



Received: 25-09-2024
Accepted: 05-11-2024

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Sustainability Reporting and Environmental Management Accounting in Vietnam's Manufacturing Sector

Nguyen Hoan

Hanoi University of Natural Resources and Environment, Vietnam

Corresponding Author: **Nguyen Hoan**

Abstract

This research addresses the question of how Vietnamese manufacturing firms use Environmental Management Accounting (EMA) to support sustainability reporting and integrate environmental performance into their business strategies. It fills a gap in the existing literature by focusing on the adoption of EMA and sustainability reporting in a developing country context, where such practices are still emerging. The purpose of the study was to explore the current state of EMA implementation, identify key environmental indicators reported, and understand the challenges faced by firms in Vietnam's manufacturing sector. A qualitative methodology was used, involving case

studies of six manufacturing firms, semi-structured interviews with key personnel, and document analysis of sustainability reports. The research found that while larger firms are making progress in integrating EMA into operations and reporting, most companies still face challenges such as lack of expertise, high costs, and weak regulatory support. These findings are significant because they highlight the need for capacity-building initiatives and policy reforms to encourage wider adoption of EMA. By addressing these barriers, Vietnam's manufacturing sector can improve its environmental accountability and contribute more effectively to the country's sustainability goals.

Keywords: Environmental Management Accounting, EMA, Manufacturing Enterprises, Vietnam

1. Introduction

Environmental sustainability has emerged as a key global concern, driven by the growing recognition of the harmful effects that industrial activities have on the environment. Businesses worldwide are being held increasingly accountable for their environmental impact, with stakeholders - including governments, investors, and consumers - demanding greater transparency regarding corporate environmental practices. This shift has placed significant pressure on businesses to adopt sustainable management practices and report their environmental, social, and governance (ESG) performance. In Vietnam, a rapidly industrializing nation, the manufacturing sector is a cornerstone of economic growth, contributing significantly to the country's GDP and employment. However, the environmental consequences of this industrial expansion are profound, including high levels of pollution, resource depletion, and waste generation (Nguyen & Pham, 2021; Hung, 2022) ^[4, 2].

Recognizing these environmental challenges, there has been growing attention on Environmental Management Accounting and Sustainability Reporting (SR) as mechanisms for aligning business practices with environmental sustainability goals. EMA is a vital tool that enables businesses to identify, analyze, and manage environmental costs associated with their operations. By providing detailed insights into the financial impact of environmental activities - such as waste management, energy use, and pollution control - EMA helps companies make informed decisions that balance economic and environmental performance (Burritt *et al.*, 2019) ^[1]. In parallel, sustainability reporting has become an essential means for companies to publicly disclose their ESG efforts. Through sustainability reports, businesses communicate to stakeholders how they are managing their environmental impacts and contributing to broader societal goals, such as climate action and resource conservation (KPMG, 2020) ^[3].

The integration of EMA into sustainability reporting holds great potential for advancing corporate environmental accountability. EMA can provide the underlying data needed for robust sustainability reports, allowing companies to track and report environmental performance in a transparent and systematic manner. In turn, sustainability reporting serves not only as a disclosure tool but also as a way to drive continuous improvement in environmental performance by fostering internal and

external accountability. For Vietnamese manufacturers, this integration could help address growing environmental concerns while also fostering long-term business sustainability.

Despite the increasing global interest in EMA and sustainability reporting, limited research has been conducted on their adoption and implementation in developing countries, including Vietnam. While large multinational corporations with operations in Vietnam have started to engage in sustainability reporting - often driven by global corporate policies and international stakeholder pressure - there remains a significant gap in understanding how domestic Vietnamese manufacturing companies are approaching these practices. The manufacturing sector, given its critical role in Vietnam's economy and substantial environmental footprint, is a key area where the potential for EMA and sustainability reporting integration could have a significant impact (Nguyen & Pham, 2021)^[4].

At present, there is little empirical evidence on how Vietnamese manufacturing firms utilize EMA to measure and report environmental performance. Studies have shown that while some companies in Vietnam have begun to issue sustainability reports, the quality and comprehensiveness of these reports vary widely (Nguyen & Tran, 2020; Pham, 2022)^[5, 6]. Furthermore, there is limited understanding of how EMA data is used to inform sustainability reporting, and whether the environmental performance metrics reported are well integrated into broader business strategies. This gap in knowledge presents a significant research opportunity, as understanding how Vietnamese manufacturers adopt EMA and SR could provide insights into the barriers and enablers of sustainable business practices in a developing economy context.

Additionally, while EMA and SR hold the promise of improving corporate environmental performance, challenges such as lack of expertise, insufficient regulatory frameworks, and the cost of implementation may hinder their adoption in Vietnam. Thus, this research aims to explore these challenges and provide practical recommendations for enhancing the adoption of EMA and sustainability reporting in the Vietnamese manufacturing sector.

To address the research problem, this study will be guided by the following key research questions:

1. How do manufacturing firms in Vietnam use EMA to measure environmental performance? This question seeks to explore the frameworks and methodologies used by Vietnamese manufacturers to account for environmental costs and track their environmental impact. It will investigate how EMA is integrated into existing accounting systems and the types of environmental costs that are tracked.
2. What are the key environmental indicators reported in sustainability reports by Vietnamese manufacturing companies? This question focuses on identifying the specific environmental performance indicators that are most commonly disclosed in sustainability reports. It seeks to understand whether these indicators align with international reporting standards, such as the Global Reporting Initiative, and how comprehensive these reports are in addressing key environmental issues like emissions, resource use, and waste management.
3. How do manufacturing firms integrate EMA and

sustainability reporting into their overall business strategies? This question aims to explore whether EMA and sustainability reporting are used strategically within businesses to drive long-term environmental and financial performance. It will investigate how environmental performance data is used in decision-making processes and whether sustainability goals are embedded into the company's broader business strategy.

4. What challenges do manufacturing firms in Vietnam face in implementing EMA and sustainability reporting? This question seeks to identify the barriers that prevent or hinder the adoption of EMA and sustainability reporting in Vietnam. It will explore challenges such as lack of expertise, regulatory compliance issues, and the costs associated with implementing environmental accounting and reporting systems.

In line with the research questions, the objectives of this study are fourfold:

1. To explore the role of EMA in measuring environmental performance in the manufacturing sector. This objective seeks to provide a comprehensive understanding of how EMA is used by manufacturing firms in Vietnam to track environmental performance. It will examine the specific environmental costs that are measured, the methods used to calculate these costs, and the extent to which EMA data is used to inform internal management decisions.
2. To identify the key environmental indicators used in sustainability reporting by Vietnamese manufacturers. This objective aims to map out the environmental metrics that are currently reported by Vietnamese manufacturing firms in their sustainability reports. It will assess the alignment of these metrics with international reporting frameworks and evaluate the comprehensiveness and quality of the reports.
3. To analyze the integration of EMA and sustainability reporting into business decision-making and long-term strategies. This objective focuses on understanding how EMA and sustainability reporting are incorporated into broader business strategies. It will explore whether environmental performance data is used strategically to improve both environmental and financial outcomes, and whether sustainability goals are considered in the company's long-term planning.
4. To examine the challenges and barriers faced by manufacturing firms in Vietnam in adopting EMA and sustainability reporting practices. The final objective seeks to uncover the practical challenges and barriers that prevent the widespread adoption of EMA and sustainability reporting in Vietnam. It will provide insights into the specific difficulties faced by manufacturing companies and offer recommendations for overcoming these challenges.

The outcomes of this research will contribute to both academic literature and practical understanding of how EMA and SR are implemented in Vietnam's manufacturing sector. By identifying best practices and challenges, this study hopes to offer actionable insights for companies and policymakers aiming to improve environmental accountability and sustainability in Vietnam.

2. Literature Review

2.1 Environmental Management Accounting

Environmental Management Accounting is an increasingly recognized tool that helps organizations improve their environmental and financial performance by integrating financial and non-financial environmental information into decision-making processes. EMA involves the systematic identification, collection, and analysis of environmental costs, such as those associated with waste management, energy consumption, pollution control, and resource utilization. This information is then used to assess the environmental impacts of business activities and the corresponding financial consequences (Burritt *et al.*, 2019) ^[1]. EMA plays a crucial role in helping organizations understand the true costs of environmental degradation and pollution, which are often hidden in conventional accounting systems.

One of the key benefits of EMA is that it enables organizations to track their environmental costs more accurately, which can lead to significant cost savings. For instance, companies can identify inefficiencies in their energy use, waste management, or raw material consumption and implement corrective measures that reduce both environmental impact and operational costs. Previous studies have shown that organizations implementing EMA often experience enhanced resource efficiency and long-term cost reductions (Burritt *et al.*, 2019) ^[1]. Additionally, by integrating environmental costs into financial reports, companies can demonstrate their commitment to sustainability, which can improve their reputation and strengthen relationships with stakeholders.

Moreover, EMA helps companies comply with environmental regulations and standards by providing transparent and detailed environmental performance data. This fosters better environmental governance and compliance while minimizing the risk of fines and penalties for environmental violations. In this context, EMA not only supports internal management by contributing to more informed decision-making but also improves external accountability by providing regulators and stakeholders with clear insights into a company's environmental performance. Thus, EMA serves as a bridge between environmental sustainability and financial performance, aligning business goals with global sustainability imperatives.

2.2 Sustainability Reporting

Sustainability Reporting has become a vital element of corporate accountability, providing a structured way for companies to disclose their environmental, social, and governance performance. Through sustainability reports, companies communicate how they manage their environmental impacts, contribute to social development, and uphold governance standards. This form of reporting has gained traction globally as stakeholders increasingly demand transparency and accountability from businesses regarding their contributions to sustainable development (KPMG, 2020) ^[3]. Sustainability reporting enables companies to showcase their efforts in addressing critical global issues such as climate change, resource scarcity, and social inequality.

A key feature of sustainability reporting is its adherence to internationally recognized standards, such as the Global Reporting Initiative and the Sustainability Accounting Standards Board (SASB). These frameworks provide

guidelines on what environmental, social, and governance data should be reported and how it should be presented, ensuring consistency and comparability across industries and regions (KPMG, 2020) ^[3]. For instance, the GRI framework emphasizes the need for companies to report on a range of environmental indicators, including energy use, greenhouse gas emissions, water consumption, and waste management. By following these standards, companies can enhance the credibility and reliability of their sustainability reports, thus gaining the trust of investors, regulators, and consumers.

Furthermore, sustainability reporting is not only a tool for external communication but also a mechanism for driving internal change. The process of gathering and analyzing ESG data for reporting purposes often leads companies to identify opportunities for improving their environmental and social practices. By embedding sustainability into the core of their operations, companies can enhance their long-term resilience and competitiveness. In this way, SR helps businesses transition from a compliance-driven approach to sustainability to one that actively seeks to innovate and create shared value for both the company and society.

2.3 EMA and SR in Vietnam

In the context of Vietnam, both Environmental Management Accounting and Sustainability Reporting are still in their early stages of adoption. Vietnam's rapid industrialization, particularly in the manufacturing sector, has led to increased environmental pressure, with significant challenges related to pollution, waste generation, and resource depletion. As one of the major contributors to Vietnam's GDP, the manufacturing sector has come under growing scrutiny from both the public and regulatory bodies, which are pushing for more sustainable business practices (Nguyen & Pham, 2021; Pham, 2023) ^[4, 7]. However, the adoption of EMA and SR in Vietnam remains limited, with only a small number of companies - mainly large, multinational corporations - actively engaging in these practices.

One of the primary reasons for the slow adoption of EMA and SR in Vietnam is the lack of regulatory mandates and incentives. While there are some environmental regulations in place, enforcement is inconsistent, and companies often face little pressure to adopt comprehensive environmental accounting or reporting practices (Nguyen & Pham, 2021) ^[4]. Additionally, there is a knowledge gap among Vietnamese manufacturing firms regarding the implementation of EMA and SR. Many companies lack the expertise or resources to develop robust environmental accounting systems or produce high-quality sustainability reports, which has led to inconsistencies in reporting practices across the sector.

The few Vietnamese firms that have adopted sustainability reporting tend to focus on basic environmental metrics, such as energy use and waste management, but often fail to provide a comprehensive picture of their environmental impact. Research by Nguyen and Pham (2021) ^[4] suggests that while some companies have made progress in disclosing their environmental performance, the depth and quality of these reports vary significantly. Many sustainability reports are primarily driven by compliance with international standards or requirements imposed by foreign investors, rather than by a genuine commitment to sustainability. As a result, sustainability reporting in Vietnam often lacks the level of detail and strategic

integration seen in more developed economies.

Despite these challenges, there is growing recognition in Vietnam of the need to adopt more sustainable business practices, particularly in the manufacturing sector. The integration of EMA into sustainability reporting could provide Vietnamese manufacturers with the tools they need to better track their environmental performance and communicate their efforts to stakeholders. However, for this to happen, there needs to be greater awareness of the benefits of EMA and SR, as well as stronger regulatory frameworks and capacity-building initiatives to support their implementation. This presents a significant opportunity for further research and development in the field of environmental management accounting and sustainability reporting in Vietnam.

In conclusion, while EMA and SR hold great potential for improving environmental accountability in Vietnam's manufacturing sector, their adoption is still in its infancy. The existing literature indicates that there is a need for more comprehensive research on how these practices can be effectively integrated into business operations in Vietnam. By addressing these gaps, future studies can contribute to advancing sustainable business practices in the country's rapidly growing economy.

3. Methodology

3.1 Research Design

This study will use a qualitative case study approach to examine how selected manufacturing firms in Vietnam utilize Environmental Management Accounting to support sustainability reporting. The research will involve detailed analysis through interviews and document reviews to understand how these firms implement EMA, the challenges they encounter, and how they integrate EMA into their sustainability reports.

3.2 Sampling

The study will focus on six manufacturing firms in Vietnam, selected based on their industry relevance, EMA practices, and commitment to sustainability reporting. The selected companies come from various manufacturing sectors, including textiles, electronics, and food processing, which are significant contributors to Vietnam's economy and environmental footprint. The firms have been in operation for at least five years and have publicly disclosed sustainability reports. These companies were also selected based on their engagement with EMA practices, determined through an initial review of publicly available reports and pre-screening interviews.

The six companies are: Vinamilk – A leader in the food processing and dairy sector.

Vinatex – A major player in the textile and garment industry; Samsung Electronics Vietnam – A prominent electronics manufacturer; Hoa Phat Group – A leading steel manufacturer; Masan Group – A diversified group with significant operations in food processing; Truong Hai Auto (THACO) – A key player in the automotive and machinery manufacturing sector.

3.3 Data Collection

A total of 12 semi-structured interviews will be conducted with representatives from the six selected companies. For each firm, two key informants will be interviewed. These informants include: Environmental managers responsible for

managing the company's environmental impact; Financial managers involved in integrating environmental costs into financial systems; Sustainability officers or executives in charge of preparing and publishing sustainability reports.

The interviews will focus on understanding how EMA is used to track environmental performance, the process of sustainability reporting, and the integration of environmental and financial data into decision-making. Interviewees will also discuss the challenges and barriers encountered in implementing EMA and sustainability reporting.

Each interview will last approximately 45 to 60 minutes and will be conducted either in person or via video conferencing, depending on the availability of the participants. The interviews will take place over a period of three months, from March 2024 to May 2024.

In addition to the interviews, the study will conduct a thorough document analysis of the sustainability reports, annual reports, and environmental disclosures from the selected companies. This analysis will focus on identifying the environmental indicators reported, the level of detail provided, and the extent to which EMA is integrated into these reports. The document review will cover reports from the past three years (2021–2023) to assess the consistency and evolution of EMA and sustainability reporting practices within each company.

3.4 Data Analysis

The data collected from the interviews and document analysis will be processed using thematic analysis. This method will involve identifying and categorizing key themes related to EMA practices, the content of sustainability reporting, and how environmental performance data is used for strategic decision-making. The interview transcripts will be coded using qualitative data analysis software (NVivo) to ensure thorough and systematic organization of the data.

The analysis will focus on understanding the current state of EMA adoption, the specific environmental indicators reported, and the challenges associated with integrating EMA into sustainability reporting. It will also identify best practices and areas for improvement, providing insights into how Vietnamese manufacturing firms can enhance their sustainability reporting efforts.

4. Results and discussion

4.1 Overview of EMA Adoption in Vietnamese Manufacturing Firms

The results of this study reveal that Environmental Management Accounting practices in the selected Vietnamese manufacturing firms are still in a developmental stage. Despite the recognition of the importance of environmental sustainability, the implementation of EMA remains inconsistent. Four out of the six companies studied had partially integrated EMA systems in place, primarily focusing on tracking and reporting direct environmental costs such as energy consumption, waste management, and water use. However, only two firms - one in the electronics sector (Samsung Electronics Vietnam) and one in the food processing sector (Vinamilk) - demonstrated a more advanced approach to EMA, where environmental costs were systematically integrated into broader financial and strategic decision-making.

One environmental manager from Vinamilk highlighted the importance of EMA in their operations:

“We’ve realized that tracking our energy and water use through detailed accounting practices helps us identify inefficiencies and reduce costs. It’s not just about compliance, but about improving our operations.”

However, in less mature EMA adopters, such as companies in the textile and garment industry, the focus remained on regulatory compliance with little emphasis on using EMA for strategic improvements. A sustainability officer from Vinatex stated,

“We are still in the process of understanding how to fully use environmental cost data. Right now, it’s mostly about meeting reporting requirements.”

This demonstrates that while there is recognition of EMA’s potential, many firms lack the expertise or resources to fully integrate these practices into their business models.

4.2 Key Environmental Indicators in Sustainability Reporting

Analysis of the sustainability reports and interviews revealed that the environmental indicators most commonly reported by the firms were energy consumption, greenhouse gas (GHG) emissions, water use, and waste generation. These indicators align with global standards such as the Global Reporting Initiative, but the level of detail in reporting varied significantly across companies.

For instance, Samsung Electronics Vietnam provided comprehensive reports on their energy-saving initiatives and carbon footprint reductions, detailing the quantitative impact of their environmental management practices. A financial manager from Samsung noted:

“We track our environmental performance closely and report not just numbers but also the context behind them. For us, it’s important to show stakeholders that we are making concrete progress.”

In contrast, Truong Hai Auto (THACO), a major automotive manufacturer, reported basic environmental indicators but lacked detailed explanations or contextual information. The sustainability officer at THACO admitted:

“While we report on energy use and emissions, we know our sustainability reports could be more detailed. Right now, we’re focused on compliance, but we plan to improve our reporting in the future.”

This discrepancy suggests that while some firms are using sustainability reporting as a tool for transparency and stakeholder engagement, others are treating it as a mere compliance exercise. Companies with more advanced EMA systems tended to produce higher-quality reports, indicating that EMA directly contributes to the depth and accuracy of sustainability disclosures.

4.3 Integration of EMA and Sustainability Reporting into Business Strategies

The integration of EMA into sustainability reporting and broader business strategies was found to be limited across most firms. Only Vinamilk and Samsung Electronics Vietnam demonstrated clear linkages between their

environmental accounting practices and long-term business planning. Both companies had set measurable sustainability goals, such as reducing energy consumption or water use by specific percentages, and used EMA data to track and report progress toward these goals.

A sustainability officer from Samsung Electronics Vietnam explained:

“Our sustainability targets are tied to our financial goals. EMA helps us quantify the cost savings from energy efficiency and waste reduction, which feeds into our overall business strategy.”

This strategic integration was less evident in the other companies. At Hoa Phat Group, for example, the steel manufacturing company, the use of EMA was primarily operational, focused on tracking daily environmental costs rather than influencing long-term business decisions. An environmental manager at Hoa Phat noted:

“We’re still in the early stages of using environmental data for strategic planning. Right now, we’re more focused on ensuring compliance with regulations.”

These findings suggest that while firms see the value of EMA, many are still developing the internal capacity to use it effectively for strategic purposes. The lack of integration between environmental performance data and business strategy may limit firms’ ability to fully leverage EMA for competitive advantage and sustainability improvements.

4.4 Challenges in Implementing EMA and Sustainability Reporting

The interviews and document analysis identified several challenges that hinder the full adoption of EMA and robust sustainability reporting in Vietnam’s manufacturing sector. One common barrier was the lack of expertise and training in environmental accounting practices. Many firms, especially those in the textile and garment industries, expressed difficulties in accurately tracking environmental costs due to limited internal knowledge and experience. A financial manager at Vinatex explained:

“We don’t have the internal expertise to fully implement EMA. It’s something we’re learning, but it’s a slow process.”

Another significant challenge was the cost of implementing EMA systems, particularly for smaller or medium-sized firms. The initial investment required for tracking software, staff training, and data collection was cited as a major deterrent. A sustainability officer from THACO stated:

“EMA systems can be expensive to set up, and for a company our size, it’s hard to justify the cost when we’re already managing tight budgets.”

Furthermore, regulatory pressures and lack of clear governmental incentives were also highlighted as obstacles. While Vietnam has environmental regulations in place, enforcement is inconsistent, and there are few incentives for companies to go beyond basic compliance. Firms felt that stronger governmental support or clearer regulations could drive broader adoption of EMA. A financial manager from

Hoa Phat Group mentioned:

“We comply with the regulations, but there’s no real incentive to go beyond what’s required. If there were more tangible benefits, we might invest more in EMA.”

These challenges indicate that while there is interest in EMA and sustainability reporting, practical obstacles such as costs, expertise, and regulatory frameworks need to be addressed to increase uptake across the sector.

4.5 Opportunities for Improvement

Despite these challenges, the study found several opportunities for improving EMA and sustainability reporting in Vietnam’s manufacturing sector. First, companies that had successfully integrated EMA into their operations demonstrated the financial benefits of doing so, particularly in terms of cost savings from energy efficiency and waste reduction. Firms that are struggling with implementation could benefit from learning from these success stories and adopting best practices.

Second, there is a clear need for capacity-building initiatives to enhance internal expertise in EMA. Government bodies, industry associations, and academic institutions could collaborate to provide training and resources for companies looking to improve their environmental accounting practices.

Finally, policy reforms could play a crucial role in driving broader adoption of EMA and sustainability reporting. Providing tax incentives or subsidies for companies that invest in environmental management systems could encourage more firms to adopt these practices. Additionally, clearer regulations and reporting requirements would help standardize sustainability reporting and ensure that all companies are held to the same standards.

5. Conclusion and recommendations

This study has explored how manufacturing firms in Vietnam integrate Environmental Management Accounting into their sustainability reporting practices and broader business strategies. The findings reveal that while some companies, particularly larger firms such as Vinamilk and Samsung Electronics Vietnam, have made significant progress in adopting EMA to track and manage environmental costs, many others are still in the early stages of implementation. Most companies recognize the potential of EMA to improve both environmental and financial performance, but the extent to which these practices are integrated into long-term business strategies varies considerably. Firms with more advanced EMA systems tend to produce higher-quality sustainability reports and use environmental data strategically, while smaller or less mature firms often treat sustainability reporting as a compliance exercise rather than a tool for improving operations.

A key challenge identified in this research is the lack of internal expertise and resources required to fully implement EMA. Many firms struggle with the technical aspects of environmental accounting and face financial barriers to investing in the necessary systems and training. Additionally, the weak regulatory environment and limited governmental incentives in Vietnam do not provide sufficient motivation for firms to adopt EMA beyond basic

compliance.

Based on the research results, some recommendations are proposed to stakeholders to improve environmental accounting and reporting activities in the manufacturing sector, specifically as follows:

Recommendations for Companies

Invest in Capacity Building for EMA Implementation: Manufacturing firms in Vietnam should invest in internal capacity building to enhance their Environmental Management Accounting practices. This can be achieved by training financial and environmental managers in the technical aspects of environmental accounting, such as tracking environmental costs and integrating these into financial statements. By building in-house expertise, companies can better understand their environmental impact and make informed decisions that lead to both cost savings and improved sustainability performance.

Leverage Technology for Data Collection and Reporting: Companies should adopt advanced data collection and management systems to streamline the integration of EMA and sustainability reporting. Using environmental management software can help firms track key environmental indicators such as energy use, waste generation, and emissions more accurately. This will not only improve the quality of sustainability reports but also allow companies to monitor their progress toward environmental goals in real time, making it easier to identify inefficiencies and areas for improvement.

Align EMA Practices with Strategic Business Goals: To maximize the benefits of EMA, companies should integrate it into their overall business strategies. This means setting measurable environmental targets - such as reducing energy consumption or water use - and using EMA data to track progress. By aligning EMA with long-term operational and financial goals, firms can ensure that sustainability becomes a core component of their business model, leading to enhanced competitiveness and resilience in the market.

Collaborate with Industry Partners to Share Best Practices: Companies can benefit from collaborating with other firms in their sector to share insights and best practices on EMA and sustainability reporting. Industry associations or collaborative networks can facilitate this exchange, allowing firms to learn from peers who have successfully implemented EMA. This can help overcome common challenges, such as lack of technical knowledge or high implementation costs, by providing access to shared resources and expertise.

Recommendations for Policymakers

Develop Clear Regulatory Guidelines for EMA and Sustainability Reporting: Policymakers should establish clear and standardized guidelines for EMA and sustainability reporting in Vietnam’s manufacturing sector. These guidelines should align with international frameworks, such as the Global Reporting Initiative, to ensure that companies report consistent and comparable environmental data. By mandating specific environmental indicators and reporting formats, policymakers can ensure that all companies are held to the same standards, improving transparency and accountability.

Provide Financial Incentives for EMA Adoption: To encourage wider adoption of EMA, the government should introduce financial incentives, such as tax breaks, grants, or

low-interest loans for companies that invest in environmental accounting systems and sustainable technologies. These incentives would help offset the initial costs of implementing EMA, particularly for small and medium-sized enterprises (SMEs) that may struggle with resource constraints. By reducing financial barriers, policymakers can accelerate the adoption of EMA across the manufacturing sector.

Strengthen Enforcement of Environmental Regulations: Policymakers must enhance the enforcement of existing environmental regulations to ensure that companies are held accountable for their environmental impacts. Stronger enforcement mechanisms, including regular audits and penalties for non-compliance, will encourage firms to adopt EMA and improve their sustainability reporting practices. Additionally, regulators should focus on supporting companies in meeting these requirements through technical assistance and capacity-building programs.

Promote Public-Private Partnerships for Sustainability Initiatives: Policymakers should foster public-private partnerships to promote sustainability initiatives in the manufacturing sector. By collaborating with industry leaders, academic institutions, and international organizations, the government can support the development of training programs, research, and innovation in environmental management. These partnerships can provide companies with the resources and knowledge needed to adopt EMA and improve their sustainability reporting, while also advancing national sustainability goals.

6. References

1. Burritt RL, Schaltegger S, Zvezdov D. Environmental management accounting: The significance of contextual factors for adoption and application. *Journal of Cleaner Production*. 2019; 230:797-808. Doi: <https://doi.org/10.1016/j.jclepro.2019.05.221>
2. Hung PH. Influence of factors on responsible accounting organization in enterprises: Evidence from Vietnam. *Journal of Positive School Psychology*. 2022; 6(7):4112-4130.
3. KPMG. The time has come: The KPMG survey of sustainability reporting 2020. KPMG International, 2020. <https://home.kpmg/xx/en/home/insights/2020/11/the-time-has-come-survey-of-sustainability-reporting.html>
4. Nguyen TH, Pham VD. Sustainability reporting in Vietnam: Current practices and future directions. *Vietnam Journal of Environment*. 2021; 12(1):35-48. Doi: <https://doi.org/10.13141/jve.vol12.no1.pp35-48>
5. Nguyen TH, Tran VQ. Sustainability reporting in Vietnamese enterprises: Current status and recommendations. *Journal of Business and Economic Development*. 2020; 8(3):213-223. Doi: <https://doi.org/10.11648/j.jbed.20200803.14>
6. Pham HH. Factors affecting the implementation of environmental management accounting in manufacturing enterprises: Evidence from Vietnam. *NeuroQuantology*. 2022; 20(12):214.
7. Phạm HH. Ảnh hưởng của thực hành kế toán quản trị chiến lược đến sự hài lòng của nhân viên trong doanh nghiệp. *Nghiên cứu Tài chính Kế toán*. 2023; 7(244):83-87.