

## **CARBON EMISSION DISCLOSURE: A SYSTEMATIC LITERATURE REVIEW OF THEORETICAL PERSPECTIVES, CORPORATE PRACTICES, AND FUTURE RESEARCH DIRECTIONS**

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### **ABSTRACT**

*Carbon Emission Disclosure (CED) has emerged as a crucial element of corporate sustainability reporting because of rising stakeholder demands for environmental principles, openness and responsibility. Despite the rapid growth of CED research, existing studies remain fragmented across theoretical perspectives and empirical contexts. This study aims to synthesize recent literature by identifying the dominant theoretical perspectives, explaining how these theories interpret corporate carbon disclosure practices, and examining the associated benefits, challenges, and barriers. A Systematic Literature Review (SLR) was conducted following the PRISMA 2020 guidelines. The review analyzed 37 peer-reviewed journal articles indexed in the Scopus database and published between 2021 and 2026. The findings reveal that Legitimacy Theory is the most frequently adopted theoretical perspective, followed by Stakeholder Theory, Agency Theory, and Signaling Theory, indicating that carbon disclosure is primarily viewed as a strategic response to societal expectations and stakeholder pressures. The review further shows that carbon disclosure is influenced by corporate governance, organizational capabilities, regulatory requirements, investor expectations, and supply chain pressures. High-quality disclosure enhances transparency, organizational legitimacy, stakeholder trust, environmental performance, and access to sustainable finance. However, companies continue to face challenges related to inconsistent reporting standards, limited Scope 3 emissions data, high implementation costs, and greenwashing concerns. This review presents a thorough integration of recent CED research and suggests implications for forthcoming studies and corporate sustainability reporting.*

*Keywords: carbon emission disclosure; carbon disclosure; legitimacy theory; sustainability reporting; systematic literature review.*

### **INTRODUCTION**

Carbon emission disclosure (CED) has become an increasingly important component of corporate sustainability reporting as organizations face growing expectations to provide transparent information regarding greenhouse gas (GHG) emissions and climate-related

strategies. CED encompasses information on carbon governance, emission reduction targets, climate-related risks and opportunities, and Scope 1–3 emissions. Consequently, carbon disclosure has evolved from a voluntary reporting practice into a strategic communication mechanism through which firms enhance transparency, demonstrate environmental accountability,

and respond to stakeholder expectations (Bazhair et al., 2022; Bedi & Singh, 2024). Recent studies further suggest that CED functions as a legitimacy-enhancing mechanism that strengthens stakeholder trust and responds to increasing climate-related concerns (Shui et al., 2023; Olayinka et al., 2025).

The literature published between 2021 and 2026 demonstrates growing interest in the determinants, quality, consequences, and governance mechanisms of carbon emission disclosure. Previous studies have identified both internal and external determinants of CED, including corporate governance characteristics, ownership structures, managerial attributes, stakeholder pressure, regulatory environments, and institutional factors (Jamaliah et al., 2023; Park et al., 2023; Wahyuningrum et al., 2024; Bedi & Singh, 2024; Kim & Kim, 2022). Research has also documented various benefits of carbon disclosure, including lower financing costs, improved stakeholder confidence, enhanced legitimacy, better environmental performance, and greater access to sustainable financing (Shao et al., 2022; Bazhair et al., 2022; Rohani et al., 2021; Atiqa et al., 2023; Wang & Wijethilake, 2026).

Nevertheless, empirical findings

regarding the determinants and consequences of carbon emission disclosure remain inconsistent. The direction and significance of relationships between carbon disclosure and firm characteristics may differ according to industry, institutional environment, regulatory setting, and country context. For example, while Saraswati et al. (2021) reported positive associations between profitability, firm size, board independence, board gender diversity, and carbon disclosure, Simamora et al. (2022) found no significant effect of managerial ownership on carbon disclosure. More recent Indonesian evidence also continues to report differences in the effects of leverage, institutional ownership, and environmental management on carbon disclosure (Rismahmudah & Mukhibad, 2026). Such variations indicate that the effectiveness and determinants of carbon disclosure cannot be understood independently of organizational and institutional contexts.

Despite the rapid development of this research area, several challenges remain evident in existing carbon disclosure practices. One important issue concerns the completeness and comparability of reported emissions, particularly Scope 3 emissions. Scope 3 represents emissions

arising throughout a firm's upstream and downstream value chain and is often substantially more difficult to measure and disclose than Scope 1 and Scope 2 emissions. A systematic review by Hettler et al. (2024) found that Scope 3 reporting remains relatively uncommon and that the literature identifies poor comprehensiveness as a recurring problem. Empirical evidence also demonstrates substantial differences between reported and harmonized corporate carbon footprints. For example, a study of technology companies found that corporate reports omitted a substantial portion of total emissions, particularly those associated with Scope 3 activities (Busch et al., 2021). Consistent with these findings, the OECD reported that in 2022 only approximately 60% of companies by global market capitalization disclosed Scope 3 emissions, compared with a higher proportion reporting Scope 1 and Scope 2 emissions.

Companies also face practical and organizational challenges in implementing comprehensive carbon disclosure. These challenges include difficulties in collecting and standardizing emissions data across organizational boundaries and supply chains, methodological differences in carbon

measurement, and the complexity of reporting Scope 3 emissions (Hettler et al., 2024). In addition, the continuing development of climate-related reporting requirements may create uncertainty for firms as they adapt to changing regulatory expectations. The emergence of more formal climate disclosure requirements, including IFRS S2, further illustrates the transition toward more standardized climate-related reporting frameworks in several jurisdictions (Azizah & Sudarmaji, 2026). Consequently, organizations must balance the potential benefits of greater environmental transparency with the resources and organizational capabilities required to produce reliable and comparable carbon information.

Beyond technical reporting, carbon disclosure represents an organizational response to stakeholder and institutional expectations regarding climate accountability. Previous studies show that regulatory and customer pressures influence disclosure decisions (Bedi & Singh, 2024), while systematic reviews identify Legitimacy Theory and Stakeholder Theory as dominant perspectives for explaining carbon disclosure practices (Bazhair et al., 2022; Nilasakti et al., 2024).

Considering the expanding yet fragmented literature, a comprehensive synthesis is needed to identify the dominant theoretical perspectives, explain how these theories interpret carbon disclosure practices, and integrate the determinants, benefits, challenges, and consequences identified in recent studies (Bazhair et al., 2022; Shui et al., 2023; Jamaliah et al., 2023; Olayinka et al., 2025).

Therefore, this systematic literature review addresses three research questions to provide a more integrated understanding of Carbon Emission Disclosure research, with particular attention to the role of Legitimacy Theory in explaining corporate disclosure practices.

RQ1: What are the most frequently adopted theoretical perspectives in the carbon emission disclosure literature?

RQ2: How do the dominant theoretical perspectives explain corporate carbon emission disclosure practices and their relationship with carbon emission disclosure?

RQ3: What benefits, challenges, and barriers associated with carbon emission disclosure are experienced by companies and other stakeholders according to the existing literature?

## **LITERATURE REVIEW**

### **Legitimacy Theory**

Legitimacy Theory suggests that organizations disclose carbon-related information to align with societal expectations and maintain legitimacy (Dowling & Pfeffer, 1975; Suchman, 1995). As stakeholder demands for environmental transparency increase, Carbon Emission Disclosure (CED) becomes an important mechanism for demonstrating accountability and environmental responsibility (Deegan, 2002; Hrasky, 2012). Effective disclosure can enhance stakeholder trust and reputation, while inadequate disclosure may create legitimacy risks and greenwashing concerns (Suchman, 1995; Rohani et al., 2021).

### **Stakeholder Theory**

Stakeholder Theory suggests that companies disclose carbon-related information to meet stakeholder expectations and maintain stakeholder support (Freeman, 1984; Freeman et al., 2010). As demands for environmental transparency increase, Carbon Emission Disclosure (CED) serves as a mechanism for communicating environmental accountability and performance (Clarkson et al., 2008). Effective disclosure can

enhance stakeholder trust and corporate reputation, whereas inadequate disclosure may increase uncertainty and reputational risks (Luo et al., 2013; Clarkson et al., 2008).

### **Agency Theory**

Agency Theory explains that information asymmetry arises because managers possess more information than shareholders regarding environmental performance and climate-related risks (Jensen & Meckling, 1976). In this context, Carbon Emission Disclosure (CED) functions as a governance mechanism that improves transparency, reduces information asymmetry, and enables stakeholders to evaluate corporate environmental performance and sustainability strategies (Healy & Palepu, 2001). Firms facing greater agency pressures tend to provide more extensive carbon disclosures to strengthen investor confidence and support effective corporate governance (Jensen & Meckling, 1976). Conversely, inadequate disclosure may increase uncertainty and concerns regarding managerial opportunism or the concealment of environmental risks (Healy & Palepu, 2001).

### **Signaling Theory**

Signaling Theory explains that companies voluntarily disclose information to reduce information asymmetry and communicate their quality and future prospects to external stakeholders (Spence, 1973). In the context of Carbon Emission Disclosure (CED), firms use carbon disclosure to signal environmental responsibility, sustainability commitment, and climate-risk management capabilities, particularly when they possess stronger environmental performance (Clarkson et al., 2008). High-quality disclosure can enhance reputation, stakeholder trust, investor confidence, and access to sustainable financing, whereas poor-quality disclosure may increase uncertainty and weaken the credibility of environmental claims (Connelly et al., 2011). Therefore, CED serves as a strategic communication mechanism through which firms convey positive environmental signals and reduce information asymmetry.

## **RESEARCH METHOD**

### **Research Design**

This study employed a Systematic Literature Review (SLR) to synthesize the existing literature on Carbon Emission Disclosure (CED). Following the PRISMA

2020 guidelines, the review applied a transparent and systematic procedure for identifying, screening, and analyzing relevant studies. The literature search was conducted in the Scopus database on February 15, 2026, using keywords related to carbon emission disclosure and associated theoretical perspectives. After applying publication year (2021–2026), document type, subject area, open-access, and relevance criteria, 37 articles were selected for final analysis.

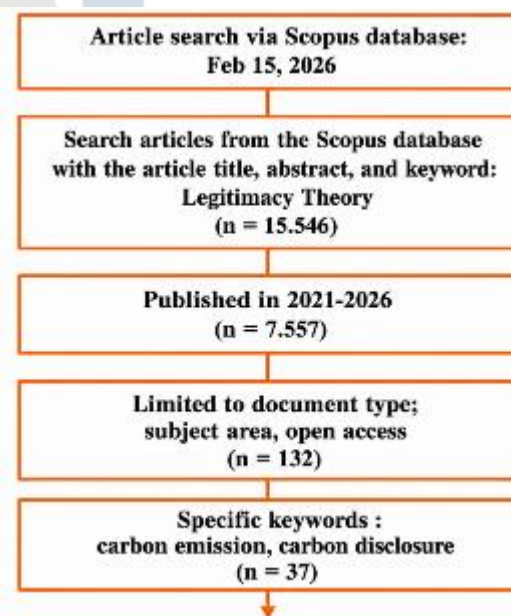
The review aims to identify the dominant theoretical perspectives in CED research, explain how these theories are applied to corporate disclosure practices, and examine the benefits, challenges, and barriers associated with carbon emission disclosure. A qualitative synthesis approach was employed to analyze, compare, categorize, and interpret the findings of the selected studies.

## Research Design

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analyze the benefits, challenges, and barriers associated with carbon disclosure.

The literature search was conducted in the Scopus database on February 15, 2026. Using the keyword "Legitimacy Theory", the initial search yielded 15,546 records. After applying publication year (2021–2026), document type, subject area, open-access, and relevance criteria related to carbon emission and carbon disclosure, 37 articles were retained for final analysis.



**Figure 1. Article Search and Selection Process.**

## Inclusion and Exclusion Criteria

Predefined inclusion and exclusion criteria were applied to ensure the relevance and quality of the reviewed literature. Only peer-reviewed journal articles related to carbon emission

disclosure were included, while non-relevant publications and studies without accessible full texts were excluded. This process resulted in a final dataset that directly addressed the research objectives.

**Table 1. Inclusion & Exclusion Criteria**

| Criteria            | Inclusion                                                                                                                                   | Exclusion                                                                                                     |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Publication Type    | Peer-reviewed journal articles                                                                                                              | Conference papers, book chapters, editorials, dissertations, theses, and other non-peer-reviewed publications |
| Database & Language | Articles indexed in Scopus and published in English                                                                                         | Articles not indexed in Scopus or published in languages other than English                                   |
| Publication Period  | Studies published between 2021 and 2026                                                                                                     | Studies published before 2021                                                                                 |
| Research Focus      | Studies focusing on Carbon Emission Disclosure (CED), Carbon Disclosure, Climate Disclosure, Carbon Reporting, or Greenhouse Gas Disclosure | Studies that do not primarily address carbon-related disclosure or reporting                                  |
| Research Quality    | Empirical studies (quantitative, qualitative, mixed methods) and systematic literature reviews                                              | Opinion papers, commentaries, news articles, and non-scientific publications                                  |

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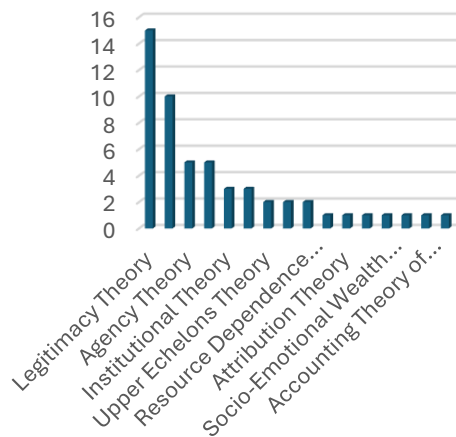
peer-reviewed, Scopus-indexed journal articles published in English between 2021 and 2026 and focusing on Carbon Emission Disclosure (CED) were included. All other publication types, non-relevant studies, and articles without accessible full texts were excluded.

## RESULT AND DISCUSSION

### RQ1: What are the most frequently adopted theoretical perspectives in the Carbon emission disclosure literature?

To address the first research question, this review identified and analyzed the theoretical perspectives used in Carbon Emission Disclosure (CED) studies. The findings indicate substantial theoretical diversity, reflecting the multidisciplinary nature of carbon disclosure research. The reviewed studies draw on theories from accounting, corporate governance, strategic management, organizational behavior, and sustainability literature to explain corporate carbon disclosure practices and their implications. Despite this diversity, several theories emerged as dominant perspectives in the literature.

Figure 2 presents the frequency distribution of the theories identified in the selected studies, providing an overview of their relative prominence and highlighting the dominant theoretical frameworks used in CED research.



**Figure 2. Frequency of Theory Used In Carbon Emission Disclosure.**

Based on Figure 2, Legitimacy Theory is the most frequently adopted theoretical perspective, appearing in 15 studies, followed by Stakeholder Theory (10 studies). Agency Theory and Signaling Theory each appear in five studies, while Institutional Theory and the Resource-Based View (RBV) are represented in three studies each. Other theories, including Upper Echelons Theory, Critical Mass Theory, Resource Dependence Theory, Information Asymmetry Theory, Attribution Theory, Relational View Theory, Socio-Emotional Wealth Theory, Stewardship Theory, Accounting Theory of Disclosure, and Customer Satisfaction Theory, appear less frequently.

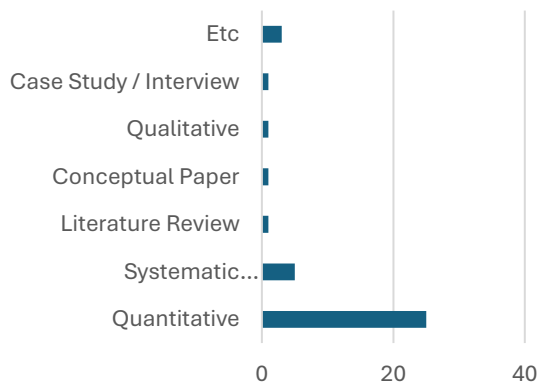
The dominance of Legitimacy Theory indicates that carbon emission disclosure is primarily viewed as a response to

societal expectations and increasing demands for environmental accountability. As concerns regarding climate change and sustainability intensify, organizations face growing pressure from regulators, investors, communities, and environmental groups to demonstrate transparency and responsible environmental practices. Consequently, carbon disclosure is widely interpreted as a mechanism for maintaining legitimacy, reducing legitimacy gaps, and strengthening stakeholder confidence.

In contrast, Stakeholder Theory emphasizes stakeholder information needs, whereas Agency Theory and Signaling Theory focus on reducing information asymmetry and communicating environmental performance. These findings suggest that carbon emission disclosure is predominantly driven by external societal and stakeholder pressures rather than solely by internal sustainability objectives.

Overall, the findings confirm Legitimacy Theory as the dominant theoretical lens in carbon emission disclosure research. Given its prominence and its ability to explain organizational responses to environmental expectations

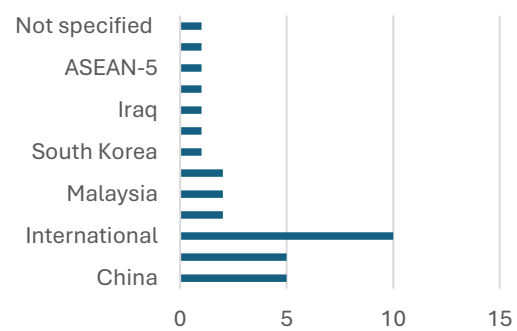
and legitimacy pressures, this theory serves as the overarching framework for synthesizing the determinants, benefits, and challenges of corporate carbon emission disclosure.



**Figure 3. Distribution of Methodology Research Used in Carbon Emission Disclosure**

The methodological distribution shows that **quantitative research dominates the carbon emission disclosure literature**, accounting for 25 of the 37 reviewed studies (67.6%). Systematic Literature Reviews (SLRs) represent the second most common approach with five studies (13.5%), while literature reviews, conceptual papers, qualitative studies, and case study/interview approaches each account for one study (2.7%). The remaining three studies (8.1%) were classified as *other/unavailable*. This distribution indicates a strong reliance on quantitative methods, whereas qualitative and conceptual approaches remain limited.

Consequently, future research may benefit from adopting more diverse methodologies, particularly qualitative and mixed-method designs, to provide deeper insights into managerial motivations, organizational processes, stakeholder interactions, and contextual factors influencing carbon emission disclosure.



**Figure 4. Geographical Distribution of Carbon Emission Disclosure**

The reviewed studies cover diverse geographical contexts, with international or multi-country studies representing the largest category (10 studies), followed by China and Indonesia (five studies each). The remaining studies are distributed across the United States, Malaysia, the United Kingdom, South Korea, Vietnam, Iraq, Europe, ASEAN-5, and Australia. This pattern highlights the growing prominence of Asia in carbon emission disclosure research while indicating opportunities for future studies in underrepresented regions. Table 2

summarizes the 37 selected studies, including their theoretical perspectives, determinants, benefits, challenges, and future research directions.

**Table 2. Summary Matrix of Selected Studies on Carbon Emission Disclosure**

| Category                                | Summary of Findings                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Authors and Research Coverage           | The 37 reviewed studies were published between 2021 and 2026 and covered various countries and sectors, including Indonesia, China, Australia, Malaysia, the United Kingdom, shipping, manufacturing, supply chains, family firms, and carbon-intensive industries.                                                                                                                       |
| Dominant Theoretical Frameworks         | Legitimacy Theory emerged as the most dominant theoretical perspective, followed by Stakeholder Theory, Agency Theory, and Signaling Theory. Other theories identified include Resource-Based View (RBV), Institutional Theory, Upper Echelons Theory, Critical Mass Theory, Stewardship Theory, Socio-Emotional Wealth Theory, Relational View Theory, and Information Asymmetry Theory. |
| Corporate Governance Determinants       | Board gender diversity, board independence, sustainability committees, family ownership, CEO characteristics, governance quality, and sustainability assurance were frequently found to influence carbon disclosure practices.                                                                                                                                                            |
| Firm Characteristics Determinants       | Profitability, leverage, environmental performance, foreign ownership, external financing needs, and organizational capabilities were identified as important determinants of carbon disclosure quality and transparency.                                                                                                                                                                 |
| Stakeholder and Institutional Pressures | Stakeholder demands, regulatory pressures, carbon markets, sustainability reporting requirements, and                                                                                                                                                                                                                                                                                     |

|                                        |                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Benefits of Carbon Emission Disclosure | climate-related disclosure regulations were important drivers of carbon disclosure adoption and quality. Carbon disclosure contributes to improved transparency, legitimacy, environmental accountability, stakeholder trust, disclosure quality, carbon management practices, environmental performance, and lower financing costs. |
| Challenges and Barriers                | Studies highlighted inconsistent Scope 3 reporting, limited disclosure quality, fragmented reporting practices, high reporting complexity, and variation in disclosure standards across countries and industries.                                                                                                                    |
| Future Research Opportunities          | Future studies should explore qualitative approaches, cross-country comparisons, climate governance mechanisms, carbon assurance, Scope 3 emissions reporting, and the integration of emerging sustainability reporting frameworks such as IFRS S2.                                                                                  |

The summary matrix indicates that carbon emission disclosure research is predominantly grounded in Legitimacy Theory and Stakeholder Theory, with corporate governance mechanisms, firm characteristics, and stakeholder pressures emerging as the most frequently examined determinants. The reviewed studies also suggest that carbon disclosure provides important organizational benefits, including enhanced transparency, legitimacy, environmental accountability, and stakeholder confidence. However, challenges related to reporting quality, Scope 3 emissions disclosure, and

reporting standardization remain important issues requiring further investigation.

**RQ2: How do the dominant theoretical perspectives explain corporate carbon emission disclosure practices and their relationship with carbon emission disclosure?**

The findings indicate that the dominant theories explain Carbon Emission Disclosure (CED) through complementary rather than competing mechanisms. Legitimacy Theory suggests that firms disclose carbon-related information to respond to societal expectations and maintain legitimacy. This perspective is supported by Abdul Majid et al. (2023), who find that sustainability-related regulatory pressure positively influences carbon disclosure in Malaysia, and by Lintukangas et al. (2023), who highlight the importance of supply-chain engagement in corporate carbon management. Stakeholder Theory further explains that disclosure is driven by stakeholder information demands. Consistent with this view, Luo et al. (2023) find that carbon assurance is associated with higher disclosure quality, particularly in stakeholder-oriented countries.

Agency Theory and Signaling Theory explain additional mechanisms underlying

CED. From an agency perspective, disclosure reduces information asymmetry and strengthens monitoring. Abdul Majid et al. (2023) report that greater CEO ownership power is negatively associated with carbon disclosure, while Park et al. (2023) show that board independence, gender diversity, foreign ownership, and CEO compensation are positively associated with disclosure practices. From a signaling perspective, firms use disclosure to communicate environmental quality and reduce uncertainty. Luo et al. (2023) find that carbon assurance improves disclosure quality, whereas Rehman et al. (2023) show that disclosure is associated with lower capital costs. Similarly, Wang and Wijethilake (2026) report that higher-quality carbon disclosure reduces green-bond financing costs. However, Choi et al. (2026) find that common ownership reduces both the likelihood and quality of disclosure, indicating that the signaling value of CED depends on governance incentives.

Overall, the reviewed studies suggest that Legitimacy Theory explains the broader motivation for disclosure, Stakeholder Theory explains external disclosure pressures, Agency Theory explains governance and monitoring

mechanisms, and Signaling Theory explains the strategic value of disclosure. Together, these perspectives indicate that CED is a multidimensional practice shaped by societal expectations, stakeholder demands, managerial incentives, and market considerations.

**RQ3: What benefits, challenges, and barriers associated with carbon emission disclosure are experienced by companies and other stakeholders according to the existing literature?**

The reviewed studies demonstrate that Carbon Emission Disclosure (CED) generates benefits that extend beyond environmental transparency and can influence firms' financial, strategic, and stakeholder-related outcomes. The evidence from the sample indicates that the benefits of CED are highly dependent on disclosure quality, credibility, and the organizational context in which disclosure occurs. For example, Rehman et al. (2023) find that carbon disclosure is associated with lower cost of capital, particularly when firms face greater external financing needs, suggesting that transparent carbon information can reduce information uncertainty for capital providers. This financial benefit is further supported by Wang and Wijethilake (2026), who demonstrate that higher carbon disclosure quality is associated with lower green

bond financing costs. Similarly, Luo et al. (2023) show that carbon assurance enhances the quality of carbon disclosure, indicating that external verification can strengthen the credibility and usefulness of disclosed information. From a stakeholder perspective, Ma et al. (2023) provide evidence that carbon disclosure can influence consumers' recycling willingness and firms' recycling performance, while Lintukangas et al. (2023) demonstrate the importance of carbon-related engagement across supply-chain relationships. Other studies highlight organizational and environmental benefits: Wahyuningrum et al. (2024) examine the determinants of carbon disclosure in relation to environmental performance, while Hamim and Mollah (2025) demonstrate the relationship between climate-risk governance and environmental innovation. Taken together, these findings indicate that CED can function as more than a reporting mechanism; when the information is sufficiently credible and decision-useful, it can create financial value, strengthen stakeholder relationships, improve environmental performance, and support strategic sustainability initiatives.

However, the 37-study sample also

reveals that the realization of these benefits is constrained by substantial measurement, information, organizational, and institutional barriers. One of the most prominent challenges concerns the measurement and disclosure of Scope 3 emissions, which require extensive information from suppliers, customers, logistics providers, and other actors outside the firm's direct operational boundaries. Hettler and Graf-Vlachy (2024) identify Scope 3 reporting as an important but complex mechanism for supply-chain decarbonization, while Kim et al. (2026) demonstrate the continuing difficulty of tracking otherwise “invisible” Scope 3 emissions through conventional information systems. Di Vaio et al. (2026) similarly highlight the complexity of reporting Scope 3 emissions within the shipping industry, indicating that disclosure quality is strongly dependent on the availability and reliability of supply-chain data. The challenge is not limited to data collection; institutional differences and the credibility of reported information also represent important barriers. Elsayih et al. (2026) show that the relationship between carbon management system quality and voluntary carbon assurance varies according to institutional settings, suggesting that assurance

mechanisms do not operate uniformly across countries. Moses et al. (2025) further demonstrate differences in corporate readiness for mandatory climate-related disclosure across Australia, New Zealand, and the United Kingdom, highlighting the role of regulatory and governance environments. Moreover, the literature suggests a potential tension between transparency and strategic interests. While disclosure can generate legitimacy and financing benefits, firms may face proprietary concerns, implementation costs, and reputational risks when disclosed information reveals weak environmental performance or is perceived as symbolic. Therefore, the critical finding from RQ3 is that CED creates a potential value–cost trade-off: companies can obtain financial, reputational, environmental, and stakeholder benefits from credible disclosure, but these benefits depend on overcoming substantial data, technological, assurance, cost, regulatory, and organizational barriers. This suggests that improving CED requires not only greater disclosure, but also higher-quality information, stronger carbon accounting capabilities, reliable assurance, standardized reporting requirements, and greater coordination across corporate

supply chains and institutional stakeholders.

## **LIMITATIONS**

This review has several limitations. First, it relied solely on the Scopus database, potentially excluding relevant studies indexed elsewhere. Second, only English-language publications were included. Third, the analysis was limited to studies published between 2021 and 2026, excluding earlier contributions to the carbon emission disclosure literature. Finally, the review focused exclusively on peer-reviewed journal articles and did not consider conference papers, book chapters, dissertations, or other scholarly sources. Future research may expand the scope of databases, languages, publication periods, and literature sources to provide a more comprehensive understanding of carbon emission disclosure.

## **CONCLUSION**

This systematic literature review provides a comprehensive synthesis of recent studies on Carbon Emission Disclosure (CED) published between 2021 and 2026. The findings demonstrate that carbon emission disclosure has become an increasingly important research area in response to growing

global concerns regarding climate change, corporate sustainability, and environmental accountability. The reviewed studies reveal that CED extends beyond regulatory compliance and functions as a strategic mechanism through which organizations communicate their environmental commitments, enhance transparency, and strengthen relationships with various stakeholder groups.

Regarding the first research question, the review identifies Legitimacy Theory as the dominant theoretical perspective employed in carbon emission disclosure research, followed by Stakeholder Theory, Agency Theory, and Signaling Theory. This finding suggests that existing studies predominantly interpret carbon disclosure as a strategy for obtaining, maintaining, and restoring organizational legitimacy while responding to increasing stakeholder expectations. With respect to the second research question, the literature indicates that carbon emission disclosure is shaped by the interaction of internal organizational factors, including corporate governance, board characteristics, CEO attributes, and carbon management capabilities, with external pressures such as regulations, investor expectations, media attention, and supply chain

requirements. Collectively, these theoretical perspectives explain carbon disclosure as a strategic organizational response rather than merely a compliance obligation.

Finally, the review highlights that carbon emission disclosure generates numerous benefits for companies and stakeholders, including improved transparency, enhanced corporate legitimacy, stronger stakeholder trust, better environmental performance, increased access to sustainable finance, and greater competitive advantage. Nevertheless, organizations continue to encounter significant challenges, including inconsistent reporting standards, limited availability of Scope 3 emissions data, high implementation costs, inadequate carbon accounting systems, and concerns regarding greenwashing and proprietary information. These challenges indicate that improving the quality and credibility of carbon emission disclosure requires stronger governance mechanisms, harmonized reporting standards, technological innovation, and greater collaboration among companies, regulators, investors, and other stakeholders.

This review contributes to the existing literature by consolidating the

dominant theoretical perspectives, synthesizing the mechanisms through which these theories explain carbon emission disclosure, and integrating the benefits, challenges, and barriers reported across recent studies. The findings also provide practical implications for corporate managers, policymakers, and standard-setting bodies in designing more transparent and effective carbon disclosure practices. Future research is encouraged to explore underutilized theoretical perspectives beyond Legitimacy Theory, conduct comparative analyses across different institutional and geographical contexts, and investigate the evolving role of emerging sustainability reporting standards and digital technologies in enhancing the quality and effectiveness of carbon emission disclosure.

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