# ANALYSIS OF THE ROLE OF COST AND ENVIRONMENTAL ACCOUNTING IN SUPPORTING SUSTAINABILITY: LITERATURE STUDY AND PRACTICAL IMPLICATIONS FOR MSMES AND ENTERPRISES

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**Abstract**

In the era of global sustainability, cost and environmental accounting play an important role in creating added value and improving corporate competitiveness. This research aims to analyze the role of cost and environmental accounting in business sustainability strategies through literature studies. The method used is a qualitative approach with descriptive analysis techniques. The results show that integrating cost and environmental accounting improves operational efficiency, strengthens corporate reputation, and reduces environmental risks. In addition, the article includes examples of companies that have successfully implemented environmental management practices, challenges faced by MSMEs, and proposed solutions such as digitalization to improve operational efficiency. The conclusion emphasizes the importance of integrating environmental costing and accounting in business strategy to improve competitiveness, create added value, contribute to environmental protection and quality environmental information becomes the key to sustainability. The implications of this study are useful for policy makers, owners, and managers of companies in formulating sustainability strategies.

Keyword**:** *Enterprise, Environmental Accounting, Environmental Cost, MSME, Sustainability*

## A. INTRODUCTION

Companies are no longer only expected to generate profits, but also play an active role in maintaining a balance between the economy, environment, and society including the management of environmental costs and the application of environmental accounting. Sustainability has become a global agenda that emphasizes not only economic profit but also social and environmental balance. In Indonesia, the implementation of environmental accounting is still voluntary, although regulations have regulated social and environmental responsibility, such as in Law Number 40 of 2007 and Government Regulation No. 47 of 2012 (Ratulangi et al., 2018). This responsibility is an obligation of the company which is budgeted and calculated as the company's cost, the implementation of which is carried out with due regard to propriety and fairness (paragraph 2). For companies that do not carry it out, sanctions will be imposed in accordance with applicable legislation (paragraph 3) (Lako, A., 2018).

This includes costs such as waste management, repair of environmental damage, investment in green technology, and the cost of compliance with environmental regulations. However, many companies still face obstacles in terms of implementation, either due to lack of understanding, limited resources, or unclear regulations and commitment from business actors, especially MSMEs.

Previous studies have mostly highlighted the implementation of environmental costs in large companies. However, studies highlighting how MSMEs can integrate environmental costing and accounting in sustainability strategies are limited. This article fills the gap by exploring the role of environmental costing and environmental accounting in supporting corporate sustainability to create balanced economic and environmental benefits. In addition, it will also review the challenges faced by MSMEs and companies in their implementation, and provide recommendations for strategic steps to optimize the benefits of environmental costing and accounting.

## B. LITERATURE REVIEW

### Environmental Costs

Environmental costs are costs incurred to overcome environmental damage or pollution arising from company activities and to prevent the possibility of poor environmental quality (Meiyana, A. 2018). Environmental costs arise due to poor environmental quality or the possibility of poor environmental quality (Hansen D. & Mowen, M. 2009). From this definition, it can be interpreted as costs associated with: Creation, Detection, Repair, or possible Prevention of environmental degradation as prevention (Setiawan, T. 2018). Environmental costs are calculated by comparing the costs incurred for CSR activities with net profit after tax (Hapsoro, D. & Adyaksana, R. 2020).

### Environmental Accounting

An accounting system that integrates environmental information into a company's financial statements that focuses on recording, reporting, and analyzing environmental costs is also known as green accounting. The goal is to provide a clearer picture of the environmental impact of business operations and to aid sustainable decision-making. There are two types of environmental accounting, including:

a. Conventional Environmental Accounting: Measures the environmental impact on the company in financial terms.
b. Ecological Accounting: Measures a company's impact on the environment in terms of physical units.

According to the United States Environmental Protection Agency (USEPA) the function of environmental accounting is "one important function of environmental accounting is to describe environmental costs to be considered by company stakeholders who are able to encourage in identifying ways to reduce or avoid costs while at the same time improving environmental quality" (Wardiana E. & Husaini, A. 2017).

### Data Collection, Analysis, and Calculation

There are two ways to calculate environmental costs:

*a. Full Environmental Costing*
Full environmental costing, which is the charging of all environmental costs to the product.
*b. Full Private Costing*
Full private costing, which is the assignment of private costs to individual products.

Data analysis was carried out descriptively quantitatively through the following stages:

a. Environmental cost data listed in company reports were analyzed by content analysis in order to be classified into four types of environmental costs.
b. Environmental cost data that has been classified, calculated the ratio to be given a final assessment of whether the distribution is ideal so that it can be said to be effective or efficient.

Here are some methods or ways to calculate environmental costs:

**Table. 1** Methods for Calculating Environmental Costs

| *Cost Category* | *Cost Type* | *Calculation Formula* | *Value (Rp)* |
|---|---|---|---|
| **Cost of Prevention** | Investment in green technology (WWTP, solar panels, energy efficiency) | Investment Cost = Total Investment / Useful Life | Rp2.000.000.000 |
| **Cost of Detection** | Environmental audit, carbon emission measurement, waste monitoring | Audit Cost = Total Measurement and Monitoring | Rp50.000.000 |
| **Internal Costsl** | Liquid, solid, and air waste management, and environmental training | Operating Costs = Material Costs + Labor Costs + Overhead Costs | Rp100.000.000 |

| | | | |
|---|---|---|---|
| **External Costs** | Compensation for environmental impacts to the community, penalties or sanctions | External Cost = Total Compensation + Penalty | Rp25.000.000 |
| **Total** | | Total Cost = Prevention Cost + Detection Cost + Internal Cost + External Cost | Rp2.175.000.000 |

**Environmental Accounting Measurement and Reporting**

The groupings in the environmental analysis stage as specified in the 2009 Statement of Financial Accounting Standards (PSAK) include the following:

a. Identification

It is necessary to identify waste generated from operational activities. After identifying these economic events, they are then recorded to become a path for the company's financial activities (Sukirman, 2019)

b. Recognition

Quoted from the research results of Indrawati (2018), according to Cahya Ningsih (2016), if it has been identified, it is then recognized as an account or cost account at the time of receiving benefits from a number of values that have been issued for environmental financing. The costs used by the company every month to manage company waste by taking from costs that have been previously reserved (budgeted), namely through prepaid financing.

c. Measurement

Conducted in monetary units based on the real needs of the company.

d. Presentation

Reported in the financial statements through various reporting models:

a) Normative Model: recorded with other allied costs.
b) Green Model: Separate report to explain environmental financing.
c) Environmentally Intensive Model: capitalized as an investment and reported with additional notes.
d) National Asset Model: viewed as a national responsibility..

e. Disclosure

Provide useful data because if it is not useful, the purpose of disclosure will not be achieved (Ikhsan, 2009). companies are required to disclose:

a) Accounting policies related to waste costing.
b) Depreciation method of waste management infrastructure.
c) Environmental management activities
d) Conditional obligations related to environmental management

## C. RESEARCH METHODOLOGY

The type of research used is qualitative research with a descriptive analytical approach, with the collection of some data using library research which is the use of library data to get relevant conclusions (Sugiyono, 2018). This research uses data collection techniques by tracking journals, books, and articles that discuss environmental costs and accounting. Literature selection is based on relevance to the theme of sustainability and the publication time span of the last 10 years to ensure data updates. After the data sources are collected, the author analyzes in detail and then draws conclusions as a result of the research conducted.

## Research Results and Discussion

### Case Study: Implementation of Sustainability Practices in the Company

Sustainability is an important aspect in the operations of MSMEs and large companies. one of the company's strategies needs to allocate environmental costs in order to improve environmental performance (Meiyana, A. & Aisyah, M. 2019). To improve performance, it does require a fairly high cost,

but this high cost can produce long-term benefits which will certainly have a good impact on the company. This is in accordance with research conducted by Hendarti (Hendarti, H. 2006) where environmental management costs affect social performance. However, there are still companies that ignore environmental costs because they consider environmental costs to be a profit deduction.

Here are some companies that have successfully implemented and made environmental accounting reporting, and show how sustainability can be integrated into the business model while still making a profit can be seen in the table.

**Table. 2 Examples of Companies that Successfully Implemented Environmental and Sustainability Accounting Reporting**

| *Company Name* | *PT GreenSteel Indonesia* | *PT Unilever Indonesia* | *PT Pertamina (Persero)* |
|---|---|---|---|
| **Industri** | Baja dan Logam | Barang Konsumsi | Migas dan Energi |
| **Environmental Activities** | Processing of liquid waste from the production process is processed using a waste treatment plant (WWTP) to ensure that it does not pollute the environment. | Zero Waste to Landfill program, managing waste from all factories so that none is disposed of in landfills. | Management of hazardous and toxic waste (B3) through waste to energy technology. |
| **Operational Costs** | Liquid waste management: IDR 100 million/year; Net energy cost: Rp500 million/year | Not specified | Hazardous waste management cost as operational expense |
| **Investment Costs** | WWTP: IDR 2 billion (depreciated over 10 years); High efficiency furnace: IDR5 billion (depreciated in accordance with PSAK 16) | Not specified | Environmental provisions prepared in accordance with PSAK 57 |
| **Financial Recording** | Environmental investments as fixed assets in the balance sheet and depreciated annually. | Waste management as an operating expense | Waste management costs are recorded as operating expenses |
| **Non-financial Reporting Financial** | 15% reduction in carbon emissions; 90% reduction in wasted liquid waste | 52% reduction in energy consumption per ton of production, Reduction in carbon emissions and water consumption | Not specified |

**Implementation Challenges for MSMEs**

a. Access to Financing: Many MSMEs experience difficulties in securing financing for sustainability initiatives or for green technology investments.

b. Lack of Knowledge: Limited knowledge of sustainability practices can hinder implementation.
c. Unfavorable Regulations: Unfavorable government policies can be a barrier for MSMEs to implement sustainable practices.

**Solutions and Recommendations**

The solutions that can be pursued include;

a. Government Incentives: Provide subsidies or tax breaks for MSMEs that implement sustainability practices.
b. Training and Mentoring: Increase managerial capacity through environmental accounting training.
c. Digitalization of Environmental Accounting: Integrate technology to monitor carbon footprint and waste management.
   Digitalization plays an important role in improving business sustainability.

By integrating digital technology, MSMEs can:

a) Improve operational efficiency.
b) More effectively monitor carbon footprint and waste management.
c) Adopt energy management systems to reduce energy consumption.

## D. CONCLUSION

The integration of environmental costing, environmental accounting and sustainable practices is essential for both MSMEs and large enterprises in Indonesia. This implementation not only supports environmental protection but also improves the competitiveness of the company. This strategy can provide long-term benefits through cost efficiency, enhanced reputation, and wider market opportunities. Despite the challenges, solutions such as digitalization and policy support can strengthen the implementation of these practices. The integration of environmental costing and accounting not only supports environmental protection but also improves competitiveness and profitability. This article also shows that companies that successfully implement environmental management practices can improve environmental performance and profitability. Therefore, it is important for companies to plan and allocate environmental costs well, and leverage digitalization to improve operational efficiency and support sustainability.

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