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Relationship between Environmental Reporting in Corporate Annual Reports and Corporate Profitability in Bangladesh

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ABSTRACT

This study is designed to investigate the extent and nature of environmental reporting in corporate annual reports of the listed companies of Bangladesh. This study examines in particular the relationship between environmental disclosure in corporate annual reports and corporate profitability in Bangladesh. In order to do this, a disclosure index has been developed and utilized to measure the extent of disclosure made by companies in corporate annual reports. The study shows that corporate environmental reporting in Bangladesh is still in its infancy as the level of environmental disclosures on corporate annual reports is very low. This study reports that there is a positive relationship between environmental reporting and corporate profitability.

Keywords: Environmental Accounting, Environmental Disclosure, Environment Costs, Corporate Annual Reports, Corporate Profitability, Disclosure Index

INTRODUCTION

All countries of the world are now concerned about the protection and development of the environment as environment is changing rapidly and becoming unsuitable for living. Specially, the developing countries (like Bangladesh) are experiencing the worst natural disaster. Business concerns are held responsible for such changes in environment to a large extent as their activities exert adverse impact on the environment. "Environmental accounting"- sometimes referred to as "green accounting", "resource accounting" or "integrated economic and environmental accounting" 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 environmental accounting has been developed. However, recently there has been a movement towards understanding "Environmental accounting".

Disclosure of environmental information in corporate annual reports began in the 1970s and it had sharply expanded in the 1990s (Kukobo et al., 2002). Over the last twenty years, corporate environmental reporting has become an issue of interest for researchers. Most of the corporate environmental reporting studies conducted so far have been in the context of developed countries such as Western Europe, the USA and Australia (Choi, 1998; Adams et al., 1995;1998; Kisenyi & Gray, 1998; Tsang, 1998; Ernst & Ernst, 1978; Gray et al., 1987, 1995a & 1995b; Savage, 1994; Guthrie & Parker, 1990; Mathews, 1997; Roberts, 1990). Very few studies are available on the corporate environmental reporting practices in the developing countries. All of these studies were carried out in the context of newly industrialized countries such as Malaysia and Singapore and the African countries such as South Africa, Nigeria and Uganda. However, there is a lack of specific studies regarding Corporate Social and Environmental Disclosures in both developed and developing countries.

The concept of environmental reporting is relatively new in Bangladesh. Before 90's, there is no evidence that public limited companies listed with Dhaka Stock Exchange (DSE) disclosed environmental information in their annual reports. In Bangladesh, there are very few studies available on environmental reporting and all of these studies have focused on environmental disclosure through corporate annual reports (Belal, 1997; 1999; Imam, 1999 & 2000; Hossain, 2002; Bala & Yusuf, 2003; Shil & Iqbal, 2005). Most of prior studies have mainly shown the extent of environmental disclosure through corporate annual reports. Thus, an attempt has been made in this study to find out the relationship between environmental disclosures on corporate annual reports and corporate profitability of 20 companies for the year 2009- 2010. By measuring correlation between them, it has also been tried to find out whether there exist any association between them or not.

OBJECTIVES OF THE STUDY

This study is conducted for achieving the following objectives:

a) To obtain an overview on the present status of environmental reporting practices by the listed companies in Bangladesh.

b) To review corporate Annual Reports to identify environmental disclosures, their type and depth of disclosure.

c) To identify whether the environmental disclosures in the Annual Report relate to the corporate profitability.
d) To assess the nature and degree of relationship between environmental reporting and corporate profitability.
e) To assess whether the environmental information disclosed in the Annual Report meets the requirements of the users of environmental information in the Annual Reports.
f) To develop awareness of the companies about environmental disclosure in corporate annual reports.

RATIONALE OF THE STUDY

Protection of environment is the burning question for today's world. All countries are now concerned about the environment because day-by-day environment is losing its balance and becoming unsuitable for living. Businesses are often held responsible for this. Findings of the study will help one know how much companies are concerned towards environmental protection & development and how they are performing their duties and responsibilities towards environment. Thus, this study is expected to help the government to formulate the rules, regulations and guidelines for protecting environment from harmful activities of companies. The users of the environmental information disclosed in the corporate annual reports are expected to be benefited by this study in making correct decision. Finally, findings of this study are expected to provide insight into how companies can better demonstrate a link between environmental disclosure/performance and financial performance that include:

- Encouraging more companies to undertake environmental performance
- Promoting the reputation of firms and enhancing investments.

LIMITATIONS OF THE STUDY

The study has been conducted under some limitations. The constraints that have been faced during the course of the study are as follows:

1. The study is based on secondary sources of information.
2. Small number of companies (20 companies) have been taken into account as sample companies.
3. Limited number of environmental disclosure items (15 items) have been considered for conducting the study.

LITERATURE REVIEW

Corporate environmental reporting has been mainly a phenomenon of developed countries and consequently, most corporate environmental reporting studies were confined to the developed countries (Belal, 2000). A handful of studies concentrated on the newly industrialized countries such as Korea, Hong Kong, Malaysia and Singapore and African countries such as South Africa, Nigeria and Uganda (Belal, 2000). In addition, a majority of such studies has primarily focused on the extent of environmental disclosure in corporate annual reports for a developing country. This section sheds light on studies (in the international context as well as in the context of Bangladesh) on corporate environmental reporting through corporate annual reports. In addition, attempts have been made in this section to illuminate the status of environmental reporting in Bangladesh.

Status of Environmental Reporting in Bangladesh

Bangladesh is experiencing a fast degradation of environment. Some examples of this degradation are Dhaka's terrible air pollution, the 'clinically dead' river Buriganga and widespread arsenic pollution in the underground water (Belal, 2000). The Government of Bangladesh started paying attention to the environmental management of Bangladesh since the 1990s and in order to improve the environmental condition, the Bangladesh Environmental Protection Act, 1995 was passed. At present, corporate environmental reporting is not mandatory in Bangladesh. A very few companies in Bangladesh are making efforts to provide environmental information on a voluntary basis, which are mostly qualitative in nature. But under the Bangladesh Environmental Protection Act, 1995, companies may be asked to disclose environmental information as and when required (Belal, 2000). The only mandatory environmental disclosure requirement in Bangladesh is the disclosure of expenditures on energy use. Under Schedule-XI, Part-II of the Companies Act 1994 and under Schedule, Part-II of the Securities and Exchange Rules, 1987, the total amount spent on the use of energy is to be shown in notes to the financial statements under a separate head of expenditure.

Prior International Researches

In Hong Kong, Ho et al. (1994) studied 182 companies and found that only 9 out of these 182 companies (4.9 percent) disclosed environmental information in their annual reports for the year 1991. In Korea, the study of Choi (1998) reveals

that out of 770 listed companies 64 companies disclosed environmental information in their audited semi-annual financial statements for the year 1997. Tsang (1998) conducted a longitudinal study of social and environmental reporting practices by the banking, food and beverages and hotel industries over a ten-year period from 1986 to 1995. The researcher found that 17 (52 percent) out of 33 listed companies made social and environmental disclosure in their annual reports. The study observed a steady increase in social and environmental disclosures during the late 1980s and then a stable pattern since 1993.

In a study of 22 large MNCs in Nigeria, Disu and Gray (1998) noted that all companies included in the survey made some mandatory disclosures such as charitable donations, employment data, pensions, employee consultation, employment of the disabled, health and safety and corporate governance. The samples also made some voluntary disclosure predominantly in the area of employee reporting. In another study of only four companies of Uganda, Kisenyi and Gray (1998) observed that none of them made any environmental disclosure, all of them made employee related disclosure and two of them gave information on customers and community involvement. They tentatively conclude that "social and environmental disclosure in Uganda is scarce, low grade and of little importance" (Kisenyi & Gray, 1998).

Savage (1994) studied 115 South African companies and found that approximately 63 percent companies had made environmental disclosures in their annual reports and the length of disclosure made by the number of pages had been 0.5.

Profitability as well as corporate financial performance was used by a number of researchers as an explanatory variable for differences in disclosure level. However, the relationship between corporate financial performance and corporate social and environmental disclosure is arguably one of the most controversial issues yet to be solved (Choi, 1998). The results of different studies measuring the relationship between corporate financial performance and corporate social and environmental disclosure show mixed results. Among these researchers found a positive association between profitability and the extent of corporate social and environmental disclosure (Waddock & Gravess, 1997) whereas Cowen et al. (1987) found no association between the variables. Again, the results Belkaoui and Kirkpik (1989) tend to be more intriguing. They showed a significantly pair-wise correlation, yet an insignificant negative regression co-efficient for return on assets

and corporate social and environmental disclosure. There are researchers those used log of profits and among these researchers, Roberts (1992) has found a positive relationship between profitability level of a company and corporate social and environmental disclosure. However, Patten (1992) fails to find any significant positive relationship between profitability and corporate social and environmental disclosure. In addition, Roberts (1992), Ng (1985), and Davey (1982) found that the size of the company did not significantly explain an association with the level of corporate social and environmental disclosure and its variability.

Prior Researches in Bangladesh

Very few studies on environmental reporting have been undertaken in the context of Bangladesh. All of these studies focused on environmental disclosure through corporate annual reports.

Belal (1999) surveyed annual reports of 30 companies of Bangladesh of which 28 were listed and 2 were unlisted. He found that 90 percent of the companies under study made some environmental disclosure.

Imam (2000) analyzed annual reports of 34 companies listed with the stock exchanges of Bangladesh for the year of 1996-97 and found that only 22.5 percent of the sample companies provided environmental information in their annual reports.

Hossain (2002) conducted a survey of annual reports of 150 non-financial companies (listed on the Dhaka Stock Exchange) for the year of 1998-99. The study reveals that only 5 percent of the companies under study disclosed environmental information in the Directors' Report or in the Chairman's Report of their annual reports and not a single company disseminated any quantitative information as to the environmental items. An interesting finding of this study is that subsidiaries of multinational companies did not disclose environmental information.

Bala and Yusuf (2003) analyzed the annual reports of 249 public limited companies (listed on the Dhaka Stock Exchange) for the year of 2001. They report that only 26 (10.4 percent of the total) companies disclosed environmental information in the Directors' Report or in the Chairman's Statement or elsewhere in their annual reports. The information disclosed was qualitative in nature and companies did not follow any specific or standard reporting format.

Shil and Iqbal (2005) surveyed 121 manufacturing companies listed on the Dhaka Stock Exchange (DSE). They reported that only 13 companies (11 percent of 121 companies) disclosed environmental information in their annual reports. All companies disclosed qualitative information in the Directors' Report. They developed a simple hypothesis to test whether there is any relationship of environmental disclosure with profitability and found that there is no relationship of environmental disclosure with the profitability.

Rahman and Muttakin (2005) surveyed 125 manufacturing companies listed on the Chittagong Stock Exchange (CSE) as on May 7, 2005. They analyzed the annual reports of these 125 companies for the year 2003/2004. The researchers found that only 5 companies (4 percent of 125 companies) disclosed environmental information in their annual reports. The information was descriptive in nature; no quantification thereof was made. They also report that the disclosure of environmental information was done in different places of the annual report and there was no standard environmental reporting framework.

Bose (2006) analyzed 5 years' annual reports of 11 Petrobangla companies for examining their environmental reporting status. He found that in 1998-199 and 1999-2000, only 45.45% and in 2000-01, 63.63% and in 2001-02 and 2002-03, only 81.81% of Petrobangla companies disclosed environmental information in their annual reports. The nature of information disclosed was qualitative and descriptive; the reporting companies did not attempt to quantify the environmental information. In addition, companies provided only positive information and ignored negative information. This study also shows that most of the Petrobangla companies provided information only on protection of the environment, pollution control, planting of trees and other matters. They did not provide any information regarding waste generation, conservation of energy, water wastage, recycling of waste and noise nuisance. Environmental information was disclosed either in the Chairman's Statement or in Director's Report.

Hossain, Islam, and Andrew (2006) surveyed 107 non-financial companies (listed on the Dhaka Stock Exchange) for the year 2002-2003. The study shows that on average 8.33% of Bangladeshi companies disclose social and environmental information in their corporate annual reports. These disclosures were voluntary in nature and largely qualitative. The study reported the results of multiple linear regressions to test the association between a number of corporate attributes and the extent of social and environmental disclosure in company annual reports for a developing country, Bangladesh. The results showed that corporate environmental disclosure levels are associated with some company characteristics. These

characteristics were found to be positively significant in determining disclosure levels are the nature of the company (INDUSTRY), presence of debentures in the corporate annual reports (DEBENTURE), and the net profit margin (NPMARGIN). Specifically, in Bangladesh, they found that manufacturing companies with higher profitability and those that had issued debentures tended to disclose more social and environmental information.

Most of the prior studies in the context of Bangladesh have mainly concentrated on the extent of environmental disclosure through corporate annual reports but they did not give much attention on the relationship of the environmental disclosure with several corporate attributes (such as age, size, efficiency, profitability, multi nationality, industry type etc). Thus, this study has been tried to find out the relationship between the environmental reporting on corporate annual reports and profitability of listed companies in Dhaka stock Exchange.

METHODOLOGY OF THE STUDY

This study is an exploratory one. This is mainly based on secondary sources of information. The reason is that in this country, the use of environmental accounting and reporting is rare and in most of the cases, the concept is not clear. The environmental accounting practices followed by some developed countries have been studied to develop an idea of its applicability in this country. To collect the data of the study, various published textbooks, related journals, reports, seminar papers, magazines and research works have been analyzed. Literature has been collected from the said sources and the internet. In addition, the annual reports published by companies have been analyzed to collect information regarding the current status of environmental accounting practices & its disclosure and profitability of the companies.

Sample Selection

As the study is related to the environment, only manufacturing companies that are listed on the Dhaka Stock Exchange have been selected for the purpose of this study. The reason is that such companies have adverse impact on the environment. Although almost all of the companies (manufacturing and non-manufacturing) through their activities directly or indirectly affect the environment, the manufacturing companies are directly & seriously polluting environment by their production process, types of material used, disposal of wastages etc. In the study, 20 manufacturing companies of the following categories have been selected-

i. Pharmaceutical & chemicals industries.
ii. Food & allied industries.
iii. Cement industries.
iv. Ceramic industries.
v. Textiles & Clothing industries.

The list of 20 companies included in this study has been shown in Appendix A. The sample covers the annual reports of the said 20 companies for the year 2009 or 2010. Data for evaluating environmental information were extracted from corporate annual reports of the sample listed companies.

Information Items Included in the Environmental Disclosure Index

Disclosure Index Approach has been used to provide an evaluation of the environmental disclosure in corporate annual reports. The major task of the present study is to develop a suitable disclosure index comprising items of environmental information that are expected to be disclosed in corporate annual report from the view point of Bangladesh. But there is a problem as to the measurement of corporate environmental disclosure. 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 Singh, and Ahuja (1983). The list of this environmental disclosure information can be found as Appendix B. The disclosure index constructed for this study included 15 items, which were used in environmental index formulations.

Scoring in the Environmental Disclosure Index

There are various approaches available to develop a scoring scheme to determine the disclosure level of corporate annual reports from the works of other researchers. Among the those approaches, unweighted disclosure index approach has been used to measure the extent of disclosure of environmental information where an item scores one if disclosed and zero if not disclosed. An unweighted environmental index is the ratio of the value of the number of items a company discloses divided by total value that it could disclose. Under an unweighted environmental disclosure index, all items of information in the index are considered equally important to the average user.

In the unweighted environmental disclosure index, disclosure of individual items has been treated as a dichotomous variable. Here, the only consideration is whether or not a company discloses an item of environmental information in its corporate annual report. If a company discloses an item of environmental information in its annual report, it will be awarded `1' and if not it will be awarded `0'. The disclosure model for the unweighted environmental disclosure thus measures the total disclosure (TD) score for a company as additive as follows:

$$TD = \sum_{i=1}^{15} di$$

Where

TD = Total Disclosure

di = 1 if the item is reported and 0 if the item is not reported

i = 1, 2, 3.....15

Correlation Analysis

The relationship between environmental disclosure and corporate profitability is arguably one of the most controversial issues yet to be solved. The results of different studies measuring such relationship show mixed results. Some researchers found a positive association between environmental disclosure and profitability whereas others found no association between the variables.

In the present study, net profit margin has been used as the measures of profitability and to examine the relationship between the environmental disclosure in corporate annual reports and corporate profitability (net profit margin), Karl Pearson's correlation coefficient (r) has been computed.

HYPOTHESIS

In this study, a simple hypothesis has been developed to test whether there is a positive relationship of environmental disclosure with profitability (net profit margin). Our hypothesis is as follows:

Ho: Companies with environmental disclosure have not higher net profit margin than companies without environmental disclosure.

To test the hypothesis, t-test has been used in this study due to the size of sample, nature of variables and available information.

ANALYSIS AND FINDINGS

The analysis and findings of the study are presented in this section. At first, the nature and extent of the corporate environmental disclosure has been analyzed and discussed. Secondly, the discussion on analysis of correlation co-efficient has been made and finally hypothesis testing, results and interpretation are presented. The t-test has been used to test the hypothesis of the study.

Disclosure Levels by the Sample Companies in Bangladesh

Of the 20 sample companies, 9 companies (45 percent) disclosed environmental information on their annual reports. Out of these 9 companies, 4 (44.44 percent) companies belong to Pharmaceutical sector, 3 (33.33 percent) companies from Cement sector and 1 (11.11 percent) company from each of the two sectors such as Textiles & Clothing and Food & Allied sectors, disclosed environmental information on their annual reports. Table I provides the sector-wise distribution of 9 companies.

Table I: The Sector-Wise Distribution of the Companies

No.	Name of Company	Sector
1	Aramit Limited.	Cement
2	Beximco Pharmaceuticals Ltd.	Pharmaceuticals & Chemicals
3	British American Tobacco Bangladesh Co. Ltd.	Foods & Allied
4	Confidence Cement Ltd.	Cement
5	Heidelberg Cement Bangladesh Ltd.	Cement
6	Malek Spinning Mills Ltd.	Textiles & Clothing
7	Orion Infusion Limited.	Pharmaceuticals & Chemicals
8	Square Pharmaceuticals Ltd.	Pharmaceuticals & Chemicals
9	The IBN SINA Pharmaceutical Industry Ltd.	Pharmaceuticals & Chemicals

The score received by all individual sample companies for disclosing their environmental information in corporate annual reports has been made in Appendix C. A summary descriptive statistics of disclosure score (DS) for the sample companies are provided in **Table II**. The mean of the DS for 9 companies was 2.33 points, which indicates a very low level of corporate environmental disclosure by different listed manufacturing companies of Bangladesh. The standard deviation for 9 companies was 1.33 and their DS was ranged from 1 point to 5 points, indicating a medium variation in the disclosure level of corporate environmental information on corporate annual reports.

Table II: Descriptive Statistics of Disclosure Score

No. of Observations	9
Mean	2.33
Standard Deviation	1.33
Maximum	5
Minimum	1
Range	4

Nearly 47 percent of the items included in the EDI were not disclosed by any of the reporting companies. **Table III** presents both disclosed and non-disclosed items of environmental information. Not a single company disclosed quantitative facts such as expenditure incurred or targets set and achieved. According to Table III, all the companies have disclosed "environmental policies or company concern for the environment" on their annual reports (100%). Not a single company disclosed about water discharge or solid waste disposal information on the corporate annual reports. Out of 9 companies, 4 (44.44%) made disclosure on their annual reports of how they controlled pollution of industrial process. Around 22.22 percent companies have disclosed on their annual reports whether they have air emission information or conserved natural resources. Approximately 11.11 percent companies have reported whether they have installed effluent treatment plant or financed for pollution control equipment or have forestation programs. An interesting finding of the study is that only 1 of the 9 companies obtained ISO 14001 certification.

Table III: Disclosure and Non-disclosure of Items of Environmental Information by Sample Companies

Item No.	Items of Environmental Information	Disclosures (No. of Companies out of 9)	Percentage of Disclosures
1	Financing for pollution control equipment or facilities.	1.00	11.11
2	Air emission information.	2.00	22.22
3	Water discharge information.	0.00	0.00
4	Solid waste disposal information.	0.00	0.00
5	Environmental policies or company concern for the environment.	9.00	100.00
6	Conservation of natural resources.	2.00	22.22
7	Recycling plant of waste products.	0.00	0.00
8	Installation of effluent treatment plant.	1.00	11.11
9	Land reclamation and forestation programs.	1.00	11.11
10	Pollution control of industrial process.	4.00	44.44
11	Past and current expenditure for pollution control equipment and facilities	0.00	0.00
12	Past and current operating costs of pollution control equipment and facilities	0.00	0.00
13	Future estimates of expenditures for pollution control equipment and facilities	0.00	0.00
14	Research on new methods of production to reduce environmental pollution.	0.00	0.00
15	Obtaining certification for Environmental Management Systems/ISO 14001.	1.00	11.11

SAMPLE COMPANIES WITH THEIR DISCLOSURE SCORE & NET PROFIT MARGIN

The main focus of this study is to find out the relationship between the environmental reporting on corporate annual reports and corporate profitability.

Table IV presents all individual sample companies with their disclosure score & net profit margin. According to table IV, companies without disclosure have insignificant net profit or net loss. On the contrary, none of the companies that have disclosed environmental information have suffered from net loss. Almost all of the companies with environmental disclosure have enjoyed higher net profit margin than companies without environmental disclosure.

Table IV: List of Sample Companies with Their Disclosure Score & Net Profit Margin

No.	Name of companies	Disclosure Score	Net profit Margin
1	Heidelberg Cement Bangladesh Ltd.	5	12.00%
2	Beximco Pharmaceuticals Ltd.	3	16.20%
3	British American Tobacco Bangladesh Co. Ltd.	3	11.77%
4	Orion Infusion Ltd.	3	5.58%
5	The IBN SINA Pharmaceuticals Industry Ltd.	3	3.74%
6	Square Pharmaceuticals Ltd.	1	18.80%
7	Aramit Cement Ltd.	1	14.55%
8	Confidence Cement Ltd.	1	14.02%
9	Malek Spinning Mills Ltd.	1	7.89%
10	Square Textiles Ltd.	0	6.71%
11	Reckitt Benckiser(Bangladesh) Ltd.	0	6.16%
12	Fu-Wang Foods Ltd.	0	4.97%
13	Beximco Synthetics Ltd.	0	1.47%
14	Fu-Wang Ceramic Industry Ltd.	0	0.82%
15	Tallu Spinning Mills Ltd.	0	0.67%
16	Monno Ceramic Industries Ltd.	0	0.47%
17	Apex Foods Ltd.	0	0.39%
18	Monno fabrics Ltd.	0	-26.22%
19	Lafarge Surma Cement Ltd.	0	-28.97%
20	Zeal-Bangla Sugar Mills Ltd.	0	-29.59%
	TOTAL----------	21	41.43

To summarize, it can be said that companies with environmental disclosure have higher profit than companies without environmental disclosure. There are a lot of statistically significant tools to justify the relationship between corporate environmental reporting and profitability. In this study, the coefficient of correlation and hypothesis testing have been used.

Correlation Analysis, Results and Interpretation

Of the several mathematical methods of measuring correlation, the Karl pearson's coefficient of correlation is most widely used in practice. It is used universally for describing the degree and direction of relationship between two variables. In this study, Karl pearson's coefficient of correlation has been used to determine the degree and direction of relationship between the environmental disclosure in corporate annual reports and corporate profitability (net profit margin).

The result of the correlation is 0.45 which indicates that there is moderate degree of positive correlation between the environmental disclosure and net profit margin. That's the direction of relationship between environmental disclosure and net profit margin is positive (i.e. if one variable increases, other will also increase & vice versa) and the degree of relationship is moderate level.

Hypothesis Testing, Results and Interpretation

In this study, the *t*-test has been used to test the hypothesis whether companies with environmental disclosure have higher net profit margin than companies without environmental disclosures.

As *Ha* is one-sided, one tailed test has been applied for determining the rejection region at 5 percent level of significance which comes to as under, using table of *t*-distribution for 18 degree of freedom:

R: $t > 1.734$

The computed value of t is 3.372 which fall in the rejection region and thus the null hypothesis (*Ho*) is rejected and alternative hypothesis is accepted. So it can be concluded that companies with environmental disclosure have higher net profit margin than companies without environmental disclosures. In the study, it has been observed that among 9 companies (which have disclosed environmental information) all have net profit during the surveyed financial year. On the contrary, among the rest 11 companies (which have not disclosed environmental information) 3 companies have shown net loss and 4 companies have showed very little net profit (less than 1%).

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Though corporate environmental reporting is not mandatory at present in Bangladesh, out of 20 sample companies 9 companies have disclosed environmental information voluntarily in their annual reports. That means 45% companies have disclosed environment related information. But the study also shows that on average only 2.33% of environmental information have been disclosed by the sample companies in their corporate annual reports and no company has disclosed quantitative information which is very disappointing as compared with the developed and some developing countries. Thus, it can be concluded that environmental reporting in Bangladesh is still in its infancy and is in need of further development.

This paper has reported the results of correlation-coefficient and a simple hypothesis test (t-test) to show the association between corporate profitability and the extent of environmental disclosure in corporate annual reports for Bangladesh. The result of correlation-coefficient shows that there is a moderate degree of positive correlation between them and the t-test result represents companies with environmental reporting have higher net profit margin than companies with environmental reporting.

In order to improve the situation of environmental reporting in Bangladesh, the following recommendations have been offered and they are as follows:

- Companies have been found to disclose only qualitative information about their environmental activities. They should also provide quantitative environmental information such as the amount of fines for noncompliance, the amount spent on tree plantation, the quantity of energy saved, the quantity of CO2 emitted etc.
- Companies have provided only positive information about their environmental activities. They should also provide negative information so that the information has decision-usefulness for information consumers.
- It has been found that there are inadequate laws, rules and guidelines on corporate environmental reporting and disclosure. Laws, rules and guidelines are needed to be developed.

This study considers the annual reports for a single year. Further research can be undertaken to measure the extent of environmental disclosure longitudinally to determine whether quality of disclosure has improved over time. Such a study

would provide additional insights on corporate disclosure practices in Bangladesh. This study does not concentrate on any particular industry type. Further research can be undertaken based on particular industry type (e.g., the pharmaceutical industry and textile industries in Bangladesh). This study concentrates only on the relationship between environmental reporting and profitability. Further research can be undertaken based on relationship between environmental reporting and severe corporate attributes (such as age, size, efficiency, profitability, multi nationality, industry type etc). It should be noted that the number of environmental disclosure items was limited to 15 items and the results may be different if the numbers of environmental information were increased or another set of environmental disclosure items was examined. It should also be noted that the number of sample companies was limited to 20 companies and the results may be different if the number of sample companies was more. As always, much more research is needed if we are to contribute to more environmentally responsible corporate practices in all corners of the world.

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APPENDIX A

List of the Companies Surveyed

1. Apex Foods Ltd.
2. Aramit Limited.
3. Beximco Pharmaceuticals Ltd.
4. Beximco Synthetics Ltd.
5. British American Tobacco Bangladesh Company Ltd.
6. Confidence Cement Ltd.
7. Fu-Wang Ceramics Industry Ltd.
8. Fu-Wang Foods Ltd.
9. Heidelberg Cement Bangladesh Ltd.
10. Lafarge Surma Cement Ltd.
11. Malek Spinning Mills Ltd.
12. Monno Ceramic Industries Ltd.
13. Monno Fabrics Ltd.
14. Orion Infusion Limited.
15. Reckitt Benckiser (Bangladesh) Ltd.
16. Square Pharmaceuticals Ltd.
17. Square Textiles Ltd.
18. Tallu Spinning Mills Ltd.
19. The IBN SINA Pharmaceutical Industry Ltd.
20. Zeal Bangla Sugar Mills Ltd.

APPENDIX B

Items of Disclosure Index

1. Financing for pollution control equipment or facilities.
2. Air emission information.
3. Water discharge information.
4. Solid waste disposal information.
5. Environmental policies or company concern for the environment.
6. Conservation of natural resources.
7. Recycling plant of waste products.
8. Installation of effluent treatment plant.

9. Land reclamation and forestation programs.
10. Pollution control of industrial process.
11. Past and current expenditure for pollution control equipment and facilities.
12. Past and current operating costs of pollution control equipment and facilities.
13. Future estimates of expenditures for pollution control equipment and facilities.
14. Research on new methods of production to reduce environmental pollution.
15. Obtaining certification for Environmental Management Systems/ISO 14001.

APPENDIX C

The Score Received by the Sample Companies along with Percentage of Disclosure

Sl. No	Name of the companies	No. items Disclosed	Percentage of disclosure
1	Apex Foods Ltd.	0.00	0.00
2	Aramit Limited.	1.00	6.67
3	Beximco Pharmaceuticals Ltd.	3.00	20.00
4	Beximco Synthetics Ltd.	0.00	0.00
5	British American Tobacco Bangladesh Co. Ltd.	3.00	20.00
6	Confidence Cement Ltd.	1.00	6.67
7	Fu-Wang Ceramics Industry Ltd.	0.00	0.00
8	Fu-Wang Foods Ltd.	0.00	0.00
9	Heidelberg Cement Bangladesh Ltd.	5.00	33.33
10	Lafarge Surma Cement Ltd.	0.00	0.00
11	Malek Spinning Mills Ltd.	1.00	6.67
12	Monno Ceramic Industries Ltd.	0.00	0.00
13	Monno Fabrics Ltd.	0.00	0.00
14	Orion Infusion Limited.	3.00	20.00
15	Reckitt Benckiser (Bangladesh) Ltd.	0.00	0.00
16	Square Pharmaceuticals Ltd.	1.00	6.67
17	Square Textiles Ltd.	0.00	0.00
18	Tallu Spinning Mills Ltd.	0.00	0.00
19	The IBN SINA Pharmaceutical Industry Ltd.	3.00	20.00
20	Zeal Bangla Sugar Mills Ltd.	0.00	0.00