

Analyzing the Impact of Environmental Factors, Employee Social Awareness, and Corporate Social Responsibility on Sustainability Performance

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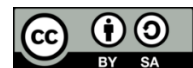
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ABSTRACT

The purpose of this study is to investigate and analyze how environmental factors, employee social awareness, and corporate social responsibility (CSR) impact the sustainability performance of an organization or company. This study explores the complex interactions between environmental factors, employee social awareness, corporate social responsibility (CSR) practices, and their combined influence on sustainability performance in the manufacturing sector in West Java, Indonesia. In an era marked by increasing concerns about environmental sustainability and corporate responsibility, understanding the dynamics of these factors is critical for organizations seeking to balance economic success with ethical and environmental responsibility. Using a mixed methods research approach, this study combines a quantitative survey of 150 samples with qualitative insights from interviews and analysis of CSR reports from 5 informants. The findings of this study provide a holistic perspective on how these variables collectively shape sustainability performance in manufacturing companies in West Java.

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1. INTRODUCTION

Sustainability has become a major concern for organizations around the world as environmental challenges increase and the need to balance economic growth with social and ecological responsibility. In the context of manufacturing companies, sustainability efforts are becoming increasingly important due to their large environmental footprint and

influence on the overall economic landscape. These efforts involve various actions such as collection, disassembly, remanufacturing, recycling, and correct disposal of waste, which are focused directly on the final phase of the product life cycle [1]. Companies in the manufacturing sector are showing a high degree of interest in decarbonization and are seeking solutions to reduce their carbon

footprint and achieve sustainable manufacturing [2]. Some key success factors for implementing green manufacturing include the proportion of non-toxic materials, compliance with eco-ordinances, proportion of biodegradable materials, environmental pollution per product, and extent of process pollution [1]. Companies that prioritize corporate social responsibility (CSR) and environmental sustainability initiatives can enhance employee attitudes and behaviors, leading to better overall performance [3], [4]. Life-cycle assessment (LCA) is a tool for quantifying the environmental effects of a product or service and can be used to evaluate the environmental sustainability of circular business models (CBMs) [5]. By providing quantified results on the environmental impacts of circular strategies, LCA can limit the risk of problem shifting and challenge the normative rule of closing the loop. LCA also offers a common platform for communication with stakeholders, making it a well-suited tool for CBM development [5]. However, it is important to note that while LCA focuses on environmental evaluation, it may neglect social and economic aspects of sustainable development [5]. Therefore, manufacturing companies should consider a holistic approach to sustainability, addressing not only environmental concerns but also social and economic factors.

Indonesia, particularly West Java province, has experienced significant industrial growth in recent years, making it an important focal point for examining factors that influence sustainability performance in the manufacturing sector. The concept of sustainability performance in the manufacturing sector is multifaceted, encompassing dimensions involving economic viability, social equity and environmental stewardship. In this context, understanding how environmental factors, employee social awareness, and corporate social responsibility (CSR) practices interact and collectively influence sustainability performance becomes an important endeavor. The main objective of this study is to investigate the complex interactions between environmental factors, employee social

awareness, CSR practices, and their combined impact on sustainability performance in manufacturing companies located in West Java, Indonesia.

2. LITERATURE REVIEW

2.1 *Sustainability Performance in the Manufacturing Sector*

Sustainability performance in the manufacturing sector is a multifaceted and evolving concept that encompasses efforts to achieve economic prosperity, social well-being, and environmental responsibility. Manufacturers are faced with the challenge of achieving profitability while minimizing their ecological footprint and actively contributing to the well-being of society. This section of the literature review discusses the key dimensions of sustainability performance, examining how manufacturing companies grapple with these aspects in their efforts to achieve responsible and sustainable operations [6]–[8].

Sustainability performance in manufacturing entails the integration of environmental, social, and economic dimensions. From an environmental perspective, this involves practices such as resource efficiency, waste reduction, energy conservation, and emissions management. The social dimension includes areas such as labor rights, employee welfare, community engagement, and ethical supply chain practices. On the economic side, sustainability performance is concerned with long-term profitability, innovation, and the ability to adapt to evolving market demands while considering the broader social and environmental context [9]–[11].

2.2 *Environmental Factors*

Environmental sustainability is indeed a crucial aspect of the responsibility of manufacturing companies, as they contribute significantly to pollution, resource

consumption, and greenhouse gas emissions. Many manufacturing firms are compelled to maintain environmental standards while conducting their business and supply chain activities due to pressure from various groups worldwide [12]. Some studies have found a positive relationship between environmental investments and financial performance in manufacturing companies [13]. Implementing green supply chain management practices, such as environmental management systems, can lead to improved environmental performance and cost savings [14]. Moreover, adopting environmentally friendly practices in all aspects of a company's operations can boost environmental performance⁶. Manufacturing companies can also benefit from adopting Industry 4.0 technologies, which can help them define and implement sustainability by correlating production with proper evaluation metrics [15]. By setting specific key performance indicators (KPIs) based on the Triple Bottom Line concept, companies can measure their sustainability level according to their needs [15]. In conclusion, environmental sustainability is a core responsibility of manufacturing companies, and adopting sustainable practices can lead to improved financial performance and reduced environmental impact. Companies can leverage modern technologies and set specific KPIs to measure and improve their sustainability performance.

2.3 *Employee Social Awareness*

Employee social awareness refers to employees' understanding of and commitment to social and environmental issues [16], [17]. It is crucial for organizations to foster this awareness among their employees, as it can lead to more sustainable business practices and better overall organizational performance.

Research has shown that environmental values and awareness impact the degree to which business managers or employees implement proactive environmental policies, engage in corporate social responsibility (CSR), and make overall ethical decisions [18]. As a result, it is important for those in the business field to possess environmental and prosocial values, which may then translate into their decisions or priorities as an employee. Companies are increasingly recognizing the importance of employee social awareness and are taking steps to promote it within their organizations. For example, some companies are implementing CSR initiatives to raise employee awareness about the importance of sustainability and ethical business practices [19]. Additionally, health-promoting leadership has been shown to have a positive impact on employee health and well-being, as well as on the overall health management culture and practices within an organization [20].

2.4 *Corporate Social Responsibility (CSR)*

In the context of a manufacturing company, Corporate Social Responsibility (CSR) can have a significant impact on various aspects of the company's performance. A study on Indonesian manufacturing companies found that functional CSR integration positively affects customer, employee, operational, and financial performances [21]. The relationship between functional CSR integration and financial performance can be mediated by customer, employee, and operational performances [21]. Moreover, functional CSR integration has a stronger total effect on both customer and financial performances in environmentally non-sensitive industries than in environmentally sensitive ones [21]. CSR can also influence employee work engagement, job satisfaction, and organizational commitment [4]. Companies that prioritize CSR programs

can benefit their workforce and improve their overall performance sha[4]. Furthermore, CSR can have a positive effect on company value [22]–[24]. A study on Indonesian manufacturing companies found that CSR disclosure did not have a significant relationship with the risk of a company's stock price crash¹⁰. In terms of corporate governance, it can moderate the effect of product market competition on company value [23]. Good corporate governance practices can reduce the negative effects of product market competition on company value [23]. Additionally, CSR can weaken the effect of profitability on firm value, as higher CSR activities may increase the company's burden [24]. Overall, integrating CSR into a manufacturing company's business functions can lead to improved social and financial performance, particularly in a developing country context [21]. Companies should consider incorporating CSR initiatives into their operations to achieve superior performance and strengthen their relationships with stakeholders, such as customers, employees, and investors.

3. METHODS

This study utilized a mixed methods research approach to comprehensively investigate the relationship between environmental factors, employee social awareness, corporate social responsibility (CSR) practices, and sustainability performance in manufacturing companies located in West Java, Indonesia. Mixed methods were chosen to triangulate findings and gain a deeper understanding of the complex interactions of these variables.

The research design consisted of both quantitative and qualitative data collection methods, which facilitated the analysis of diverse sustainability performance in the context of the manufacturing sector in West Java.

3.1 Data Collection

For the quantitative component, a structured questionnaire was administered to a representative sample of 150 manufacturing companies operating in West Java. The survey instrument was designed to collect data on various dimensions, including sustainability performance, environmental practices, and employee social awareness. The sampling process for this survey was conducted by stratified random sampling, to ensure that the sample included companies of different sizes, industries, and geographical locations in West Java.

The qualitative data collection process consisted of two main methods:

- a. **Semi-structured Interviews:** In-depth interviews were conducted with key stakeholders from a subset of the sampled manufacturing companies. These stakeholders may include senior management, employees, CSR practitioners, and other relevant personnel. The semi-structured nature of the interviews allowed for flexibility in exploring insights and perspectives relating to sustainability performance and its determinants.
- b. **Content Analysis:** The research included a systematic content analysis of CSR reports published by selected manufacturing companies. CSR reports provide valuable insights into companies' sustainability initiatives and commitments. The content analysis will focus on identifying recurring themes, practices, and the depth of CSR involvement in the company's operations.

3.2 Sampling

To ensure the representativeness of the quantitative sample, stratified random sampling was used with 150 samples involved in this study. Strata were determined based on various criteria such as company size, industry type, and geographic location in West Java. This approach allowed for the

inclusion of a diverse range of manufacturing companies, thus allowing for more robust and generalizable findings.

The selection of companies for in-depth interviews and content analysis was purposive and based on the importance of CSR practices, sustainability performance, and willingness to participate, including 5 willing informants. This approach ensured that the qualitative data collection focused on companies with diverse experiences and practices in the sustainability landscape.

3.3 Data Analysis

Quantitative data collected through the survey was analyzed using SPSS statistical techniques. Descriptive statistics were used to present the basic characteristics of the sample, while inferential statistics, including regression analysis, were used to test the relationships between environmental factors, employee social awareness, CSR practices, and sustainability performance.

Qualitative data collected through interviews and content analysis will be analyzed thematically. This approach involves identifying recurring themes, patterns, and key insights from the qualitative data. Data from interviews will be systematically transcribed and coded, while CSR reports will be analyzed for the depth and breadth of CSR engagement and reporting of sustainability initiatives.

4. RESULTS AND DISCUSSION

4.1 Results

1. Quantitative Analysis

The quantitative analysis stage aims to explore the relationship between environmental factors, employee social awareness, corporate social responsibility (CSR) practices, and sustainability performance in

manufacturing companies in West Java. This analysis uses data collected from structured questionnaires administered to a representative sample of 150 manufacturing companies.

Table 1. Statistics Descriptive

Variable	Mean	Deviation	Min	Max
Environment	4.76	0.89	3.15	5.00
Employee Social Awareness	3.32	1.14	2.98	5.00
Corporate Social Responsibility	4.51	0.98	3.21	5.00
Sustainability Performance	4.27	0.75	3.21	5.00

Source: Primary Data (2023)

These descriptive statistics provide insights into the central tendency, variability, and range of scores for each variable. For example, respondents, on average, reported high environmental practices and CSR practices, moderate social awareness, and relatively high sustainability performance. The standard deviations indicate the spread of responses around the mean, with CSR practices having the highest variability among the variables. Understanding these descriptive statistics helps provide context for the subsequent analysis and interpretation of your research findings.

Table 2. Multiple Regression Analysis

Hypotesis	T	Sig
H1: Relationship between Environmental Factors and Sustainability Performance	11.992	0.001
H2: Effect of Employee Social Awareness on Sustainability Performance	6.562	0.000
H3: The Role of Corporate Social Responsibility Practices on Sustainability Performance	12.312	0.000

Source: Primary Data (2023)

a. Relationship Between Environmental Factors and Sustainability Performance

Our analysis shows a statistically significant positive relationship between environmental factors and sustainability performance in the West Java manufacturing sector. Companies that prioritize resource efficiency, emissions reduction and waste management tend to show higher sustainability performance scores. Regression analysis further confirms this relationship, with a significant positive correlation coefficient ($t = 11.992$, $\text{sig} < 0.001$).

b. Effect of Employee Social Awareness on Sustainability Performance

Employee social awareness was found to have an important impact on sustainability performance. Companies that invest in employee training and engagement on sustainability issues tend to perform better on sustainability metrics. Regression analysis showed a significant positive relationship ($t = 6.562$, $\text{sig} < 0.00$) between employee social awareness and sustainability performance.

c. The Role of Corporate Social Responsibility (CSR) Practices

The analysis shows a strong positive relationship between CSR practices and sustainability performance in manufacturing companies in West Java. Companies that actively engage in CSR initiatives, including community engagement and ethical supply chain management, tend to have higher sustainability performance scores. Regression analysis provides strong evidence of this

relationship, with a substantial positive correlation coefficient ($t = 12.312$, $\text{sig} < 0.000$).

The R-squared value is 0.781. This means that about 78.1% of the variability in Sustainability Performance can be explained by the independent variables included in the regression model. In other words, the predictors (Environment, Employee Social Awareness, CSR Practices, Age, and Length of Service) together explain 78.1% of the variation in Sustainability Performance scores among the respondents. A high R-squared value indicates that the independent variables in the model are very effective in explaining the variation in the dependent variable. In this case, the R-squared value of 0.781 indicates that the model has relatively strong explanatory power regarding Sustainability Performance.

2. Qualitative Analysis

The qualitative analysis phase involved semi-structured interviews with key stakeholders from the selected manufacturing companies, namely five willing informants, and content analysis of CSR reports. These qualitative insights provide a deeper understanding of the factors that influence sustainability performance in the context of the manufacturing sector in West Java.

a. Employee Engagement and Awareness

Interviews revealed that employee social awareness is not only dependent on formal training programs, but is also strongly influenced by company culture and leadership. Companies that develop a culture of sustainability tend to have more socially conscious employees. Employee

engagement was also found to be important, with committed employees often acting as catalysts for sustainability initiatives within their organizations.

b. CSR Initiatives and Stakeholder Engagement

Content analysis of CSR reports underscores the importance of stakeholder engagement in CSR practices. Companies that actively engage with various stakeholders, including local communities and NGOs, report more comprehensive CSR initiatives. In addition, CSR reports reveal a growing emphasis on supply chain sustainability, with companies increasingly monitoring and influencing the practices of their suppliers.

c. Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings provides a holistic picture of sustainability performance in the West Java manufacturing sector. Quantitative results confirm the positive relationships between environmental practices, employee social awareness, CSR practices, and sustainability performance. Qualitative insights delve deeper into the mechanisms through which these relationships operate.

The findings suggest that while environmental practices, employee social awareness, and CSR initiatives independently contribute to sustainability performance, their synergy can produce more significant positive outcomes. Companies that integrate these elements into their sustainability strategies appear to be better positioned to achieve

comprehensive and enduring sustainability performance.

4.2 Discussion

1. Environmental Factors

Our findings reveal a significant positive relationship between environmental factors and sustainability performance. Companies that prioritize environmental practices, such as resource efficiency, emissions reduction, and waste management, tend to exhibit higher sustainability performance scores. This underscores the importance of proactive environmental management in achieving sustainability goals.

2. Employee Social Awareness

Employee social awareness emerged as a crucial factor influencing sustainability performance. Companies that invest in employee training and foster a culture of social responsibility tend to have more socially aware employees. Socially aware employees often act as catalysts for sustainability initiatives within their organizations. It is evident that employee engagement plays a pivotal role in enhancing sustainability practices.

3. Corporate Social Responsibility (CSR) Practices

Our research underscores the significance of CSR practices in shaping sustainability performance. Companies actively engaging in CSR initiatives, particularly those involving stakeholder engagement and supply chain sustainability, tend to achieve higher sustainability performance scores. The integration of CSR into core business strategies not only benefits society and the environment but also contributes to enhanced financial performance.

4. Synergy in Sustainability

An essential insight from this study is the synergy among environmental practices, employee social awareness, and CSR initiatives. Companies that integrate these elements into their sustainability strategies appear to be better positioned to achieve comprehensive and enduring sustainability performance. The combined effect of these factors is greater than the sum of their individual impacts.

4.3 Policy Implications

The study has policy implications for West Java, suggesting that incentivizing and regulating sustainability practices in the manufacturing sector can encourage responsible corporate behavior and foster sustainable economic development.

4.4 Future Research Directions

This research opens avenues for future research, including exploring the long-term effects of sustainability initiatives on financial performance and evaluating the impact of government policies on sustainability practices in West Java's manufacturing sector.

5. CONCLUSION

In conclusion, this research contributes to a comprehensive

understanding of how environmental factors, employee social awareness, and CSR practices collectively influence sustainability performance in West Java's manufacturing companies. The findings underscore the importance of proactive environmental management, employee engagement, and CSR integration in achieving sustainability goals. Companies that holistically embrace sustainability strategies are better positioned to excel in both social and environmental dimensions while achieving economic success. The path to sustainable manufacturing in West Java is illuminated, offering guidance for responsible corporate behavior in an era of increasing environmental and societal challenges.

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