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### Identifying and Managing Environmental Costs in Businesses - Tools to Expand Business Strategy

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#### Abstract

In recent years, environmental concerns have become global issues. The increased awareness of corporate social responsibility towards environmental issues has presented a challenge to businesses and accountants: How to account for environmental factors not only by recording and reporting financial information, but also by demonstrating the role of accounting as an effective support tool for administrators to

address environmental issues within their economic unit. Businesses face pressure not only from environmental management agencies but also from consumers and the community. In this context, identifying and managing environmental costs becomes indispensable, while also providing opportunities to create competitive and sustainable value for businesses.

**Keywords:** Environmental Costs, Environmental Accounting, Identification, Management

#### 1. Overview of Environmental Costs

Cost is commonly defined as "resources sacrificed or lost to achieve a certain goal. Cost is often measured in terms of money paid for goods and services used." (Horngren, Datar & Foster, 2003). Accordingly, environmental costs are one of many types of costs incurred by businesses when conducting production and business activities to provide goods and services to customers. According to IFAC (2005), there is no consensus on the concept of environmental costs. Some recognized concepts of environmental costs widely used in environmental management accounting research and practice include:

According to USEPA (1995) <sup>[4]</sup>, the definition of environmental costs depends on the company's intention to use cost information (the use of cost information) and the extent and scope of the application of that information.

According to the Environmental Cost Accounting Handbook published by the Austrian Ministry of the Environment (Austria) in 1997, environmental costs are costs arising from environmental activities in enterprises, including mandatory and voluntary activities to reduce, prevent, and treat waste and environmental pollutants, as well as damages that businesses must suffer due to failure to develop environmental policies.

According to the United Nations Committee for Sustainable Development (UNSD, 2001) <sup>[3]</sup>, environmental costs can be understood as costs associated with environmental damage and environmental protection of businesses, including costs of preventing, controlling, reversing, and remediating damages.

According to the Guidelines for Accounting and Reporting Environmental Costs and Liabilities (UNCTAD, 2002), environmental costs include voluntary or mandatory costs incurred by businesses to manage environmental impacts from their operations due to a sense of environmental responsibility, as well as other costs incurred to implement the enterprise's environmental protection goals and requirements.

The Ministry of Environment of the Federal Republic of Germany (FEM, 2003) stated that environmental costs are the term used to refer to different types of costs related to environmental management and environmental protection measures, derived from other cost factors, components, and uses together.

According to Atkinson *et al* (2004), environmental costs are identified in terms of expression and include two types: Existing costs and non-existent costs. Existing costs include direct costs related to improving and replacing production technology and processes, cleaning costs, removal and discharge costs, costs to obtain operating licenses, and other expenses. Non-existent costs include costs closely related to facility requirements to monitor environmental issues, administrative costs, legal

consulting costs, employee training costs, along with image and reputation losses if the business causes environmental damage.

**2. Recognizing Environmental Costs in Businesses**

**2.1 The Importance of Identifying Environmental Costs**

To have an effective management strategy, businesses need to clearly recognize environmental costs. This includes both direct costs (such as waste treatment costs) and indirect costs (such as legal costs, reputational costs). Accurately identifying these costs not only helps businesses better understand the impact of their operations on the environment but also helps them evaluate opportunities for optimization and cost savings.

**2.2 Method for Identifying Environmental Costs**

Based on identified environmental costs, classifying costs according to appropriate criteria will help businesses control costs. Traditional cost accounting classifies costs in general and environmental costs in particular into: Direct costs and indirect costs, historical costs and standard costs, fixed costs and variable costs, normal costs and abnormal costs. However, to meet increasing environmental management requirements, there are several ways to classify environmental costs such as according to measurability, according to activities in the enterprise, according to material and energy flows, according to environmental protection activities.

**Table 1:** Classification of Environmental Costs According to Measurability

S. No	Group	Costs
1	Traditional costs	Including direct material costs, labor costs, equipment depreciation costs... related to waste treatment.
2	Hidden costs	Includes 3 main contents: - Compliance costs are costs incurred when carrying out activities dynamic aim obey defense the qui determined about lip school belong to France the law. - Voluntary costs are costs incurred related to environmental protection activities that businesses carry out voluntarily, without being forced, even reaching the level required by the Environmental Protection Law. Determined. - Upstream costs: Are costs incurred when preparing for production activities that affect the environment, such as site leveling costs, research and development costs. Development.
3	Costs are uncertain but may arise	These are incidental costs and include costs to comply with regulations in the future, payments required by law, damages to natural resources, and damages due to loss of profits. Useful business international.
4	The cost of creating a relationship image	These costs are difficult to identify and are rarely recorded separately in a business's accounting system, including costs related to creating an image and relationships with customers and investors. Community or employees of the joint Karma.
5	Social costs (externalities)	Are the costs that society or the community must bear as a result of businesses causing negative impacts on the environment.

Source: USEPA (1995)<sup>[4]</sup>

In addition, the United Nations Sustainable Development Department (UNSD) (2001)<sup>[3]</sup> and the International Federation of Accountants (IFAC) (2005) provide a classification of environmental costs according to material flows, including environmental costs. Schools are divided into 5 categories:

**Type 1:** Costs that do not create product value (or costs that create waste):

- + Input costs: Raw materials, packaging, energy costs... put into the production process without becoming products but are eliminated as liquid or gas solid waste.
- + Conversion costs: Labor costs, general production costs, there will be a proportion of these costs that do not create products but create waste.

**Type 2:** Waste treatment and control costs: Includes costs for waste treatment, waste removal, cleaning, restoration of contaminated areas and costs to ensure compliance with regulations environment. These costs are not costs related to environmental prevention and management activities at the enterprise.

- + Depreciation costs of waste treatment equipment (treatment plants, waste treatment equipment...).
- + Cost of raw materials and energy for waste control and treatment.
- + Labor costs of workers, management, and supervision for waste treatment and control activities.
- + Taxes, fees, fines due to non-compliance with environmental laws and emission licensing costs according to the Kyoto protocol.

- + Environmental risk insurance costs.
- + Recovery and compensation costs paid to third parties suffering damage caused by the company's environmental impact according to the provisions of law.

**Type 3:** Environmental prevention and management costs: Costs to prevent the generation of waste and emissions, such as investment costs for installing cleaning technology, responsibility allowances for production departments to increase environmental awareness... and expenses for environmental management at businesses such as environmental consulting services, employee training, building an environmental management apparatus... Costs for prevention and environmental management Schools can be classified into the following groups:

- + Depreciation costs
- + Raw material and energy costs
- + Labor costs
- + Service costs purchased from outside
- + Expenses in other currencies.

**Type 4:** Environmental research and development costs: Expenses for research activities to develop new ideas and solutions to improve environmental management methods. These costs can be classified into the following groups:

- + Research equipment depreciation costs
- + Raw material and energy costs
- + Labor costs
- + Service costs purchased from outside
- + Expenses in other currencies.

**Type 5: Intangible environmental costs**

+ The costs of fulfilling future legal obligations, for example, contingent liabilities can be recorded because the business predicts and estimates the expenses due to an oil spill.

+ Cost of building a "green" corporate image.

Thus, according to this classification, environmental costs are not simply costs related to waste treatment but also include costs for materials and waste processing. This method of cost classification has a fundamental difference compared to traditional accounting in recognizing the cost of materials and material processing of waste as also

environmental costs (According to the traditional point of view, costs the only environmental consideration is the costs associated with waste disposal). Classifying environmental costs according to material flows shows that businesses have to pay 3 times for waste: (1) cost of purchasing waste materials; (2) waste processing costs; (3) waste treatment costs.

In addition, if classified by environmental protection activities, environmental costs are costs associated with creating, detecting and preventing environmental degradation. Accordingly, environmental costs include 4 groups in Table 2:

**Table 2:** Classification of Environmental Costs According to Environmental Protection Activities

<p><b>Prevention costs</b>                  Evaluate and select supplies                  Fight price and choose select set bag check control Umbrella contamination Product process design export                  Product design Environmental research                  Check for environmental risks                  Develop environmental management system Product recycling                  Achieved ISO 14001 certification</p>	<p><b>Internal waste treatment costs</b> Operating pollution control equipment                  Treatment and disposal of toxic waste Maintenance of depollution equipment                  Apply for a license to produce hazardous substances. Recycle waste</p>
<p><b>Discovery costs</b>                  Check environmental performance                  Monitor products and production processes. Develop standards for assessing environmental performance                  Pollution inspection                  Evaluate the environmental performance of the supply source                  Measure pollution levels</p>	<p><b>Cost of external waste treatment</b>                  Clean up polluted lakes Clean up toxic solid waste                  Compensation addresses personal losses related to the environment                  Loss of sales volume due to reputation for not protecting the environment                  Inefficient use of raw materials and energy                  Receive medical care due to polluted emissions. Loss of labor source due to pollution                  Loss of lake to discharge waste                  Destruction of the ecological system due to the treatment of solid waste</p>

Source: Pham Duc Hieu-Tran Thi Hong Mai (2012)<sup>[1]</sup>

Classifying environmental costs according to environmental protection activities helps administrators clearly understand the environmental costs associated with prevention, detection, and waste treatment activities, enabling them to make appropriate decisions to minimize environmental costs and limit damage to the environment from the perspective of prevention rather than remediation.

**3. Benefits of Managing Environmental Costs**

Using environmental accounting methods such as environmental cost accounting and environmental management accounting helps businesses measure and report environmental costs more clearly and on a more fundamental basis.

Increase operational efficiency: By identifying and managing environmental costs, businesses can find opportunities to optimize their operations, from resource use to production processes.

Building brand image and reputation: Businesses can take advantage of environmental management to build a positive brand image and reputation in the eyes of customers, partners, and the community.

Comply with the law and improve compliance: Environmental cost management not only helps businesses comply with legal regulations but also promotes improving their compliance levels and standards.

**4. Conclusion**

Identifying and managing environmental costs is not only the task of environmental managers but also an important part of an enterprise's overall business strategy. By doing this, they not only create sustainable value for themselves

but also contribute to the sustainable development of society and the environment.

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