

## **Environmental Accounting and Practice: A Study of 39 Listed Textile Companies in Bangladesh**

**Md. Tanim-UI-Islam\***

### **Abstract**

*There are three causes of implementing environmental accounting-cost savings, improved environmental performance, and minimizing environmental risk. Still, consideration towards the style and recognition of environmental accounting is not a generalized one. Therefore, the recognition, measurement, and disclosure of these matters are the responsibility of management. This paper examines the nature of environmental accounting in Bangladeshi 39 listed textile companies' annual report-2013 and shows the procedure of presenting the impact of companies' activities on the environment. The qualitative methodology has been used in this study. It is observed from the study of annual reports of all listed textile companies doing business in Bangladesh that the practice for the treatment of environmental costs in the financial statements has yet not been developed. In other words, they are not showing the effect of companies' activities on the environment in their financial statements. But the current world is very much concerned about the maintenance of environmental goods. And so to make a better environment, the companies must disclose environmental related costs and benefits in their annual reports.*

**Keywords:** Environmental accounting, environmental costs and benefits, BAS, BFRS

### **Introduction**

Today an increasing number of companies and other organizations are engaged in environmental management as part of their management strategies to specify measures for dealing with environmental issues and to internally carry out environmental conservation activities. Environmental accounting is a tool to supplement environmental management. Environmental accounting data are not only used by companies or other organizations internally, but is also made public through disclosure in environmental reports. The disclosure of environmental accounting data as one of the key elements in an environmental report enables those parties utilizing this information 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.

Companies issue their annual reports which include an income statement (or profit and loss account, or statement of comprehensive income, or statement of earnings), a balance sheet (statement of financial position), and a cash flow statement (or statement of changes in financial

---

\*Lecturer in Accounting, Bangladesh University of Business & Technology (BUBT)

positions) and the information provided in the footnotes in such reports in money terms. In developed countries, a major number of companies now reveal the impact of their activities on the environment. In recent years, the adverse environmental effect of economic development has become a matter of great public concern all over the world. Gradually, the environment is becoming a much more urgent economic, social and political problem.

Accountants, as the basic custodian and light bearers of economic development, can no longer shut their eyes to the effect of environmental issues on business management, accounting, auditing and disclosure system. Protection of environment and the potential involvement of accountants is becoming a common subject of discussion among the accountants all over the world. Now-a-days, accountants are expected to take a proactive role in the environmental protection process. With the advent of liberalization, removal of trade barrier makes it logical that the costs of environmental degradation due to industrial activities should be internalized in corporate accounts to the extent possible. That is why environmental accounting and reporting thereof is of paramount importance today. Environmental accounting is the practice of using traditional accounting and finance principles to calculate the costs that business decisions will have on the environment. For example, before choosing to close down a manufacturing plant and outsourcing the function to a foreign corporation, a business uses environmental accounting to determine the short- and long-term effects of the decision, such as unemployment in the plant's region. Environmental accounting is often championed as a component of corporate social responsibility. The general definition of "environmental accounting" is "the identification, measurement, and allocation of environmental costs, the integration of these environmental costs into business decisions, and the subsequent communication of the information to a company's stakeholders"(AICPA).

The basic source of economic information in a business is accounting. The informative function of accounting means that it serves the information needs of various groups of users. Although the fundamental concepts, rules and principles of accounting have remained unchanged for years, its scope has been evolving along with the changes in the environment. The demand for environmental information on the part of external and internal recipients has contributed to the development of a concept called "green accounting", "environmental accounting", "eco-accounting", and even "sustainability accounting" (Szychta, 2007, p. 105)<sup>2</sup>. The term "environmental accounting" was first used by Gray et al (Famielec, Stepień, 2005, p. 18).

Gray, Bebbington and Walters define environmental accounting as a management tool addressing all areas of accounting that may be affected by the response of business organizations to environmental issues, including the new area of eco-accounting (Stanciu et al., 2011, pp. 268-269). Another definition was suggested by the Public Accounts and Estimates Committee, which defined it as a process, which provides information on the environment and the impact of human activity on the environment that is useful in making appropriate decisions at various levels of management. It is also an expression of the monetary and non-financial activities of an entity with regard to the environment (PAEC, 2002, p.5). The term "environmental accounting" is ambiguous, and can be used in various contexts (IFAC, 2005, pp. 13-14). The wide extent of

environmental accounting and its focus on both external and internal users provides a basis to divide it into:

- Environmental financial accounting,
- Environmental management accounting.

Environmental financial accounting provides general-purpose financial information on the organization, for external users, such as creditors, potential investors, and shareholders (PAEC, 2002, p. 6). Environmental management accounting, in turn, is a set of methods and techniques which can be used to collect and provide information for management in the area of the business's mutual relationship with the environment (Debnath et al., 2011, p. 45).

The principle objectives of environmental accounting include:

- To create a financial and non-financial information system for the management and monitoring of environmental protection,
- To formulate commonly accepted reporting standards for environmental protection, specifying the principles for measurement, comparative criteria, and recommended policy,
- To provide courses of action and systems to generate value from environmental management, including environmental protection (Stępień, 2008, p. 377)

Environmental Accounting is the inclusion of indirect costs and benefits of production activity, for example, its environmental effects on health and the economy with its direct costs when making business decision.

'Environmental accounting is the collection, analysis and assessment of environmental and financial performance data obtained from business management information systems, environmental management and financial accounting systems. Taking of corrective management action to reduce environmental impacts and costs plus, where appropriate, the external reporting of the environmental and financial benefits in verified corporate environmental reports or published annual reports and accounts'. (Environment Agency, UK)

### **Related Literature Review**

Numerous researches have been conducted on environmental accounting in developed countries. Jones (2010) developed a theoretical model that has eight premises. New relationship between industry and environment is one of them. There is a need for a measurement system to assess industry's impact but current accounting is inadequate for a variety of reasons e.g. monetary dependence, capitalist orientation, business focus, reliance on neo-classical economics, numerical quantification and technical accounting practices. De Beer and Friend (2006) mentioned that environmental accounting assists in expressing environmental and social liabilities as environmental costs. The EEGECOST model developed in South Africa will provide African industries with the framework for corporate evaluation of alternative investments, projects, processes and it identifies records and allocates internal and external costs. Jasch (2003) stated

that Environmental Management Accounting (EMA) represents a combined approach that provides for the transition of data from financial accounting, cost accounting and mass balances to increase material efficiency, reduce environmental impacts, risks and reduce costs of environmental protection. EMA is defined as 'techniques for quantifying environmental expenditures or costs as a basis for better controlling.' Bartelmus (1999) showed that green accounting is helpful for sustainable economic growth in Philippines.

In Bangladesh no unique model for environmental accounting developed. A few research studies were conducted on Bangladeshi corporations on corporate social disclosure (CSD). Belal, A.R.(1999) found that 90 percent of the companies studied made some environmental disclosures. Imam (2000) conducted a study on CSR practices and it found that only 22.5 percent made environmental disclosure. Belal, A.R.(2001) pointed out that CSR practices in Bangladesh is greatly influenced by social, political, cultural, legal, economic and technological factors. He further added that the creditability of information disclosed is questionable because of absence of independent verification. The reasons for non-disclosure stated by him are lack of statutory requirements, the presence of very few organized social groups and less social awareness, an underdeveloped corporate culture and relatively new capital market. Hossain et al (2006) report that a very few companies in Bangladesh are making efforts to provide social or environmental information on a voluntary basis, which are mostly qualitative in nature. The degree of CSED level is the lowest and the significant number of the lowest ranking companies suffered losses during the study period. This study revealed that the nature of the company (Industry), presence of debentures in annual report (Debenture) and net profit margin are mainly related with the significant level of CSED (Hossain, 2006). A study conducted for examining environmental reporting status on Petro Bangla companies showed that the nature of information was qualitative and did not make any attempt for quantification (Bose, 2006). The main reason is lack of legal requirements. Another important issue pointed out by Rahman and Muttakin (2005) is the absence of standard environmental reporting framework. Belal (2007) further stated the problems of non-disclosure on environmental issues such as lack of legal requirements, lack of resources, lack of knowledge, poor performance and bad publicity.

### **Methodology**

Secondary sources of data are used for the purpose of the study. These data have been collected mostly from the published annual reports -2013 of the 39 listed textile companies. A variety of records and documents maintained by the company, related books, journals and relevant websites were also reviewed. The collected data and information have been processed manually and the reports in the present form have been prepared to make the study more revealing, analytical, and useful for the users. However, the methodology used in this study is largely qualitative.

### **Discussion**

Environmental accounting is very much important to make a green world where every person can lead a healthy life. The traditional accounting system puts no emphasis on the environmental costs

of an organization's operation. An assessment of the relative importance of environment related costs and cost drivers of different processes and product lines can help an organization to determine whether or not the cost allocation bases being used are appropriate for those costs (Sulaiman & Ahmad, 2006). Thus integrating environmental accounting into mainstream corporate accounting is essential. Though it is a common phenomenon for the first world countries to adjust environmental cost into the traditional accounting and reporting, Bangladeshi companies are still far behind from the adoption of environmental accounting.

#### **Present Condition of Environmental Pollution and its Estimated Costs in Bangladesh**

Bangladesh has been ranked fourth among 91 countries with worst urban air quality in the 2014 air pollution monitoring report of World Health Organization (WHO). Moreover, three Bangladeshi cities have been put among the top 25 cities suffering from the poorest air. The 2014 version of the Ambient Air Pollution (AAP) database consists mainly of urban air quality data of 1600 cities from 91 countries. In the city-wise assessment, Narayanganj has been marked as the 17<sup>th</sup> city with worst air quality whereas Gazipur and Dhaka have been ranked 21<sup>st</sup> and 23<sup>rd</sup> respectively. The report says that almost 90 percent of people living in the cities are being exposed to dangerous levels of air pollution. Outdoor air pollution killed 3.7 million people in 2012 and the WHO says it is now the world's largest single environmental health risk. The report also states only 12 percent of people are living in cities that conform to the WHO air quality guideline levels. The report was more extensive than a similar database released by the WHO in 2011. The report was prepared on the basis of the monthly air quality monitoring data of 2013 of the Department of Environment (DoE), Govt. of Bangladesh. The DoE has set up air quality monitoring stations in eight cities, including Dhaka, Narayanganj, Gazipur, Rajshahi, Chittagong, Khulna and Sylhet.

Among the gaseous pollutants which the DoE measures are carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>) and ozone (O<sub>3</sub>), methane and non-methane pollutants.

The Global Climate Risk Index (CRI) 2014 identifies Honduras, Myanmar, Haiti and Nicaragua to be the most affected countries in this 20-year period. Bangladesh is followed by Vietnam and the Philippines in the index, developed by think tank German watch. Even though Bangladesh had been ranked as the fifth risky country to adverse climate change impacts during 1993-2012, it was not on the top 10 list as of last year, a new study says. It says over 815 people were killed in 242 climate change events during 1993-2012 when the country faced a loss of over \$1.8bn which is equivalent to a loss of 1.16% of the GDP. In the previous year's index for the 20-year period, Bangladesh ranked fourth.

In the index of last year, Bangladesh ranked 13. Around 200 people were killed in 14 events which resulted in the economic loss of around \$2.01bn or 0.66% of the GDP.

#### **Measuring Environmental Cost and Benefit**

For many organizations, especially in high-polluting industries, environmental issues significantly impact their business performance and financial profitability. Environmental liabilities are

financial obligations that companies have to provide for, incur, and disclose, to address environmental concerns. Environmental cost and benefit can be measured in accordance with “Environmental Accounting Guidelines 2002, Ministry of Environment, Japan”.

**(1) Business Area Cost**

Business area cost is to decrease environmental impact that occurs within the business area for performing key business operations. The business area is the region where the company can directly supervise environmental impacts. Business area cost associated with environmental conservation is divided into three categories: pollution prevention cost, global environmental conservation cost and resource recycling cost. (Ministry of Environment, Japan, 2002)

**(1)-1 Pollution Prevention Cost**

Pollution is the introduction of contaminants into the natural environment that causes adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Specific types of pollution include air, water, ground, noise, vibration and odor. Pollution prevention costs are those costs related to the reduction of a production facility’s environmental impact or spending for end-of-pipe solutions, facilities or equipment attached to the end of production facilities

- 1) Cost for preventing air pollution (including acid rain)
- 2) Cost for preventing water pollution
- 3) Cost for preventing ground contamination
- 4) Cost for preventing noise pollution
- 5) Cost for preventing vibration pollution
- 6) Cost for preventing odor pollution
- 7) Cost for preventing other types of pollution (Ministry of Environment, Japan, 2002)

**(1)-2 Global Environmental Conservation Cost**

Global environmental conservation costs are related with harmful environmental impacts on the global environment, resulting from human activities. Costs are allocated for:

- 1) Cost for preventing global warming and energy conservation
- 2) Cost for preventing the ozone depletion
- 3) Cost for other global environmental conservation activities (Ministry of Environment, Japan, 2002)

**(1)-3 Resource Circulation Cost**

The circulating use of reusable resources, whether valuable or not, is called Resource circulation. Circulation cost is the cost incurred for sustainable resource recycling.

- 1) Cost for the efficient utilization of resources
- 2) Cost for recycling industrial waste
- 3) Cost for recycling municipal waste
- 4) Cost for disposal of industrial waste
- 5) Cost for disposal of municipal waste
- 6) Cost contributing to resource circulation (MOE, Japan, 2002)

**(2) Administration Cost**

Costs spent for administering environmental conservation activities and also for external communications, such as disclosure of environmental information are called administration costs

- 1) Cost for the implementation of an environmental management system
- 2) Cost for disclosing environmental information and environmental advertising
- 3) Cost for monitoring environmental impacts
- 4) Cost for training employees on environmental issues
- 5) Cost for environmental improvement activities, including nature conservation, planting of greenery, beautification, and landscape preservation, at or in the vicinity of the business site. (MOE, Japan, 2002)

**(3) R&D Cost**

Research and development costs related to environmental conservation.

- 1) R&D cost to develop products that contribute to environmental conservation
- 2) R&D cost to curtail environmental impact at the product manufacturing stage
- 3) Other R&D cost associated to the curtailment of environmental impact at the distribution stage or the marketing stage of products (MOE, Japan, 2002)

**(4) Social Activity Cost**

Social activity cost is related to environmental conservation activities that a company may perform as a division of its social activities but not directly related to its business activities

- 1) Cost for environmental improvement activities, including nature conservation, planting of greenery, beautification and landscape preservation, with the exception of the business site or surrounding vicinity
- 2) Cost related to donation or financial support of environmental groups
- 3) Cost associated with various social activities, such as the financial support of a local community's environmental conservation activities and the disclosure of information to the local community. (MOE, Japan, 2002)

**(5) Environmental Remediation Cost**

Environmental Remediation Cost can be defined as follows:

- 1) Cost to restore the natural environment back to its original state
- 2) Cost to cover degradation suits connected with environmental conservation
- 3) Provisions or insurance fees to cover degradation to the environment (MOE, Japan, 2002)

**Categories of Environmental Conservation Benefit**

For the identification of the expense incurred to the benefit received categories of environmental conservation benefits should associate with the classification of environmental conservation cost. But in certain cases it is not easy to establish which environmental cost categories apply to the environmental conservation benefits received, so a company may only disclose the segment for which there is a comprehensible relation of all environmental conservation benefits related to entire costs. In addition, environmental conservation benefits are broken down into the following four categories in relation to business operations:

01. Environmental conservation benefit associated with the inputs of resources into business operations.
02. Environmental conservation benefit associated with environmental impact and waste emissions from business operations
03. Environmental conservation benefit associated with the goods and services produced by business operations.
04. Environmental conservation benefit associated with transports and other operations (MOE, Japan, 2002)

In Bangladesh the textile companies can consider the above mentioned environmental costs and benefits in their financial statements for a better disclosure. And environment related disclosure would make an organization more concerned about the pollution prevention cost, global environmental conservation cost and resource recycling cost as well as the benefit.

#### **Environment Pollution by Textile Companies in Bangladesh**

The textile industry plays an important role in the economic growth as well as the environmental sectors of Bangladesh, and contributes significantly to the textile and clothing export trade. But the textile industries have been condemned as being one of the world's worst offenders in terms of pollution. Bangladesh has now become a significant supplier of Readymade Garments to both North America and Europe. More than 50% of Bangladeshi garment exports go to European Union and 44% to the USA. This study was aimed at the 39 textile companies in Bangladesh to assess the present situation of environmental impacts arising from such activities and propose to implement environmental accounting.

152 industries are wreaking havoc in the Turag River, Savar, Dhaka, Bangladesh. The villagers along polluted Turag are moving to safer places. Indiscriminate discharge of liquid waste by the textile dyeing industries in and around Konabari industrial zone has ruined a large part of the Turag River and Baimailjheel, causing immense suffering to residents living on the banks. Industrial liquid waste compelled many to move their houses. Locals say industrial waste exterminated fish in the river and nearby water bodies, increased mosquitoes, and made croplands infertile. Bangladesh government established the Konabari Bangladesh Small and Cottage Industries Corporation (BSCIC) industrial area in early 1980 to promote and expand small and cottage industries. Since then textile industries are polluting surrounding environment despite getting different facility packages from the government. Recently, the BSCIC authority has made a list of 152 polluter industries that includes 56 textile dyeing industries. None of these industries has installed an effluent treatment Plant (ETP). But most of the industries are paying back indiscriminately polluting the environment. Since the beginning the government was providing tax holiday for five years and no import duty and Vat for capital Machinery for these polluters. Sticky blackish water was seen flowing in the Turag River as liquid waste falls in the river directly from the textile dyeing industries. Just 12 years ago the Turag and Baimailjheel had a variety of fish. Now no fish can survive here. The industry waste has spoiled everything. The villagers from Kashempur say it is a big problem for them to collect water from tube wells for



bathing, washing, and drinking. For the last few years they are not getting fruits, coconut, banana, mango from the trees. If they wash hands in the river water, it stinks like Kerosene.

#### **Accounting Guidelines for Environmental Issues in Bangladesh**

In Bangladesh the level of environmental related disclosures in the corporate annual reports, both financial and non-financial, are not encouraging. However ICAB (Institute of Chartered Accountants of Bangladesh) has clearly directed how to treat with environmental impact of entity's operation in the BFRS (Bangladesh Financial Reporting Standards) and BAS (Bangladesh Accounting Standards). Major BFRS and BAS that deal with environmental disclosures are highlighted below:

**BFRS 3 (Business Combinations)** states that while computing fair value of assets exchanged between companies, environmental impact, if any, must have to be recognized in the computation process. (BFRS- Volume -1, 2008)

**BAS 2 (Inventories)** asserts that in determining the cost of the inventory to be reflected in the financial statements, the related environmental costs and liabilities like clean up costs of wastage in producing such inventories, penalty for violating rules in producing that inventories must be recognized.

**BAS 10 (Events after the Balance Sheet Date)** states that the events that provide evidence of conditions that existed at the balance sheet date related to environmental issues, must have to be recognized in the published annual reports.

**BAS 16 (Property, Plant and Equipment)** addresses rehabilitation by stating that the cost of an item of property, plant, or equipment includes "the estimated cost of dismantling and removing the asset and restoring the site, to the extent that it is recognized as a provision under the statement on provisions, contingent liabilities, and contingent assets." Rehabilitation costs include the cost of rehabilitating damage that incurred on initial acquisition and set-up of an asset, as well as damage incurred over the life of the asset.

**BAS 36 (Impairment of Assets)** states that where initial set-up and dismantling costs are included as part of the cost of an asset, and there is an indication that the asset may be impaired, the recoverable amount of the asset should be calculated under this standard.

**BAS 37 (Provisions, Contingent Liabilities and Contingent Assets)** clearly spelt how, when, and to what extent the provisions for environmental contingent liabilities are to be kept in the books of accounts.

**BAS 38 (Intangible Assets)** includes greenhouse gas emission allowances, which are subject to a test that measures impairment of their carrying value if they exceed the amount recoverable from use or realization.

ICAB also provides guidance on accounting for changes in decommissioning, restoration, and similar liabilities that have previously been recognized both as part of the cost of an item of property, plant, and equipment under BAS 16, and as a provision (liability) under BAS 37.

**Concluding Remarks**

After reviewing the 39 listed textile companies it is clear that no company maintains the environmental cost as well as does not disclose pollution prevention costs, global environmental protection costs, social activity costs and environmental remediation costs. But it is a matter of hope that 5 companies maintain an environmental policy. From the following charts we can see:

<b>Cost, Revenue &amp; Environmental policy</b>	<b>No. of Companies discloses environmental cost, benefit and maintains an environmental policy amongst 39 listed textile companies.</b>	<b>Violation of major BFRS and BAS regarding environment by textile companies</b>
<b>Environmental Cost</b> Business Area Cost	0	<b>BAS 2</b> , the related environmental costs and liabilities like clean up costs of wastage in producing, penalty for violating rules in producing that inventories must be recognized.
Administration Cost	0	
R&D Cost	0	<b>BAS 10</b> , the events environmental issues must be recognized in the published annual reports that provide evidence of conditions that existed at the balance sheet date.  <b>BFRS 3</b> environmental impact, if any, must have to be recognized in the computation process while computing fair value of assets. exchanged between companies
Social Activity Cost	0	
Environmental Remediation Cost	0	
<b>Environmental Conservation Benefit</b>	0	
<b>Environmental policy</b>	5	

Table: (i) Environmental cost and revenue maintained by the companies as well as the Violation of major BFRS and BAS regarding environment by textile companies (Data Source: Annual reports 2013)

<b>S.N.</b>	<b>Name of the Companies</b>	<b>Environmental policy</b>
1	Apex Spinning & Knitting Mills Limited	Commit to continuous improvement through the reduction and prevention of wastes, emissions and water consumption
2	The Dacca Dyeing & Manufacturing Co.Ltd.	Commit to reduce water pollution
3	Delta Spinners Ltd.	Promote environmental awareness amongst their employees through continuous education and training.
4	Metro Spinning	Commit to reduce emission of toxic gas.
5	Prime Textile	Management is planning to establish the factory impact on the environment

Table: (ii) Environmental policy maintained by the companies (Data Source: Annual report 2013)

In Bangladesh, environmental accounting has not yet been established and practiced. By examining the annual reports of 39 textile companies, we find that the companies in Bangladesh are not disclosing any financial information on environmental issues. From the BAS 2 we can know that when the cost of inventories are determined in the financial statements, the related environmental costs and liabilities like clean up costs of wastage of producing, penalty for violating rules in producing that inventories must be recognized. But each and every textile company (39 listed by the Dhaka Stock Exchange) did not pay any attention regarding environmental costs and liability in their respective financial statements. According to BAS 10, environmental issues must have to be recognized in the published annual reports that provide evidence of conditions that existed at the balance sheet date. But the 39 listed textile companies failed to recognize the environmental issues. A study was conducted to test the amount of metals present in soil and groundwater located near to the textile and tannery industries. Results indicated, all the metals like Chromium, Iron, Manganese, Copper, Lead, and Cadmium were present in amounts larger than that prescribed as safe by the World Health Organization (WHO). They can cause many problems in living beings. So environmental issues should be recognized in the financial statements.

The main reason behind not disclosing the environmental information may be it is voluntary in nature. Secondly, it may be due to the lack of awareness and /or commitment on the part of the company management about the social responsibility of the company. And finally, the poor enforcement of the environmental protection acts is also partly responsible for freeing the companies from disclosure of such information. Most corporations opined that it is still very difficult to measure environmental liabilities and costs.

The textile companies in Bangladesh should quantify the environmental costs and maintain the procedure for presentation of environmental costs in financial statements. To ensure this ICAB should formulate separate guidelines and pronounce those to be strictly practiced, the SEC should be strict for showing the environmental impact at the financial statements and the practitioners in Bangladesh should implement the reporting of environmental issues in financial statements while auditing the financial reports specially the companies causing environmental damages. Besides these the Government and other regulatory bodies should highlight the setting up of waste management or recycling plants to protect the environment. The environmental tax was announced as part of a \$32b budget for the fiscal year 2014-15, which also focused on giant new infrastructure projects such as a metro in the cramped capital Dhaka and a nuclear power plant to boost growth. We believe that these will certainly be helpful for the concerned in establishing this new accounting system.

## References

- AICPA Statement. (1996) "Environmental Remediation Liabilities," AICPA Statement of Position 96-1.
- Bailey, Paul E.(1995) "ICF Environmental Accounting Case Studies" EPA #742-R-95-003 September.
- Bartelmus, P. (1999) "Green accounting for a sustainable economy: Policy use and analysis of environmental accounts in the Philippines". *Ecological Economics* 29, 155-170
- Belal,A.R.(1999) "Corporate Social Reporting in Bangladesh". *Social and Environmental Accounting* 19(1),p.8-12
- Belal,A.R.(2001) "A study of corporate social disclosures in Bangladesh." *Managerial Auditing Journal* 16(5), p.274-289
- Belal,A.R.and Cooper,S.(2007) "Absence of corporate social reporting(CSR) in Bangladesh:A Research Note" 5<sup>th</sup> APIRA Conference, 8-10 July. Auckland, New Zealand
- Bose,S.(2006) "Environmental Accounting and Reporting in Fossil Fuel sector: A study on Bangladesh oil,gas and mineral corporation(Petrobangla)". *The Cost and Management*.
- Christine,J.(2003) "The use of Environmental Management Accounting (EMA) for identifying environmental costs" *Journal of Cleaner Production* 11, p. 667–676
- Debnath,Bose, S. K.; Dhalla,R.S.(2011) "Environmental Management Accounting: An Overview of its Methodological Development", Oct 2011-Mar 2012, *International Journal of Business Insights & Transformation*, Vol. 5 Issue 1, p.44.
- De Beer, P. and Friend, F. (2006) "Environmental Accounting: A management tool for enhancing corporate environmental and economic performance." *Ecological Economics* 58, p.548-560.
- "Environmental Matters at the World Bank: annual review" – fall -1997, Volume-1.
- Gray R, Kouhy R and Lavers S. (1995) "Corporate Social and Environmental Reporting: A Review of the Literature and a Longitudinal Study of UK Disclosure", *Accounting, Auditing and Accountability Journal*, Vol 8 No 2 4777.
- Gray, R., and Bebbington, J. (2001) 'Accounting for the Environment', Sage Publications, London.
- Hossain,M,Islam,K. and Andrew,J.(2006) "Corporate social and Environmental Disclosure in Developing countries:Evidence from Bangladesh." Conference paper at Asian Pacific Conference on International Accounting Issues, Hawaii, available at <http://ro.now.edu.au/commpapers/179>.
- Imam,S.(2000) "Corporate Social Performance Reporting in Bangladesh." *Managerial Auditing Journal*, Vol.15,No.3
- Jones,Michael John. (2010) Accounting for the environment: Towards a theoretical perspective for environmental accounting and reporting. *Accounting Forum*, 34,p.123-138, <http://dx.doi.org/10.1016/j.accfor.2010.03.001>
- Ministry of the Environment, (MOE) Japan.(2002) "Environmental Accounting Guidelines".
- Rahman and Muttakin.(2005). "Corporate Environment Reporting Practices in Bangladesh-A study of some selected companies." *The Cost and Management*,July-August
- Stanciu, I.C., Joldoş (Udrea), A.M., Stanciu, F.G.(2011) "Environmental accounting, an environmental protection instrument used by entities". *Annals of the University of Petroşani,Economics*, 11(2), p.265-280.
- Stępień, M. (2008) Przesłanki i kierunki rozwoju "rachunkowości dla środowiska". In W. Krawczyk (Ed.),*Budżetowanie w działalności jednostek gospodarczych. Teoria i praktyka* p. 373-386). *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania*, 5.
- Szychta, A.(2007) *Etapy ewolucji i kierunki integracji metod rachunkowości zarządczej* Wydawictwo Uniwersytetu Łódzkiego, Łódź.
- [http://www.albanylawreview.org/Articles/Vol74\\_1/74.1.0015\\_SMITH.pdf](http://www.albanylawreview.org/Articles/Vol74_1/74.1.0015_SMITH.pdf)
- <http://www.toshiba.co.jp/env/en/management/account.htm>
- [www.advancedenvironmentaldimensions.com/fasb\\_standards.htm](http://www.advancedenvironmentaldimensions.com/fasb_standards.htm)
- [http://www.sos-arsenic.net/english/environment/dhaka\\_air.html](http://www.sos-arsenic.net/english/environment/dhaka_air.html)

**Appendix-1****List of the Textile Manufacturing Companies Listed in DSE**

S.N.	Name of the Companies
1	Al-Haj Textile
2	Alltex Industries Ltd.
3	Anlimayarn Deying Ltd.
4	Apex Spinning & Knitting Mills Limited
5	Argon Denims Limited
6	CMC Kamal
7	C & A Textiles Limited
8	The Dacca Dyeing & Manufacturing Co.Ltd.
9	Delta Spinners Ltd.
10	Desh Garmants
11	Dulamia Cotton
12	Envoy Textiles Limited
13	Familytex (BD) Limited
14	Far East Knitting & Dyeing Industries Limited
15	Generation Next Fashions Limited
16	Hamid Fabrics Limited
17	H.R.Textile
18	Hwa Well Textiles (BD) Limited
19	Maksons Spinning Mills Limited
20	Malek Spinning Mills Ltd.
21	Matin Spinning Mills Ltd.
22	Metro Spinning
23	Mozaffar Hossain Spinning Mills Ltd.
24	Mithun Knitting
25	Modern Dyeing & Screen Printing Ltd.
26	Prime Textile
27	Paramount Textile Limited
28	Rahim Textile
29	R.N. Spinning Mills Limited
30	Safko Spinnings
31	Saiham Cotton Mills Limited
32	Saiham Textile
33	Shasha Denims Limited
34	Sonargaon Textiles
35	Square Textile
36	Stylecraft Limited
37	Tallu Spinning
38	Tung Hai Knitting & Dyeing Limited
39	Zahintex Industries Limited