

# Environmental Cost Management Accounting in Fdi Enterprises

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## Abstract

Environmental management accounting was established in developed countries around the world in the 1970s. In Vietnam, environmental management accounting has also gradually formed and developed. Through a survey of 200 FDI enterprises of various sizes and industries, but with a common point of strong impact on the environment, the author found that businesses have not yet truly applied environmental cost management accounting in their production and business processes. Therefore, the author proposes some solutions to apply environmental cost management accounting in Vietnam's FDI enterprises.

**Keywords:** Environmental management accounting

## 1. Introduction

Environmental management accounting was established in developed countries around the world in the 1970s, first in the US in 1972 after the Environmental Summit in Stockholm (Sweden). Authors Fleischmann et Paduke (1977) and Verein Deutscher (1979) studied environmental accounting, focusing on separately calculating costs and profits associated with environmental pollution control measures. Many American companies in the early 1980s highly valued environmental technology investment projects. At this time, government organizations and nonprofit entities often paid attention to environmental accounting, while many businesses did not. Environmental management accounting spread to countries like Germany (1980) and Japan (1999). In recent years, scientists and business managers have begun to show interest in environmental accounting; many scientific conferences related to environmental management accounting have been held at domestic and international forums; many countries have successfully applied environmental management accounting such as Canada, Denmark, Argentina, Singapore, South Korea, Indonesia, and South Africa. After the oil crisis in 1973, Denmark developed energy accounting to address concerns about efficient and energy-saving use in 1975. In 1978, Norway mentioned environmental management accounting as a tool to manage issues related to resources such as energy, fisheries, and land

due to the expansion of hydropower and overfishing (Eden, 2013). However, during this period, there were few studies related to environmental accounting, and there was no clear distinction between environmental auditing and environmental management accounting, as well as between environmental management accounting and social accounting. By the 1980s, investigations showed a separation between environmental management accounting and social accounting, with increased attention to environmental reporting compared to social reporting.

In 1995, the USEPA published "Environmental Management Accounting as a Business Management Tool: Key Concepts and Terms." This document clarified key concepts and terms of environmental management accounting and became a starting point, promoting the wider application of environmental management accounting. The value of environmental management accounting in establishing a culture of pollution prevention and waste reduction has become increasingly clear. Therefore, UNDSO (2001) published a document titled "Environmental Management Accounting Procedures and Principles." This document established a common understanding of the basic concepts of environmental management accounting and provided a set of principles and procedures for those interested in applying environmental management accounting based on commonly used and internationally accepted accounting methods. Currently, in the world, especially in developed countries, guidelines for environmental reporting and regulations on environmental management accounting have been issued and put into practice. The environment is an important resource for economies in general and for many businesses. Environmental events can affect the financial situation and business results of all enterprises. Therefore, environmental issues need to be integrated into management accounting, serving information users when making economic decisions.

## **2. Proposed Research Model**

The United States Environmental Protection Agency - USEPA (1995), UN DSD (2001), JMOE (2005) and IFAC (2005) have presented the concept of environmental costs and the classification of environmental costs and environmental incomes. However, there is no consensus among organizations on the classification of environmental costs because according to USEPA (1995), environmental costs are classified into 4 categories, according to IFAC (2005), they are classified into 6 categories, while JMOE (2005) is classified into 7 categories. According to Schaltegger and Burritt (2000), Burritt et al. (2002) believe that environmental management accounting information, including environmental physical information and environmental monetary information, is intended to help businesses determine comprehensive environmental information on the scale and extent of environmental impacts.

Hoang Thi Bich Ngoc (2017) has analyzed, synthesized, evaluated, and clarified the theoretical issues of environmental cost management accounting to form a theoretical framework on environmental cost management accounting in manufacturing enterprises. Use relevant accounting theories to explain the basis for applying environmental cost management accounting in manufacturing enterprises. At the same time, survey, analyze and

evaluate the current status of environmental cost management accounting in oil and gas processing enterprises under the Vietnam National Oil and Gas Group. Over the course of research, the total number of scientists has focused on clarifying environmental physical information, environmental monetary information, the concept and classification of environmental costs, methods of allocating environmental costs, environmental efficiency analysis and internal environmental reports in order to record, processing, systematizing and providing environmental management accounting information to managers in enterprises. However, no research has yet demonstrated a comprehensive and focused environmental accounting framework.

### **3. Research Methodology**

The authors used qualitative methods to address the goals set by the study; including referring to relevant documents and documents, observing reality, conducting case studies of the estimation system and interviewing a number of individual managers and experts. The results of the study help to: (1). Collect basic information to orient research; (2). Collect information to design questionnaires for research; (3). Determine the direction to propose solutions to improve according to the set objectives.

The author conducted a survey through questionnaires at 200 FDI enterprises in environmentally sensitive sectors listed on the stock market. These included 25 FDI enterprises in the mining sector, 10 FDI enterprises in fertilizer production, 20 FDI enterprises in seafood processing, 20 FDI enterprises in plastic packaging production, 20 FDI enterprises in cement production, 20 FDI enterprises in steel production, 20 FDI enterprises in food processing, 20 FDI enterprises in wood processing, 20 FDI enterprises in pharmaceutical production, and 20 FDI enterprises in other sectors. The results yielded 172 valid responses (accounting for 86%).

### **4. Research Results**

Through the process of surveying and cleaning the results of the research sample, the authors have counted the number of FDI enterprises participating in the survey process of the author group. Thereby, the authors have statistically described the group of industries conducting the survey and the current situation of the organization of the accounting apparatus in FDI enterprises in Vietnam through Table 1.

Table 1. Number of Manufacturing Enterprises in the Research Sample by Sector

Sector	Number of Questionnaires Sent to FDI Enterprises		Number of Responses Received	
	Number of FDI Enterprises Sent Questionnaires	Percentage (%)	Number of FDI Enterprises Responded	Percentage (%)
Mining	25	12.50	22	12.78
Fertilizer Production	10	5.00	8	4.65
Seafood Processing	20	10.00	18	10.46
Plastic Packaging Production	20	10.00	17	9.89
Cement Production	20	10.00	15	8.72
Steel Production	20	10.00	17	9.89
Food Processing	25	12.50	23	13.37
Wood Processing	15	10.00	12	9.89
Pharmaceutical Production	20	10.00	18	10.46
Other Sectors	25	10.00	22	9.89
Total	200	100.00	172	100.00

Source: Compiled by the author

The results of the synthesis of the questions of the survey form show that the training level of the survey participants is very good, specifically there are 147/172 people, accounting for 83.72%) people with university and post-university degrees, the number of people with professional high school degrees is very low, only 6/172 people accounted for 3.48%. This shows that the training level of the survey participants is good, able to understand the questions, so the survey quality is highly satisfactory.

The form of organization of the accounting apparatus in these FDI enterprises, including 106/172 FDI enterprises, accounting for 61.63% of respondents to FDI enterprises applying both centralized and dispersed forms; 51/172 FDI enterprises, accounting for 29.65%) applied the form of concentration and 15/172 votes, accounting for 8.72% applied the form of dispersion.

There were 155/172 FDI enterprises (accounting for 90.11%) that FDI enterprises applied Circular No. 200/2014/TT-BTC and 17 votes (accounting for 9.89%) said that FDI enterprises applied Circular No. 133/2016/TT-BTC. All FDI enterprises (100%) in the study sample organized financial accounting and management accounting according to a combined model. This is the most favorable model today for all types of FDI enterprises in Vietnam. The level of understanding of environmental management accounting in FDI enterprises, through the survey, shows that the number of FDI enterprises has a clear and very clear understanding of environmental management accounting, there are 23 FDI enterprises, accounting for 13.37%, 134 FDI enterprises, accounting for 77.91% understand at the normal level and there are still 15/172 FDI enterprises, accounting for 8.72% do not understand what environmental management accounting is.

The level of interest and great interest in environmental management accounting was

answered by 44 FDI enterprises, accounting for 25.47%, 107 FDI enterprises, accounting for 62.33% of interest at the normal level and the number of people not interested in environmental management accounting is still quite high: 21 FDI enterprises, accounting for 12.2%. In the research sample, up to 134 FDI enterprises responded, accounting for 77.91% said that FDI enterprises had not applied environmental management accounting, only 38 FDI enterprises, accounting for 22.09% said that FDI enterprises had applied environmental management accounting, the application rate was not high. The survey questions on the content of environmental management accounting in FDI enterprises in the research sample are specifically summarized as follows: there are 123 FDI enterprises, accounting for 71.51% that environmental assets are formed for the purpose of environmental restoration, 46 FDI enterprises, accounting for 26.75% said that it was assets in the form of prepaid expenses to deposit environmental restoration and only 3 FDI enterprises, accounting for 1.74% said that for other reasons.

## 5. Research Conclusion

From the current situation of applying environmental management accounting at the units, the authors have conducted a survey. The author offers some solutions related to the application of environmental management accounting in FDI enterprises as follows:

The information on the environmental management accounting report is usually made on the basis of the information provided by the environmental management accountant and made according to the requirements and management purposes of the management levels in the enterprise to make appropriate economic decisions. Therefore, the environmental management accounting information provided by this report must be consistent with the needs and objectives of governance as well as each specific business decision of the administrator.

Governance in enterprises includes basic functions such as: planning, estimating, organizing implementation, testing, evaluation and decision-making. Accordingly, with the role of providing necessary information for managers, environmental management accounting reports must provide information on norms, estimates, information on implementation and information on analysis, forecasting and consulting to have solutions to reduce costs and increase profits. However, in fact, in today's enterprises, environmental management accounting and environmental management accounting reports in general have not been properly focused, affecting the effectiveness of corporate governance for these indicators.

Environmental management accounting reports are designed, prepared and presented flexibly, not uniform and compliant like financial statements. The number and forms of environmental management accounting reports not only vary from business to business, but can also vary between departments and stages of an enterprise. However, based on the basic requirements and principles of completion and basic functions of enterprises, the environmental management accounting reports of these enterprises need to be completed with the following contents:

The information on the environmental management accounting report must be divided into

indicators in accordance with the information assessment standards in each different economic situation.

The indicators in the report must be closely related to each other.

The actuals, estimates, norms or predetermined objectives in the report must ensure comparability to help managers use the information for the performance of the operational control function in a grounded and reliable manner.

The form of report structure needs to be diverse and flexible depending on the criteria for evaluating information in each report for each specific economic situation.

The targets in the implementation report should be allocated by region, location, time, department, etc.

For the time to prepare environmental management accounting reports, enterprises should prepare weekly, monthly, quarterly and annually depending on the purpose and requirements of the manager to ensure the provision of timely and appropriate information on environmental costs and environmental income.

### **Competing interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### **Informed consent**

Obtained.

### **Ethics approval**

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### **Data availability statement**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### **Data sharing statement**

No additional data are available.

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