



ENVIRONMENTAL ACCOUNTING AN OVERVIEW

Dr. Soumitra Chandra
Associate Professor in Commerce
Veer Bahadur Singh Govt. Degree College
Campierganj, Gorakhpur

Introduction

In response to the global emphasis on environmental protection, companies not only need to consider maintaining their growths and profits but also face the inevitable issue of sustainable development. However there is not an effective accounting system specifically designed for environmental protection to handle environmental financial information, such as environmental cost, recognition of efficiency, evaluation on environmental performance and investment returns as well as the incorporation of such information into companies' decision-making system. This leads to the lack of better development in both companies' external interactive relations and internal decision-making mechanisms. Environmental costs are generally defined narrowly as the cost incurred in compliance with, or prevention of breach of, environmental laws, regulations and company policy. However, the true environmental costs to a firm can be far broaden, including cost of resources, both those directly related to production and those involved in general business operation; waste treatment and disposal costs; the cost of poor environmental reputation; the cost of paying an environmental reputation and the cost of paying an environmental risk premium. Often, the costs of common natural resources such as air, water and energy are include into a one line operation cost or administrative cost that is regarded by management as in independent of production.

Environmental Management Accounting (EMA) can be defined as the identification, collection, estimation, analysis, internal reporting, and use of materials and energy flow information, environmental cost information, and other cost information for both conventional and environmental decision-making within an organisation.

Environmental Financial Accounting (EFA) can be defined as accounting with a particular focus on reporting environmental liability costs and other significant environmental costs.

Environmental National Accounting (ENA) can be indentified as national-level accounting with a particular focus on natural resource stocks & flows, environmental costs, externality costs, etc.

A major barrier to the adoption of cleaner production and eco-efficiency is that firms often do not know environmental costs of operating their business and their environmental impacts. Firms have tended not to measure environmental costs because management accounting system have focused on clearly identifiable costs to the firm and not on the costs and benefits of alternative actions. An important lesson gained from the Commonwealth, Victorian and South Australian Cleaner Production Demonstration schemes was that significant savings would accrue to companies that adopted cleaner production. The ten companies involved in the Commonwealth programme collectively saved over \$2.3m in a single year, simply by examining alternatives and implementing cleaner production.

Eco-efficiency What is it?

Eco-efficiency means doing 'more with less' using environmental resources more efficiently in economic processes. Eco-efficiency is often characterized as business responses to sustainable



development and is reflected in the use of approaches and tools, such as cleaner production, environmental management systems and environmental accounting. These approaches can help business reduce the resource intensity of goods and services over their life cycle.

The concept of sustainable development setting the scene for eco-efficiency. There is wide acceptance that economic growth should be in line with the principles of sustainable development progress which meets the needs of the present without compromising ability of future generations to meet their own needs. Sustainable development incorporates consideration of the needs of the growing population, the need of human prosperity and equity, as well as the need to conserve and pass on adequate environmental goods and services to future generations.

Human Pressures on the environment are generated by two factors:

- * Overall levels of productions and consumptions; and
- * Environmental pressure per unit produced and consumed.

Eco-efficiencies focuses attention of the second factor - the need reduce the environmental pressure per unit produced and consumed. In other words, it focuses on increasing the efficiency with which environmental resources are used to meet human needs.

A dual flush toilet, which dramatically reduces domestic water consumption, is a simple example of an eco-efficiency improvement. Another example is the increasing the recycled content of the raw material in the container. For a firm, one measure of eco-efficiency might be CO₂ emissions per widget produced. By increasing eco-efficiency, we are able to 'do more with less', which will help to avoid the over use natural resources and cut down emissions and waste. Progress based on eco-efficiency improvements will also allow developing countries to increase their wealth with less stress on the environment.

Eco-efficiency for Business

Achieving sustainable development will require the partnership of communities, governments and business. The World Business Council for Sustainable Development (WBCSD) has described eco-efficiency as 'the business contribution to sustainable development'. Business can make measurable improvement to their eco-efficiency through performance.

Eco-efficiency is now recognised by multi-national and other leading companies as a key area for developing competitive advantage. This competitive advantage can arise when business position themselves to respond the following influences:

- * More stringent environmental regulations;
- * The application of the polluter pays principle;
- * Achieving cost reductions through process efficiencies;
- * Exposure to environmental liability risks;
- * Community pressure for better environmental performance;
- * Growing demand 'environmentally friendly' goods and services; and
- * Requirements to meet international standards.

The WBCSD consider that eco-efficiency places seven demands on a firm:

1. Reducing material intensity of goods and services;
2. Reducing energy intensity of goods and services;
3. Reducing toxic emissions;
4. Enhancing material recyclability;



5. Maximising sustainable use renewable resources;
6. Extending product durability; and
7. Increasing the service intensity of the goods and services.

The challenge of environmental accounting is to extend practices to include a new accounting procedures for costing out; pollution control methods; comparing alternative materials to be used, and investigating possible recycling alternatives.

If current accounting systems do not consider these issues, then it is hardly surprising that managers are not aware of the potential of cleaner production to increase the profit of the firm.

Why was EMA Developed

The need for EMA was conceived in recognition of some of the limitations of conventional management accounting approach for management activities and decisions involving significant environmental cost and/or significant environmental consequences/impacts. For example, following conventional management accounting practices might contribute to the inadequate consideration of environmental cost in internal decision-making:

- * The unintentional "hiding" of many environmental costs in overhead accounts.
- * Inaccurate allocation of environmental costs from overhead accounts back to processes, products, process lines.
- * Inaccurate characterisation of environmental costs as "fixed" when they may actually be variable (or vice-versa).
- * Inaccurate accounting for volumes (and thus costs) of wasted raw materials, and
- * The actual lack of inclusion of relevant and significant environmental costs in the accounting records at all.

The benefits for a company that adopts environmental accounting is extensive. Wilmhurst identifies seven benefits from adopting environmental accounting:

1. Provides better estimates of the true cost to the firm of producing a product. This improves pricing and hence profitability.
2. Allocates costs to the appropriate product, process, system or facility and thus reveals costs to the responsible managers.
3. Assists managers in targeting cost reduction, improving environmental quality and in reinforcing quality principles.
4. Motivates staff to search for creative ways to reduce environmental costs.
5. Encourages changes in processes to reduce waste, reduce resource use, recycle waste or identify market for waste.
6. Increase employee awareness of occupational health and safety issues. and
7. Increases the likelihood of the company having a competitive advantage and greater customer acceptance of the firm's product or service.

From this list it can be seen that changing accounting systems to incorporate environmental costs may lead to increased adoption of cleaner production and eco-efficiency.

Literature Survey and Case Studies

* Environmental management in Japanese companies has rapidly developed during the last decade. A remaining big issue in Japan is to develop internal environmental management accounting practices. In order to develop internal environmental management accounting practices. In order to improve this



situation the Ministry of Economy, Trade, and Industry formed a committee for environmental accounting in 1999. This committee is studying various areas of environmental management accounting, including environmental capital investment appraisal, environmental quality costing, environmental target costing, material flow cost accounting and life-cycle costing.

* *The Lean and Green Supply Chain: A Practical Guide for Material Managers and Supply Chain Managers to Reduce Costs and Improve Environmental Performance*- January 2000. This booklet illustrates the efficiency-enhancing opportunities that arise when companies incorporate environmental costs and benefits into mainstream materials and supply chain management decision-making. It provides introductory guidance on how to identify these costs and benefits and how to adjust existing information systems and analysis techniques to better account for this significant category of costs.

* *Enhancing Supply Chain Performance with Environmental Cost Information: Examples from Commonwealth Edison, Andersen Corporation and Ashland Chemical*- December 2000. This case study report illustrates how supply chain management practices can be improved by determining the financial impact of environmental improvements. Moreover, this report shows how this approach can be integrated into ongoing business processes.

* *Healthy Hospitals: Environmental Improvement Through Environmental Accounting*: July 2000. This report, by the Tellus Institute, describes current applications of environmental managerial accounting in nine US hospitals. Based on interviews of materials managers and environmental health and safety staff, this report discusses the current status of environmental managerial accounting in hospitals and describes opportunities for hospitals to apply environmental managerial accounting to improve environmental performance and reduce costs.

* *Applying Environmental Accounting to Electroplating Operations: An In-Depth Analysis*- May 1997. This report presents research findings regarding the implementation of environmental accounting practices in the electroplating industry, including information on the types and magnitude of environmental costs this industry incurs, the feasibility of improving the tracking of each of these costs, recommendations for investigating these environmental cost structures, and conclusions regarding the potential for wider adoption and application of environmental accounting concepts in this industry.

* *Environmental Cost Accounting for Chemical and Oil Companies: A benchmarking Study* - June 1997. This report summarizes an environmental cost accounting benchmarking study of five major U.S. and Mexican companies that are developing environmental accounting systems. The purpose of this study was to allow the company participants to discuss the form and functions of their environmental accounting systems and the uses for the cost information yielded by such systems. This study was undertaken by the University of Houston's Institute for Corporate Environmental Management in partnership with the Business Council for Sustainable Development.

* *Environmental Accounting Case Studies: Green Accounting at AT&T* - September 1995. This case study reports AT&T as of July 1995. It outlines actions AT&T has taken to implement Environmental Accounting and includes their Green Accounting Glossary and excerpts from their Green Activity Matrix.

* *Environmental Cost Accounting for Capital Budgeting: A Benchmark Survey for Management Accounting* - September 1995. A part survey of 149 US manufacturing firms on the manner and extent to which those firms consider environmental costs an their routine capital budgeting processes,



especially in the context of evaluating potential environmental investments. This study was done in collaboration with the Institute of Management Accounting.

* *Green Ledgers: Case Studies in Corporate Environmental Accounting* - offers and insider's view of corporate environmental accounting. It describe how companies can use environmental cost information to improve profitability and reduce environmental risk. For instance, managers at Heath Teena, a composite materials manufacturer, found that by changing their production processes they make materials use more efficient, reduce hazardous waste generation, and reduce costs. At Cascade Cabinet, a decision to switch from nitrocellulose lacquer- a hazardous material and source of air pollution - to a more benign varnish cut manufacturing costs significantly. A better understanding of environmental costs can also affect pricing decisions: when Dow Chemical faced a stark choice between shutting down a product line or investing in cleaner technology, its industrial customers accepted slightly higher prices in return for a guaranteed supply of the product.

Conclusion

The organisation and programmes that have the goals of minimizing costs, especially environmental costs, and minimizing environmental impacts, EMA provides an essential set of information for meeting those goals. The range of decisions affected by environmental costs of one type or another is generally on the rise. Thus, environmental accounting is becoming increasingly important not only for environmental management decisions, but for all types of routine management activities, such as: Product and process design, Cost control and allocation, Capital budgeting, purchasing, Supply chain management, Product pricing, Performance evaluation. It brings many potential benefits to industry, Government as well as society.

Any internal changes to accounting systems, to better incorporate environmental costs, must be done in conjunction with staff who manage the shop-floor. It is those people who are in control of resource use and hence, they must become part of the management accounting loop to ensure full and effective adoption of cleaner production and eco-efficiency.

Reference Web Sites

- * Environmental Management Accounting Research & Information Centre (EMARIC) library.
- * U.S. Environmental Protection Agency.
- * Environmental Management Accounting Network - Taiwan