Environmental disclosure – a Bangladesh perspective

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[**Abstract:** Today, the environment is changing rapidly and we are obviously heading towards a disaster. The responsibility for such changes comes on the shoulder of business community to a large extent. And it is customary that businesses are disturbing the smooth flow of environmental structure through their thoughtless operations. So, business community should have and practice its moral commitment towards the society by spending for tackling environment. Environmental accounting emerges as a tool to prove this commitment where costs from business communities' point of view and effects from society's point of view are balanced. In this paper, we have tried to define environmental accounting with its scope and we have also had a thorough review of the practices followed by our companies from the general-purpose financial statements to the extent of disclosure.]

Keywords: Environmental Accounting (*EA*), Conservation, and Social Costs.

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Introduction

Environment has become a crucial concern in today's ecological, social and economical set up. Retention and improvement of the quality of environment is a big issue for the business world. The business houses are hold responsible for ensuring a sustainable environment as their activities exerts tension over the environmental structure. Environmental accounting (*EA*), more specifically, environmental management accounting (*EMA*) has emerged during the last two decades in response to this issue. Review of available literature and corporate practices reveal that a range of different perception and conception of *EMA* has been developed. However, recently, there has been a movement towards a common understanding of the term *EMA* (Schaltegger and Burrit, 2000).

Disclosure of environmental information in corporate annual reports begins in the 1970s and it had sharply expanded in the 1990s (Kukobo *et a*l, 2002). Before 90's there were no evidence that public limited companies listed with Dhaka Stoke Exchange (*DSE*) disclosed environmental information in their annual reports. Evidence was found from Belal's (1997) study that only 6% publicly traded companies made environmental disclosure (Islam, 2002). Since corporate reporting practices are still non-voluntary for a developing country like Bangladesh, public awareness about environmental disclosure in corporate reporting remains untouched.

This paper deals with a very specific objective. It focuses on whether listed companies in Dhaka Stock Exchanges (*DSE*) disclose environment related information and then we have tried to identify some explanation from the present disclosure practices. For the very reason, we have had a thorough review of the disclosure practices followed by the listed companies. In this case we have given importance on descriptive statistics though there are a lot of such studies like Belal (1997, 1999), Imam (1999, 2000) etc. There are also a lot of statistically significant test in this area like index rating of Wiseman (1982) that was also adopted by Cormier and Magnan (1999, 2001). Such a method is good for the analysis of an annual report (Kokubu et al., 2002). There are also many methods to measure environmental disclosure in terms of the quality of the report (Grey et al., 1995; Milne and Adler, 1999 and Kokubu et al., 2002). But, as our companies disclose no or minimum information regarding environment, we think that the time hasn't come yet to use these advanced statistical tools.

We have divided our total discussion into three sections. In the first section, we have tried to define environmental accounting to some extent so that our readers have, at least, some theoretical conception over the issue we are talking about. In the second section, we have developed the hypotheses to be tested and we have tested it on the basis of empirical data, followed by the logics of the results and its implication in the last section.

Background

The first environmental accounts were constructed by Norway in the 1970s and were only slowly adopted by other countries. In the early 1990's, the World Bank conducted a review of *EA*, providing a compendium of which countries had compiled *EA*, the methods that had been used to construct *EA*, and the extent of coverage (Peskin and Lutz, 1990). Since that time, *EA* have increasingly been recognized as a useful economic tool,

resulting in a great deal of activity in both developed and developing countries. Over the last decade, conceptual and technical aspects of constructing *EA* have received a great deal of attention; however, much less is known about how *EA* are being used for policy.
Today an increasing number of companies and other organization are engaging in environmental management as part of their management strategies to specify measure for dealing with environmental issues and to internally carry out environmental conservation activities. *EA* is a tool to supplement environmental management. *EA* data is not only used by companies or other organizations internally, but is also made public through disclosure in environmental reports. The disclosure of *EA* data as one of the key elements in an environmental report enables those parties to get an understanding of the company's stance on environmental conservation and how it specifically deals with environmental issues. At the same time, a more comprehensive grasp of the companies and other organizations' environmental information can be obtained. Here, we have assembled the practices of three renowned corporate giants as a sample in a tabular format.

Table 1: Ways to consider environment in accounting.

Company Name	How they consider environmental issues in accounting?
Hitachi	Investments in plant and equipment for environmental purposes. Expenditures for research and development, as well as, the costs of operating and managing environmental equipment and facilities. Its fundamental principle is to contribute to society by developing superior technologies and are evaluated based not only on the lower environmental impacts during the manufacturing process but also during the use of their products. In this case, they use "environmental burden reduction ratio" to evaluate the extent to which each type of environmental burden is reduced per unit of expenditure.
OKI Group	An effort is made to create an environmental accounting system that adequately incorporates *LCA* (life cycle assessment) related factors. They link their environmental accounting system a philosophy about environmental burden that extends across all stages, from "upstream, such as purchasing parts and materials used in product manufacturing," to "downstream, wherein the customer ultimately disposes of the used product." An environmental accounting system that enable continual monitoring of overall environment-related costs and environmental performance within areas where direct management of environmental burdens can be done by a factory itself. Establishment of an environmental management system that will use environmental accounting system to promote effective investment and environmental improvement activities.
Ricoh Group	They treat environmental accounting as a segment and use information internally. Environmental accounting is used for sustainable management and standards are followed consistently.

Source: Authors' personal compilation

Environmental Accounting Defined

EA is a broad term that is used in different contexts with different meanings and application. *EMA* has a focus on providing the management of an organisation with better information on the actual private environmental costs already being incurred by the entity. Other directions being taken with corporate environmental accounting place greater emphasis on the external reporting of environmental expenditures, and estimating the external environmental costs not recognised by the entity (external cost accounting). With external cost accounting, the estimation of external costs can be used to determine the profit that would remain if a provision or expenditure had been made to restore or avoid the external environmental impacts.

EA refers to the incorporation of environmental costs and information into a variety of accounting practices. Figure 1 below depicts some of the different contexts in which *EA* is used. At a macroeconomic level, *EA* is used to account for costs associated with a region's stocks and flows of natural resources. *EA* accounts for the flow of renewable and non renewable resources through a region (natural resource accounting) or the flow of goods and services through an economy (national income accounting) in such a level.

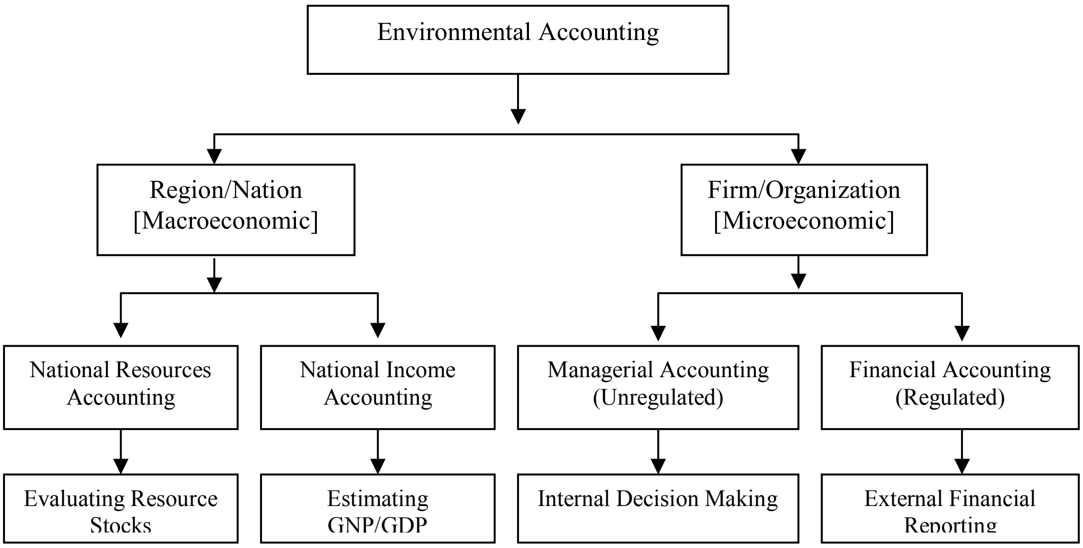

Table 1: Environmental Accounting Umbrella

At the microeconomic level, *EA* can be applied to both financial accounting and management accounting. Financial accounting, whereby a firm reports its economic activities to an external audience, has requirements for disclosure of environmental liabilities and certain environmental costs. In terms of management (or internal) accounting, *EA* is the way that businesses can account for the material use and environmental costs of their operations. Materials accounting is a means of introduction of tracking material flows through a facility in order to characterize inputs and outputs for the purposes of evaluating both resource efficiency and environmental improvement opportunities.

Environmental Costs Classified

"Social costs" are the costs that the society bears due to the adverse effects on the environment associated with business activities and include those to clean polluted rivers, those associated with damage to humankind and ecosystems from air pollutant emissions, and other costs; because there is no way to identify who is responsible for these costs. The social costs are borne by the society as external economic loss, as opposed to the costs normally borne by companies. Since development of rigorous tackling on environmental conservation by company's results in reduction of social costs, such tackling should be encouraged.

Companies may incur some costs to conserve the environment from being polluted or contaminated as a part of their social responsibility and accountability. Environmental conservation includes the following activities:

1) Conservation of the environment from the conditions that cause adverse effects on human health and the living environment through air pollution, water pollution, soil contamination, noise, vibration, ground subsidence, and offensive odors that are generated by business activities by companies, etc. (Pollution prevention)

2) Conservation of the environment from the conditions that cause adverse effects on the global environment overall or over a wide range through global warming, progressing ozone layer depletion, marine pollution, and biodiversity that are generated by business activities by companies, etc. (global environmental conservation)

3) Conservation of the environment by reduction of the use of chemical materials that may pollute the environment, control of waste production, reuse of products, promotion of recycling at various levels, and other appropriate waste processing (resource circulation).

4) Other environmental conservation implemented by companies (other environmental conservation activities).

Environmental costs refer to the "investment amount and expense amount for environmental conservation" by way of implementing the above mentioned activities. On the basis of expenditure, environmental costs are classified into the following five categories:

(1) Environmental cost for controlling the environmental impacts that are caused within a business area by production and service activities (Abbreviated as business area cost)

(2) Environmental cost for controlling environmental impacts that are caused in the upstream or downstream as a result of production and service activities (Abbreviated as upstream-downstream cost)

(3) Environmental cost in management activities (Abbreviated as management activity cost)

(4) Environmental cost in research and development activities (Abbreviated as research and development cost).

(5) Environmental cost in social activities (Abbreviated as social activity cost). Another category is added as a result of the cause unrelated to these business activity areas.

(6) Environmental costs corresponding to environmental damages (Abbreviated as environmental damage cost).

Methodology

The paper is mainly based on secondary sources of information. The reason is that in our country the use of environmental accounting and reporting thereof is rare and in most of the cases, the concept is vague. We have gone through the environmental accounting practices followed by some giants like Hitachi, OKI Group, Ricoh Group to develop an idea of its applicability in our companies. We have also analyzed some findings generated by various groups who has given the responsibility for the same like "Developing an Environmental Accounting System (Year 2000 Report) by the Study Group for Developing a System for Environmental Accounting, Environment Agency, Japan. To make this paper more informative different published textbooks, related journals, reports, seminar papers, magazines and research works have been analyzed.

Literatures were generally collected from the said sources and the internet. As a result, a through review of literatures enabled us to make a consistent presentation of the theme of the study. In addition, we have also analyzed the financial statements published by our companies to have an idea regarding the current status of environmental accounting practices and its disclosure.

Population and sample

Though all of the companies, irrespective of their nature of production, creates at least some affects over the environment; for the sake of simplicity, we have selected some industries that are seriously polluting environment by their typical nature of production, types of raw material used, disposal of wastages etc. like engineering, food and applied, fuel and power, tannery and footwear etc. Total listed companies under the industries that we have considered amounts to 168 and we have analyzed financial statements of 121 of them that are significant. In a population of 168, the standard sample size is 117 according to our calculation and as we have considered 121, it may be said that the points that we will highlight here rightly represents our practice and ideology behind that.

Industries	**Population**	**Sample**	**Std. Sample size**
Engineering	20	16	117*
Food and Applied	38	29	
Fuel and Power	4	2	
Textile	33	23	
Pharmaceuticals and Chemicals	27	23	
Paper and Packaging	9	3	
Cement	11	9	
Tannery and Footwear	8	6	
Computer and Information Tech.	07	3	
Ceramic	05	3	
Ball pen	2	1	
Jute	4	3	
Total	168	121	

* $\dfrac{\chi^2 NP(1-P)}{\{C^2(N-1)+\chi^2 P(1-P)\}}$ Where, χ^2 = chi-square, N=No. Of Population, P=Probability, C= Level of Confidence.

Analysis and Findings

Among the 121 companies that we have analyzed, only 13 as mentioned below disclosed environment related information. Thus, only 11% of the companies have disclosed environment related information that is very much insignificant. Again, if we analyze the quality of information, we have to be disappointed. No company discloses quantitative information. All of the 13 companies listed here disclose environment related information qualitatively in the directors' reports to the stockholders. At the time of reviewing the published financial statements of the companies, we have concentrated on the following sections:

Financial statements like income statement and balance sheet

Notes to the financial statements

Director's report

The disclosure format can be any one of the following where Type D is the most comprehensive one and this format is highly recommended for disclosing environmental accounting information in environmental reports.

Type A: qualitative (theoretical) disclosure
Type B: environmental cost only (both expense and investment amount)
Type C: environmental cost and environmental conservation effects
Type D: environmental cost, environmental conservation effects and economical effects. The following figure depicts the practices that our companies follow. The picture concludes that nobody is thinking about it and practicing no responsibility towards the society in terms of environmental conservation.

SL No	Name of the Company	Disclosure format			
		Qualitative	Quantitative		
		Type A	Type B	Type C	Type D
1	Beximco	√			
2	Beximco Knitting Limited	√			
3	Apex Weaving and Finishing Mills Limited	√			
4	Aramit cement Limited	√			
5	Confidence Cement Limited	√			
6	Beximco Fisheries Limited	√			
7	Apex Spinning & Knitting Mills Limited	√			
8	Padma Textile Mills Limited	√			
9	Beximco Denims Limited	√			
10	Beximco Textiles Limited	√			
11	Olympic Industries Limited	√			
12	Aramit Limited	√			
13	Shinepukur Holdings Limited	√			

Hypothesis

In this study, we have developed a simple hypothesis to test whether there is any relationship of environmental disclosure with the profitability. That's why; we have only one independent variable (environmental disclosure) with two categories: companies with environmental disclosure and companies without environmental disclosure. Our hypotheses are as follows:

> H_0: There is no difference between companies with environmental disclosure and companies without environmental disclosure in terms of profitability.
>
> H_a: There are differences between companies with environmental disclosure and companies without environmental disclosure in terms of profitability.

Hypothesis Testing, results and interpretation

We have used independent sample t test to reach to the conclusion due to the nature of variables and available information with the following results:

t	df	Sig. (2-tailed)
0.339	20	0.740

As the calculated value of t (0.339) is less than the table value of t (1.725), the alternate hypothesis is rejected and null hypothesis is accepted. The result of this test warrants us to go for no other sophisticated and advanced statistical test. As no company discloses numerical data, it is very clear that none is spending for environmental purposes. We have also had one funny observation. Among the 13 companies who accept their commitment towards the environment at least theoretically, around 6 of them shows operating losses in the financial year 2004. If this is the case, none will be motivated to spend for environmental purposes. The result may also have another explanation. Companies, who haven't disclose environment related information, are making profit at the cost of environmental preservation. This process should not be continued. Respective authorities should come up with time demanding rules and regulation so that corporations can be made bound to spend for conserving the environment to which they are doing serious harms.

Conclusions

Corporate environmental reporting and disclosure is still at an initial stage in Bangladesh and is in need of further development in parallel with the improvement of corporate governance and the increasing of public awareness on sustainable development. Some features of corporate environmental reporting and disclosure can be drawn as following:
Corporate environmental reporting and disclosure has not been a widely accepted concept in our market so far. Many companies treat it as an additional burden and try to release as little information as possible. Because there is no regional or international requirement for such disclosure and still it is voluntary.
There is inadequate research, training and guidance on corporate environmental reporting and disclosure. Guidelines and rules are needed to provide help to companies in disclosing information in annual reports or other documents. Numerous studies suggest that stock markets in both developed and developing countries react significantly to environmental news (Lanoie and Laplante, 1994; Hamilton, 1995; Dasgupta and Wheeler, 1997).
There is evidence to show that environmental reporting and disclosure will become more and more important in the near future in Bangladesh. Demands for corporate environmental information are coming from various sectors promoting the development of voluntary disclosure. Meanwhile, laws, regulations and guidelines on corporate environmental reporting and disclosure are needed to be developed in response to this trend. The media is increasingly being used to "Black List some companies and to reward others. Public shame is being used as one method of getting companies to improve their environmental performance and link that performance to company reputation. Thus, this is an area where we have a lot of things to be done to maintain the equity, accountability and transparency that accounting always gives emphasis on.

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