DISCLOSURE OF CLIMATE CHANGE RELATED INFORMATION: EVIDENCE FROM THE ENGINEERING INDUSTRY OF BANGLADESH

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Abstract

This paper investigates climate change related information disclosure practices of five listed Bangladeshi engineering companies for a period of five years from 2009 to 2013. In doing so, we have developed a content analysis instrument to identify the disclosures made by the companies. After reviewing the annual reports from the selected companies, we found very poor disclosure trends by the companies' pertaining to climate change related disclosures over the period. These poor disclosures might be leading to poor accountability. This study also critically analyses the outcome of the recent climate summit held in Paris and attempts to understand the achievement for Bangladesh so far from the meeting. The study recommends that the government and other regulatory authorities should take necessary steps in compelling and motivating all engineering companies of Bangladesh to implement some measures in addressing climate change issues. The authors attempted to attract the attention of academic community towards more rigorous research in this area.

Keywords: Climate change, Bangladesh, disclosures, accountability.

1. Introduction

Any type of business is a social unit. It has been said that business and society has a symbiotic relationship (Gomory & Sylla, 2013). Business helps society by creating employment and by providing better products and services to the people of the society and thus increasing the standards of the life of the people. On the other hand, society also supports the businesses by providing them with various resources (raw materials, labor and many other inputs) for their development and survival. As a part of the society, business has to deal with the people of the society and to generate profit out of the resources provided by the society. As business cannot survive without the assistance of the society, it has to fulfill the expectations of the society. Businesses should not do any harm to the society through its activities and in order to survive, it will have to give importance to the changing needs and values of the people in the society. It has now been said that business lives in a 'glass house'. That is why a business has a greater 'public visibility' in comparison to the other

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institutions of the society. Now, the society is interested to know the activities of business and the growing popularity of 'social welfare' is also compelling the businesses to perform social responsibilities as well (Hossain, 2004).

The disclosures of the various environmental related information has begun through the annual reports of different organizations during the 1970s and it continued to grow in the 1990s (Kukobo et al., 2002). In most of the cases, these disclosures were found in the developed country context. In the context of Bangladesh, there was not any specific evidence of corporate environmental disclosure within the annual reports till 2005 (Shil & Iqbal, 2005). However, there was some research that investigated the social disclosures (CSR disclosures) (see for example, Belal, 2001). In this paper, we investigate the disclosure of environmental related information within the annual reports of the engineering companies of Bangladesh. To find out the scenario of environmental and climate change related information, a number of Engineering companies listed in the Dhaka Stock Exchange (DSE) have been selected for analysis. We have focused our attention towards the engineering sector since we think the companies within this sector are more sensitive towards the environment. For example, engineering companies are polluting the environment in different ways; hence it is important to identify their concerns regarding the environment and to what extent they will disclose environment related information in their annual reports.

In an increasingly carbon constrained world, it is expected that firms will disclose their policies and procedures pertaining to carbon emission and climate change in a comprehensive, transparent, and accountable manner. In this regard, one way of corporate responses might be the systematic measurement and reporting of their environmental and climate change impact (Hopwood, 2009). Given the risks that climate change poses to business, it would be logical that climate change related policies and procedures are incorporated in annual reports. Investors and other interested parties would arguably have an interest in the policies and procedures an organization might have instituted in relation to addressing climate change issues. This paper investigates the extent of disclosure that a sample of five Bangladeshi Engineering companies has made in relation to climate change-related policies and practices. It is noted that we have only focused on the public disclosures (annual reports) made by the corporations. This paper has the following structure: the next section (section two) discusses the objective of the research and research methods. Section three focuses on the context of this research. The context is the engineering industry of Bangladesh. This part focuses on how and why this industry is sensitive towards climate change issues. Section four sheds light on prior research. This section also highlights the recent climate summit held in Paris and the role played by Bangladeshi delegates. Section five discusses the findings of this research. The last

section (section six) provides the conclusion of the paper along with some recommendations.

2. Objectives of the Research

The prime objective of the research is to identify to what extent the engineering industry of Bangladesh provides climate change related information in their annual reports. Another objective is to provide a brief review of the initiatives taken by the government of Bangladesh to combat the challenges caused by climate change so far.

2.1 Research Methods

In order to investigate the disclosure practices of Bangladeshi companies, we analyzed five major engineering companies' climate change related disclosure practices over a period of five years from 2009 to 2013. The selection of companies' was based on the criteria that the company would be likely to affect the environment through carbon emission, and are listed in the capital market i.e. DSE, and CSE. In this paper, our sample includes: *Aftab Automobiles Ltd, BSRM Steels Limited, Golden Son Ltd, Singer Bangladesh Ltd.* and *S. Alam Cold Rolled Steel Limited.* These companies are involved in the production of electronics, automobiles, steels and home made products etc. Another criterion we used to select the companies is that our samples represented the top five engineering companies listed in the DSE by market capitalization. We have collected annual reports of these listed companies from their respective websites.

Early researchers suggested that annual reports are a major source of environmental information provided by the companies in social and environmental research (Tilt 2001; O'Donovan 2002). However, some researchers have questioned the relative importance of annual reports as the main source of corporate social and environmental information because of the emergence of stand-alone environmental reports in the late 1990s. For example, Unerman (2000, p. 677) argued that many corporate reports other than annual reports contained 'CSR' information. But as these five companies do not publish stand alone environmental reports, it was not possible for us to review the environmental reports. We have reviewed annual reports of the respective companies from the year 2009 to 2013 for this research. We have used content analysis as a qualitative research tool. Content analysis (Krippendorff, 1980) has been employed to analyze climate change related disclosures. Content analysis involves codifying qualitative and quantitative information into pre-defined categories in order to derive patterns in the presentation and reporting of information (Guthrie, Petty, Yongvanich & Ricceri, 2004; Guthrie & Abeyeskera 2006).

While using content analysis as a research tool, we need to use a unit of measurement, and we used frequency of the disclosures as our unit of analysis. In order to determine how to capture the data, the accounting literature frequently uses one of the two approaches: the number of disclosures pertaining to a particular issue, or the amount/extent of disclosures (Gray et al. 1995). Both of the approaches have been used in the social and environmental accounting literature (Cowen, Ferreri & Parker 1987; Gray et al. 1995; Deegan & Gordon 1996; Tilt 2001; Adams & Frost 2007). This paper focuses on the 'number of disclosures' as a measure to capture data as we primarily focus on the presence or absence of the disclosure about a particular climate change related policy or procedure in a particular year. If the company disclosed information about a specific issue, then it is given a score of 1, otherwise 0.

In order to analyze the data we have developed an index by reviewing a number of following articles:

1) "Corporate Climate Change Related Governance Practices and Related Disclosures: Evidence from Australia" (Haque & Deegan, 2010).

2) Corporate Environmental and Climate Change Disclosure: Empirical Evidence from Bangladesh (Belal et al, 2010).

3) Global Reporting Initiative (GRI) and KPMG developed an instrument (GRI, 2007) to evaluate corporate reporting on the business implications of climate change.

These documents identify a number of policies that are expected to be disclosed in an informative report. We have identified 30 specific climate change related issues under eight general categories. These are shown in Appendix A. Through this index we are seeking to gain an understanding of current disclosure practices and trends in relation to climate change related issues. A total of 25 annual reports of the five listed Engineering companies (identified earlier) formed the basis for the results of this research. As part of the review, we used the search facility in the PDF format of annual reports. A search of these reports was undertaken using the words 'climate-change', 'global-warming', 'greenhouse-gas', 'emissions', 'carbon', 'carbon-emission, 'management', 'risk', 'environment', 'pollution', 'energy' and 'benchmark'.

3. 1 Engineering Industry of Bangladesh

Industrialization paves the way of making the economy of a country from worse to well-off. For the mobilization of economy and structural conversion, industrialization plays a very important role in Bangladesh. To make Bangladesh a middle income country within the year 2021, industrialization is a prerequisite.

Contribution of the industries to the GDP is getting better day by day with the passage of time along with the introduction of new and modern technology. Industrialization is very important in the socio-economic development of our country. According to Bangladesh Bureau of Statistics (BBS), contribution of industry in the GDP of Bangladesh is 29% at aggregate in the fiscal year 2012-2013. Among all the industries, the engineering industry plays a key role in the economic development of our country (Bangladesh Economic Review, 2014).

The major markets for engineering products are mostly domestic and sector oriented. However, most European consulting engineering firms prefer to use local partners, rather than partner from other developing countries. It should also be noted that because of the booming market in Bangladesh, there is a large demand for pipe cables and steels. As a result a number of new cables and pipe plants have been built and more are expected. Pipe, cable and steel plant development is a specified business usually managed by a specialized contractor. Because of the development of road and transport systems, there is a large demand for automobiles. There is an increasing demand for electronic home appliances. Currently the main trade flows in the engineering sector are mostly one way; with the majority of engineering services being imported from abroad. Most capital inflows are in the form of supplier's credits and debt financing as the international oil companies make capital expenditures on gas production, while energy companies develop electricity generating capacity. The engineering industry can be divided into *heavy engineering sector and light engineering* sector as well. Heavy engineering sector is composed of steel mills, automobiles, bulb industry and heavy metals and these companies are listed in the stock exchange. This sector includes some of the renowned companies such as Singer BD Ltd., Apollo Ispat Complex Ltd, BSRM Ltd, RSRM Ltd etc.

However, Light Engineering Sector (LES) is recognized as the mother industry of all other industries as they supply the basic elements of an industry, like capital machinery, spare parts and accessories with high potentiality to export in international market. Beside these, LES is now producing various kinds of import substitute products and services mostly for the domestic market. With the multifaceted backdrop of LES, few of the products of it are currently exported in different countries with immense global competition. According to the estimate, there are about 40,000 light engineering workshops/enterprises operating all over the country in which around 0.8 million semi-skilled, skilled and technically educated people and innovative entrepreneurs are actively engaged. Most of the light engineering workshops are small in size; self financed, employs about five people and is managed by the owners. A recent study on light engineering industries by IFC-SEDF estimates that annual turnover is US$ 1600 million of which import substitute products is around US$ 200 million.

3.2 Why engineering industry is sensitive towards climate change

In the engineering industry, the products that are normally manufactured include steels, vehicle tools, and body of vehicles, industrial raw materials, fridges, televisions and many other products. While manufacturing these products, various fossil fuels such as gas, furnace oil, coal etc. are needed. It also requires the burning of an enormous amount of fossil fuels which creates smoke and poisonous gases. The smokes emitted through gas chambers and burning oils are getting mixed into the air and causes air pollution. Various chemicals that are used in the production process are getting wasted and after production, these chemicals are channeled through the exit pipes into nearby ponds, rivers etc. and thereby pollute water. All of these activities cause a great harm to the ecology. The gas emitted from the compressors of fridges and cars also make a huge amount of destruction to the environment. In fact, if we look carefully into the manufacturing processes of various engineering products, it will be clear that most of the activities directly or indirectly affect the climate. This industry will have a greater impact on the environment in the near future as we are demanding the engineering products more and more day by day. That is why this sector is more sensitive towards climate change issue.

4. Prior Research

Climate change has become an emerging issue of concern all over the world much due to the harmful environmental activities by the business corporations. Many environmental hazards are already started to signal the negative impact of business activities. As business is part of a society and the society provides the necessary resources to smoothly operate their respective business activities, it is also the responsibility of businesses to do that sort of activity which provides benefits to the people of the society. Businesses should not do any type of work which creates harmful effects over the people as well as over the society as a whole. In response to these issues, corporate giants have also started thinking that they are responsible for their activities and they should tackle the issues with their capacities and resources. So they started creating funds for social responsibility and making disclosures regarding climate change related issues.

Since climate change related disclosure is a part of corporate social responsibility, it has been an attractive area of research to the global research community. Globally numerous researches have been conducted on climate change related disclosure issues (See for example, Haque & Deegan, 2010; Belal et al., 2010) and corporate social responsibility (see for example, Hossain, 2012; Kamal & Deegan, 2013). Researchers provide their expert opinions on their scope of research. Given the growing importance of environmental and climate change issues, a fundamental

question arises as to how firms are responding towards the challenges caused by climate change. One possible response is to account for and report on these issues (Hopwood, 2009). During the past few decades several researchers have investigated corporations' environmental reporting practices (for example, Tilt 1994; Gray, Kouhy & Lavers 1995; Deegan & Gordon 1996; Deegan, Rankin & Tobin 2002; O'Donovan 2002). Social and environmental disclosure can be thought of as comprising information relating to a corporation's activities, aspirations and public image with regard to environmental, community, employee and climate issues (Gray et al. 2001). There is an increasing demand from various stakeholder groups for companies to publicly report information about their climate change-related business practices (Global Reporting Initiative 2007). At the same time, many large business organizations, being under increasing pressure from stakeholder groups, have been developing numerous climate change-related strategies (Kolk, Levy & Pinkse, 2004) and appear to disclose related information (Kolk et al, 2008; Haque & Deegan, 2009). However, although there is an increasing trend in the companies reporting climate change-related information, it remains at fairly low levels. For example, using Australian data, Haque and Deegan (2009) reported that although there is evidence of increasing climate change-related corporate governance disclosure practices by the Australian companies across time, the level of disclosure is still quite low. Consistent with Haque & Deegan (2009), Labatt & White (2007) also argued that corporate disclosure on climate change at an international level has historically been "uneven and inadequate" (p.114). However, there has been an increasing trend in Corporate Social Responsibility (CSR) and climate change related disclosures reporting among organizations. It was found that the largest 250 companies around the world issued separate reports on CSR, compared to 52 percent in 2005 (KPMG 2008). However within South Asia, the number of companies is relatively low.

4.1 Recent Concerns of Climate Change and Climate Summit 2015

Every year a climate change related conference is held and climate change related issues are discussed with the presence of diplomats from all over the word. The latest one was held in Paris, France, from 30 November to 12 December 2015. It was the 21st yearly session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 11th session of the Conference of the Parties to the 1997 Kyoto Protocol. The conference negotiated the Paris Agreement; a global agreement on the reduction of climate change, the text of which represented a consensus of the representatives of the 196 parties attending it. The agreement will become legally binding if it is joined by at least 55 countries which together represent 55 percent of global greenhouse gas emissions.

Such parties will need to sign the agreement in New York between 22 April 2016 and 21 April 2017, and also adopt it within their own legal systems (through ratification, acceptance, approval, or accession). Last year it was held in the Latin American country Lima, Peru in which all the developing countries of the world urges to the developed nations to reduce carbon emission and make funds for the susceptible adverse climate change effect. Last year, during the period of the UN summit a more alarming report was issued by Thomson Reuters titled – the *Global 500 Greenhouse Gases Performance 2010-2013: 2014 Report on Trends* – revealing greenhouse gas (GHG) emission data from the world's 500 largest businesses (Global 500). The report stated that, the Global 500 is responsible for more than 10 percent of the world's GHG emissions, which are concentrated among the top 50 firms, who account for 79 percent of all Global 500 emissions. From 2010 to 2013, GHG emissions from the Global 500 have increased 3.1 percent, a concerning trend given that GHG emissions should have seen a 4.2 percent reduction to meet standards outlined in the 2014 UNEP Emissions Gap Report. This was intended to provide a path through 2050 to keeping global temperatures within a two degrees Celsius average increase. The report also provides some positive notion that the awareness of global GHG data can foster transparency, innovation and a better understanding among companies and stakeholders that can lead to further reductions in GHG emissions (thomsonreuters.com).

The Paris Agreement sends a message to the world that countries are serious about addressing climate change. Where the Kyoto Protocol only required certain countries to cut emissions, the Paris Agreement requires all countries to take action, while recognizing their differing situations and circumstances. Responsible for taking action on both mitigation and adaptation, countries have officially submitted their own nationally determined climate action plans, including cutting emissions. They now have an obligation to implement these plans, and if they do, it will bend the curve downward in the projected global temperature rise. The individual contributions of states all over the world will be crucial to highly exposed countries like Bangladesh, where climate change effects, like rising sea levels and changing cyclone patterns, are already felt (The Daily Star, December 19, 2015).

In Paris agreement, envoys from 195 nations approved a historic pact to roll back global warming and shore up defenses against its impacts. The purpose of this summit was to hold global warming to 'well below' two degree Celsius over pre-industrial revolution levels, and to strive for 1.5°C if possible. The agreement identifies 'an urgent and potentially irreversible threat to human societies and to the planet.' It notes 'with concern' that countries pledge to curb greenhouse gas emissions would fail to meet targets for curbing planetary warming. The world will aim for climate-altering greenhouses to peak 'as soon as possible', with 'rapid

reductions' thereafter. By the second half of this century, there must be a balance between the emissions from human activity such as production and farming, and the amount that can be captured by carbon-absorbing sinks such as forests, or carbon storage technology. Developed countries, which have polluted for a longer period of time, should take the lead by taking absolute emissions cuts. Developing nations which still need to burn coal and oil to power the growing populations are encouraged to enhance their efforts and move over time to cuts. Rich countries are required to provide support for developing nation's emissions cuts. Developed countries should provide funding to help developing countries make the costly shift to green energy and shore up their defenses against climate change impacts like droughts and storms. Funding must be scaled up, and the agreement says each nation must report every two years in their finance levels –current and intended. Moved from the legally binding core agreement to a separate non-binding decision section, the document refers to the $100 billion a year that the rich countries have pledged to donate by 2020 as 'floor'. The amount must be updated by 2025.

While it is not possible to solve the climate change problem overnight, the Paris Agreement is, nevertheless, a major success for two overarching reasons. The first one is that, unlike in Kyoto, where only the developed countries undertook to reduce their emissions to their greenhouse gases that cause climate change, this time, all countries are included in efforts to reduce emissions. This is important because while many years ago the United States was the biggest emitter of greenhouse gases, now China has overtaken the US as the world's biggest emitter. Hence, it is essential that all countries also accept that they should try to reduce their emission wherever and whenever possible. The second biggest achievement in Paris has to do with the long term temperature goal, which was a major concern of the poorest and most vulnerable countries who wanted the goal to be changed from 2°C to 1.5°C. Although the difference of 0.5°C may not seem much, it actually means that millions of people in the most vulnerable countries will be severely affected. Going in the Paris talks, the vulnerable countries advocated for this change in the long run temperature goal, but were opposed by rich and powerful countries, like the US, the EU and emerging economies such as China and India. By the end of the Paris talks, it was possible to persuade all countries to agree to change the temperature goal to 1.5°C, despite their initial strong oppositions.

4.2 Bangladesh Perspective

The characteristics of the climate of Bangladesh have been changing over the decades. The temperature is generally increasing in the monsoon season (June, July, and August). The mean annual rainfall of the country is about 2,300 mm, but there exists a wide spatial and temporal distribution. MoEF (2005) states that the duration

of the rainy season has decreased; but the total annual rainfall remains more or less the same. It implies that heavy rainfall is taking place within a short period of time and this affects the agriculture sector and other livelihood systems. The SAARC Meteorological Research Council (SMRC, 2003) revealed that the rate of sea level rise during the last 22 years is significantly higher than the mean rate of global sea level rise over 100 years. Salinity and its seasonal variations have adversely affected coastal ecosystems and associated fisheries and agriculture production due to climate change. Extreme weather conditions and natural disasters such as heavy rainfall and flash flood, tropical cyclones, tornados, and droughts are on the rise. It is reported that between 1991 and 2000, 93 major disasters occurred in Bangladesh, resulting in nearly 200,000 deaths and causing US $5.9 billion in damages with high losses in agriculture and infrastructure (MoEF, 2008). The haor basin in the northeastern part of Bangladesh has recently experienced severe flash floods, causing considerable hardship to people, and destroying crops and other infrastructure. Some people are asking if this flood can be attributed to human-induced climate change (The Daily Star, May 3, 2017).

So far, Bangladesh has developed an elaborate policy and planning framework to face the challenges of climate change and associated adversities. The government is an active signatory to the United Nations Framework Convention on Climate Change (UNFCCC). The key relevant policy documents include the Bangladesh National Adaptation Program of Action, BCCSAP, Bangladesh Capacity Development Action Plan (CDAP) for Sustainable Environmental Governance, Millennium Development Goals Progress Framework (Reports), Bangladesh National Capacity Self-Assessment for Global Environmental Management (NCSA), and National Conservation Strategy. Besides, the country also has a number of sectoral (e.g., forestry, environment, agriculture, and energy) policies to combat the challenge caused by climate change.

Within the limits of its meager resources, Bangladesh has invested more than $10 billion over the last 35 years to make the country less vulnerable to natural disasters. In 2009, the government allocated $100 million from its own source to take up 44 different climate change related projects under various ministries (The Daily Prothom Alo, November 18, 2009). In addition, different voluntary organizations and NGOs are taking various awareness programs regarding the effects of climate change. The government has also recently established a National Climate Change Fund, with an initial capitalization of $45 million – mainly focusing on adaptation. In these policy and programmatic efforts, however, the role and significance of the private sector and business community remain marginal. Bangladesh has two climate funds - Bangladesh Climate Change Trust Fund (BCCTF) financed by itself, and Bangladesh Climate Change Resilience Fund (BCCRF), run by foreign aid. From

2010-2014, the Bangladesh government has allocated Tk 2,700 crore for these funds; 66% of the fund was allocated to different short term projects and the remaining 34% has been reserved to tackle aftermaths of disasters. As for the foreign funding, Bangladesh has so far received $188.2 million of which $146.2 million has been released (The Daily Star, July 10, 2014). Asian CSR report predicts that climate change is going to be the "number one stakeholder concern" which needs to be addressed by the companies in Asia (CSR Asia, 2009). Accordingly, it is argued that in order to achieve long-term success in an increasingly carbon-constrained world, Bangladeshi companies will need to respond to the challenges of climate change with appropriate strategies.

However, Bangladesh is not a significant contributor to the carbon emission in the world. It contributes only 0.03% of carbon whereas the biggest emitter contributes 23% of the total emission. In spite of that, Bangladesh has made a commitment that it will reduce its carbon emission by the extent of 15% throughout the next decades. This declaration has got the immense support from the global community as a small nation Bangladesh can reduce the emission of carbon then why can't the developed countries? The declaration got huge compliments from other countries. Bangladesh has been granted €8.7 million by the European Union in order to help the vulnerable people of the country to build resilience against climate change and climate related disasters. The grants will be routed through the Global Climate Change Alliance (newsbangladesh.com, 08 December 2015). Besides, delegates of Bangladesh claimed in the recent Paris climate conference (COP21) that Bangladesh would not seek soft loan but grant for climate change adaptation and mitigation purposes. In the Paris climate conference, as victims of global warming, the least developed countries like Bangladesh justifiably demanded that Green Climate Fund should be increased from the proposed $100 billion to even higher amount so that the affected countries can fruitfully carry out their adaptation and mitigation efforts (The Independent, 2015).

5. Findings

In this section, we have presented and analyzed the findings of this study highlighting the extent and nature of climate change related disclosures by the top five engineering companies in Bangladesh. The motivation of the research was to find out the extent of disclosures regarding climate change and it was also the general expectation that the volume of disclosure will be less than that of the developed country. But after reviewing the annual reports of the top five companies (as mentioned above), we have found that the number of disclosure is very low and it is quite unexpected that the number was so less. It is also necessary to note that the emission of carbon is very insignificant by sample companies. This can be a reason for non-disclosure of climate change related issues in the annual reports. Since the global concern is increasing enormously over the climate change issues, the global

community thinks that the business organizations are very much responsible for climate change phenomena. So, stakeholders might expect some information regarding climate change will be provided by the companies. But it is very surprising that sample companies, whether they are manufacturing or engineering, are not eager to disclose any kind of environmental and climate change related issues in their annual reports. Unfortunately, in the annual report of the selected five companies for the year 2009-2012, the number of disclosure is found to be zero. None of the companies mention any information regarding climate-change, as a result the index shows that all the 30 items are zero; meaning that the there is no information provided. As a result, all the 30 items under the eight general categories are found to be zero in relation to the year 2009 to 2012. There is little information in the annual report of Singer Bangladesh Ltd, BSRM Steel Ltd, regarding their CSR related activities but there is nothing about climate change.

In the annual report of the year 2013, the disclosure of climate change related information was also found to be almost zero. Only the top listed company in this sector named BSRM Steel Ltd. was found to comply with 4 items out of 30 index items. So, in the index it is given a score of 1. The information provided on the issues of organizations views regarding climate change. They also provide information pertaining to policy for the development of energy efficiency by utilizing/acquiring low emission technologies. We found a framework to benchmark its emission technologies in their annual report. So we got total four disclosures for this company in 2013. All the above items were discussed in the 'Sustainability Growth' section of the annual report in the year 2013.

In the summary table, we can see that total number of disclosures that the companies made for the year 2009 to 2013. The table shows the scenario of non-disclosure of climate change related information for the 5 year time period. It is quite unexpected that we did not find any disclosures of information regarding climate change even though they are somehow responsible for causing climate change. The results are shown in table 2.

Table-1: **Summary Results (No. of Disclosures)**

Name of Company	**Year**				
	2009	**2010**	**2011**	**2012**	**2013**
Aftab Auto	0	0	0	0	0
BSRM Steel Ltd.	0	0	0	0	**4**
Golden Son Ltd	0	0	0	0	0
S. Alam Steel Ltd	0	0	0	0	0
Singer BD Ltd.	0	0	0	0	0
Total Disclosures	**0**	**0**	**0**	**0**	**4**

But at the time of reviewing annual reports, it was found that the above mentioned companies make some CSR activities in the form of establishment of hospitals, schools, colleges and increasing awareness in various social problems. But nowhere in their report, had they disclosed any information regarding climate-change related initiatives.

6. Conclusion and Recommendations

This paper addressed climate-change issues from the developing country's perspective, particularly it aims to provide a brief overview of the literature regarding climate-change and focus on the engineering industry of Bangladesh. This industry was chosen because of its possibility of causing more threats to the environment than any other industry for climate-change. We find that the extent of climate-change disclosures in engineering industries of Bangladesh is very low or we can say no disclosures at all. Only one company disclosed information on the "corporations' view" category, which is somewhat unexpected. No disclosure was made in other important categories like GHG emissions. However, we should acknowledge that in the perspective of Bangladesh, the total country level green house gas emissions are low; possibly one could say insignificant, relative to those in urbanized countries. It is also interesting that local companies take part in few adaptation measures in the wake of natural disaster. However, the disclosures we found are not adequate enough to make people aware of climate change and this is below par. The finding raises questions about the credibility of disclosures as we are aware that the government (Department of Environment) served "notice" and summoned explanation on a number of noncompliant companies on the issue of environment friendly technologies and other environmental matters (DoE, 2009). However, the credibility of disclosures made by the company is underestimated by the lack of reliable information. There is very little action taken by the regulatory authority towards converting inflated statements into reality, which is come to light by the smaller number of companies disclosing information on the installation of environment friendly technology. The issue of noncompliance requires urgent attention of the policy makers. One of the significant contributions of this paper is that it has developed an index that can be used by future researcher to understand climate change related disclosures for any other industry. However, we would like to provide some policy recommendations that might help the stakeholders to better understand this issue. Bangladesh government should adopt a policy framework that clearly verbalizes the corporations' role in minimizing environmental and climate change impact. It is vital to enunciate the corporations' role specific in this policy. Government agencies should monitor the legal requirements that are needed to comply according to the rules and regulations (such as obligation to establish ETPs or report environmental impact on the part of the corporate institutions). This will

increase the ability of these monitoring agencies to enable them to perform their due role. There should be an incentive package for those companies who relatively performing better in this regard. In the presence of this policy incentives program, compliant companies will find motivation in providing relevant information. On the other hand, in the absence of an effective "reward and punishment" instrument, compliant companies may sooner or later lose the enthusiasm in the face of unhealthy competition from their noncompliant competitors. New accounting standards can be developed to make climate change disclosures mandatory for the corporations. This in turn will increase the flow of climate change disclosures practices within the industry.

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Appendix A: Climate Change related disclosure index
(Adapted from Haque & Deegan, 2010 and Belal et al, 2008)

General Issues	Specific Issues
Board Oversight	1) An organization has a broad committee with explicit oversight responsibility for climate change affairs.
	2) An organization has specific board committee for climate change.
	3) An organization has specific board committee for GHG related issues.
	4) Whether the board conducts periodic issues of climate change performance.
	5) The board should understand and disclose the potential financial implications of any climate change policy affecting the organization
Senior management engagement and responsibility	6) Whether the CEO/chairperson articulates the organizations views on the issue of climate change through publicly available documents such as annual reports, websites etc.
	7) Whether the organization has an executive risk management team, dealing specifically with GHG issues.
	8) Whether some senior executives have specific responsibility for relationship with government, the media and the community with a specific focus on climate change issues.
	9) Whether the organization has a performance assessment tool to identify current gaps in GHG management.
	10) Whether the executive officers' and/or senior managers' compensation is linked to attainment of GHG targets.
Emissions accounting	11) Whether the organization conducts an annual inventory of total direct/indirect GHG emissions from operations.
	12) Whether the organization calculates GHG emissions savings and offsets from its products.
	13) Whether the organization has set an emissions baseline year by which to estimate future GHG emissions trends.
	14) Whether the organization sets absolute GHG emission reduction targets for facilities and products
	15) Whether the organization has third-party verification processes for GHG emissions data
	16) Whether the organization has a specific policy to purchase and/or develop renewable energy sources
	17) Whether the organization has specific requirements for suppliers to reduce green house gas emissions associated with their operations.

	18) Whether the organization has a policy of providing emissions reduction information to the customers through product labeling.
	19) An organization has an accredited labeling standard for providing information about the climate change impacts of the products.
Research and development	20) Whether the organization has specific policy to develop energy efficiency by utilizing/acquiring low-emission technologies.
	21) Whether the organization has a policy of investment to accelerate the research and development of low-emissions technologies and support energy efficient projects.
Product liability reduction	22) Whether the organization pursues strategies to minimize exposure to potential regulatory risks and/or physical threats to assets relating to climate change.
	23) An organization pursues strategies to minimize the possibility of litigation being
	brought against for its impact on climate change
Reporting/ Benchmarking	24) Whether the organization has specific frameworks to benchmark its GHG emissions against other companies and competitors.
	25) Whether the organization employs its industry benchmarking standards (if any) of reducing GHG emissions.
	26) Whether the organization has a policy of compliance with Global reporting Initiatives (GRI) Guidelines or a comparable Triple Bottom Line format to report its greenhouse gas emissions and trends.
Carbon Pricing and trading	27) Whether the organization has a policy for trading in regional and/or international emission trading schemes
	28) Whether the organization has a policy to assist government and other stakeholders on the design of effective climate change policies such as carbon pricing and/or a national emission trading scheme.
External affairs	29) Whether the organization has a policy to support collaborative solutions (for example, work with the government and other organizations in voluntary emission reduction projects) for climate change.
	30) Whether the organization has a policy to promote climate friendly behavior within the community by raising awareness through environmental sustainability education.