



Environmental Reporting Practices of Listed Companies in Bangladesh

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Abstract

Now-a-days environment has become a very crucial issue not only for personal life but also for business life and hence, environmental movement and environmental reporting practices by different organization throughout the world have gathered great momentum in recent year. Advancement and improvement of quality of environment is the major issue for their activities. Environmental accounting (EA) more specifically, Environmental Management Accounting (EMA) has emerged during the last two decades in response to this issue. EA is a broad term that is used in the context of different meaning and applications. EMA has a focus on providing better information on the actual environmental costs already incurred by the entity to the management of an organization. This paper investigated the extent of environmental accounting information disclosure in the annual report of selected manufacturing companies listed in Dhaka Stock Exchange. To prevent result from being contaminated by industry factors, the study has been chosen different organizations from various segments to clarify these kind of facts.

Key words Accounting Information; Environmental Accounting; Environmental Management Accounting; Corporate Characteristics; Data Analysis

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1. Introduction

Disclosure of different environmental related information in corporate annual reports begins in the 1970s and it expanded in the 1990s (Kukobo *et al.*, 2002). Before 1990s, there was no specific evidence that any listed company in Dhaka Stock Exchange (DSE) has disclosed environmental related information in their annual reports (Shil and Iqbal, 2005).

Since environmental pollution in the industries is very alarming, hence it needs to justify how much they are delivering environmental accounting information in their annual reports in creating consciousness among the stakeholders of the organization. The more environmental accounting information disclosure in annual reports of the companies supposed to create more awareness recording environment. The present study found that more and more companies came forward to disclose more environmental accounting information in annual reports. But the present disclosure volume is considered to be insufficient in creating environmental awareness. Therefore, it is necessary to encourage or compel them in reporting environmental accounting information in their annual reports. So, this study deserves importance in reporting the present position of environmental accounting disclosure in annual reports of the selected

manufacturing companies listed in Dhaka Stock Exchange and in identifying the relationship between company's characteristics and the volume of disclosure.

The concept of environmental reporting is relatively new in Bangladesh. Very few studies have been conducted on environmental reporting in the context of Bangladesh (Dutta and Bose, 2008). But Bangladesh is one of the most vulnerable countries because of environmental changes throughout the world. So, this study deserves importance in reporting the present position of environmental disclosure in annual reports of the selected listed companies in Bangladesh.

1.1. What is Environmental Accounting?

Unlike financial accounting that is governed by Generally Accepted Accounting Principles (GAAP), management accounting practices and systems differ accounting to the needs of the businesses they serve. Some businesses have simple systems while other has elaborate. Just like management accounting refers to the use of a broad set of cost and performance data by a company's managers in making a myriad of business decisions, environmental accounting refers to the use of data about environmental costs and performance in business decisions and operations.

Environmental accounting seeks to provide fiscal information display of company's environmental expenditures and the subsequent benefits of this spending. Environmental activities like environmental protection and occupational safety and health, were converted into fiscal or accounting data through systematics methods. This information is then disclosed and market mechanisms employed to improve or resolve environmental issues. The ultimate result is to have companies industries, and then entire nations take steps to ensure sustainability. The disclosure of all environmental activities with financial statements or other means can accurately reflect the cost and effect relationship between companies and the environment. The data disclosed can be of help for measuring a nation's industry and reveal the degree to which a nation emphasizes environmental quality, the measurement known as Green GNP. Environmental accounting involves information, environmental protection, and accounting. An integrated platform is required to compile data on these three fronts and then to disclose environmental-related corporate value hidden in this data via a firm's financial statements or reports.

1.2. Why Environmental Accounting?

An environmental cost is one of the various types of costs that businesses incur by providing goods and services to their customers. Environmental performance is one of the many important measures of business success. Environmental costs and performance deserve attention because of the following reasons:

a) Environmental costs can be significantly reduced or eliminated due to business decisions, ranging from operational and housekeeping changes, to investment in "greener" process technology, redesign of process/products.

b) Environmental costs (and, thus, potential cost saving) may be obscured in overhead accounts or otherwise overlooked.

c) Better management of environmental cost can result in improved environmental performance and significant benefit to human health along with business success.

d) Understanding the environmental cost and performance of processes and product can promote accurate costing and pricing of product and can aid companies in design of more environmentally preferable processes, products, and services for the future.

e) Competitive advantage with customers can get from processes, products, and services that can be demonstrated to be environmentally preferable.

f) Accounting for environmental costs and performance can support an overall environmental management system. Such system will soon be a necessity for companies engaged in international trade due to pending international consensus standard ISO 144001, developed by the International Organization for Standardization.

1.3. Objectives of the Study

The main objective of the study is to know the volume of environmental accounting information reported in annual reports of the selected manufacturing companies listed in Dhaka Stock Exchange.

Specific Objectives:

- a) To know about environmental reporting practices of selected listed companies in Bangladesh.
- b) To justify whether there is any relationship between extent of environmental disclosure and company's corporate characteristics.

1.4. Scope of the Study

This report has been prepared on the basis of experience gathered during the period of project paper defense. For preparing the report, information has collected from Annual reports, other third parties, Supervisor and websites. Collected data, experience and findings are presented by using different charts and tables which are showed in the data analysis and interpretation part.

2.5. Limitations of the Study

There have some limitation of this study. Some of the specific limitations are following to the next-

1. Bangladesh has a lot of manufacturing companies. But this study presents only twenty five (25) manufacturing companies.
2. Many of the specialist are discussed this study in their own ways that's why the presented ideas are different.
3. Due to time constraints, interview of personnel from manufacturing companies could not be taken which might have led to a better understanding of the internal situation of manufacturing companies.
4. Since the research is based on Secondary sources only, the accuracy of the research depends completely on the accuracy of the secondary data used.
5. Relevant paper and documents were not available sufficiently which can help me writing this paper.
6. I had to base on secondary data for preparing this report.

2. Literature review

A literature review is a text of scholarly paper which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and do not report new or original experimental work. Most often associated with academic-oriented literature, such reviews are found in academic journals and are not to be confused with book reviews that may also appear in the same publication. Literature reviews are a basis for research in nearly every academic field. There were enormous researches on environmental accounting but there were no studies on environmental disclosure before 1970s.

The first environmental accounts were introduced by Norway in the 1970s and were slowly adopted by other countries (Shil and Iqbal, 2005). In the following years, many countries, like UK, USA, Canada, Japan etc. actively conducted research on environmental accounting information and have taken different crucial steps in environmental protection (Zhang *et al.*, 2009).

Firms' environmental performances in four industries from 1970 to 1975 were investigated by Shane and Spicer (1983). They found that comparatively larger companies significantly increased to disclose environmental information. Over the period of 1982 to 1991, the environmental information disclosures in the annual reports of Canadian public companies operating in the mineral extraction, forestry, oil and gas, and chemical industries were analyzed by Neu *et al.* (1998). They focused their analyses on following: the influence of external pressure concerning environmental disclosures in annual reports; the characteristics of environmental disclosure vis-à-vis other 'social' disclosure; and the association between environmental disclosure and actual performance.

Shil and Iqbal (2005) stated that EA has been used increasingly day by day in the developed and developing countries and now-a-days, a good number of companies are putting their concern regarding EA and they are disclosing different environmental information in their annual reports.

Gray and Babington (2010) discussed in the chapter entitled 'Environmental accounting and sustainability: "Is the planet safe in the hands of business and accounting"? Providing reflection of current state of art in environmental accounting research through this lens and then goes on to present the essence of the problem through the reporting of a new analysis of data from an international study of accounting, sustainability and transnational corporations.

Yakhou and Dorweiler discusses that the environmental accounting is on an expansion path. It deals and measures with the environmental performance. It works also the integration of environmental policy with business policy is the focus of this research. In Hong Kong, Ho *et al.* (1994) conducted a search study on 182 organizations and found that exclusive 9 out of these 182 organizations (4.9percent) uncovered environmental accounting information in their annual reports for the year 1991. In Korea, the investigation of Choi *et al.* (1998) reveals that out of 770 listed companies only 64 companies revealed environmental accounting information in their annual reports for the year 1997.

Tsang (1998) led a longitudinal investigation of social and environmental reporting rehearses by the banking, food and beverages and hotel industries over a ten-year time's span from 1986 to 1995. The analyst found that 17 (52 percent) out of 33 listed companies made social and environmental accounting disclosure in their yearly reports. Kisenyi and Gray (1998) studied just four organizations in Uganda and watched that none of them made any environmental accounting disclosure in their yearly reports.

Silver and Savage(1994) concentrated on 115 South African organizations and found that only 63 percent organizations had made environmental accounting disclosure in their yearly reports.

Dutta and Bose (2007) directed another study in Bangladesh; likewise found that corporate environmental accounting disclosure in Bangladeshis still in its earliest stages as the level of environmental accounting disclosure on sites is low. Bose (2006) investigated 5 years' annual reports of 11 Petrobangla organizations for looking at their environmental accounting disclosure status. He found that in 1998-1999 and 1999-2000, just 45.45% and in 2000-01, 63.63% and in 2001-02and 2002-03, just 81.81% of Petrobangla organizations disclosed these information in their annual reports.

Rahman and Muttakin (2005) conducted a study on125 assembling organizations listed in the Chittagong Stock Exchange (CSE) as on May 7, 2005. They broke down the annual reports of these125 organizations and found that only 5organizations (4 percent of 125 organizations) uncovered environmental accounting information in their yearly reports. Shil and Iqbal (2005) reviewed 121 assembling organizations listed in the Dhaka Stock Exchange (DSE). They reported that only 13 organizations (11 percent of 121organizations) revealed environmental accounting data in their yearly reports. Bala and Yusuf (2003) have analyzed the yearly reports of 249 public limited companies (listed in Dhaka Stock Exchange) for the year of 2001. They report that26 (10.4 percent of the aggregate) organizations uncovered environmental accounting data in the Directors' Report or in the Chairman's Statement.

From the above literature review it can be concluded that the fundamental premise behind environmental accounting is that organizations should internalize environmental costs. Currently these costs are externalized, and the society bears the impact of an organization's adverse activities on the environment due to the fact it is a "public good". It is expected that once organizations are made accountable for these costs, they would be compelled to minimize the potentially harmful effects of such activities. As environmental accounting requires organizations to forecast the potential environmental impact of their activities and accordingly estimate their contingent liabilities and create provisions for environmental risks. To compel businesses in performing accountability, disclosure of environmental accounting information has become a key process.

2.1. Critic and Research Gap

From the above literature review, it is observed that different study has been made on Environmental Reporting, but any extensive study on an Environmental Reporting Practices of Listed

Companies in Bangladesh for the period of 2011-2016 has not been conducted. So, there is a research gap. For this reason, the study is very important on this topic.

3. Data analysis

Methodology is the systematic theoretical analysis of the methods applied to a field of study. The process used to collect information and data for the purpose of making business decision. The research methodology of the selected topic is presented in different dimension.

3.1. Research Design and Sample Size

This study is empirical research by nature which investigates the extent of environmental accounting disclosure in annual reports of Bangladeshi Companies. There are 22 sectors in Dhaka Stock Exchange (DSE). Five sectors were purposively selected from the available sectors which are listed with DSE. The selected sectors are cement, textile, engineering, fuel and power, pharma and chemical. Again, from these stratified five sectors, purposively 25 companies from these five were selected conveniently.

3.2. Selection of Period

To make study a contemporary and up to date, the data should be of latest and current year. Therefore, 25 annual reports of the 30 sample companies were collected because the annual report of 2016 was the latest.

3.3. Data Source

The study is conducted on the basis of secondary data. The data has been collected from the annual reports of the selected companies listed in Dhaka Stock Exchange (DSE) of Bangladesh. Annual report, the key communication tool of a company (Lang and Lundholm 1993), is chosen as the reliable source of data for the study as because it is available widely (Hooks, Coy & Davey 2002) and it communicates company's overall image to the stakeholders (Cameron and Guthrie 1993). All annual reports are collected from the website of the respective companies.

3.4. Development of Environmental Disclosure Index

Disclosure Index Approach has been used to provide an evaluation of the environmental accounting disclosure in corporate annual reports. There is no generally accepted theory to predict user information needs and there is an absence of an appropriate generally accepted model for the selection of the items of environmental information to be included in a disclosure index. The items of environmental information included in the disclosure were selected from the study of Wiseman (1992), Porwal and Sharma (1991), and Singhand Ahuja (1983) which were considered essential for complete environmental accounting disclosure on the ground of literature total of 44 items of information are finally identified as relevant to environmental accounting disclosure and are applicable to all sampled companies. These 44 environmental accounting disclosure information items are then classified into five key categories according to their nature.

Table 1. Number of environmental disclosure items under each category

Category	Disclosure Topic	Number of Information	Percentage (%)
Category-1	Environmental Policy	05	11.36
Category-2	Environmental Pollution	18	41.00
Category-3	Environmental Audit	07	16.00
Category-4	Environmental Financial information	05	11.36
Category-5	Environmental other Information	09	20.45
	Total	44	100

For the purpose of this study it therefore, an un-weighted approach (dichotomous scale) is adopted for use, in which if a company discloses an item of information included in the disclosure index it is assigned a score of 1, and 0 if it is not disclosed. After all the environmental accounting disclosure items have been scored, the Total Environmental Accounting Disclosure Index Score (TEADIS) for each of the 25 annual

reports from the companies in the sample (this score as dependent variable), is calculated as the ratio of the Actual Environmental Accounting Disclosure Index Score (AEADIS), which is awarded to a bank, divided by the Maximum Environmental Accounting Disclosure Index Score (MEADIS), which that particular company is expected to earn.

The Total Environmental Accounting Disclosure Index Score (TEADIS) for each company for each year is calculated as follows:

The Actual Environmental Accounting Disclosure Scores (AEADIS) for per company in the sample of the study in each year is additive as:

$$\text{AEADIS} = \sum_{j=1}^n dj \quad (1)$$

Where, AEADIS = Actual Environmental Accounting Disclosure Index Score for per company.

$dj = 1$ if the j information item is disclosed in the annual reports.

$dj = 0$ if the j information item is not disclosed in the annual reports.

n = the total of information items which a bank is expected to disclose.

The Maximum Environmental Accounting Disclosure Index Score (MEADIS) that an individual company is expected to earn is calculated as follows:

$$\text{MEADIS} = \sum_{j=1}^n dj \quad (2)$$

Where, MEADIS = Maximum Environmental Accounting Disclosure Index Score.

n = the number of information items in the environmental accounting disclosure index.

Expected to be disclosed, where $n \leq 44$.

Therefore, the Total Environmental Accounting Disclosure Index Score (TEADIS) for the individual company for each year is calculated as follows:

$$\text{TEADIS} = \text{AEADIS} \div \text{MEADIS} \quad (3)$$

A company with higher value of disclosure score demonstrates the greater level of environmental accounting disclosure in its published annual reports.

3.5. Data Analysis

To analyze the financial performance of banking sector different variables are included in this study. Tool is used to analyzing the financial statement. This is follows: Environmental Accounting Disclosure Index Regression Analysis; Correlation Analysis. The collected data through the above tools is analyzed using the techniques of AEADIS and MEADIS to find out the true picture of the Environmental Reporting practices of listed companies' from Dhaka Stock Exchange in Bangladesh.

3.6. Hypothesis's of The Study

In order to achieve the research objectives and based on the literature review, the following hypotheses have been proposed for the studies which are:

H1 (I) = There is significant relationship between the company's total assets and the level of their environmental accounting information disclosure in the annual reports.

H1 (II) = There is significant relationship between the company's profitability (measured by gross revenue) and the level of their environmental accounting information disclosure in the annual reports.

H1 (III) = There is significant relationship between the company's age and the level of their environmental accounting information disclosure in the annual reports.

H1 (IV) = There is significant relationship between the company's EPS and the level of their environmental accounting information disclosure in the annual reports.

Premier Cement Mills Limited

Premier Cement is a rapidly growing company focused on its core business of Cement. It is recognized as one of the most efficient and environment friendly company in the domestic cement industry. But this thing has not achieved in a day. It took more than a decade of around fifteen years back from today some well-known and veteran business leaders came together to start business in cement

industry and finally named after the business by Premier Cement Mills Limited as well as in corporate dates private limited Company in 2001. It took three years from the date of incorporation to start its first commercial production with production capacity of 0.6 Million Metric Tons per annum. From then Premier Cement did not need to look back. It was moving ahead year to year. The movement of growth got extra force when it was converted into a public limited company under the Companies Act 1994 with authorized capital of BDT 5,000 million in 2010. After passing successful operation and production for three years more; in 2013 it was listed in both the bourses namely Dhaka Stock Exchange Limited and Chittagong Stock Exchange Limited. A decade of commercial production open up a window of opportunity as a result the Company is successfully now meeting up seven percent (7%) of country's total demand. Now we have remarkable production capacity of 2.4 Million Metric Tons per annum. At present we are emphasizing more on customer satisfaction for achieving greater market share than our rivals.

Confidence Cement Limited

Confidence Cement Limited is the pioneer cement manufacturing company in private cement sector in Bangladesh under the Government industry policy of 1991. The company was established in May 2, 1991 is a form of public limited company. Confidence Cement Limited, the flagship company of confidence Group of companies is one of the largest manufacturers of cement in the country. It is also a leading Blue chip company in both the Dhaka and Chittagong Stock Exchange and there it is among the top 20 performing companies for the last 10 years. It is also the first ISO 9002 certified cement manufacturing company in Bangladesh.

Lafarge Holcim Bangladesh Limited

Lafarge Holcim is the leading global building materials and Solutions Company serving masons, builders, architects and engineers all over the world. Group operations produce cement, aggregates and ready-mix concrete which are used in building projects ranging from affordable housing and small, local projects to the biggest, most technically and architecturally challenging infrastructure projects. As urbanization increasingly impacts people and the planet, the Group provides innovative products and building solutions with a clear commitment of social and environmental sustainability. With leading positions in all regions, Lafarge Holcim employees around 90,000 employees in more than 80 countries and has a portfolio that is equally balanced between developing and mature markets.

MI Cement Factory Limited

MI Cement Factory Ltd. is a public limited company and one of the leading manufacturers of cement in Bangladesh. On December 31, 1994 it started its journey with the commitment for providing high quality cement to the country. Its brand "Crown Cement" has own renowned both at home and abroad. The company has been listed Dhaka Stock Exchange in 2011. Its high growth agenda has been highly appreciated by the shareholders and have won investors trust. Its backwards and forward integration endeavors have given new dimension to its growth performed. Crown cement pioneered in export of cement in 2003 and paved the way for earning hard earns foreign currency. Crown cement achieved the national Export Trophy (Gold) twice in consecutive two years for attaining the top most places among the cement exporters in Bangladesh.

Anwar Galvanizing Limited

Anwar Galvanizing Ltd, a sister concern of Anwar Group of Industries was incorporated on 14 December, 1995 under the Companies Act, 1994 as a Public Limited Company by shares. Its share was listed with Dhaka stock Exchange Limited on 20-07-1996. It obtained the certificate of commencement of Business from the Registrar of Joint Stock Company on 14-02-1995. The Company carried on the business of manufacturing of Galvanizing CI sheet of all specification and grades up to the year 2009, from 29th December 2009 it started commercial production of GI fittings.

S. Alam Cold Rolled Steels Limited

A Public limited Company incorporated in Bangladesh on 12 December, 2000 under the Companies Act. 1994 and listed with Dhaka Stock Exchange Limited. Date of listing in Dhaka Stock Exchange on 16 May 2006. Commencement of commercial production 2004. Its authorized Capital Taka 350.00 crore and issued subscribed & paid up capital Taka 98.3711 crore. Its production variety C. R coil plant, C. R coil NOF plant, C. I sheet and G.P. Sheet. Annual Installed capacity C. R coil plant 120000 M. Ton, and NOF plant 72000 M Ton.

Ratanpur Steel Re-Rolling Mills limited

Ratanpur Steel Re-Rolling Mills Ltd. (RSRM) was established in January 1984 to meet the growing Demand for high quality M.S. deformed bars in the country. The mill is situated in the heart of the progressive Baizid Bostami Industrial Area, Chittagong. Creating new steel from recycled steel reduces CO₂. In 2003 we started to manufacture quality billets from recycled scrap under our go green initiative. In 2006 throughout the world recycled steel made up more than 496 million metric tons, this saved an estimated 894 million metric tons of CO₂. Today, RSRM is widely recognized as one of the leading steel manufacturers in the country and has embarked upon a series of initiatives aimed at increasing its production capacity of world class products. Other necessary ancillaries like main power substation and emergency water supply, natural gas supply station, machine shop with CNC machine, pollution control system, well equipped quality control department, cranes of different capacities including crawled cranes for material handling etc. RSRM debars are supplied in size 8, 10, 12, 16, 20, 25, 32, 40 and 50 mm diameter sandal so in a fixed length of 12 meters. RSRM provides bars of different size, length & grade as required by client.

MJL Bangladesh Limited

MJLBL is listed on the Dhaka and Chittagong stock exchanges. The company's market capitalization stood at Taka 26,601.69 million as on 30 June 2016 (Taka 29,453.82 million as on 30 June 2015). While EC Securities Limited held 52% of the total number of outstanding shares, Jamuna Oil Company Limited held 19%. The rest of the 29% was held by others (as on 30 June 2016) MJL Bangladesh Limited (formerly Mobil Jamuna Lubricants Limited) is a joint venture between state-owned Jamuna Oil Company Limited and EC Securities Limited. The journey of blending world class lubricants in Bangladesh started in 1998 when Mobil Corporation (post-merger with Exxon) decided to establish Mobil Jamuna Lubricants Limited in partnership with the state-owned Jamuna Oil Company Limited to tap into the large and growing lubricants demand in the country. MJLBL commissioned a state-of-the-art lube oil blending plant (LOBP), the first-of-its-kind in the country, in May 2003. Since the last decade (ending June 2016), both production and sales have grown substantially, enabling the Company to emerge as one of the nation's fastest growing lubricants enterprise and a core provider of technology oriented ingredients that improve people's lives by enhancing everyday products.

Dhaka Electric Supply Company Limited

As a part of on-going Power Sector Reforms by way of unbundling the power sector and increasing efficiency in the area of generation, transmission and distribution, Dhaka Electric Supply Co. Ltd. (DESCO) was created as a distribution company in November 1996 under the Companies Act 1994 as a Public Limited Company with an Authorized Capital of Tk. 5.00 billion. However, the operational activities of DESCO at field level commenced on September 24, 1998 by taking over of the electric distribution system of Mirpur area from erstwhile Dhaka Electric Supply Authority (DESA). During inception consumer strength was 71,161 and a load demand 90 MW. In the subsequent years of successful operation and better performance, the operational area of DESCO was expanded through inclusion of Gulshan Circle in April, 2003 and Tongi Pourashava Area in March, 2007.

ORION Pharma Limited

Orion Pharma Limited (Orion Pharma/the Company), previously named as Orion Laboratories Limited, a Company of Orion Group, was incorporated in 1965; and owns and operates a modern pharmaceutical factory and produces and markets pharmaceutical drugs and medicines. The company is a listed company

with Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) since 2013. It also owns approximately 21.76% shares of Orion Infusion Limited, another concern of Orion Group and a public company Listed with Dhaka Stock Exchange and Chittagong Stock Exchange since 1994 and 1996 respectively, manufacturing and marketing intravenous fluids. With the aim of building a world class pharmaceutical industry in Bangladesh, Orion Pharma is committed to deliver top quality essential general drugs, with long proven reliabilities to the medical science community, health care professionals, chemists and patients through 121 brands and 230 presentations of various formulations complying Good Manufacturing Practices (GMP) and the guidelines of ISO-9001:2008. Orion produces a wide array of dosage forms including tablet, capsule, syrup, suspension and injection, dry powder for syrup/suspension ranging in different quint essentials erapeutic groups like anti-cancer, antibiotics, anti-diabetics, anxiolytics, diuretics, cardiovascular drugs and the likes. Orion Pharma is constructing BIGGEST Pharma Park in Bangladesh. It is going to be one of the finest compositions with total pharmaceutical Solutions in this sub-continent.

GlaxoSmithKline Bangladesh Limited

Glaxo SmithKline (GSK) is a science-led Global Health care Company that researches and develops a broad range of innovative medicine, vaccines and consumer health care products. GSK products are used by millions of people around the world, helping them to do more, feel better and live longer. With GSK headquarters in UK, GSK has a wide geographical reach which include 115 countries, manufacturing network in 87 sites and almost 100000 people working globally. There are three primary areas of business in pharmaceuticals, vaccines and consumer healthcare. As a research based company GSK believe in creating innovative new products and making these accessible to as many people who need them. GSK's strategies priorities lie in growing a balanced global business, delivering more products of value, simplifying the operating model and in being a responsible business.

Square Pharmaceuticals Ltd

Market leader in pharmaceutical industry since 1985. In 1958, year of establishment initially as a partnership business. In 1964, incorporated as a private limited company. In 1974, technical collaboration with Janssen Pharmaceuticals of Belgium a subsidy of Johnson & Johnson International Ltd, USA. In 1985, market leadership in the pharmaceuticals market of Bangladesh. Among all national and multinational companies. In 1987, pioneer in pharmaceuticals export from Bangladesh. In 1991, converted into public limited company. In 1994, initial public offer of ordinary share. In 1995, listing with Dhaka and Chittagong stock exchange, chemical division starts production of pharmaceuticals bulk products. In 1997, won the National Export Trophy for exporting pharmaceuticals. In 2001, US FDA/UK MHRA standard pharmaceuticals factory goes into operation built under supervision of Bovis, UK. In 2002, enlisted as UNICEF's global suppliers. In 2007, Dhaka unit gets UK MHRA approval. In 2009, starts manufacturing of insulin, hormone & steroid products maintaining quality standards of US FDA and UK MHRA complying with the cGMP of WHO. In 2012 Dhaka Unit gets the Therapeutic Goods Administration of Australia approved. In 2015, awarded "AAA" rating in the long term and "ST-1" rating in short term by CRISL.

LOG (Total Assets)

Log (total assets) refers that minimize the total assets to minimum value of net total assets from maximum total assets for the interpretation of financial information that can easily understandable. Log (total assets) value and total assets value are equal.

Table 2. Total Assets of the listed companies from Dhaka Stock Exchange in Bangladesh

Name of The Companies	Total Asset (in Log Taka)	Name of The Companies	Total Asset (in Log Taka)
Meghna Cement Mills Limited	9.66	Jamuna Oil Company Limited	10.73
premier Cement Mills Limited	10.03	United Power Generation & Distribution Co. Ltd	10.11
Confidance cement Limited	6.79	Orion Pharma Limited	4.43
Lafarge Holcim Bangladesh limited	7.32	GlaxoSmithKline Bangladesh Limited	6.77
M. I Cement Factory Limited	7.15	Square Pharmaceuticals Ltd	10.59
Anwar Galvanizing Limited	8.43	Shinepukur Ceramics Ltd	6.77
Aziz Pipes limited	8.51	Appollo Ispat Complex Ltd.	10.10
S. Alam Cold Rolled Steels Limited	10.08	Maksons Spinning Mills limited	9.92
Aftab Automobiles limited	9.99	Modern Dyeing & Screen Printing Ltd	7.56
Ratanpur Steel Re-Rolling Mills limited	9.70	H.R Textile Mills Limited	9.19
MJL Bangladesh limited	10.16	HWA Well Textiles (BD) Limited	9.28
Power Grid Company of Bangladesh ltd	11.14	Square Textiles Ltd	9.97
Dhaka Electric supply Company limited	10.65		

LOG (Gross Profit)

Gross profit is the profit a company makes after deducting the costs associated with making and selling its products, or the costs associated with providing its services. Gross profit will appear on a company's income statement, and can be calculated with this formula:

$$\text{Gross profit} = \text{Revenue} - \text{Cost of goods Sold}$$

Table 3. Gross Profit of the listed companies from Dhaka Stock Exchange in Bangladesh

Name of The Companies	Gross Profit (in Log Taka)	Name of The Companies	Gross Profit (in Log Taka)
Meghna Cement Mills Limited	8.93	Jamuna Oil Company Limited	9.44
premier Cement Mills Limited	9.30	United Power Generation & Distribution Co. Ltd	9.73
Confidance cement Limited	5.95	Orion Pharma Limited	3.59
Lafarge Holcim Bangladesh limited	6.58	GlaxoSmithKline Bangladesh Limited	6.39
M. I Cement Factory Limited	6.22	Square Pharmaceuticals Ltd	9.56
Anwar Galvanizing Limited	7.36	Shinepukur Ceramics Ltd	5.66
Aziz Pipes limited	7.04	Appollo Ispat Complex Ltd.	9.04
S. Alam Cold Rolled Steels Limited	8.48	Maksons Spinning Mills limited	8.57
Aftab Automobiles limited	8.88	Modern Dyeing & Screen Printing Ltd	6.45
Ratanpur Steel Re-Rolling Mills limited	8.81	H.R Textile Mills Limited	8.22
MJL Bangladesh limited	9.62	HWA Well Textiles (BD) Limited	8.24
Power Grid Company of Bangladesh ltd	9.64	Square Textiles Ltd	9.25
Dhaka Electric supply Company limited	9.28		

3.7. Age of the Companies

Number of year the company listed of the Dhaka Stock Exchange.

Table 4. Age of the listed companies from Dhaka Stock Exchange in Bangladesh

Name of the Companies	Age of listing (years)	Name of the Companies	Age of listing (years)
Meghna Cement Mills Limited	22-1995	Jamuna Oil Company Limited	10-2007
premier Cement Mills Limited	14-2003	United Power Generation & Distribution Co. Ltd	02-2015
Confidance cement Limited	22-1995	Orion Pharma Limited	04-2013
Lafarge Holcim Bangladesh limited	14-2003	GlaxoSmithKline Bangladesh Limited	41-1976
M. I Cement Factory Limited	06-2011	Square Pharmaceuticals Ltd	22-1995
Anwar Galvanizing Limited	21-1996	Shinepukur Ceramics Ltd	09-2008

Aziz Pipes limited	31-1986	Appollo Ispat Complex Ltd.	04-2013
S. Alam Cold Rolled Steels Limited	11-2006	Maksons Spinning Mills limited	08-2009
Aftab Automobiles limited	30-1987	Modern Dyeing & Screen Printing Ltd	29-1988
Ratanpur Steel Re-Rolling Mills limited	03-2014	H.R Textile Mills Limited	20-1997
MJL Bangladesh limited	06-2011	HWA Well Textiles (BD) Limited	04-2014
Power Grid Company of Bangladesh ltd	11-2006	Square Textiles Ltd	14-2002
Dhaka Electric supply Company limited	11-2006		

3.8. Earnings Per Share (EPS)

Earnings per share (EPS) is the portion of a company’s profit allocated to each outstanding share of common stock. Earnings per share serve as an indicator of a company’s profitability. EPS is calculated as:

$$EPS = (\text{Net Income} - \text{Dividends on Preferred Stock}) / \text{Average Outstanding Share}$$

Table 5. EPS Of the listed companies from Dhaka Stock Exchange in Bangladesh

Name of The Companies	EPS	Name of The Companies	EPS
Meghna Cement Mills Limited	3.03	Jamuna Oil Company Limited	17.74
premier Cement Mills Limited	5.99	United Power Generation & Distribution Co. Ltd	15.57
Confidance cement Limited	14.80	Orion Pharma Limited	6.51
Lafarge Holcim Bangladesh limited	1.92	GlaxoSmithKline Bangladesh Limited	53.51
M. I Cement Factory Limited	5.01	Square Pharmaceuticals Ltd	3.16
Anwar Galvanizing Limited	0.73	Shinepukur Ceramics Ltd	0.22
Aziz Pipes limited	1.60	Appollo Ispat Complex Ltd.	1.35
S. Alam Cold Rolled Steels Limited	1.08	Maksons Spinning Mills limited	0.39
Aftab Automobiles limited	2.80	Modern Dyeing & Screen Printing Ltd	1.49
Ratanpur Steel Re-Rolling Mills limited	3.45	H.R Textile Mills Limited	1.25
MJL Bangladesh limited	5.14	HWA Well Textiles (BD) Limited	2.02
Power Grid Company of Bangladesh ltd	2.66	Square Textiles Ltd	7.02
Dhaka Electric supply Company limited	1.12		

3.9. Specification of Regression Models

In order to find out the Environmental Reporting practices of listed companies from Dhaka Stock Exchange in Bangladesh, one model has been developed and has one dependent variable and four identical, independent variables as shown in table 6. In addition, EADI was used as Environmental Accounting indicator. SPSS 19 has been used to process and analyze the data. Statistical tools like Regression analysis, F-test, correlation and t-test have been used to assess and interpret data. Both F-test and t-test have been performed to test the statistical significance of the parameters at 5% level of significance.

Table 6. List of the variables to be studied

Dependent Variables	Description	Independent Variables	Description
EADI	Environmental Accounting Disclosure Index	Log Assets	LOG (Total Assets)
		Gross profit	Total Revenue – Cost of Goods Sold
		Age	Number of Years
		Earnings Per Share	(Net Income–Dividends on Preferred Stock)/ Average Outstanding Share

$$\text{Model: } EADI = \alpha + \beta_1 \text{Log_TA} + \beta_2 \text{Log_GP} + \beta_3 \text{Age} + \beta_4 \text{EPS} + \epsilon \quad (4)$$

Where, EADI = Environmental Accounting Disclosure Index

TA= LOG (Total Assets)

GP = LOG (Gross profit)

Age= Number of Years of listing Companies

EPS= Earnings per Share
 α = Constant term of the model
 β = Coefficients of the model
 ε = Error term

3.10. Results for Model

The hypothesis being tested is

H1: Total Assets, Gross profit, Number of Years of listing Companies and Earnings per Share have impact on Environmental Accounting Disclosure Index (EADI) of Bangladeshi manufacturing companies.

Therefore, the null and alternative hypotheses are:

HO: Total Assets, Gross profit, Number of Years of listing Companies and Earnings per Share have significant impact on Environmental Accounting Disclosure Index (EADI) of Bangladeshi manufacturing companies.

HA: Total Assets, Gross profit, Number of Years of listing Companies and Earnings per Share have no impact on Environmental Accounting Disclosure Index (EADI) of Bangladeshi manufacturing companies.

Table 7. Correlation Matrix (EADI)

		EADI	TA	GP	AGE	EPS
EADI	Pearson Correlation	1	.070	.177	-.402*	.289
	Sig. (2-tailed)		.739	.397	.047	.161
	N	25	25	25	25	25
TA	Pearson Correlation	.070	1	.981**	-.184	-.246
	Sig. (2-tailed)	.739		.000	.378	.237
	N	25	25	25	25	25
GP	Pearson Correlation	.177	.981**	1	-.187	-.157
	Sig. (2-tailed)	.397	.000		.372	.453
	N	25	25	25	25	25
AGE	Pearson Correlation	-.402*	-.184	-.187	1	.408*
	Sig. (2-tailed)	.047	.378	.372		.043
	N	25	25	25	25	25
EPS	Pearson Correlation	.289	-.246	-.157	.408*	1
	Sig. (2-tailed)	.161	.237	.453	.043	
	N	25	25	25	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

From the table it is evident that there is a positive correlation of EADI, Total Assets (TA), Gross Profit (GP) and EPS while negative correlation with Number of Years (AGE). This indicates that with increase in Total Assets, there has been increase in EADI. While the results show that with the rest of the variables decreasing, there can be increase in EADI. Gross Profit (GP) has very strong positive correlation with EADI, as it is logical that with increase in efficient Total Assets, the Gross Profit will be higher.

Table 8. Model Summary (EADI)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729 ^a	.532	.438	4.00036

a. Predictors: (Constant), EPS, GP, AGE, TA

Referring to the table above, it was found that that the adjusted R-square value is 43.80% and from this it is concluded that 43.80% of the variation in the dependent variable (EADI) is explained by the independent variables. This indicates a medium explanatory power of the regression.

Table 9. ANOVA^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	363.703	4	90.926	5.682	.003 ^a
Residual	320.057	20	16.003		
Total	683.760	24			

a. Predictors: (Constant), EPS, GP, AGE, TA

b. Dependent Variable: EADI

From the table above it is known that the value of F-stat is 5.68 and is significant as the level of significance is greater than 5%. In addition, this indicates that the null hypothesis is accepted and alternative hypothesis is rejected. Hence, Total Assets, Gross profit, Number of Years of listing Companies and Earnings per Share have significant impact on Environmental Accounting Disclosure Index (EADI) of Bangladeshi manufacturing companies.

Table 10. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.860	5.465		2.170	.042
	TA	-6.132	2.930	-1.923	-2.093	.049
	GP	6.610	2.964	2.021	2.230	.037
	AGE	-.269	.090	-.519	-2.993	.007
	EPS	.169	.096	.346	1.763	.093

a. Dependent Variable: EADI

Thus, the analysis predicts the average ROA with about 43.80% explanatory power by the following model:

$$EADI = 11.860 + -6.132 TA + 6.610GP + -0.269 AGE + 0.169 EPS + e$$

4. Findings

After reviewing the related literature and analyzing statistical data of the selected manufacturing companies, some mentionable findings are arrived.

Some of these are:

1. Companies have been found to disclose only positive qualitative information about their environmental activities.
2. None of the companies separately disclosed the amount of normal provisions or provisions set aside for contingent liabilities in respect of the environment.
3. The companies do not maintain any approaches (either monetary or physical approaches) of environmental accounting.
4. There is significant relationship of the company's Assets, Gross Profit and Earnings per Share (EPS) with the level of their environmental accounting information disclosure in the annual reports.
5. There is no relationship between company's Age and the level of their environmental accounting information disclosure in the annual report.

5. Recommendations

This following are the recommendations based on the findings of the study:

1. This study indicated that the companies have already given much effort in the field of environmental protection. Environmental expenditures incurred by companies should be classified into capital expenditure and operating expenditures.
2. Companies should show fines and penalties paid by the company, environmental liabilities of the company, environmental provisions, and environmental costs capitalized in the notes to the accounts in their annual reports.

3. Regulatory bodies should develop rules and regulations to guide the rehearses of Environmental Accounting and reporting.

4. Research and studies should be encouraged in the field of Environmental Accounting and reporting.

5. The Government and other regulatory bodies should give more concentration on the setting up of waste management or recycling plants to protect the environment.

6. Conclusions

Environmental issues are burning tale in the present world. Not only the first world but the third world countries are also worried about environmental issues. The unsafe impact of environmental contamination restrains no limit. The study is an endeavor in investigating the environmental accounting disclosure hones by Bangladeshi manufacturing companies and found that a few organizations are uncovering more information with respect to environmental issues, a large number of yet a few organizations are not disclosing any or unveiling unimportant data in regards to environmental perspectives. This study also found that there is a positive relationship among level of environmental accounting disclosure practices and organization characteristics in particular namely total assets, gross revenues and EPS of the companies whereas a negative relationship between environmental accounting disclosure practices and age of the companies. But the results may be different if different simple or data are used for a study. So, in using and interpreting the results of the study, the limitations are also to be considered. The real impediments of the study include: the study is based on only secondary data; it depends on purposively selected listed companies in Bangladesh, and annual reports of one year were used for the study. The study expects that the organizations would encourage in disclosing more information on environmental aspects and would aware the general people with respects to environmental protection in environmentally most vulnerable countries like Bangladesh.

7. Direction to Further Studies

The present study focused on only environmental disclosure in the annual report of selected companies in Bangladesh. There are huge scopes of conducting more studies in the same direction in the following areas:

a) Needs for environmental reporting practices in an environmentally vulnerable country like Bangladesh.

b) Role of Environmental Accounting and Reporting in creating environmental awareness among the corporate stakeholders in Bangladesh.

c) Impact of environmental disclosure on financial position of the listed companies in Bangladesh.

d) Environmental accounting Practices: Its prospects and challenges in Bangladesh.

e) Environmental Accounting and Reporting: An analysis in Islamic point of view.

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Annual Reports:

1. Meghna Cement Mills Limited-2016.
2. Premier Cement Mills Limited-2016.
3. Confidance Cement Limited-2016.
4. Lafarge Holcim Bangladesh limited-2016.
5. M. I Cement Factory Limited-2016.
6. Anwar Galvanizing Limited-2016.
7. Aziz Pipes limited-2016.
8. S. Alam Cold Rolled Steels Limited-2016.
9. Aftab Automobiles limited-2016.
10. Ratanpur Steel Re-Rolling Mills limited-2016.
11. MJL Bangladesh limited-2016.
12. Power Grid Company of Bangladesh Ltd-2016.
13. Dhaka Electric supply Company limited-2016.
14. Jamuna Oil Company Limited-2016.
15. United Power Generation & Distribution Co. Ltd-2016.
16. Orion Pharma Limited-2016.
17. GlaxoSmithKline Bangladesh Limited-2016.
18. Square Pharmaceuticals Ltd-2016.
19. Shinepukur Ceramics Ltd-2016.
20. Appollo Ispat Complex Ltd-2016.
21. Maksons Spinning Mills limited-2016.
22. Modern Dyeing & Screen Printing Ltd-2016.
23. H.R Textile Mills Limited-2016.
24. HWA Well Textiles (BD) Limited-2016.
25. Square Textiles Ltd-2016.

Appendix: 01 Environmental Accounting Disclosure Items Considered for Development of Disclosure Index

A. Environmental Policy		C. Environmental Audit	
1.	Actual statement of policy	1.	Execution of environmental policies
2.	Statement of formal intentions	2.	Environmental risk assessment and estimation
3.	General statements of the “the company will, the company does” nature	3.	Reference to environmental review, scoping, audit, assessment, including, independent attestation
4.	Investment appraisal to include consideration of environment	4.	Incidents of and fines for non-compliance
5.	Establishment of environmental management	5.	Obtaining certification for Environmental

	systems		Management systems/ ISO 14001
B. Environmental Pollution		6.	Conducting Environmental Impact Assessment (EIA)/Air quality assessment
1.	Waste (S) management	7.	Compliance with environmental standards and regulation
2.	Eco-efficiency	D. Environmental Financial	
3.	Packaging and take-back	1.	Contingencies & provisions
4.	Pollution and emissions- noise, spills, visual quality, including any attempts to identify, improve, control, treat or prevent.	2.	Environmentally related loans, grants, cost of purchasing & installing environmental friendly machines and equipment
5.	Carbon sequestration, climate change	3.	Discussion of environmental economic interaction
6.	Air emission information	4.	Past and current expenditure for pollution control
7.	Research on new methods of production to reduce environmental pollution	5.	Future estimates of expenditures for pollution control equipment and facilities
8.	Water discharge information	E. Environmental Other	
9.	Pollution prevention technologies	1.	Maintenance of the balance of environment
10.	Pollution control of industrial process	2.	Involvement with initiatives and schemes
11.	Solid waste disposal information	3.	Landscaping
12.	Conservation of natural resources	4.	Public amenity provision
13.	Recycling plant of waste products	5.	Environmental research institution
14.	Land reclamation and forestation programs	6.	To protect and enhance the well-being of future generations
15.	Installation of effluent treatment plant	7.	Environmental Education
16.	Raw materials conservation	8.	The enhancement of a moral responsibility influenced by Islamic Principles
17.	Designing facilities harmonious with the environment	9.	Environmental awards: Employee environmental training and awareness
18.	Undertaking wildlife conservation		

Appendix: 02 Summary of Company's Attributes

SL	NAME OF THE COMPANIES	LOG TOTAL ASSET	LOG GROSS PROFIT	AGE OF LISTING (YEARS)	EPS	TEADS
1.	Meghna Cement Mills Limited	9.66	8.93	22 (1995)	3.03	5
2.	Premier Cement Mills Limited	10.03	9.30	14 (2003)	5.99	10
3.	Confidance Cement Limited	6.79	5.95	22 (1995)	14.80	7
4.	Lafarge Holcim Bangladesh limited	7.32	6.58	14 (2003)	1.92	10
5.	M. I Cement Factory Limited	7.15	6.22	6 (2011)	5.01	5
6.	Anwar Galvanizing Limited	8.43	7.36	21 (1996)	0.73	0
7.	Aziz Pipes limited	8.51	7.04	31 (1986)	1.60	0
8.	S. Alam Cold Rolled Steels Limited	10.08	8.48	11 (2006)	1.08	3
9.	Aftab Automobiles limited	9.99	8.88	30 (1987)	2.80	0
10.	Ratanpur Steel Re-Rolling Mills limited	9.70	8.81	3 (2014)	3.45	7
11.	MJL Bangladesh limited	10.16	9.62	6 (2011)	5.14	16
12.	Power Grid Company of Bangladesh Ltd	11.14	9.64	11 (2006)	2.66	11
13.	Dhaka Electric supply Company limited	10.65	9.28	11 (2006)	1.12	0
14.	Jamuna Oil Company Limited	10.73	9.44	10 (2007)	17.74	7
15.	United Power Generation & Distribution Co. Ltd	10.11	9.73	2 (2015)	15.57	21
16.	Orion Pharma Limited	4.43	3.59	4 (2013)	6.51	12
17.	GlaxoSmithKline Bangladesh Limited	6.77	6.39	41 (1976)	53.51	09
18.	Square Pharmaceuticals Ltd	10.59	9.56	22 (1995)	3.16	10
19.	Shinepukur Ceramics Ltd	6.77	5.66	9 (2008)	0.22	3
20.	Appollo Ispat Complex Ltd.	10.10	9.04	4 (2013)	1.35	5
21.	Maksons Spinning Mills limited	9.92	8.57	8 (2009)	0.39	12
22.	Modern Dyeing & Screen Printing Ltd	7.56	6.45	29 (1988)	1.49	0

23.	H.R Textile Mills Limited	9.19	8.22	20 (1997)	1.25	5
24.	HWA Well Textiles (BD) Limited	9.28	8.24	4 (2014)	2.02	3
25.	Square Textiles Ltd	9.97	9.25	14 (2002)	7.02	5