

ENVIRONMENTAL ACCOUNTING: DEVELOPMENT AND INNOVATION OF THEORY AND PRACTICE

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ABSTRACT

Resource management, environmental protection, and sustainable development have been global concerns since the 1970s. The UN's 1972 "Human Environment Conference" identified population, resources, environment, and development as the four major issues facing the international community. It is the responsibility of businesses to protect the environment while using resources to produce goods and services for consumers. Therefore, environmental accounting has emerged as a new topic in the field, with a focus on improving how companies report and account for their environmental responsibilities and share relevant information. This paper examines environmental accounting theory and practice to identify potential areas for improvement and offer practical recommendations for companies to improve their environmental responsibility reporting.

Keywords: sustainable development, environmental accounting, theory and practice, development, information disclosure, model innovation

1. The study and practice of foreign environmental accounting

Since the 1970s, environmental accounting has become a new branch of accounting science. Accountants in the Western developed world have actively researched this emerging field and have made corresponding achievements in the application of environmental accounting.

(1) Research results on American environmental accounting theory

The American Financial Accounting Standards Board's (FASB) results in environmental accounting were primarily Standards Notice No. 5 issued in March 1975, "Accounting of Contingencies." [1] As for how to record environmental costs, the FASB has issued three notices about dealing with the company's environmental costs, namely Notice No. 89-13, "Accounting

for handling asbestos cleanup costs." ", Notice No. 90-8 "Capitalization of environmental pollution costs" and No. 93-5, "Environmental responsibility accounting." The United States Securities and Exchange Commission (SEC) deals with environmental disclosure requirements, mainly including Regulation (Regulation) S-K No. Many issues arise, mainly including the separate listing of environmental liabilities and claims receivable in the financial statements, the recognition of environmental costs that may be incurred by other parties, the basis for measure liabilities and provision costs for the environment, monitoring and site cleaning costs in the notes to the financial statements, etc. The AICPA released Statement of Position 96-1 in 1996, which requires companies to recognize and measure environmental liabilities when it is probable that a liability will occur and its amount can be estimated reasonably.

(2) The "Environmental Protection Act" of 1990 mandated that polluting companies must include their environmental protection measures in their reports, establish their own environmental goals, and report their performance to the public. The Accounting Standards Board (ASB)[2] does not have explicit environmental accounting standards, but encourages large companies to disclose vital information, such as environmental protection measures and liabilities, in their annual reports. The British Association of Chartered Accountants (ACCA) has introduced the annual "Environmental Report Award Scheme" to incentivize companies to comply with ecological reporting. Additionally, the University of St Andrews established the Centre for Social and Environmental Accounting Research (CSEAR) in 1991 to promote environmental accounting research.

(3) Japan has been actively promoting the adoption of environmental accounting systems. In the late 20th century, Japan transitioned from a modern economic society to a more sustainable "circular economy society" characterized by optimal production, optimal consumption, and minimal waste. To support this transition, the Japanese government established and improved a system of laws and regulations related to the environment, providing a solid legal foundation for the implementation of corporate environmental accounting. Since 1999, the government has formulated or revised several laws and regulations that are closely linked to corporate environmental accounting, including the "Basic Law of a Recycling Society". Companies now require independent auditing agencies or independent environmental supervision agencies to certify their environmental reports to obtain public recognition, establish an environmental protection image, and expand environmental management results.

(4) ISAR makes continuous efforts to establish an environmental accounting reporting system.

The United Nations Intergovernmental Working Group on International Standards of Accounting and Reporting (ISAR) [3] is responsible for coordinating national accounting and reporting practises on a global scale. Since the late 1980s, ISAR has been actively involved in addressing

environmental accounting issues, establishing the Environmental Accounting and Reporting Project in 1990. ISAR has made significant efforts to promote the development of environmental accounting, particularly the disclosure of environmental information.

2. Trends of environmental accounting and reporting in recent years

Environmental accounting has been evolving to encompass new dimensions in recent years, owing to the formation of economic globalization. The study of ecological accounting within the international accounting field has shifted from a traditional accounting perspective towards a more comprehensive and broader perspective. This shift reflects new trends in five areas, which include the integration of environmental accounting with sustainable development, the combination of environmental accounting with corporate social responsibility, exploring the relationship between environmental accounting and green finance, applying environmental accounting in public sector management, and promoting international cooperation in environmental accounting research.

2.1 Refining the content of environmental accounting information disclosure with accounting for ecological costs.

The development in this area primarily centers on the accounting business process, with Japan being a representative example. In the late 1990s and early 2000s, the Japanese Ministry of the Environment issued three official reports and guidelines, which contributed significantly to the advancement of environmental accounting. These guidelines established a normative framework for Japanese companies to practice environmental accounting and were dubbed "the first year of environmental accounting" by the Japanese accounting community[4]. The guidelines primarily focused on confirming, measuring, and reporting environmental preservation costs, thereby improving the comparability and consistency of corporate environmental accounting information. The guidelines also emphasized comparing environmental costs with ecological benefits and effects, which served as the primary basis for reporting corporate environmental accounting information.

The Japanese Ministry of the Environment has developed guidelines and reports to provide a normative approach to environmental accounting. Environmental preservation costs are categorized into two types: ecological preservation investments and current expenses, which are further divided into six categories each. The categories include the costs of directly and indirectly reducing the environmental burden, research and development costs, and social connection costs. Ecological costs are divided into seven categories, including management activity costs, environmental damage costs, and research and development costs. The guidebook highlights that ecological accounting information includes environmental protection costs,

ecological protection effects, and economic effects of environmental protection measures. It proposes three forms of disclosure: Table A, Table B, and Table C. This disclosure mode helps companies better understand their environmental impact and take measures to reduce it, while also providing stakeholders with a clear view of the company's environmental performance and encouraging them to invest in environmentally responsible businesses.

2.2 Standardize the provision and evaluation of corporate social responsibility reports with environmental performance as the core content.

The OECD, WTO, and United Nations Global Compact have all stressed the importance of corporate social responsibility for social and economic development. The ISO and SAI have also implemented various measures to encourage companies to obtain certification for the Social Accountability 8000 International Standard (SA8000) and promote standardized reporting. In addition, the ISAR and IASB are actively researching accounting practices related to resource management, environmental issues, and corporate social responsibility. These organizations have issued corresponding norms to guide companies in these areas. Well-known financial magazines like "Fortune" and "Forbes" are also conducting research on these standard[5] also actively advocate research on accounting issues related to resource management, the environment, and corporate social responsibility accounting and have issued corresponding guiding norms; famous financial magazines such as "Fortune" and "Forbes" are conducting research on the standard; The evaluation of corporate influence in international rankings takes into account not only business performance but also their commitment to corporate social responsibility (CSR). This assessment covers both internal and external responsibilities, including environmental responsibilities. These environmental responsibilities encompass the obligation of enterprises to minimize pollution and safeguard ecological environments, and also moral responsibilities. The legal framework mandates environmental responsibility, while ecological responsibility arises from the traditional economic concept of principal-agent responsibility. A company's voluntary public report on its financial, environmental, and social performance is commonly known as a corporate social responsibility (CSR) report. To report on ecological performance, the content should cover five key aspects: the enterprise's environmental policies, corresponding ecological plans and structures, financial matters, environmental activities, and sustainable development management. With stakeholders, including investors and customers, placing greater emphasis on sustainability and ethical practices, such reports are becoming more critical for companies. By providing transparency on their environmental and social impact, companies can enhance their reputation and build trust with their stakeholders.

2.3 Integration of resource and environmental accounting content oriented towards providing green GDP indicators

National economic accounting focuses on integrating macro indicators of environmental accounting into the national economy's indicator system. Since the 1980s, natural resource accounting has been gaining attention from natural scientists, economists, sociologists, government agencies, and international organizations. The System of Integrated Environmental and Economic Accounting (SEEA)[6] was published in 1998 and the revised Environmental and Economic Integrated Accounting Handbook (SEEA2000) in 2001. The 2003 revision of the Environmental and Economic Comprehensive Accounting Handbook further expanded the content of the accounting system and elaborated on specific accounting methods. This handbook serves as a guide for environmental accounting and has become a crucial tool for governments and organizations worldwide to measure and monitor the economic impact of environmental policies and activities, as well as identify areas where sustainable development can be achieved.

2.4 Standardization of environmental management system construction with strengthening corporate environmental responsibility as the main body

The focus of development in this aspect is to strengthen internal management within enterprises and promote the certification of environmental management systems. Since the 1970s, the World Bank has published numerous books on ecological accounting, such as "Environmental Accounting for Sustainable Development," "Resource and Environmental Accounting for Industrial Countries," and "A Survey of Resource and Environmental Accounting in Industrial Countries." The United Nations Economic and Social Bureau Sustainable Development Department (UNDESA or DSD)[7] encourages governments worldwide to actively participate in meetings, exchange environmental information, and prepare environmental reports. In 1993, the International Organization for Standardization established the ISO/TC207 Environmental Management Technical Committee (SC)[8] and a specific working group (WG1) to develop a series of standards for environmental management. The leading standard in the ISO 14000 series is the ISO 14001 [9] environmental management system standard, which includes 17 elements in five parts: environmental policy, planning, implementation and operation, inspection and correction, and management review. Implementing these elements helps companies comply with environmental regulations, reduce their environmental impact, and demonstrate their commitment to sustainability, thereby enhancing their reputation and competitiveness in the market.

2.5 A concrete environmental accounting disclosure and quality evaluation system with the determination of eco-efficiency indicators as the core

The focus of ecological accounting research shifted towards the recognition and measurement of ecological assets, environmental liabilities, expenses, costs, and benefits from the perspective of pure financial accounting procedures, with the official release of these documents. Ecological

accounting frameworks and standards have been developed to accurately reflect the impact of economic activities on the environment. The three main files in this regard contain the following key contents:

(1) Accounting and financial reporting for environmental costs

ISAR believe that as environmental pollution and other issues become increasingly prominent economic, social, and political issues worldwide, environmental accounting becomes increasingly relevant to enterprises. Investors and stakeholders of enterprises are concerned not only about the potential impact of environmental costs on the return on investment of the enterprise's owners and shareholders, but also about the enterprise's environmental performance, how that affects its financial status, and how the financial information about ecological. The report discusses the necessity of accounting for environmental costs and liabilities. It defines significant accounting concepts related to the environment, such as the recognition and measurement of environmental costs, environmental liabilities, environmental compensation, and nutritional disclosure requirements. It is the world's first systematic and complete international guide on environmental accounting and reporting. Its purpose is to ensure that different standard setters do not adopt different approaches to the same issue.

(2) Integrating environmental and financial performance at the enterprise level. ISAR's research shows that, due to the influence of many factors, the precise relationship between improving corporate environmental performance and corporate profits still needs to be determined. But the notion that corporate profits can increase with ever-decreasing negative environmental impacts suggests a link between the two. The traditional accounting model cannot evaluate corporate environmental performance and its impact on corporate financial performance. However, users of accounting information have begun to pay attention to the reality of how environmental performance affects corporate financial results. This report proposes a method combining ecological performance and financial performance indicators to measure companies' realization of eco-efficiency. The aim is to improve the quality of environmental reporting and the satisfaction of stakeholders by developing eco-efficiency indicators. It discusses the standardization process for implementing eco-efficiency indicators and selecting environmental and economic performance indicators.

(3) The third is A Manual for the Prepare and Users of Eco-efficiency Indicators (2004)[10]. After the Enron incident in 2001, the international community paid attention to the "sustainable operation", "sustainable value," and "sustainable development" of enterprises. ISAR released the 1.1st edition of the "Eco-efficiency Index Compiler and User's Handbook". It provides a way to integrate environmental performance and financial performance indicators to measure the progress of enterprises in achieving eco-efficiency or sustainable development. Methods used in

conjunction with financial performance indicators include life cycle assessment, carbon footprint analysis, and environmental management systems. These methods help companies identify areas where they can reduce their environmental impact and improve their overall sustainability.

3. Research and development of environmental accounting in Vietnam

Vietnam has made significant progress in researching and developing ecological accounting, but there are still challenges to be addressed. The Law on Environmental Protection in 2014 has led to the development of environmental accounting, and Vietnam has committed to reducing greenhouse gas emissions by joining the Paris Agreement on climate change in 2016. The Ministry of Finance issued Decision No. 345/QD-BTC on February 18, 2020, which outlines the Environmental Accounting Program Implementation Plan from 2020 to 2025. This plan has created new strides in developing environmental accounting in Vietnam. Universities and colleges have begun to offer courses in environmental accounting and train human resources in the field. However, many challenges still need to be addressed: Environmental accounting has yet to be widely applied in organisations in Vietnam, so there is a need for greater awareness from businesses and the government. The construction of the environmental accounting system needs to be synchronised and accurate; it is necessary to study and identify specific criteria and meet international standards. Workers need to be adequately trained in environmental accounting, so investment in training from the government and training organisations is required. This will ensure that the system effectively measures the environmental impact of economic activities and aid in making informed decisions. Additionally, regular system audits and evaluations should be conducted to ensure its continuous improvement and effectiveness.

3.1 Relevant government agencies pay close attention to environmental issues

Vietnam has implemented a series of positive policies to promote sustainable development while balancing economic growth and environmental protection. The first Environmental Law was promulgated in 1993 and revised in 2005. In 2010, the Law on Environmental Protection Tax was approved and Decree 67/2011/ND-CP was issued to provide guidance on taxable objects, tax bases, tax declaration, tax calculation, tax payment, and insurance tax refund. Despite these efforts, there are still many shortcomings and inconsistencies in the policies, and implementation faces various difficulties. Penalties for violating regulations are not strict enough to be highly effective, and there is a lack of awareness and education on the importance of compliance. To address these issues, stricter penalties and increased education efforts should be considered to improve overall compliance.

In Vietnam, there is currently no accounting system in place that specifically addresses environmental accounting at enterprises. Therefore, it is imperative that the Vietnamese

government establish a comprehensive accounting framework that includes environmental accounting to hold enterprises accountable for their environmental impact. This will increase transparency and accountability in the business sector by separating and monitoring environmental costs from production and business costs. There are no specific accounting accounts designated for significant environmental costs, such as equipment depreciation, waste treatment expenses, environmental monitoring costs, labor safety costs, repair and maintenance costs, compensation costs, troubleshooting costs, cleanup costs, and expenses related to handling accidents and environmental damage. Without proper guidance and accounting practices, environmental costs may be underestimated, which could have negative impacts on the environment and public health. When it comes to Vietnamese enterprises, the majority of them are small to medium-sized, and tend to prioritize short-term benefits over the long-term impact on the environment when making production plans. Many lack a macro view that takes into account sustainable development and environmental preservation.

In terms of education and training, while some schools have introduced environmental management and accounting as a subject, many have not yet done so. The lack of preparedness in terms of human resources means that there are only a few accountants with expertise in environmental accounting. This shortage of skilled personnel is not limited to enterprises that specialize in environmentally-related industries such as cement production, mineral mining, or garment manufacturing, but rather affects enterprises across all sectors. The accountants responsible for environmental accounting are often rotated, and the accounting practices they follow tend to be traditional in nature.

3.2. Basic achievements and characteristics of environmental accounting research

In Vietnam, it can be said that the development of accounting research is one of the most important things that needs to be done to improve the accounting system. In the last few years, there have been many research papers on environmental accounting based on research in the country, such as confirmation theory in the field of financial accounting, accounting standards, measurement, and related issues, the product of the financial reporting process, environmental, social, and sustainability accounting, and international accounting. These research papers have contributed to the development of accounting practices in Vietnam and helped address issues related to financial reporting, environmental sustainability, and international accounting standards. However, there is still a need for further research to improve the overall accounting system in Vietnam and ensure that it meets international standards. Management accounting of the information environment requires a clear understanding of external pressure factors such as legal pressure, legal considerations for the unit's operation, and pressure from information users. Recent studies on environmental accounting in Vietnam have focused on applying environmental accounting to various types of enterprises. Le and Pham (2016)[11]. investigated environmental

cost management accounting in Vietnamese brick manufacturing enterprises. Results showed that the level of application is relatively low, but there is a close relationship between the level of implementation and the performance of enterprises. Proposals are being made to promote the implementation of ecological cost management accounting. However, the study is limited to the results of the application-level assessment without analysing the causal factors.

The level of social responsibility disclosure in the annual reports of enterprises listed on the Vietnam Stock Exchange was reviewed and evaluated by Nguyen and Tran in (2017)[12]The findings reveal that the level of information disclosure is low, and the study identifies several factors that affect this level, including firm size, financial leverage, board size, executive independence, and independent audit. This suggests that smaller firms with higher financial leverage and smaller boards may be less likely to disclose information. In contrast, firms with more independent executives and audits may be more likely to do so. Further research could explore the reasons behind these findings and their implications for investors and regulators. It is important to note that the study conducted by Doan and Tran in 2017 did not take into account the impact of various business sectors on the findings. Moreover, the study did not provide sufficient environmental accounting information to propose specific ways to enhance future practices. Consequently, the study's results may not be applicable to certain industries or companies.

4. The framework idea of current environmental accounting theory and practice innovation

Based on what has been said so far, the author thinks that the breakthrough point of environmental accounting theory and practice innovation in the current economic environment can be considered in the research and practice of the integration, coordination, and disclosure of financial performance and environmental performance indicators that meet the requirements of ecological efficiency. This approach can help organizations better understand their operations' impact on the environment and make informed decisions to improve their environmental efficiency. It can also give stakeholders a more comprehensive view of the organization's performance, enhancing transparency and accountability. That is, if we start with the fact that businesses have to take care of their social responsibilities, Based on the main content of the environmental accounting information disclosure and quality evaluation system pushed for in ISAR-related documents, with the standardization of ecological efficiency indicators as the core, Make a set of index systems (or eco-environmental control indexes) that make it easier to measure how well a business is taking care of the environment. And the embedding, coordination, and reporting modes; the assessment and evaluation modes of financial performance; and environmental performance indicators that meet the requirements of eco-efficiency indicators. These index systems can be used by businesses to track their progress

towards achieving sustainability goals and identify areas where they can improve their environmental performance.

As Vietnam moves towards a green economy, incorporating environmental accounting into the country's accounting practices will be crucial for sustainable development. This will have significant benefits for both individual businesses and the overall economy. To achieve this, there are several key development orientations that should be considered:

To encourage the adoption of environmental accounting practices in Vietnam, state management agencies and professional associations should work together to develop more specific and rigorous guidelines, standards, and regulations related to environmental management. This will provide a legal foundation and structure for the advancement of environmental accounting practices in the country. A comprehensive set of indicators, based on scientific principles and aligned with international standards, should be established to create an equitable playing field for businesses to engage in environmental protection activities. Professional associations can also play a role by issuing standards on environmental auditing and guiding companies on how to present environmental information in reports for external stakeholders.

To promote environmental responsibility in businesses, it is crucial to enhance their awareness of environmental issues. Enterprise managers should prioritize the implementation of environmental audits, especially in manufacturing enterprises, by allocating sufficient financial and human resources to the accounting apparatus, including environmental accounting. International experience suggests that environmental auditing is typically applied to large-scale enterprises with substantial financial resources and strict operating policies.

Therefore, Vietnamese enterprises should first test environmental audit practices on a department or line level before implementing them throughout the entire organization to suit their specific operating conditions. Additionally, businesses should develop a long-term strategy that considers the impact of environmental standards and regulations on their products.

To promote education and training in environmental engineering, including environmental accounting, training institutions in Vietnam need to focus on improving their curriculum. Although some higher education institutions have begun teaching environmental accounting, the subject is not well-integrated into the environmental management program. With the current financial autonomy mechanism proposed by the government, schools will prioritize training in fields that are in high demand by society. However, since environmental accounting is not receiving much attention from enterprises yet, it is understandable that training in this subject is still limited. Therefore, in the future, training institutions should work to promote the integration of environmental accounting and environmental management accounting into the vocational

education system. This will help to build a team of human resources capable of meeting the demands of sustainable development.

Due to the limited space of this article, its specific content will be discussed in another article. Integrating micromanagement technology with macroeconomic decision-making services is crucial for the efficient functioning of modern accounting. The upcoming report will delve deeper into the specific ways in which this integration can be achieved.

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