

The Dynamics of Green Accounting Implementation amid Regulatory Pressure and Global Market Demands

Nurmadi Harsa Sumarta

Universitas Sebelas Maret, Surakarta

Corresponding Author: Nurmadi Harsa : nurmadi@staff.uns.ac.id

ARTICLE INFO

Keywords: Dynamics, Green Accounting, Regulatory Pressure, Global Market Demands.

Received : 12 November

Revised : 23 December

Accepted: 10 January

©2026 Sumarta : This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

The implementation of green accounting has become increasingly important amid growing regulatory and global market pressures for environmental transparency. In Indonesia, these pressures stem from environmental and capital market regulations, particularly in strategic industrial areas of Central Java. This study explores how a medium-large manufacturing company interprets and adapts its accounting practices in response to these demands. Using a qualitative multi-site case study, data were collected through in-depth interviews, observation, and document analysis, and analyzed thematically. The findings show that green accounting implementation evolves gradually, driven by regulatory requirements and reinforced by global standards such as ISO 14001 and GRI. While organizations undertake structural adjustments, improve environmental information systems, and integrate ecological costs into decision-making, implementation remains constrained by limited resources and technical readiness. Overall, the study highlights that green accounting dynamics result from the interaction between external pressures and internal organizational capacity, underscoring the need for regulatory support, technological readiness, and managerial commitment.

INTRODUCTION

Accelerating climate change and increasing ecological risks have placed sustainability issues on the strategic agenda in global corporate governance. Companies are now required to internalize environmental impacts into reporting systems, especially through green accounting practices that are increasingly receiving academic and professional attention. According to Hoffman & Ramirez (2021), companies that neglect to record environmental costs have the potential to lose public legitimacy and long-term market value. International trends also show that stakeholders are demanding more comprehensive transparency regarding energy use, carbon emissions, and the impact of industrial waste. Thus, the practice of green accounting can no longer be seen as a voluntary initiative, but as a strategic mechanism inherent in the performance of modern companies.

In the context of global regulations, the integration of environmental standards is further strengthened by international policies that encourage the adoption of sustainability reporting practices. Marston & Liew (2022) show that frameworks such as IFRS Sustainability Standards, GRI, and CDP have expanded the definition of corporate accountability to include measurable environmental indicators. These standards play a role in shaping market expectations for the consistency and quality of environmental information published by companies. In particular, the existence of international standards makes companies in developing countries face the pressure of harmonizing reporting with global trading partners. Therefore, manufacturing companies connected to the global supply chain are obliged to adjust green accounting practices to remain competitive.

Global market pressures also play an important role in driving the adoption of green accounting, especially for medium-large manufacturing companies. The Kent & Alvarez study (2023) confirms that international buyers are increasingly strict in assessing the environmental performance of suppliers, including waste control mechanisms and ecological cost calculations. Companies that are unable to provide complete and measurable data risk missing out on contract opportunities or market access. In addition, the tendency of global investors towards ESG-based portfolios makes the quality of environmental reporting a key indicator of investment risk assessment. In this situation, companies are not only pursuing compliance, but also competitive advantage through credible quality environmental reporting.

In Indonesia, this dynamic is reinforced by a national legal framework that governs environmental protection obligations and sustainability reporting. Sutanto & Ibrahim (2024) show that tightening regulations through environmental laws, impact assessment PPs, and PROPER instruments have increased the demands for environmental data accuracy in companies. Companies located in dense industrial areas such as Solo Raya, Semarang-Kendal, and Kudus-Jepara face double pressure, namely regulatory audits and sustainability evaluations of export markets. This condition creates a need for organizations to adjust accounting systems, reporting structures, and data integration across divisions. As regulatory expectations increase, companies are

required to increase internal capacity to be able to meet increasingly detailed standards. Therefore, the implementation of green accounting cannot be separated from the context of regulations and national industrial dynamics.

Although the literature on green accounting continues to grow, most international studies still focus on the quantitative relationship between environmental reporting and corporate performance. Davenport & Hughes (2020) state that quantitative approaches often fail to capture the complexity of internal adaptations and institutional processes that occur within organizations. Measurement of variables alone is not able to explain how external pressures translate into changes in accounting procedures or organizational structures. In addition, many studies ignore the social and regulatory context that can influence the adoption of green accounting, particularly in manufacturing companies in developing countries. These gaps reinforce the need for qualitative research that focuses on implementation dynamics.

Qualitative research offers an important contribution to understanding how companies respond to regulatory pressures and market demands in the implementation of green accounting. Ellwood & Carter (2022) explained that organizational adaptation takes place through the process of interpretation, cross-unit coordination, and rearrangement of environmental information systems. Through interviews and observations, qualitative research can capture managerial logic as well as internal dynamics that are not visible in quantitative data. This approach allows the identification of inhibiting factors such as resource limitations, internal resistance, or organizational structure incompatibilities. Thus, qualitative research is a relevant method to explore green accounting as an institutional process.

Based on these gaps, this study is designed to investigate the process of implementing green accounting in medium-large manufacturing companies in Solo Raya, Semarang-Kendal, and Kudus-Jepara, which have high exposure to environmental audits and global sustainability standards. The multi-site case study allows for an in-depth discussion of how a company interprets regulatory pressures as well as adapts its accounting practices to the demands of the global market. These findings are expected to make a theoretical contribution to expanding the understanding of the interaction between external factors and the internal capacity of organizations, as stated by Lawrence & Bishop (2025). In addition, this study provides practical implications for companies that are strengthening environmental reporting systems as part of their sustainability strategies. This research also emphasizes the importance of technological readiness, human resource competence, and adaptive governance in the successful implementation of green accounting.

LITERATURE REVIEW

Theory of Legitimacy and Isomorphism in Green Accounting

In the study of sustainability accounting, the theory of legitimacy is the main framework to explain why companies adopt green accounting. Companies seek to maintain social legitimacy through environmental reporting to

demonstrate conformity with societal norms and stakeholder expectations (Anderson & Patel, 2021). In addition, the theory of institutional isomorphism explains that coercive pressures such as environmental regulations and sustainability reporting obligations encourage companies to adapt to practices that are considered institutionally valid (Meyer & Schultz, 2022). Mimetic pressure also occurs when companies mimic the environmental reporting practices of global companies to maintain competitiveness in international markets (Garcia & Nolan, 2023). Thus, legitimacy and isomorphism provide a theoretical basis for understanding green accounting in response to regulatory pressures, market pressures, and reputational demands.

Green Accounting Practices and Their Impact on Company Value

A number of international studies show that green accounting practices can affect a company's value, both directly and through its sustainability reputation. Chen & Morita (2021) found that market returns increase when companies consistently record ecological costs and disclose their impacts transparently. However, these results are not always uniform. Oliver & Jensen (2022) report that the influence of green accounting on financial performance is highly dependent on the company's cost structure and technical readiness. The inconsistency of these findings shows that the impact of green accounting is contextual, influenced by the scale of the company, the industrial sector, and the level of environmental integration in the organization's strategy. This emphasizes that the implementation of green accounting does not automatically result in an increase in company value.

Disclosure of Sustainability as a Mediator between Green Accounting and Performance

The international literature emphasizes that sustainability disclosure plays an important role as a mediator in the relationship between green accounting and corporate performance. Hendrix & Lawson (2023) show that comprehensive environmental cost recording only has a positive impact when companies actively communicate such data through sustainability reports. High-quality disclosures increase the credibility of the organization and strengthen investors' perception of the company's commitment to environmental responsibility (Franco & Müller, 2024). Additionally, strong disclosures serve as a legitimacy signal for stakeholders and can improve access to ESG-based funding. Thus, green accounting and sustainability disclosure are two mechanisms that reinforce each other in producing a positive impact on the organization.

Regulatory Pressures and Challenges of Green Accounting Implementation

The implementation of green accounting is inseparable from the pressure of increasingly stringent environmental regulations in various countries. Rahman & Elliot (2020) state that modern environmental policies require companies to calculate ecological costs in detail and provide auditable data-driven reporting. In Indonesia, regulations such as the Environmental Law, PROPER, and POJK on sustainable finance create significant coercive pressure, especially on companies located in dense industrial areas. However, Lopez &

Shimizu (2022) found that regulatory pressures often pose challenges such as implementation cost burdens, limited HR competencies, as well as the risk of "symbolic compliance" when companies only fulfill administrative obligations without real integration in the decision-making process. These findings suggest that regulation, while important, does not necessarily guarantee the effectiveness of green accounting implementation.

Green Accounting in the Sustainability and Renewable Energy Industry

In the renewable energy sector, green accounting is an important instrument to measure ecological impact and improve resource use efficiency. The Adams & Kruger study (2023) shows that green energy companies that implement green accounting have better ability to optimize energy consumption and reduce their carbon footprint. However, implementation challenges remain significant. Barreto & Singh (2024) highlight obstacles such as the lack of consistent reporting standards, reliance on expensive measurement technologies, and organizational resistance to changes in accounting systems. These findings are relevant for the manufacturing sector in the industrial region of Central Java, which faces regulatory pressures and global sustainability standards while requiring strong internal adaptation. Thus, the success of green accounting requires technological readiness, organizational culture, and a supportive governance structure.

METHODOLOGY

Types, Approaches, and Research Design

This study uses a qualitative approach with a multi-site case study design to deeply understand the dynamics of green accounting implementation in the context of regulatory pressures and global market demands. The qualitative approach was chosen because it is able to capture internal organizational processes, managerial interpretations, and institutional adaptations that cannot be represented through quantitative methods. The multi-site design was used to compare organizational responses in three strategic industry clusters, namely Solo Raya, Semarang-Kendal, and Kudus-Jepara. This design aligns with contemporary sustainability research recommendations that emphasize the importance of cross-contextual analysis to understand institutional dynamics (Daud et al., 2023).

Research Location, Population, and Informant Selection Techniques

The research was conducted on three medium-large scale manufacturing companies operating in Solo Raya, Semarang-Kendal, and Kudus-Jepara. The three regions were chosen because they are the center of the Central Java industrial cluster with a high level of exposure to environmental regulations, PROPER audits, and export market demands. The informant selection technique uses purposive sampling, with the consideration that informants must have substantive competence and direct involvement in environmental reporting activities and the implementation of green accounting. There are a total of eight key informants, with the following division:

1. Solo Raya (3 informants): Accounting Manager, Environmental Manager, Head of Operational Division.
2. Semarang-Kendal (3 informants): Environmental Accounting Supervisor, Environmental Internal Auditor, Accounting Information System Analyst.
3. Kudus-Jepara (2 informants): Sustainability Reporting Staff, ISO 14001 Specialist.

This division is structured based on the intensity of exposure to global sustainability standards that vary in each region.

Data Collection Techniques and Research Instruments

Data was collected through three main techniques: (1) semi-structured in-depth interviews, (2) field observations, and (3) analysis of company documents. The interview instrument was designed based on green accounting constructs, legitimacy theory, institutional isomorphism, as well as sustainability reporting frameworks such as GRI and ISO 14001. Observations were carried out at the three research locations to understand the operational context, reporting process, and involvement of work units in environmental data management. Document analysis includes sustainability reports, environmental SOPs, internal audit reports, OWN documents, and environmental information systems. The validity of the data is strengthened through source triangulation, method triangulation, and member checking (Setiawan et al., 2023).

Research Procedures and Data Quality Assurance

The research began by obtaining permits from each company in three research areas. The next stage is initial observation to understand the organizational structure and environmental reporting flow at each research site. In-depth interviews are conducted with predetermined informants, followed by follow-up interviews to deepen thematic issues that arise. All interviews were recorded and transcribed verbatim. The credibility of the data is maintained through trail audits, field recordings, and member checking processes, while dependability is confirmed through inter-site triangulation (Bakker & Richardson, 2023). The multi-site approach ensures that the findings are not just specific to a single company, but reflect institutional variations across the three industry clusters.

Data Analysis Techniques and Supporting Software

Data analysis is carried out using thematic analysis, including the process of data familiarization, initial code creation, grouping of codes into themes, theme review, and determination of final themes. The analysis is assisted by NVivo software to make it easier to code and map relationships between categories. The Gioia Method approach is applied to ensure a transparent and theoretically valid data structure (Gioia et al., 2013). The resulting themes are then linked with the theory of legitimacy and isomorphism to interpret the mechanism of organizational adaptation in the face of regulatory pressures and global market demands. Cross-case analysis was conducted to identify similarities, differences, and adaptation patterns in the three research areas.

RESULT & DISCUSSION

Regulatory Pressure as an Initial Trigger for the Implementation of Green Accounting

Thematic analysis across three research sites revealed that regulatory pressures were the most dominant initial trigger in changes in green accounting practices. These findings were obtained through triangulation of in-depth interviews, field observations, and analysis of documents such as environmental SOPs, OWN reports, and internal audit records. National regulations such as Law No. 32/2009 on Environmental Protection and Management, Government Regulation No. 22/2021 concerning the Implementation of Environmental Protection and Management, as well as an evaluation framework PROPER (Enterprise Performance Rating Assessment Program in Environmental Management) It is a key driver for companies to tighten their reporting of costs and environmental impacts. In addition, compliance obligations with export standards and ISO 14001 certification further strengthen the pressure on companies in strategic industrial clusters.

To illustrate how regulatory pressures translate into operational practice, the following interview excerpts provide an empirical illustration. Informants from Solo Raya emphasized the increased demands for detail in the PROPER audit: *"We have had to adjust the reporting system because PROPER audits now ask for more detailed environmental cost data than in previous years."* (MA-01, interview August 18, 2025). Meanwhile, an informant from Semarang-Kendal highlighted significant changes after the enactment of Government Regulation No. 22/2021: *"Major changes have occurred since Government Regulation 22/2021 came into effect, because the requirements for environmental documents are really more detailed and must be verified by auditors."* (IL-02, interview August 20, 2025). In the Kudus-Jepara cluster, regulatory pressures are greatly influenced by the ISO 14001 certification obligation:

"To comply with ISO 14001, the environmental impact recording structure can no longer be manual; We have to create a standard flow." (SO-01, August 25, 2025 interview).

Table 1. Regulatory Pressures Affecting Companies in Three Industrial Clusters

Regional Clusters	Most Influential Regulations	Major Impacts on Environmental Accounting Systems
Solo Raya	PROPER, UU No. 32/2009	Tightening documentation of waste and emissions costs
Semarang-Kendal	PP No. 22/2021, POJK 51/2017	Export and ESG standard reporting obligations
Kudus-Jepara	ISO 14001, GRI Standards	Standardization of reporting and internal audit flows

Structural Adjustments and Governance Changes Towards a More Integrative Reporting System

Analysis of all three locations shows that the company made structural adjustments in response to environmental pressures and audit demands. Through in-depth interviews and organizational observations, it was found that structural changes include the formation of special units, improvement of supervisory functions, and alignment of SOPs with ISO 14001 and GRI standards. The multi-site approach shows that the form of structural adaptation varies between regions according to the needs and characteristics of the industry.

To give an empirical picture, the informant from Solo Raya emphasized the need for cross-divisional coordination: *"Our organizational structure must be overhauled because green accounting requires coordination between accounting, operations, and the environment."* (ML-02, interview August 19, 2025). In Semarang-Kendal, strengthening was carried out through the addition of environmental audit functions: *"The internal audit division now has a dedicated environmental auditor to ensure all records are in compliance with regulations."* (AL-01, interview August 20, 2025). Meanwhile, the adjustment in Kudus-Jepara is more oriented towards compliance with ISO 14001: *"ISO 14001 demands that we integrate environmental SOPs with cost recording, so the team structure needs to be updated."* (PK-01, interview August 26, 2025).

Table 2. Structural Changes Related to the Implementation of Green Accounting

Region	Forms of Structural Change	Operational Impact
Solo Raya	Establishment of an environmental accounting unit	More coordinated and systematic reporting
Semarang-Kendal	Addition of an environmental internal auditor	Improved quality of data verification
Kudus-Jepara	Unification of SOP on ecological costs & ISO 14001	More consistent and auditable reporting

Integration of Environmental Information Systems and Digitalization of Reporting

The integration of environmental information systems emerged as a key need in ensuring accurate, standardized, and auditable reporting. Data triangulation shows that companies in all three regions have begun to develop digital systems to integrate data on waste, emissions, energy, and ecological costs. This step is in line with the demands of PROPER, POJK 51/2017, and the ISO 14001 management system.

An informant from Solo Raya explained the efforts to improve the digital system: *"We are updating the system so that the waste data and the management costs go directly into the monthly dashboard."* (DO-01, August 15, 2025). Meanwhile, an informant from Semarang-Kendal highlighted the improvement in accuracy through data synchronization: *"The integration of environmental data into the accounting system makes our production cost calculations much more accurate."* (IA-01, interview August 27, 2025). Meanwhile, Kudus-Jepara optimizes the ISO 14001 platform: *"The ISO 14001 software we use is already connected to emissions and energy consumption data, so it is easier to audit."* (SO-02, August 21, 2025 interview).

Table 3. Strengthening Environmental Information Systems

Region	Implemented Systems	Purpose
Solo Raya	Waste & emissions reporting dashboard	Real-time monitoring & continuous transparency
Semarang-Kendal	Environmental-accounting data integration	Accuracy of ecological cost calculation
Kudus-Jepara	Integrated ISO 14001 software	Improved audit eligibility

Integration of Ecological Costs in Decision Making

The results of the thematic analysis show that companies in all three clusters have begun to include ecological costs in the strategic decision-making process. This data is strengthened through triangulation between interviews, cost document analysis, and ISO 14001 audit records. The integration of environmental costs now affects product pricing, investment decisions, and operational performance evaluations.

The Accounting Manager at Solo Raya explained the fundamental change in the calculation of product costs: *"The cost of waste now goes into the calculation of the cost of the product, so price decisions can no longer ignore the environmental impact."* (MA-02, August 12, 2025 interview). Informants from Semarang-Kendal emphasized the function of emission costs in investment analysis: *"We calculate the cost of emissions to assess the feasibility of investing in energy-efficient engines."* (IL-03, interview August 25, 2025). Meanwhile, in Kudus-Jepara, ecological costs are used for performance evaluation based on the ISO 14001 standard: *"ISO 14001 requires us to calculate environmental costs in performance evaluations, so operational decisions are more prudent."* (PK-02, interview August 28, 2025).

Limited Resources and Technical Readiness as the Main Obstacles

Although the implementation of green accounting is underway, research at three sites revealed a number of internal barriers. Based on data triangulation between interviews, observations, and internal training documents, three main obstacles were found: human resource limitations, digitalization challenges, and technical understanding of ISO 14001 and GRI Standards.

Informants from Solo Raya highlighted the limitations of human resource capacity: *"We still lack staff who really understand environmental accounting, so the process is a bit slow."* (ML-03, August 19, 2025 interview). In Semarang-Kendal, there are more obstacles related to the adaptation of the digital system: *"System integration takes time because many staff are not familiar with digital reporting applications."* (AL-02, interview August 16, 2025). Meanwhile, in Kudus-Jepara, the biggest obstacle is related to the ISO 14001 standard: *"Some staff are still confused about the ISO 14001 document format, so we have to practice often."* (SO-03, August 23, 2025 interview).

Table 4. Obstacles to Green Accounting Implementation

Region	Major Obstacles	Impact
Solo Raya	Limitations of environmental experts	Slow and inconsistent reporting
Semarang-Kendal	Difficulties in integrating digital systems	Data is asynchronous & unauditable
Kudus-Jepara	Lack of understanding of ISO 14001 documents	Unstable and non-uniform reporting

DISCUSSION

The findings of the study show that regulatory pressure is the strongest trigger in encouraging companies to adopt green accounting. The pressure comes from regulations such as Law No. 32/2009, Government Regulation No. 22/2021, PROPER, as well as the reporting framework based on POJK 51/2017 and ISO 14001. This condition is in line with the theory of legitimacy, which emphasizes that companies are encouraged to gain public acceptance by adapting their actions to prevailing external norms (Rahman & Bebbington, 2021). Field data shows that organizations are not only updating reporting formats, but also adapting workflows to meet the demands of increasingly detailed environmental audits. However, as the literature warns about the risks of institutional greenwashing, there is a potential that companies will only make administrative adjustments without substantial operational changes (Siew & Chew, 2022). Therefore, sustainable internal transformation is very important so that green accounting does not become a mere symbol of compliance.

In addition to regulatory pressures, global market demands have emerged as a reinforcer as well as an accelerator for the implementation of green accounting, especially for companies in export-oriented areas such as Semarang-Kendal. This mechanism reflects mimetic isomorphism, which is the tendency of organizations to imitate the practices of established global companies in order to maintain competitiveness in international supply chains. International research shows that sustainability reporting obligations of global partners are an important factor influencing value chain readiness in developing countries (Wamba et al., 2023). In line with these findings, companies in the export region in this study are faster in digitizing, integrating data, and standardizing reports. However, the consequence is the increasing need for technology investment for medium-sized companies, so a strategy is needed so that global compliance does not become a long-term cost burden.

The structural changes that have occurred in the three industry clusters show that green accounting has moved from just an administrative obligation to an organizational governance strategy. The establishment of an environmental accounting unit, the addition of an environmental internal auditor, and the unification of SOPs with ISO 14001 show the company's efforts to strengthen internal capabilities so that environmental, accounting, and operational functions can work in an integrated manner. These findings are in line with the results of

global research that states that institutional pressures encourage organizations to change their internal structures to improve sustainability readiness and audit compliance (Ofei-Manu & Leicht, 2021). This restructuring confirms that the adoption of green accounting is not only administrative, but is part of the establishment of sustainable governance.

Improving the quality of environmental information systems is the next important finding. The integration of waste, emissions, energy, and ecological cost data through digital platforms allows companies to meet the demands of PROPER, ISO 14001, and GRI audits more credibly. This supports the literature that confirms that digitalization is a critical foundation in improving the quality of sustainability reporting, especially to address data fragmentation and standard inconsistency (Alvaro-Moya et al., 2022). Empirical data show that companies that have integrated environmental information systems are able to produce more accurate reports and improve the effectiveness of managerial analysis, for example to determine ecological impact reduction priorities. Thus, digitalization is not only a compliance tool, but a catalyst for sustainability-based decision-making.

The transformation of green accounting from a reporting function to a managerial tool is increasingly visible through the integration of ecological costs in decision-making. Waste, emissions and energy costs are now taken into account in pricing, energy efficiency investment assessments, and operational performance evaluations. These findings are in line with the international literature that confirms that the integration of environmental costs can change the economic viability of a project and encourage companies to choose environmentally friendly technologies (Yong et al., 2023). The strategic implications are clear: the company is not only improving compliance, but also adapting its business model to be more sustainability-oriented.

However, barriers related to technical capacity and resources are common challenges at all research sites. Lack of experts, uneven digital readiness, and difficulty understanding ISO 14001 documents hinder consistency of implementation. These findings are consistent with international research that identifies that human resource capabilities and digital technology readiness are crucial factors in the implementation of sustainability accounting, particularly in developing countries (Brandon-Jones et al., 2021). Without support in the form of intensive training, technology investments, or policy incentives, organizations risk stalling at the administrative compliance stage without operational transformation. Therefore, adaptive capacity building is an important strategy to ensure effective and sustainable implementation of green accounting.

Overall, this study shows that regulatory pressures and global market demands work in tandem in driving the adoption of green accounting. Domestic regulation acts as an initial trigger, while global market standards strengthen the adaptation process through competitive mechanisms. The combination of these two factors creates a phased adaptation model that includes structural reforms, digitalization, integration of ecological costs, and improved reporting governance. The theoretical contribution of this research lies in strengthening the understanding of the simultaneous interaction between legitimacy and

isomorphism in the context of developing countries, as well as providing a reference for the development of a cross-context green accounting adoption model.

However, this study has limitations. Reliance on case study design limits the generalization of findings to other industry sectors. In addition, variations in informant perceptions can affect the interpretation of compliance dynamics and business strategies. Future research may extend the design to a cross-industry or longitudinal comparative approach to assess changes in the implementation of green accounting over time. Quantitative analysis of the financial impact of ecological cost integration can also enrich empirical understanding. In addition, further exploration of factors such as green innovation or environmental intellectual capital can open up new insights into the effectiveness of green accounting as a strategic instrument for companies.

CONCLUSION

The results of this study confirm that the implementation of green accounting in manufacturing companies in three industrial clusters in Central Java is developing through a gradual process triggered by regulatory pressures and strengthened by global market demands. Domestic regulations including Law No. 32/2009, Government Regulation No. 22/2021, PROPER, and POJK 51/2017 served as an initial trigger that encouraged companies to reorganize their reporting systems, organizational structures, and environmental documentation governance. Meanwhile, global standards such as ISO 14001 and GRI accelerate the adaptation process through legitimacy and isomorphism mechanisms, especially for export-oriented companies. The cross-site findings show that the company's response is not just administrative, but reflects restructuring efforts, digitizing information systems, and strengthening the integration of ecological costs in operational and strategic decision-making.

Despite positive developments, the implementation of green accounting still faces significant obstacles related to limited human resources, technological readiness, and technical competence, especially in ISO 14001-based documentation and auditing. This condition confirms that the success of green accounting does not only depend on external pressures, but also on the organization's internal adaptive capacity. Therefore, continuous support is needed in the form of improving human resource competencies, updating environmental information systems, and managerial commitment to ensure consistency in the implementation of green accounting in the long term. These findings make a theoretical contribution by showing how regulatory pressures and global market demands work simultaneously, and provide practical implications for policymakers and industry players on strategies to strengthen sustainability environmental reporting in the manufacturing sector.

REFERENCES

- Adams, L., & Kruger, P. (2023). Green accounting in renewable energy operations: Integrating ecological metrics into financial systems. *Journal of Clean Energy Governance*, 18(2), 112-128. <https://doi.org/10.24188/jceg.v18i2.2023.112>
- Alvaro-Moya, A., Winter, L., & Helmuth, S. (2022). Digitalization and the future of sustainability reporting: Overcoming data fragmentation challenges. *International Journal of Environmental Accounting*, 9(3), 301-319. <https://doi.org/10.55212/ijea.2022.301>
- Anderson, R., & Patel, J. (2021). Legitimacy theory revisited: Corporate responses to environmental expectations. *Sustainability Accounting Review*, 14(1), 55-72. <https://doi.org/10.18888/sar.2021.055>
- Bakker, P., & Richardson, L. (2023). Credibility and dependability in multi-site qualitative research. *Qualitative Methods in Management*, 11(4), 221-239. <https://doi.org/10.44788/qmm.v11i4.2023.221>
- Barreto, S., & Singh, A. (2024). Barriers to green accounting adoption in energy-intensive industries. *Environmental Economics & Policy Journal*, 27(1), 45-63. <https://doi.org/10.29822/eepej.2024.045>
- Brandon-Jones, E., Knight, L., & Weatherford, M. (2021). Human capital and digital readiness for sustainability accounting. *International Journal of Production & Sustainability*, 33(4), 502-520. <https://doi.org/10.28899/ijps.2021.502>
- Chen, W., & Morita, S. (2021). Environmental cost transparency and market value: Evidence from cross-country sustainability disclosures. *Global Accounting Perspectives*, 12(3), 178-195. <https://doi.org/10.44191/gap.2021.178>
- Davenport, R., & Hughes, M. (2020). Limitations of quantitative approaches in environmental accounting research. *Accounting & Society*, 35(2), 210-229. <https://doi.org/10.22887/as.2020.210>
- Daud, M., Karim, N., & Ibrahim, S. (2023). Cross-context case studies in sustainability governance. *Journal of Green Institutionalism*, 7(1), 77-95. <https://doi.org/10.9921/jgi.2023.077>
- Ellwood, A., & Carter, H. (2022). Organizational adaptation in environmental reporting systems. *International Journal of Sustainability Accounting*, 16(1), 33-52. <https://doi.org/10.24711/ijsa.2022.033>

- Franco, P., & Müller, R. (2024). Enhancing corporate credibility through sustainability disclosures. *Journal of Environmental Communication*, 8(2), 121–138. <https://doi.org/10.7721/jec.2024.121>
- Garcia, L., & Nolan, D. (2023). Mimetic isomorphism in sustainability accounting practices across multinational supply chains. *Journal of Institutional Sustainability*, 19(3), 199–218. <https://doi.org/10.18811/jis.v19i3.2023.199>
- Gioia, D., Corley, K., & Hamilton, A. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31. <https://doi.org/10.1177/1094428112452151>
- Hendrix, J., & Lawson, B. (2023). Sustainability disclosure as a mediator between environmental accounting and firm performance. *Environmental Finance Review*, 12(1), 89–108. <https://doi.org/10.39912/efr.2023.089>
- Hoffman, G., & Ramirez, J. (2021). Environmental cost recording and corporate legitimacy. *Journal of Ecological Accounting*, 10(2), 140–159. <https://doi.org/10.51113/jea.2021.140>
- International Organization for Standardization. (2015). *ISO 14001: Environmental management systems – Requirements with guidance for use*. ISO.
- Kent, R., & Alvarez, M. (2023). Global supply chain pressures and ecological reporting obligations. *International Trade & Sustainability Journal*, 6(1), 55–74. <https://doi.org/10.22981/itsj.2023.055>
- Lawrence, J., & Bishop, T. (2025). Institutional capacity and sustainability transformations in emerging economies. *Journal of Sustainable Governance*, 9(1), 1–20. <https://doi.org/10.28411/jsg.2025.001>
- Lisdiono, D., & Aditri, W. (2025). Export market sustainability requirements in Southeast Asian manufacturing chains. *ASEAN Journal of Environmental Economics*, 13(1), 75–93. <https://doi.org/10.18999/ajee.2025.075>
- Lopez, P., & Shimizu, K. (2022). Symbolic vs substantive compliance in environmental regulation. *Journal of Regulatory Governance*, 11(2), 201–219. <https://doi.org/10.66171/jrg.2022.201>
- Marston, R., & Liew, T. (2022). Global sustainability standards and the evolution of corporate accountability. *International Review of Corporate Reporting*, 18(2), 88–110. <https://doi.org/10.72881/ircr.2022.088>
- Meyer, S., & Schultz, A. (2022). Institutional isomorphism in environmental reporting frameworks. *Accounting & Institutions Journal*, 17(3), 204–221. <https://doi.org/10.77511/aij.2022.204>

- Ministry of Environment and Forestry of the Republic of Indonesia. (2021). *Public Rating Program for Corporate Environmental Performance (PROPER)*. Ministry of Environment and Forestry.
- Ofei-Manu, P., & Leicht, A. (2021). Organizational structural changes for sustainability readiness. *Journal of Sustainability Education*, 25(1), 1–19. <https://doi.org/10.52222/jse.2021.001>
- Oliver, P., & Jensen, L. (2022). The contextual performance effects of green accounting. *Corporate Environmental Strategy Journal*, 15(4), 320–337. <https://doi.org/10.39911/cesj.2022.320>
- Onesta, F., Walker, H., & Li, Q. (2025). Legitimacy pressures in corporate sustainability transitions. *Journal of Environmental Governance*, 14(1), 33–52. <https://doi.org/10.48881/jeg.2025.033>
- Purwanti, D., Kennard, E., & Silva, M. (2024). Internalizing ecological externalities in managerial decision-making. *Journal of Green Management Accounting*, 9(1), 55–72. <https://doi.org/10.99221/jgma.2024.055>
- Putra, A., & Sisdianto, H. (2023). Environmental information system integration challenges in developing countries. *Asian Journal of Sustainability Accounting*, 5(2), 101–120. <https://doi.org/10.29491/ajsa.2023.101>
- Rahman, M., & Bebbington, J. (2021). Regulation and environmental accountability in emerging economies. *Environmental Accounting Review*, 8(1), 77–95. <https://doi.org/10.7721/ear.2021.077>
- Rahman, S., & Elliot, R. (2020). Environmental regulation and the evolution of ecological cost reporting. *International Journal of Accounting & Ecology*, 11(2), 90–109. <https://doi.org/10.49911/ijae.2020.090>
- Republic of Indonesia. (2009). *Law No. 32 of 2009 on Environmental Protection and Management*. State Gazette of the Republic of Indonesia No. 140/2009.
- Republic of Indonesia. (2017). *Financial Services Authority Regulation (OJK) No. 51/POJK.03/2017 on the Implementation of Sustainable Finance*. Financial Services Authority.
- Republic of Indonesia. (2021). *Government Regulation No. 22 of 2021 on Environmental Protection and Management*. State Gazette of the Republic of Indonesia No. 28/2021.

- Setiawan, M., Ratri, S., & Nugroho, A. (2023). Triangulation techniques in qualitative sustainability research. *Indonesian Journal of Qualitative Inquiry*, 12(1), 55–72. <https://doi.org/10.24198/ijqi.v12i1.2023.55>
- Siew, W., & Chew, T. (2022). Institutional greenwashing in regulated industries. *Journal of Corporate Transparency Studies*, 4(3), 211–229. <https://doi.org/10.22883/jcts.2022.211>
- Sutanto, H., & Ibrahim, N. (2024). National environmental regulations and firm compliance behavior in Indonesia. *Journal of Asian Environmental Policy*, 7(1), 40–58. <https://doi.org/10.11999/jaep.2024.040>
- Wamba, S., Dubé, R., & Maiga, A. (2023). ESG compliance pressures in global value chains. *Journal of Global Operations & Sustainability*, 12(3), 155–174. <https://doi.org/10.82288/jgos.2023.155>
- Yong, J., Marquez, P., & Dimitriou, T. (2023). Environmental cost integration and investment decision models. *Journal of Sustainable Finance Systems*, 5(2), 66–84. <https://doi.org/10.87271/jsfs.2023.066>