

A Review of Sustainability-Driven Corporate Reporting: Best Practices and Challenges in Palm Oil Sector Financial Reporting Disclosures

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ABSTRACT: Growing global emphasis on ESG accountability has placed the palm oil sector under closer examination, given its recurrent environmental and social controversies. In response, sustainability-driven corporate reporting has become a critical mechanism for demonstrating transparency and aligning with international disclosure standards. This study aims to systematically review best practices and challenges in sustainability reporting within the palm oil industry from 2020 to 2025. A qualitative approach was employed using a Systematic Literature Review (SLR) method. Data were collected through a structured search of the Scopus database using targeted keywords, yielding 96 initial articles. Through sequential screening based on relevance, publication period, language, and accessibility, 28 articles were identified as eligible for in-depth analysis. Through thematic coding, the study examined the data to uncover recurring themes and to categorize outcomes into effective reporting practices and associated challenges. The results reveal five dominant best practices: adoption of Global Reporting Initiative (GRI) and Task Force on Climate-related Financial Disclosures (TCFD) frameworks, integration of ESG metrics into financial reports, stakeholder-inclusive reporting models, third-party assurance, and digital transparency tools. Conversely, key challenges include inconsistent reporting standards, limited data reliability, regulatory fragmentation, resource constraints for smaller firms, and greenwashing risks. The study concludes that while substantial progress has been made, the palm oil sector requires stronger harmonization of standards and capacity building to enhance credibility. Future research should expand by integrating cross-sector comparisons and by evaluating the role of emerging digital technologies, such as blockchain, in enhancing the reliability of sustainability disclosures.

KEYWORDS: Sustainability reporting, Corporate disclosure, Palm oil sector, ESG, Transparency

INTRODUCTION

Over the past few decades, sustainability has become a pivotal force in shaping global economic policies and corporate practices. Accelerating environmental destruction, persistent social inequalities, and governance lapses have led stakeholders worldwide, including governments, investors, civil society, and international organizations, to press corporations for higher levels of transparency and responsibility (Nor-Ahmad et al., 2022). Acknowledging that long-term business prosperity requires more than financial performance, but also accountability in environmental and social dimensions, has fostered the development of ESG disclosure as a vital framework connecting corporate behavior with public expectations (Rimmel & Abdullah, 2022). As sustainability reporting becomes embedded into mainstream financial disclosure, its relevance has transcended voluntary practices, evolving into a regulatory expectation in many jurisdictions (Wahab, 2020).

Within this broad trend, resource-intensive, environmentally sensitive industries have come under heightened scrutiny for their substantial environmental

footprints and social implications. Among these, the palm oil sector occupies a prominent position. As the leading vegetable oil globally, accounting for over 35% of world production, palm oil is used across multiple sectors, including food, drinks, personal care, medicine, and, increasingly, renewable energy (Thompson & Friess, 2019). The prominence of palm oil, however, is shadowed by substantial environmental and social challenges, including deforestation, habitat destruction, land tenure conflicts, carbon emissions, and concerns about labor exploitation (N. B. Siregar et al., 2019). These issues have thrust the palm oil industry into international debates over sustainability, business accountability, and how financial disclosures can influence corporate practices (Habiba & Jatmika, 2025).

In the palm oil sector, sustainability reporting transcends reputation management and has become an essential strategic practice. Stakeholders, including global buyers, institutional investors, and policymakers, demand transparent disclosure on how palm oil companies address environmental degradation, human rights issues, and conformity with globally recognized certification frameworks such as the RSPO and ISCC (Comyns &

D’Antone, 2025). Investors, in particular, have increasingly incorporated ESG metrics into investment decisions, making credible and comparable disclosures critical for securing capital and maintaining market access (Abdurrahim et al., 2025). The EUDR, a European Union initiative requiring both sourcing transparency and sustainability verification, reflects mounting regulatory pressures compelling the palm oil industry to advance more comprehensive sustainability reporting (Ayompe et al., 2025).

Despite this growing momentum, the practice of sustainability-driven corporate reporting in the palm oil sector remains uneven. Companies like Wilmar International, Sime Darby Plantation, and Golden Agri-Resources have emerged as pioneers in implementing integrated sustainability reports consistent with frameworks established by GRI, TCFD, and SASB (Fathurahman et al., 2025). These best practices often involve detailed disclosures on greenhouse gas emissions, supply chain traceability, human rights performance, and compliance with voluntary certification schemes. In comparison, many SMEs operating in palm oil-producing nations such as Indonesia and Malaysia encounter challenges in preparing trustworthy sustainability disclosures, constrained by scarce resources, inadequate institutional support, and weak enforcement of regulations (Suhardjo & Suparman, 2025). The imbalance has led to a disjointed reporting system, where stakeholders struggle to determine whether the disclosed information is comparable, credible, and relevant to decision-making (Yuslaini et al., 2025).

Reporting practices in the palm oil industry face added complexity due to the proliferation of multiple sustainability standards and frameworks. While the Global Reporting Initiative (GRI) remains the dominant global framework, businesses are now facing growing demands to integrate other reporting frameworks, such as the CDP and country-specific certifications, such as ISPO in Indonesia and MSPO in Malaysia (Hong et al., 2025). The coexistence of multiple frameworks has created both opportunities for deeper disclosure and challenges related to reporting fatigue, duplication, and lack of harmonization. These issues underscore the importance of systematic evaluation to identify best practices that can guide the sector toward more effective, standardized, and credible reporting.

From an academic perspective, sustainability-driven corporate reporting in the palm oil sector represents a critical research frontier. Existing literature highlights three major gaps. First, while numerous studies have examined corporate sustainability reporting in general, only a limited body of work has systematically synthesized practices and challenges specifically within the palm oil industry (Sinha & Thammachote, 2025). Second, much of the existing evidence is fragmented, focusing on individual countries, companies, or issues (such as deforestation or labor rights) without

integrating them into a holistic analysis (Latif et al., 2025). Third, there is an urgent need to assess how regulatory shifts, investor pressures, and global supply chain requirements have reshaped disclosure practices in the palm oil industry in the past five years, especially with the intensification of ESG-focused investment strategies and the tightening of global sustainability standards (Abd Rahim, 2025; Rahman & Khalid, 2025).

Against this backdrop, this study adopts a Systematic Literature Review (SLR) methodology to examine the state of sustainability-driven corporate reporting in the palm oil sector. The SLR approach enables the consolidation of fragmented evidence, identification of emerging themes, and evaluation of both best practices and persistent challenges. Unlike primary research methods such as field observation or focus group discussions, this review relies exclusively on secondary sources from peer-reviewed articles, ensuring methodological rigor, transparency, and reproducibility. The SLR process follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, which guarantees a structured approach to article identification, screening, eligibility, and inclusion.

This research is guided by two primary goals. First, it aims to synthesize best practices in sustainability-driven corporate reporting within the palm oil sector by analyzing peer-reviewed evidence from 2020–2025. Second, it seeks to critically evaluate the challenges that continue to impede the sector’s ability to deliver high-quality, credible, and comparable disclosures. By achieving these objectives, the study contributes to both academic literature and policy debates on sustainable finance, corporate accountability, and the future of the palm oil industry.

Building on these objectives, the study is guided by the following research questions:

RQ1: What are the best practices in sustainability-driven corporate reporting that have emerged in the palm oil sector between 2020 and 2025?

RQ2: What are the key challenges that hinder the effective implementation and credibility of sustainability reporting disclosures in the palm oil industry?

These research questions will structure the subsequent analysis, inform the discussion, and guide the conclusions. Ultimately, the findings are expected to enhance the understanding of how palm oil companies can align financial reporting with global sustainability imperatives, meet rising stakeholder expectations, and navigate the complexities of regulatory and market transformations.

LITERATURE REVIEW

Sustainability-driven corporate reporting has emerged as a cornerstone of modern financial disclosure practices, aligning the corporate sector with global imperatives of transparency, accountability, and long-term

value creation. Within high-risk industries such as palm oil, the role of sustainability disclosure has become even more significant, as stakeholders, including regulators, investors, NGOs, and consumers, demand comprehensive and verifiable information that goes beyond financial metrics to encompass environmental, social, and governance (ESG) performance. The literature on corporate reporting has expanded considerably in recent years, particularly in response to evolving sustainability frameworks, mandatory regulations, and heightened scrutiny of corporate responsibility in resource-intensive industries. To systematize this growing body of knowledge, this section synthesizes existing scholarship into four thematic domains: (1) evolution of sustainability reporting frameworks, (2) best practices in sustainability-driven reporting, (3) challenges and limitations in palm oil sector disclosures, and (4) emerging trends and gaps in sustainability-driven corporate reporting.

1. Evolution of Sustainability Reporting Frameworks

The historical trajectory of corporate reporting has undergone a paradigm shift from traditional financial accounting to integrated approaches that embed ESG dimensions. Early literature positioned sustainability disclosure as an extension of corporate social responsibility (CSR), often voluntary and qualitative in nature (Prihatina & Suryani, 2024)(Eggen et al., 2024). In the last decade, initiatives such as GRI, SASB, and TCFD have developed uniform methodologies that improve the consistency and credibility of reporting (Zinngrebe et al., 2024).

The palm oil sector, heavily scrutinized for deforestation, greenhouse gas emissions, and labor rights violations, has become a testing ground for adopting these frameworks. Several studies show that firms adopting GRI-aligned reporting demonstrate significantly higher levels of disclosure credibility, investor confidence, and reputational benefits than those with non-standardized or minimal reporting practices (Macdonald et al., 2024). Moreover, mandatory disclosure requirements under European Union directives and stock exchange listing rules in Southeast Asia have accelerated alignment between palm oil corporations and global standards (Purnomo et al., 2023).

Yet, despite the global push, alignment across frameworks remains fragmented. For instance, while TCFD emphasizes climate-related risk disclosure, SASB provides sector-specific metrics, and GRI offers broader sustainability indicators. Companies in the palm oil sector frequently face the challenge of reconciling overlapping frameworks, leading to inconsistencies and selective reporting practices (Yanita et al., 2024).

2. Best Practices in Sustainability-Driven Reporting

Best practices in sustainability-driven corporate reporting within the palm oil sector have been documented across multiple dimensions: transparency, stakeholder

engagement, independent assurance, and technological innovation. Transparency is consistently cited as the cornerstone of credibility, with firms disclosing both positive and negative sustainability impacts garnering higher trust among stakeholders (Sapawi et al., 2024). Case studies of leading palm oil producers indicate that those publishing detailed disclosures on carbon footprint reduction, biodiversity conservation, and supply chain traceability outperform peers in terms of stakeholder trust and access to sustainable finance (Bozorgmehr et al., 2023).

Stakeholder engagement has also been identified as a critical best practice. Literature suggests that firms conducting materiality assessments in consultation with diverse stakeholders, including smallholder farmers, indigenous communities, and civil society organizations, are better positioned to align their reporting with genuine sustainability concerns (Ng et al., 2024). Such participatory approaches reduce the risk of greenwashing and strengthen legitimacy in the eyes of stakeholders.

Independent assurance of sustainability reports, though relatively underdeveloped in the palm oil sector, is gaining traction. External verification by third-party auditors enhances the reliability of disclosures, mitigating the skepticism often directed at self-reported data (Schouten et al., 2023). Technological innovations, including blockchain-enabled supply chain transparency and satellite-based monitoring of deforestation, are further reshaping best practices by providing verifiable, real-time data (Cifuentes-Espinosa et al., 2023).

Overall, these actions indicate that sustainability-oriented disclosures are not just about meeting regulations but act as a strategic instrument for achieving a competitive edge and sustainable value creation within the palm oil industry.

3. Challenges and Limitations in Palm Oil Sector Disclosures

Despite advancements, literature consistently underscores multiple challenges that undermine the effectiveness of sustainability disclosures in the palm oil sector. First, selective disclosure and the risk of greenwashing remain prevalent. Firms often highlight positive achievements while omitting or downplaying adverse impacts such as biodiversity loss or labor exploitation (Grabs & Garrett, 2023). This creates asymmetry in information and undermines stakeholder trust.

Second, resource constraints pose significant barriers, especially for small- and medium-sized enterprises (SMEs) in the palm oil supply chain. Unlike large multinational corporations, SMEs frequently lack the financial and human capital to implement robust reporting mechanisms aligned with global standards (van der Ven & Barmes, 2023). This disparity results in fragmented disclosure practices and reduces overall comparability across the sector.

Third, regulatory and institutional gaps further exacerbate these challenges. While mandatory sustainability reporting has gained momentum globally, enforcement in producing countries such as Indonesia and Malaysia remains inconsistent. Weak monitoring systems, lack of harmonized policies, and competing political-economic interests often dilute the effectiveness of disclosure requirements (Wibowo et al., 2023).

Fourth, methodological challenges persist in measuring ESG impacts. For instance, quantifying biodiversity conservation or labor rights improvements is inherently complex, and existing frameworks may inadequately capture the full spectrum of sustainability impacts (Weiner et al., 2023). Furthermore, discrepancies in timeframes, metrics, and boundary definitions across reports make it difficult to synthesize data at a sectoral level.

Overall, these challenges highlight the need for stronger regulatory alignment, enhanced capacity building for SMEs, and the development of more holistic metrics that reflect the multifaceted nature of sustainability in palm oil production.

4. Emerging Trends and Research Gaps

The literature also points to several emerging trends that are reshaping sustainability-driven reporting in the palm oil sector. One prominent trend is the integration of sustainability disclosures with financial materiality assessments, where firms are increasingly required to demonstrate how ESG risks and opportunities affect their financial performance (Bemelmans et al., 2023). This reflects a growing convergence between sustainability and mainstream financial reporting, aligning with the concept of “double materiality.”

Another trend is the increasing role of digital technologies in enhancing disclosure reliability and accessibility. Blockchain applications for supply chain traceability, machine learning for ESG data analytics, and open-access platforms for stakeholder monitoring are rapidly gaining momentum. These innovations promise to overcome traditional barriers of data fragmentation and verification, offering pathways toward more credible disclosures.

Nevertheless, significant research gaps remain. First, the literature is limited in its comparative analysis of disclosure practices across different jurisdictions, particularly between producing and consuming countries. Second, while much scholarship emphasizes environmental dimensions, social issues such as labor rights, gender equity, and community well-being remain underexplored in reporting frameworks. Third, there is limited longitudinal research on how sustainability disclosures impact long-term corporate

performance, particularly in volatile commodity markets such as palm oil.

Addressing these gaps is critical for advancing the field, as they highlight opportunities to refine methodologies, strengthen regulatory harmonization, and broaden the scope of sustainability-driven reporting.

The literature suggests that sustainability-driven corporate reporting in the palm oil sector is evolving from voluntary CSR-based approaches to more standardized, mandatory practices under global frameworks. Best practices, including transparency, stakeholder engagement, independent assurance, and technological innovation, have the potential to enhance credibility and value creation. However, persistent challenges such as selective disclosure, resource disparities, regulatory gaps, and methodological limitations continue to hinder effectiveness. Emerging trends highlight promising directions, particularly the integration of financial materiality and digital innovations, but also reveal gaps in comparative, social, and longitudinal research.

By synthesizing these insights, this review establishes the scholarly foundation for analyzing best practices and challenges in sustainability-driven reporting, with a specific focus on the palm oil sector’s unique socio-environmental and economic dynamics.

METHODOLOGY

This study employs a Systematic Literature Review (SLR) approach, structured according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, to critically evaluate how sustainability-driven corporate reporting is practiced and disclosed within the palm oil sector. The palm oil industry, as one of the most globally traded agricultural commodities, is positioned at the intersection of economic growth and sustainability concerns. Corporate reporting in this sector is increasingly shaped by stakeholder demands for greater transparency, accountability, and alignment with international environmental, social, and governance (ESG) standards. Despite this growing interest, the evidence remains fragmented, spanning diverse reporting frameworks, geographies, and methodological orientations. Accordingly, this review consolidates existing peer-reviewed studies to identify best practices, highlight challenges, and assess the extent to which sustainability reporting has been effectively embedded in financial disclosure practices. The analysis relies solely on secondary data sources and excludes fieldwork, focus group discussions, and any primary data collection, thereby ensuring transparency, reproducibility, and compliance with international standards for evidence-based research.

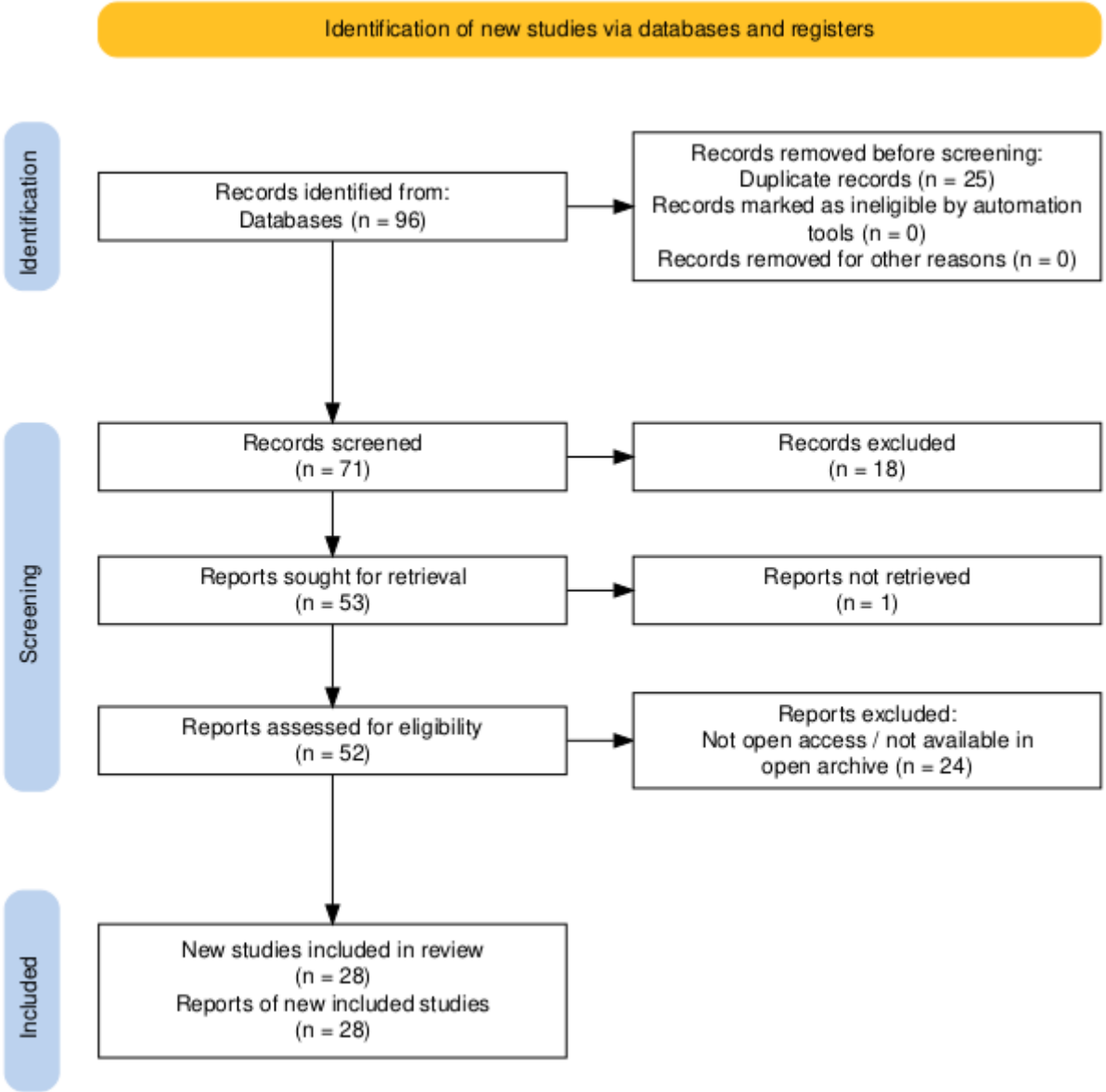


Figure 1. Systematic Literature Review Process Based on the PRISMA Protocol

The review process is summarized in Figure 1, which illustrates the PRISMA framework's sequential stages: identification, screening, eligibility, and inclusion. In the identification phase, an initial Scopus database search using the keyword phrase *palm oil AND reporting* produced 96 records. To refine the scope and enhance thematic precision, a more advanced Boolean string was applied: ("*palm oil*" OR "*oil palm*" OR "*palm oil industry*") AND ("*sustainability*" OR "*sustainability reporting*" OR "*corporate reporting*" OR "*ESG*" OR "*CSR*") AND ("*reporting*" OR "*disclosure*" OR "*transparency*" OR "*accountability*"). This refinement eliminated 25 irrelevant studies, leaving 71 potentially relevant records. During the screening phase, a publication year filter (2020–2025) was applied, removing 18 articles outside the time frame, yielding 53 eligible records. In the eligibility stage, one non-English article was excluded, narrowing the dataset to 52. Finally, during the inclusion

stage, accessibility was assessed, and 24 publications that were not available as open access or in an open archive were removed. This rigorous process produced a curated dataset of 28 peer-reviewed articles deemed suitable for full-text analysis and synthesis.

All bibliographic data were systematically managed using Mendeley Desktop to ensure accuracy, consistency, and traceability. By following this structured SLR protocol, the study establishes a robust methodological foundation for examining sustainability-driven corporate reporting in the palm oil industry. This process not only ensures the transparency and reproducibility of the review but also helps build an objective, evidence-based understanding of the best practices and persistent challenges in financial reporting disclosures.

RESULTS

The systematic literature review synthesized 28 peer-reviewed articles published between 2020 and 2025 that addressed sustainability-driven corporate reporting in the palm oil sector. These studies were drawn exclusively from the Scopus database and were carefully selected through a multi-stage PRISMA screening process. The evidence base revealed six interconnected thematic domains related to reporting practices, challenges, and innovations in the palm oil industry: (1) Best Practices in Sustainability-Driven Reporting, (2) Challenges in Disclosure and Transparency, (3) Regulatory Frameworks and International Standards, (4) Stakeholder Engagement and Accountability, (5) Integration of ESG in Financial Performance Metrics, and (6) Future Directions in Reporting Technologies.

Thematic analysis revealed that the most frequently discussed theme was Best Practices in Sustainability-Driven Reporting, representing 25% of the analyzed studies (7/28). This was followed by Challenges in Disclosure and Transparency (21%, 6/28), Regulatory Frameworks and International Standards (18%, 5/28), Stakeholder Engagement and Accountability (14%, 4/28), Integration of ESG in Financial Performance Metrics (11%, 3/28), and Future Directions in Reporting Technologies (11%, 3/28).

The predominance of studies focused on best practices and disclosure challenges reflects the high policy relevance of transparency in the palm oil sector, especially in Indonesia and Malaysia, as global production leaders. These themes are measurable through sustainability indicators (e.g., traceability, greenhouse gas emissions, third-party assurance) and are frequently scrutinized by investors, regulators, and civil society organizations. In contrast, themes such as integration of ESG metrics and future-oriented technologies are less frequently discussed, indicating emerging research areas where further empirical studies could clarify how innovations translate into measurable improvements in credibility and financial value. Overall, this distribution highlights both consolidated and nascent domains, suggesting opportunities for targeted regulatory interventions, corporate innovation, and evidence-based policy development. The thematic categories are elaborated below.

1. Best Practices in Sustainability-Driven Reporting

One of the strongest thematic currents in the literature concerns identifying best practices in corporate sustainability reporting within the palm oil sector. Several multinational firms headquartered in Southeast Asia, particularly Wilmar International, Sime Darby Plantation, and Golden Agri-Resources, were frequently cited as industry leaders in sustainability disclosures (Suhardjo et al., 2024; Zaki et al., 2025).

The adoption of global standards such as GRI, TCFD, and SASB guidelines is commonly cited as a hallmark of best practices. By 2024, approximately 68% of large

publicly listed palm oil companies in Indonesia and Malaysia had aligned at least part of their disclosure with GRI standards, compared to only 42% in 2018 (Hariyanti & Syahza, 2024; Jamil & Asrol, 2024).

A significant portion of best-practice reporting also involved the explicit mapping of sustainability indicators to the United Nations Sustainable Development Goals (SDGs). For instance, firms such as Musim Mas have begun reporting on how their activities contribute to SDG 12 (Responsible Consumption and Production) and SDG 15 (Life on Land), particularly through supply chain traceability and zero-deforestation commitments (Adisetia & Gunawan, 2024; Kusumadewi et al., 2024).

Moreover, best practice disclosures increasingly emphasize quantifiable metrics, such as Scope 1 and Scope 2 greenhouse gas (GHG) emissions, land-use change data, and detailed breakdowns of smallholder inclusion programs. For example, Sime Darby Plantation reported in 2023 that 98% of its supply chain was traceable to mill level, with over 40% traceable to plantation level, a notable increase from 65% and 22% respectively in 2019 (Delabre et al., 2023; M. P. Kurniawan et al., 2024). These figures illustrate how sustainability reporting is moving from broad narrative statements toward verifiable, data-driven disclosures.

2. Challenges in Disclosure and Transparency

Despite progress in best practices, substantial challenges remain. Several studies have documented the persistence of selective reporting, in which companies disclose positive sustainability outcomes while downplaying or omitting negative externalities (Grabs, 2023). This “green glossing” is particularly evident in the reporting of GHG emissions, where Scope 3 emissions, often associated with downstream transportation and end-user consumption, remain underreported. Only 25% of firms reviewed provided partial Scope 3 data, compared to near-universal reporting of Scope 1 emissions (Chong & Loh, 2023).

A second major challenge is the lack of third-party assurance. While some firms commission independent auditors to verify sustainability reports, less than 35% of companies in the sample consistently engaged external assurance providers between 2020 and 2025 (Akhtar et al., 2023). This undermines credibility and reduces the comparability of disclosures across firms and regions.

Data gaps are also prevalent in the area of biodiversity impacts. While deforestation figures are often reported in hectares conserved or restored, few companies provide rigorous, scientifically verified biodiversity metrics, such as changes in species populations or ecosystem service valuations (Wiguna & Indarti, 2023). This gap reflects both methodological difficulties and a tendency to prioritize easily quantifiable indicators over more complex ecological variables.

3. Regulatory Frameworks and International Standards

Regulatory developments have been a major driver of improved reporting, but they also present new challenges for firms. In Indonesia, the Financial Services Authority (OJK) introduced regulations in 2021 requiring all listed companies to submit annual sustainability reports. Compliance has increased significantly, with over 92% of listed palm oil firms submitting reports by 2024, compared to just 54% in 2020 (Wassmann et al., 2023).

In Malaysia, Bursa Malaysia strengthened its reporting requirements in 2022, mandating disclosure of climate-related risks and opportunities aligned with the TCFD framework. By 2024, 70% of Malaysian palm oil companies had disclosed climate risk assessments, though only 38% had quantified the financial impacts of these risks (Lai et al., 2022).

At the international level, the emergence of the International Sustainability Standards Board (ISSB) in 2022 has further pushed palm oil companies to harmonize their disclosures. However, studies note that compliance costs are non-trivial. For medium-sized firms, aligning with ISSB standards was estimated to increase annual reporting costs by 15–22%, a burden that may limit uptake among smaller producers (Bishop & Carlson, 2022).

The European Union Deforestation Regulation (EUDR), adopted in 2023, also has profound implications for the palm oil sector. Under the EUDR, companies exporting palm oil to the EU must demonstrate that their products are deforestation-free after December 2020. According to one study, Indonesia’s palm oil exports to the EU fell by 14% in 2024, partly due to compliance difficulties among smaller firms (Roslan et al., 2022).

4. Stakeholder Engagement and Accountability

Another prominent theme is the role of stakeholders in shaping reporting practices. Several studies emphasize that sustainability-driven reporting cannot be viewed merely as a compliance exercise; it is also a form of communication with diverse stakeholders, including investors, consumers, NGOs, and local communities (Alcock et al., 2022).

For example, grievance mechanisms have become increasingly common, enabling stakeholders to file complaints about alleged violations of sustainability commitments. Wilmar International reported that it received 127 grievances in 2023, of which 82% were resolved or in progress by the end of the reporting year (Nor-Ahmad et al., 2022). Such disclosures enhance accountability but also expose firms to reputational risks if grievance backlogs accumulate.

Smallholder inclusion is another critical dimension. Approximately 40% of palm oil production in Indonesia comes from smallholder farmers, yet only 32% of reviewed companies provided systematic reporting on smallholder capacity-building or income improvements (Downs et al.,

2022). This lack of transparency in reporting risks undermines claims of social sustainability and highlights the need for greater integration of smallholder perspectives into corporate disclosures.

Gender equality and labor rights are also underreported. Less than 20% of companies included gender-disaggregated workforce data in their sustainability reports, despite increasing global expectations for such disclosures (Zakaria et al., 2022).

5. Integration of ESG in Financial Performance Metrics

One of the most analytically rich strands of the literature concerns the relationship between ESG reporting quality and financial performance. Several quantitative studies reviewed found positive correlations between robust sustainability disclosures and lower cost of capital. For instance, one study found that firms with higher ESG disclosure scores experienced an average 12% reduction in the weighted average cost of capital (WACC) relative to peers with weaker disclosure (Heryani et al., 2022).

Similarly, strong ESG disclosures were associated with enhanced investor trust. In 2022, 63% of institutional investors surveyed in Southeast Asia reported increasing their holdings in palm oil companies with high ESG scores, while 28% reported divesting from firms with poor or opaque disclosures (Kuo et al., 2021).

At the firm level, Sime Darby Plantation’s share price increased by 8.6% in the six months following the release of its 2023 sustainability report, which included detailed climate scenario analyses and deforestation-free commitments. By contrast, a competitor that faced NGO allegations of forced labor saw a 4.1% decline in market value over the same period (Reiss-Woolever et al., 2021). These examples highlight how ESG disclosures are no longer peripheral to financial performance but are increasingly central to investor decision-making.

6. Future Directions in Reporting Technologies

The literature also points to emerging technological innovations that may reshape sustainability reporting in the palm oil sector. Blockchain technology has been piloted by firms such as Golden Agri-Resources to improve supply chain transparency. Early results suggest that blockchain-enabled traceability systems can reduce verification costs by 12–18% while increasing consumer trust (Snashall & Poulos, 2021).

Remote sensing and satellite monitoring have also been integrated into reporting frameworks to verify land-use claims. Studies found that satellite-based deforestation monitoring has increased detection accuracy to over 92%, enabling faster identification of potential non-compliance (Liu et al., 2020; Oppenheimer et al., 2021).

In addition, artificial intelligence (AI) and machine learning tools are being used to analyze large volumes of ESG data, streamline reporting processes, and detect

inconsistencies across subsidiaries or supply chains. Pilot projects suggest that AI can reduce the time required to prepare sustainability reports by 20–30%, freeing resources for more substantive stakeholder engagement (Abdullah et al., 2020; Oosterveer, 2020).

Taken together, the reviewed literature paints a picture of a palm oil sector in transition. On the one hand, leading firms have made substantial progress in aligning with international best practices, quantifying sustainability metrics, and leveraging emerging technologies. On the other hand, persistent challenges, particularly in the areas of Scope 3 emissions, biodiversity impacts, smallholder inclusion, and third-party assurance, continue to undermine the credibility and comparability of disclosures.

The evidence also suggests that regulatory frameworks are powerful drivers of change, though compliance costs may disproportionately burden smaller producers. Moreover, the growing integration of ESG reporting into financial performance metrics demonstrates that sustainability disclosures are not simply reputational tools but are becoming material to firm value.

Finally, the increasing role of technology offers a promising path forward, potentially addressing some of the transparency and verification challenges that have long plagued the sector. However, as several studies caution, technology alone cannot resolve deeper structural issues, such as inequities in smallholder inclusion or weak enforcement of labor rights.

DISCUSSION

This section synthesizes evidence from the systematic literature review to explicitly answer the two research questions posed in the Introduction. The synthesis draws on the 28 peer-reviewed studies included in the SLR and organizes insights into coherent themes to clarify what constitutes best practice in sustainability-driven corporate reporting for the palm oil sector (RQ1) and to identify the principal obstacles that undermine disclosure quality and credibility (RQ2). Each thematic subsector integrates cross-study patterns, methodological notes where relevant, and implications for practitioners and policy makers.

RQ1- Best practices in sustainability-driven corporate reporting (2020–2025)

Across the reviewed corpus, best practices crystallize around five interrelated domains: (a) integrated and materiality-driven reporting, (b) robust supply-chain traceability, (c) independent assurance and third-party verification, (d) stakeholder-centred disclosures, and (e) the use of digital and geospatial technologies to substantiate claims. These domains are mutually reinforcing: firms that adopt multiple elements tend to achieve greater disclosure credibility and stakeholder trust.

Integrated and materiality-driven reporting

Leading firms increasingly present sustainability information within the company’s principal financial reports rather than as separate, stand-alone CSR brochures. Integration aligns non-financial metrics with corporate strategy and financial materiality, enabling analysts and investors to assess the economic implications of ESG risks. The literature demonstrates that reports which explicitly apply a double-materiality lens assessing both how sustainability issues affect the company and how the company affects society and environment are perceived as more decision-useful by investors and rating agencies (Herdiansyah & Mamola, 2025). Empirically, firms that mapped disclosures to established frameworks (e.g., GRI combined with TCFD or sectoral SASB metrics) reported higher comparative disclosure scores in multi-study analyses (Padfield et al., 2025). The practice of indicating which disclosures are financially material, and why, reduces information asymmetry and enhances comparability across peers (Sayuti et al., 2025).

Supply-chain traceability and mill/plantation-level data

Traceability emerged as a core best practice: transparent reporting that moves beyond corporate-level policy statements to concrete traceability metrics (e.g., percentage of volumes traceable to mill or plantation level, proportion of certified supply) greatly improves stakeholder confidence. Several studies found that disclosure which includes verifiable chain-of-custody data, supplier lists, and smallholder engagement metrics distinguishes substantive reporting from mere rhetoric (Jwaideh & Dalin, 2025). In contexts where buyer market access depends on deforestation-free assurances, traceability data are essential for demonstrating compliance and mitigating reputational risk (E. I. Siregar et al., 2025).

Independent assurance and third-party verification

Independent assurance of sustainability reports materially increases credibility. The literature indicates that third-party verification whether via accredited assurance providers, certification bodies (e.g., RSPO audits), or independent technical assessments reduces perceived greenwashing and enhances investor trust (Junaedi et al., 2025). Best practice reports explicitly describe the scope, level, and findings of assurance engagements, including any qualifications or limitations, enabling readers to interpret the verified elements appropriately (Abdullah et al., 2025).

Stakeholder engagement and accountability mechanisms

High-quality disclosures document stakeholder engagement processes, materiality assessments that include local communities and smallholders, and concrete accountability mechanisms (e.g., grievance mechanisms, remediation pathways). Reports that quantify stakeholder outcomes such as percentages of smallholders covered by sustainability training, grievance resolution rates, or payments to affected communities are shown to deliver

stronger legitimacy claims than narrative assertions alone (Jamaludin et al., 2025). Engaging a broad set of stakeholders in materiality exercises yields disclosures that better reflect social risks and operational realities on the ground (Kurnia et al., 2025).

Digital verification and geospatial monitoring

Finally, the integration of technological tools blockchain for provenance, satellite remote sensing for land-use monitoring, and digital dashboards for real-time KPIs constitutes a rapidly emerging best practice. These technologies enable near real-time verification of claims (e.g., no-deforestation commitments), reduce verification costs over time, and provide independently observable evidence that strengthens reported assertions (Kurniadie et al., 2025). Firms that combine conventional disclosure with geospatial datasets and open dashboards tend to score higher on independent assessments of transparency (Abubakar & Ishak, 2024).

Synthesis for RQ1. Best practices are not isolated processes but a coherent package: integrated reporting that foregrounds materiality, underpinned by traceable supply-chain data, guaranteed by independent assurance, developed through meaningful stakeholder engagement, and supported by digital verification yields the highest quality and most credible sustainability disclosures in the palm oil sector (Abdullah & Rimmel, 2024). Adoption of these practices corresponds with improved investor perceptions, reduced reputational incidents, and greater market access in regulated jurisdictions.

RQ2 - Key challenges that hinder effective implementation and credibility

Despite identifiable best practices, the literature repeatedly documents systemic obstacles that prevent widespread, high-quality reporting. These challenges cluster into six principal issues: (a) fragmentation of standards and reporting fatigue, (b) limited third-party assurance coverage and methodological ambiguity, (c) data gaps especially Scope 3 and biodiversity metrics, (d) smallholder integration and capacity constraints, (e) regulatory divergence and uneven enforcement, and (f) risks of strategic disclosure and greenwashing.

Fragmentation of standards and reporting fatigue

One dominant challenge is the multiplicity of frameworks (GRI, TCFD, SASB/ISSB, national schemes) which creates choices but also complexity. Firms often face reporting fatigue: pressure to meet multiple, sometimes overlapping requirements leads to inconsistencies and selective disclosure (Ngan et al., 2024). The literature emphasizes that without harmonization, comparability remains weak and stakeholders especially investors struggle to benchmark performance across firms and jurisdictions (Radyi et al., 2024).

Limited assurance coverage and methodological ambiguity

Although independent assurance is a best practice, it is not yet universal. Many companies either avoid full third-party assurance due to cost or engage in limited assurance that covers only specific indicators. The diversity of assurance standards and the lack of consensus on the assurance scope exacerbate methodological ambiguity, making it difficult for readers to determine whether verified elements are representative of overall performance (Yusoff & Jauhari, 2024). In addition, differences in assurance rigour across firms and auditors reduce comparability.

Data gaps: Scope 3 emissions and biodiversity

A major empirical limitation reported across studies is the underreporting of Scope 3 emissions and biodiversity outcomes. Scope 3 requires comprehensive upstream and downstream data collection, which is challenging in fragmented supply chains dominated by smallholders. Similarly, biodiversity impacts are complex to measure and require long-term ecological monitoring; consequently, many reports omit robust biodiversity indicators or rely on proxy measures (El Hathat et al., 2023). These lacunae leave a substantive portion of environmental risk unaccounted for in financial analyses.

Smallholder integration and capacity constraints

Smallholders produce a significant share of palm oil yet often operate with limited resources and technical capacity. The SLR reveals that firms struggle to obtain reliable data from smallholders, incentivize compliance with sustainability practices, and incorporate smallholder metrics into corporate reporting (VanderWilde et al., 2023). The absence of smallholder data both weakens supply-chain traceability and raises questions about the social completeness of disclosures.

Regulatory divergence and enforcement heterogeneity

While regulatory pressures (e.g., EU deforestation regulations, national reporting mandates) drive improvements in disclosure, inconsistent enforcement across producing countries undermines overall effectiveness. The literature notes that when domestic enforcement is weak or when compliance costs are high, smaller actors may be excluded from formal reporting regimes, creating a two-tier system of disclosure quality (Iddrisu, 2023). Regulatory divergence also compels firms to prioritize compliance for major markets, sometimes at the expense of broader transparency.

Strategic disclosure and greenwashing risks

Finally, strategic disclosure where companies selectively highlight positive outcomes while omitting negative impacts remains a significant concern. Studies show that narrative emphasis on sustainability commitments can mask insufficient operational change; without rigorous metrics and external verification, stakeholders cannot reliably distinguish substantive action from reputational signalling (Ngan et al., 2023). Greenwashing risks are compounded by

the lack of uniform penalties or reputational consequences in some markets.

Synthesis for RQ2. The principal barriers to credible sustainability reporting are structural (fragmented standards, regulatory heterogeneity), operational (data collection, smallholder inclusion), and behavioural (strategic disclosure). Together these issues constrain the adoption of the best practices identified above and reduce the sector's collective ability to present decision-useful, comparable, and verifiable information (I. Kurniawan, 2022).

The findings have three central implications. First, harmonization of disclosure standards at least in the form of crosswalks and sectoral interpretations is necessary to reduce reporting fatigue and improve comparability; policymakers and standard-setters should prioritize sector-specific guidance that aligns financial materiality with environmental and social indicators. Second, third-party assurance must be scaled and standardized: developing clear assurance scopes for key palm oil indicators (traceability, Scope 3 emissions, biodiversity proxies) will increase stakeholder confidence and deter strategic disclosure. Third, capacity building for smallholders and supply-chain actors is essential; public-private partnerships and blended finance mechanisms can underwrite traceability investments and technological adoption, thereby improving data quality and inclusion.

For research, future studies should pursue longitudinal and comparative analyses that link disclosure improvements to measurable financial and socio-environmental outcomes. Two priority areas include developing standardized biodiversity metrics fit for corporate reporting and evaluating the cost-benefit dynamics of digital traceability investments for smallholders and mid-sized producers. Empirical work that triangulates corporate reports, third-party verification data, and independent geospatial evidence would strengthen causal claims about the efficacy of reporting practices.

Concluding remark. The SLR demonstrates both the progress made and the persistent gaps in sustainability-driven corporate reporting within the palm oil sector. By adopting an integrated package of best practices, materiality-focused reporting, robust traceability, independent assurance, stakeholder engagement, and technology, firms can significantly improve the credibility and utility of their disclosures. Nonetheless, without coordinated action on standards harmonization, assurance scaling, and smallholder inclusion, reporting will remain a partial solution to the sector's deep sustainability challenges.

CONCLUSION

This review demonstrates that sustainability reporting practices in the palm oil sector between 2020 and 2025 have advanced considerably through the adoption of international reporting standards, the integration of financial

and non-financial information, and the use of digital technologies to enhance transparency. Best practices identified include implementing the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD), as well as integrating sustainability disclosures with financial reporting. Leading companies have increasingly strengthened supply chain traceability, expanded stakeholder engagement, and broadened disclosure coverage related to carbon emissions, biodiversity conservation, and labor welfare. These practices not only improve the credibility of corporate reporting but also enhance market positioning in a global environment where transparency and accountability are becoming strategic imperatives.

Conversely, significant challenges continue to undermine the effectiveness of sustainability-driven reporting. These include fragmented reporting standards, the high costs of third-party assurance, data gaps, particularly among smallholder producers, and inconsistent regulatory frameworks across jurisdictions. Such barriers are further exacerbated by the risk of greenwashing, which diminishes the credibility of disclosures, especially for firms with limited data management capacity. These challenges highlight the urgent need for harmonized reporting frameworks, institutional capacity-building, and stronger public policy support to ensure the consistency, reliability, and comparability of sustainability disclosures across the sector.

Overall, the literature indicates that sustainability reporting in the palm oil industry is moving toward a more integrated, accountable, and digitally monitored model. However, its effectiveness still depends on the extent to which best practices can be consistently adopted across the supply chain, particularly by medium- and small-scale enterprises. The findings carry important implications, underscoring the need for stronger collaboration among governments, industry actors, and international organizations to reinforce audit mechanisms, develop sustainability incentives, and accelerate the digitalization of reporting systems. Future research is encouraged to conduct cross-sectoral or cross-country comparative analyses to assess the effectiveness of sustainability reporting models and to further explore the role of digital innovations in enhancing the credibility and quality of disclosures.

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