysis of disclosed renewable energy projects shows:

1. Hydro Projects: Several hydropower projects under development, with a planned total capacity of around 500 MW. However, most projects remain in the feasibility study or early construction stages, contributing minimal revenue.
2. Solar Projects: Several small-scale solar farm projects (total capacity < 100 MW), with immaterial revenue contribution.
3. Critical Minerals: Exploration and investment in critical minerals (nickel, copper) remain in very early stages, with no significant revenue contribution yet.

A significant gap exists between non-coal business transformation narratives and operational reality:

1. Persistent coal dominance: Coal still dominates the company's business structure, revenue, profit, and investment. Transformation toward non-coal business remains in very early stages and is not yet material.
2. Narrative preceding reality: Corporate identity transformation and narratives about becoming a "sustainable resources company" appear to precede substantive

transformation in the business portfolio. Fundamental changes in business structure do not accompany name and branding changes.

3. Unclear transformation timeline: The company provides no clear timeline for when the non-coal business will become a significant or even dominant portfolio contributor. Without concrete timelines and milestones, transformation narratives become difficult to verify and hold accountable.

Environmental Claims versus Environmental Performance Data

Analysis of consistency between environmental claims and environmental performance data reveals mixed results. Several environmental claims are supported by the reported performance data, including:

1. Land reclamation: Claims about progressive reclamation are supported by quantitative data on reclaimed area annually, with achievements meeting or exceeding targets.
2. Biodiversity conservation: Disclosed conservation programs are supported by data on protected species numbers, conservation areas, and partnerships with conservation organizations.
3. Operational efficiency: Efficiency improvement claims are supported by data showing decreased energy and water consumption intensity per ton of production.

However, several environmental claims show inconsistencies or remain ambiguous when compared with the reported performance data, including:

1. Emission reduction: Claims about emission reduction efforts are inconsistent with data showing increased total absolute emissions. Focus on emission intensity (per ton of production) can be misleading as it ignores production volume increases.
2. Water quality: Claims about responsible water management are not accompanied by comprehensive water quality data, particularly for water discharged into the environment. Disclosure focuses on consumption volume, not on quality and impacts on aquatic ecosystems.
3. Cumulative impacts: Disclosure tends to focus on mitigation efforts and positive programs while ignoring or minimizing discussion of long-term cumulative impacts of mining activities on ecosystems and communities.
3. Minimal disclosure of violations: Disclosure about regulatory violations and sanctions received is very minimal, despite the mining industry generally facing various compliance issues.
4. Imbalance in ESG dimension disclosure: Environmental and Social dimension disclosures emphasize programs and initiatives more, while disclosure about negative impacts and trade-offs remains very limited.

Indicator 2: Vague Claims

Findings:

1. Undefined "sustainable resources company" claim: Transformation into a "sustainable resources company" lacks a clear operational definition of what "sustainable" means in the context of a company still dominated by coal.
2. Net Zero commitment without a concrete roadmap: Although the company announced a Net Zero 2050 commitment, the presented roadmap remains very general and does not concretely explain how targets will be achieved, particularly in the context of continuing high coal production.
3. Business transformation claims without timeline: Narratives about transformation toward non-coal business lack clear timelines, measurable milestones, or targets for non-coal business proportion in the portfolio.
4. Use of jargon without explanation: Terms like "circular economy", "nature-based solutions", and "just transition" are used without concrete explanation of how these concepts are implemented in the company's operational context.

Indicator 3: Lack of Evidence

Findings:

1. Claims without adequate quantitative data: Some sustainability effort claims lack

Identification of Greenwashing Indicators

Based on the developed framework and consistency analysis above, this research identifies several greenwashing indicators in PT ABC's ESG disclosure.

Indicator 1: Selective Disclosure

Findings:

1. Excessive emphasis on positive information: Balance score analysis shows that 62% of disclosure comprises positive information, while only 6% represents negative information. The company tends to emphasize achievements, programs, and positive initiatives while minimizing discussion of challenges, failures, or negative impacts.
2. Focus on intensity, not absolute values: Emission and resource consumption disclosures tend to emphasize intensity reductions (per ton of production) while ignoring or minimizing discussion of absolute value increases caused by production volume growth.

adequate quantitative data support. For instance, claims about "significant investment in renewable energy" are not accompanied by specific investment figures or comparisons with coal investments.

2. Targets without baseline and methodology: Several stated targets lack clear baselines and transparent measurement methodologies, complicating verification and progress monitoring.
3. Lack of independent verification: Although some ESG performance data receive independent verification, many claims and data remain unverified, reducing disclosure credibility.
4. No clear monitoring and evaluation mechanisms: For many disclosed programs and initiatives, no explanation exists about monitoring and evaluation mechanisms used to assess effectiveness and impact.

Indicator 4: Inconsistency

Findings:

1. Inconsistency between narrative and operational data: The most significant inconsistency lies between Net Zero Emissions narratives and non-coal business transformation claims versus operational data showing increased coal production and coal dominance in business structure.
2. Inconsistency between commitments and resource allocation: Despite emphasizing renewable energy commitment, capital expenditure allocation for New Energy & Infrastructure remains very small (13% average) compared to coal investment (87% average).
3. Inconsistency in reporting methodology: Several indicators experienced methodological or scope changes across periods without adequate explanation,

complicating comparability and creating impressions that changes were made to present performance in a more positive light.

4. Inconsistency between Sustainability Report and Annual Report: Some data inconsistencies exist between the Sustainability Report and Annual Reports, particularly regarding financial data for sustainability programs.

Indicator 5: Obfuscation

Findings:

1. Complexity in emission data presentation: Scope 3 emission disclosure in 2024, while representing increased transparency, can also function as obfuscation by diverting attention from Scope 1 and 2 emissions more directly related to company operations. By including emissions from customer coal combustion (reaching >90% of total lifecycle emissions), the company can argue that emissions from their direct operations are relatively small.
2. Use of selective visualization: Graphs and visualizations in Sustainability Reports tend to emphasize positive trends (e.g., emission intensity reductions) while minimizing visualization of negative trends (e.g., absolute emission increases).
3. Data presentation without adequate context: Some performance data are presented without adequate context for interpretation. For example, community development program investment data are presented without comparison to company revenue or profit, complicating the assessment of investment materiality.
4. Use of ambiguous language: Ambiguous or hedging language in conveying commitments and targets, such as "striving to", "committed to exploring", "in the long term", reduces accountability.

Table 7. Summary of Greenwashing Indicator Identification

Greenwashing Indicator	Presence Level	Main Examples
Selective Disclosure	High	Focus on intensity vs. absolute values; violation minimization
	High	"Sustainable resources company" without a definition; Net Zero without a concrete roadmap
Lack of Evidence	Moderate	Investment claims without specific figures; targets without clear baseline
Inconsistency	High	Net Zero Emission narrative vs. coal production increase; commitment vs. investment allocation
Obfuscation	Moderate	Complexity in the Scope 3 emission presentation; selective visualization

Sources: data processed

Table 7 shows that the analysis identifies five potential greenwashing indicators in the company's ESG disclosures, namely selective disclosure, vague claims, lack of evidence, inconsistency, and obfuscation. Selective disclosure and vague claims are classified as high-level indicators, reflecting the company's tendency to emphasize positive sustainability achievements while providing limited discussion of unfavorable performance aspects. For example, the company highlights improvements in emission intensity while placing less emphasis on absolute emission trends. It presents broad sustainability commitments, such as becoming a "sustainable resources company" and achieving Net Zero Emissions, without sufficiently detailed roadmaps, measurable milestones, or transition pathways. Meanwhile, lack of evidence is identified as a moderate-level indicator because some sustainability claims, particularly related to investments and future targets, are not consistently supported by quantitative information, baseline measurements, or verification mechanisms.

Inconsistency is identified as a high-level indicator due to the gap between sustainability narratives and operational performance, particularly regarding the Net Zero Emissions commitment, continued coal-related

activities, increasing absolute GHG emissions, and capital allocation that remains dominated by carbon-intensive operations. Obfuscation is classified as a moderate-level indicator, mainly related to the complexity and selective presentation of ESG information, which may limit stakeholders' ability to assess material sustainability impacts. Overall, the findings indicate that increased ESG disclosure scope and completeness do not necessarily guarantee the credibility and integrity of disclosures. Greenwashing risk may emerge when sustainability narratives are not adequately supported by transparent evidence, measurable performance outcomes, and alignment between corporate commitments and actual practices.

The present study reveals that PT ABC's ESG disclosure completeness score improved from 74% in 2022 to 83% in 2024, with the Environmental dimension demonstrating the most substantial advancement (+13%). This observation aligns with [Henriques et al. \(2022\)](#) who documented that organizations exercising greater rigor in adhering to GRI standards and engaging more extensively with stakeholders exhibit elevated materiality levels, as well as [Torelli et al. \(2020\)](#), who emphasized the critical role of GRI Standards application in achieving superior reporting quality. Nevertheless, the current investigation reveals that despite rising

completeness scores, the average disclosure level remained below 4 (reaching only 3.3 in 2024), suggesting that numerous disclosures continue to lack methodological detail and independent verification. This finding introduces an important qualification to the work of [Torelli et al. \(2020\)](#) and [Henriques et al. \(2022\)](#), who stressed the positive relationship between GRI adoption and disclosure quality, by demonstrating that GRI Standards. While enhancing completeness, prove insufficient for preventing greenwashing or ensuring disclosure integrity. The research uncovers that GRI compliance can coexist alongside systematic greenwashing indicators, thereby exposing limitations within current standards that prioritize comprehensiveness without furnishing adequate guidance for maintaining consistency between forward-looking commitments and actual operational performance.

The study's findings regarding imbalance in balance assessment, wherein positive information dominated (62% in 2024) while negative information constituted merely 6%, receive strong support from [Zharfpeykan \(2021\)](#), who analyzed voluntary sustainability reports in Australia's mining and metals industry and identified identical patterns of selective disclosure, alongside [Leonhardt and Guertler \(2025\)](#), who recognized selective disclosure as a prominent greenwashing indicator within the extractive sector. These results further corroborate [Ignatov and Rudolf \(2023\)](#) concept of "sentimental sustainability" and [Cho et al. \(2015\)](#) notion of "organized hypocrisy," whereby fundamental contradictions emerge between Net Zero Emissions (NZE) commitments and operational realities: coal production increased by 2.3% and GHG emissions rose by 0.2% between 2022 and 2024. However, this investigation offers a distinctive contribution by identifying that greenwashing indicators intensified precisely during the corporate transformation period (2024), when the company transitioned its identity from XYZ to ABC, an insight that introduces fresh perspectives to

existing literature, which typically concentrates on static analyses without examining temporal dynamics throughout transformational phases. These findings suggest that corporate identity transformation and rebranding may create greater opportunities for symbolic sustainability communication, potentially increasing greenwashing risks when such narratives are not supported by substantive performance improvements. This extends the understanding of "identity façades" by illustrating how rebranding may operate as a symbolic mechanism for shaping corporate legitimacy. Corporate reputation and legitimacy are increasingly influenced by how companies communicate sustainability commitments through ESG disclosures, which serve as an important mechanism for responding to stakeholder expectations ([Xu et al. 2023](#); [Lagasio 2024](#); [Nasih et al. 2024](#)).

Research outcomes concerning power dynamics in stakeholder management, wherein the Governance dimension exhibited the highest completeness scores (81-87%) while the Social dimension remained relatively lower (68-76%), find support in [Mitchell et al. \(1997\)](#), who developed the stakeholder salience framework, and [Freeman \(2015\)](#), who established that stakeholders controlling critical resources exert greater influence over organizational decisions. The finding that capital expenditure allocation patterns mirror stakeholder power dynamics (87% directed toward coal operations versus 13% toward new energy) also demonstrates consistency with [Deegan & Blomquist \(2006\)](#), who observed that corporations within extractive industries tend to prioritize disclosures addressing powerful stakeholders. Nonetheless, this research furnishes more specific empirical evidence for differential prioritization across ESG dimensions based on stakeholder salience. This contribution adds precision to [Mitchell et al. \(1997\)](#) general propositions by demonstrating concrete mechanisms through which power dynamics materialize in corporate disclosure practices. Furthermore, findings regarding

strategic ambiguity, attempting to simultaneously accommodate conflicting stakeholder groups through vague Net Zero Emissions commitments, provide significant qualification to [Hahn and Lülfs \(2014\)](#) who characterized strategic ambiguity as a viable approach. The present study indicates this strategy may yield diminishing returns as stakeholder analytical capacity expands, suggesting that the effectiveness of impression management strategies may be declining in the digital era, where sophisticated stakeholders (institutional investors, ESG rating agencies, environmental NGOs) possess increasing capability to detect inconsistencies.

According to the findings of [Cho et al. \(2015\)](#) regarding "obfuscation through complexity," particularly concerning Scope 3 emissions disclosure that proves both intricate and potentially misleading, alongside [Talbot and Barbat 2020](#)), who identified patterns of claims lacking adequate supporting evidence in the mining sector. However, this study contributes novel insights by identifying the temporal dimension of stakeholder accountability as a critical factor that has received limited attention in existing scholarship, demonstrating that extended timelines for Net Zero Emissions achievement (2050) effectively dilute near-term accountability, thereby creating an accountability vacuum, particularly problematic for stakeholders with urgent claims. This finding introduces an important temporal dimension to stakeholder theory, which traditionally focuses on contemporary stakeholder relationships without fully addressing intertemporal aspects of corporate responsibility. Moreover, the research provides evidence that greenwashing practices within emerging market contexts (Indonesia) exhibit both similarities and important differences compared to patterns identified in developed markets, with the interaction between regulatory environments and greenwashing practices revealing nuances not fully captured in existing literature, particularly concerning enforcement

mechanisms and verification requirements that may prove insufficient in emerging markets with developing regulatory capacity, as [Manes-Rossi et al. \(2018\)](#) found that examined non-financial disclosure within European contexts characterized by relatively mature regulatory frameworks.

CONCLUSION

This investigation reveals a significant paradox within PT ABC's ESG disclosure practices throughout the 2022-2024 period, whereby quantitative expansion in disclosure (completeness score advancing from 74% to 83%) occurred without corresponding improvements in information quality and integrity. Through qualitative content analysis grounded in ESG frameworks and stakeholder theory perspectives, the research identifies five systematic greenwashing indicators: selective disclosure (high), vague claims (high), lack of evidence (moderate), inconsistency (high), and obfuscation (moderate). Critical findings demonstrate that although the company consistently emphasizes Net Zero Emissions commitments and transformation toward becoming a sustainable resources company, operational realities exhibit a contradictory trajectory: coal production increased by 2.3 million tons, GHG emissions rose by 0.2 million tons CO₂e, and 87% of capital expenditure remained allocated to coal operations.

Stakeholder theory analysis reveals that these disclosure patterns reflect impression management strategies prioritizing stakeholders with elevated salience (investors, regulators) through emphasis on the Governance dimension (completeness score 81-87%), whereas stakeholders possessing lower power (local communities) receive more limited and less balanced information, particularly within the social dimension (68-76%). The study contributes to existing scholarship by demonstrating that greenwashing can intensify during corporate transformation periods, that strategic ambiguity yields diminishing returns as

stakeholder sophistication advances, and that extended timelines for Net Zero achievement (2050) effectively dilute near-term accountability, a temporal aspect that has received insufficient attention in current literature.

Theoretically, these findings extend stakeholder theory by demonstrating that stakeholder salience influences not only the amount and orientation of ESG disclosure but also the consistency between sustainability narratives, operational performance, and resource allocation. This contribution is consistent with [Dhiba et al. \(2025\)](#) that ESG practices should not only be assessed through aggregate disclosure scores but also through specific dimensions reflecting transparency, credibility, and stakeholder relevance. The study also introduces a temporal dimension into stakeholder accountability by showing that long-term sustainability commitments may create an accountability gap when they are not supported by measurable interim targets and short-term performance indicators. Furthermore, the findings demonstrate that improved disclosure completeness and compliance with reporting frameworks do not necessarily indicate improved disclosure integrity, particularly when corporate narratives are not aligned with emissions performance and capital allocation.

Practically, the findings suggest that the company should support its Net Zero Emissions and business-transformation commitments with a transparent transition roadmap containing clear baselines, interim emission-reduction targets, annual milestones, and measurable indicators. The company should disclose absolute GHG emissions alongside emission intensity and provide transparent information concerning capital expenditure allocated to coal-related and renewable-energy activities. Regulators and the Indonesia Stock Exchange should evaluate not only the completeness of

ESG reporting but also the consistency between sustainability claims, operational performance, and financial resource allocation. Investors, creditors, ESG rating agencies, and civil-society organizations should likewise assess corporate sustainability claims by comparing Sustainability Reports with Annual Reports, emissions data, operational performance, and capital expenditure.

This research encompasses several limitations requiring consideration when interpreting results. First, the analysis focuses on a single case study of PT ABC across three years (2022-2024), necessitating caution when generalizing findings to other companies or industries, although this approach enables a deep understanding of temporal dynamics in greenwashing throughout corporate transformation. Second, the investigation relies on secondary data from published sustainability reports and annual reports without triangulation through primary data such as management or stakeholder interviews, which could provide richer insights into decision-making processes underlying disclosure practices. Third, greenwashing indicator assessment depends on qualitative content analysis that remains inherently subjective, despite employing systematic and transparent coding frameworks. Based on these limitations, future research should: (1) conduct comparative case studies across multiple mining companies within emerging market contexts to identify patterns and context-specific factors influencing greenwashing practices; (2) integrate mixed-methods approaches combining content analysis with in-depth interviews to comprehend organizational motivations and stakeholder perceptions more comprehensively; (3) develop quantitative greenwashing indices capable of measuring intensity and sophistication of greenwashing practices more objectively and comparably across firms.

REFERENCES:

- Amoako, Kwame Oduro, Beverley R. Lord, and Keith Dixon. 2017. "Insights from the Websites of Five Plants Operated by Newmont Mining Corporation." *Meditari Accountancy Research* 25 (2): 186–215. <https://doi.org/10.1108/MEDAR-02-2016-0020>.
- Bao, Xin, Baiqing Sun, Meini Han, Qiang Mai, and Han Lin. 2024. "Corporate Integrity Culture on Environmental, Social, and Governance (ESG) Performance." *Corporate Social Responsibility and Environmental Management* 31 (2): 1399–1417. <https://doi.org/10.1002/csr.2637>.
- Brito, Ana Carolina Ferreira De Melo, Sylmara Lopes Francelino Gonçalves Dias, and Elise Soerger Zaro. 2022. "Relatório Corporativo Socioambiental e Greenwashing: Análise de Uma Empresa Mineradora Brasileira." *Cadernos EBAPE.BR* 20 (2): 234–246. <https://doi.org/10.1590/1679-395120210057>.
- Ching, Hong Yuh, and Fábio Gerab. 2017. "Sustainability Reports in Brazil through the Lens of Signaling, Legitimacy and Stakeholder Theories." *Social Responsibility Journal* 13 (1): 95–110. <https://doi.org/10.1108/SRJ-10-2015-0147>.
- Cho, Charles H., Matias Laine, Robin W. Roberts, and Michelle Rodrigue. 2015. "Organized Hypocrisy, Organizational Façades, and Sustainability Reporting." *Accounting, Organizations and Society* 40: 78–94. <https://doi.org/10.1016/j.aos.2014.12.003>.
- Deegan, Craig, and Christopher Blomquist. 2006. "Stakeholder Influence on Corporate Reporting: An Exploration of the Interaction between WWF-Australia and the Australian Minerals Industry." *Accounting, Organizations and Society* 31 (4–5): 343–372. <https://doi.org/10.1016/j.aos.2005.04.001>.
- Dhiba, Sintia Farach, Dewi Izzatul Lailatil Muthohiroh, and Rizky Eriandani. 2025. "The Interplay Between Esg Controversies and Innovation on Firm Financial Performance: Evidence from Indonesia." *Jurnal Bisnis Dan Akuntansi* 27 (2): 233–244. <https://doi.org/10.34208/sbrz6d74>.
- Einwiller, Sabine A., and Craig E. Carroll. 2020. "Negative Disclosures in Corporate Social Responsibility Reporting." *Corporate Communications* 25 (2): 319–337. <https://doi.org/10.1108/CCIJ-05-2019-0054>.
- Fikru, Mahelet G., Jennifer Brodman, Li Li Eng, and J. Andrew Gant. 2024. "ESG Ratings in the Mining Industry: Factors and Implications." *The Extractive Industries and Society* 18: 101521. <https://doi.org/10.1016/j.exis.2024.101521>.
- Freeman, R. Edward. 2015. *Strategic Management: A Stakeholder Approach*. Strategic Management: A Stakeholder Approach. Cambridge University Press. <https://doi.org/10.1017/CBO9781139192675>.
- Friske, Wesley, Atanas Nik Nikolov, and Todd Morgan. 2024. "Making the Grade: An Analysis of Sustainability Reporting Standards and Global Reporting Initiative Adherence Ratings." *Corporate Social Responsibility and Environmental Management* 31 (3): 2098–2108. <https://doi.org/10.1002/csr.2686>.
- Frooman, Jeff. 1999. "Stakeholder Influence Strategies." *Academy of Management Review* 24 (2): 191–205.
- Hahn, Rüdiger, and Regina Lülfs. 2014. "Legitimizing Negative Aspects in GRI-Oriented Sustainability Reporting: A Qualitative Analysis of Corporate Disclosure Strategies." *Journal of Business Ethics* 123 (3): 401–420. <https://doi.org/10.1007/s10551-013-1801-4>.
- Henriques, Rita, Cristina Gaio, and Marisa Costa. 2022. "Sustainability Reporting Quality and Stakeholder Engagement Assessment: The Case of the Paper Sector at the Iberian Level." *Sustainability* 14 (21): 14404. <https://doi.org/10.3390/su142114404>.
- Hu, Peng, Xuming Li, Nian Li, Yiyang Wang, and Derek D. Wang. 2024. "Peeking into Corporate Greenwashing through the Readability of ESG Disclosures." *Sustainability* 16 (6): 2571. <https://doi.org/10.3390/su16062571>.
- Ignatov, Konstantin, and Markus Rudolf. 2023. "Sentimental Sustainability: Does What Companies Say Tell More Than What Companies Do?" *Financial Markets, Institutions and Instruments* 32 (4). <https://doi.org/10.1111/fmii.12181>.
- Ivic, Andela, Nina María Saviolidis, and Lara Johannsdottir. 2021. "Drivers of Sustainability Practices and Contributions to Sustainable Development Evident in Sustainability Reports of European Mining Companies." *Discover Sustainability* 2 (1): 221–252. <https://doi.org/10.1007/s43621-021-00025-y>.
- Kang, Hyewon, and Jinho Kim. 2022. "Analyzing and Visualizing Text Information in Corporate Sustainability Reports Using Natural Language Processing Methods." *Applied Sciences* 12 (11): 5614. <https://doi.org/10.3390/app12115614>.

- Khatri, Ishwar, and Frode Kjærland. 2023. "Sustainability Reporting Practices and Environmental Performance amongst Nordic Listed Firms." *Journal of Cleaner Production* 418: 138172. <https://doi.org/10.1016/j.jclepro.2023.138172>.
- Krippendorff, K. 2018. *Content Analysis: An Introduction to Its Methodology*. 4th ed. SAGE Publications.
- Lagasio, Valeria. 2024. "ESG-Washing Detection in Corporate Sustainability Reports." *International Review of Financial Analysis* 96: 103742. <https://doi.org/10.1016/j.irfa.2024.103742>.
- Leonhardt, Carina, and Katherine Guertler. 2025. "Unearthing Corporate Greenwashing: A Content Analysis of Sustainability Reporting in the Mining Sector." *Tripodos*, no. 57: 78-97. <https://doi.org/10.51698/tripodos.2025.57.06>.
- Li, Ting Ting, Kai Wang, Toshiyuki Sueyoshi, and Derek D. Wang. 2021. "ESG: Research Progress and Future Prospects." *Sustainability* 13 (21): 11663. <https://doi.org/10.3390/su132111663>.
- Macneil, Jennifer L., Michelle Adams, and Tony R. Walker. 2021. "Development of Framework for Improved Sustainability in the Canadian Port Sector." *Sustainability* 13 (21): 11980. <https://doi.org/10.3390/su132111980>.
- Manes-Rossi, Francesca, Adriana Tiron-Tudor, Giuseppe Nicolò, and Gianluca Zanellato. 2018. "Ensuring More Sustainable Reporting in Europe Using Non-Financial Disclosure-de Facto and de Jure Evidence." *Sustainability* 10 (4): 1162. <https://doi.org/10.3390/su10041162>.
- Meutia, Inten, Shelly F. Kartasari, and Zulnaidi Yaacob. 2022. "Stakeholder or Legitimacy Theory? The Rationale behind a Company's Materiality Analysis: Evidence from Indonesia." *Sustainability* 14 (13): 7763. <https://doi.org/10.3390/su14137763>.
- Mitchell, Ronald K., Bradley R. Agle, and Donna J. Wood. 1997. "Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts." *Academy of Management Review* 22 (4): 853–888. <https://doi.org/10.5465/AMR.1997.9711022105>.
- Nasih, Mohammad, Iman Harymawan, Siti Zaleha Abdul Rasid, and Fajar Kristanto Gautama Putra. 2024. "Tax Avoidance and Sustainability Reporting: Alignment or Greenwashing Strategy?" *Corporate Social Responsibility and Environmental Management* 31 (6): 6335–6351. <https://doi.org/10.1002/csr.2927>.
- Nor Ahmad, Saidatul Nurul Hidayah Jannatun Naim, Azlan Amran, and A. K. Siti-Nabiha. 2022. "Symbolic or Substantive Change? How a Malaysian Palm Oil Company Managed Sustainability Issues in Words and Deeds." *Qualitative Research in Accounting and Management* 19 (4): 474-500. <https://doi.org/10.1108/QRAM-05-2020-0061>.
- Ordóñez-Castaño, Iván Andrés, Edila Eudemia Herrera-Rodríguez, Angélica María Franco Ricaurte, and Luis Enrique Perdomo Mejía. 2021. "Voluntary Disclosure of Gri and Csr Environmental Criteria in Colombian Companies." *Sustainability* 13 (10): 5405. <https://doi.org/10.3390/su13105405>.
- Siano, Alfonso, Agostino Vollero, Francesca Conte, and Sara Amabile. 2017. "'More than Words': Expanding the Taxonomy of Greenwashing after the Volkswagen Scandal." *Journal of Business Research* 71 (February). Elsevier Inc.: 27–37. <https://doi.org/10.1016/j.jbusres.2016.11.002>.
- Sisaye, Seleshi. 2021. "The Influence of Non-Governmental Organizations (NGOs) on the Development of Voluntary Sustainability Accounting Reporting Rules." *Journal of Business and Socio-Economic Development* 1 (1): 1-16. <https://doi.org/10.1108/JBSED-02-2021-0017>.
- Severiano, Bernardo Mendonca, Stephen A. Northey, and Damien Giurco. 2024. "Drivers and Barriers of Voluntary Sustainability Initiatives in Mining Raw Materials for Batteries." *The Extractive Industries and Society* 20: 101552. <https://doi.org/10.1016/j.exis.2024.101552>.
- Sneideriene, Agne, and Renata Legenzova. 2025. "Greenwashing Prevention in Environmental, Social, and Governance (ESG) Disclosures: A Bibliometric Analysis." *Research in International Business and Finance* 74: 102720. <https://doi.org/10.1016/j.ribaf.2024.102720>.
- Steelyana W, Evy, and Kevin Michael Kusuma Raharjo. 2024. "Sustainability Reporting: Stakeholder Pressure and Board Composition Influence." *Jurnal Bisnis Dan Akuntansi* 26 (1): 67–84. <https://doi.org/10.34208/jba.v26i1.2440>.

- Susanto, Hendra, Nyoman Adhi Suryadnyana, Rusmin Rusmin, and Emita Astami. 2024. "The Impact of Family Firms and Supervisory Boards on Corporate Environmental Quality." *Journal of Risk and Financial Management* 17 (7): 263. <https://doi.org/10.3390/jrfm17070263>.
- Talbot, David, and Guillaume Barbat. 2020. "Water Disclosure in the Mining Sector: An Assessment of the Credibility of Sustainability Reports." *Corporate Social Responsibility and Environmental Management* 27 (3): 1241-1251. <https://doi.org/10.1002/csr.1880>.
- Torelli, Riccardo, Federica Balluchi, and Katia Furlotti. 2020. "The Materiality Assessment and Stakeholder Engagement: A Content Analysis of Sustainability Reports." *Corporate Social Responsibility and Environmental Management* 27 (2): 470-484. <https://doi.org/10.1002/csr.1813>.
- Vigneau, Laurence, and Carol A. Adams. 2023. "The Failure of Transparency as Self-Regulation." *Sustainability Accounting, Management and Policy Journal* 14 (4): 852-876. <https://doi.org/10.1108/SAMPJ-01-2022-0051>.
- Woźniak, Justyna, Katarzyna Pactwa, Mateusz Szczęśniewicz, and Dominika Ciapka. 2022. "Declaration of the Sustainable Development Goals of Mining Companies and the Effect of Their Activities in Selected Areas." *Sustainability* 14 (24): 16422. <https://doi.org/10.3390/su142416422>.
- Xu, Lu, Li Xie, Shengjun Mei, Jianli Hao, Yuqian Zhang, and Yu Song. 2024. "Corporate Sustainability Reporting and Stakeholders' Interests: Evidence from China." *Sustainability* 16 (8): 3443. <https://doi.org/10.3390/su16083443>.
- Xu, Wei, Mingzhu Li, and Sen Xu. 2023. "Unveiling the 'Veil' of Information Disclosure: Sustainability Reporting 'Greenwashing' and 'Shared Value.'" *PLOS ONE* 18 (1): 1-25. <https://doi.org/10.1371/journal.pone.0279904>.
- Yin, R. K. 2018. *Case Study Research and Applications: Design and Methods*. 6th ed. SAGE Publications.
- Zharfpeykan, Ramona. 2021. "Representative Account or Greenwashing? Voluntary Sustainability Reports in Australia's Mining/Metals and Financial Services Industries." *Business Strategy and the Environment* 30 (4): 1691-1707. <https://doi.org/10.1002/bse.2744>.