

# Climate Change Reporting: A way-out to Improve Risk Management-A Study About Listed Pharmaceutical Companies in Bangladesh

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Publication Date: 2025/05/23

**Abstract:** This study investigates the current state of climate change reporting, emphasizing its potential as a strategic tool to enhance risk management practices among publicly listed pharmaceutical companies in Bangladesh. In response to mounting stakeholder demands for transparency, it is clear that current climate-related disclosures in annual reports are both inconsistent and inadequate. Using a self-constructed disclosure index based on existing literature and global reporting frameworks, the study analyzed secondary data from the annual reports of 18 pharmaceutical firms listed on the Dhaka Stock Exchange. The results indicate that although some companies are beginning to address issues such as emissions and energy use, the majority still fall short in providing comprehensive information. Alarming, only 50% of the firms disclosed specific challenges related to climate change, and a mere 17% furnished detailed insights into board-level oversight or future strategies. These findings underscore an urgent need for robust regulatory guidelines, standardized reporting frameworks, and targeted capacity-building initiatives to improve climate disclosures. As Bangladesh seeks to solidify its position in the global pharmaceutical market, embracing climate-conscious business practices is not just essential but imperative for ensuring long-term competitiveness, building investor confidence, and advancing environmental stewardship.

**Keywords:** Climate Change and its Reporting, Pharmaceutical Industry Risk Management, Annual Report, Dhaka Stock Exchange.

**How to Cite:** Tanzina Mahboob. (2025) Climate Change Reporting: A way-out to Improve Risk Management-A Study About Listed Pharmaceutical Companies in Bangladesh. *International Journal of Innovative Science and Research Technology*, 10(5), 1104-1110. <https://doi.org/10.38124/ijisrt/25may1352>

## I. INTRODUCTION

Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. But since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas (United Nations Climate Action, n.d.). Pharmaceutical industry called as the set of companies and institutions engaged in research and manufacturing of therapeutic products, the pharmaceutical industry covers a wide range of drugs, from small chemical molecules to innovative biotechnologies such as gene therapies and vaccines (Sneci Group, n.d.). It poses a growing threat to businesses worldwide, and Bangladesh's pharmaceutical industry is no exception. As the country faces rising temperatures, extreme weather events, and environmental degradation, listed pharmaceutical companies must integrate climate change reporting into their risk management strategies to ensure business resilience and sustainability.

Before 90's there were no evidence that public limited companies that are listed with Dhaka Stock Exchange (DSE) disclosed environmental information such as climate change reporting in their annual report (Shil & Iqbal, 2005). In recent

years, regulatory bodies, investors, and stakeholders have placed increasing emphasis on transparent climate disclosures, urging businesses to assess and mitigate their environmental impact (Ahmed & Salat, 2013). However, despite the pharmaceutical sector's significant reliance on natural resources and global supply chains, climate-related risk disclosures remain limited among listed pharmaceutical firms in Bangladesh. Many companies fail to address climate vulnerabilities in their annual reports, exposing them to financial, regulatory, and reputational risks.

This study explores how climate change reporting can serve as a strategic tool for improving risk management in Bangladesh's pharmaceutical industry. By integrating climate risk assessments, sustainability disclosures, and technology-driven solutions, listed pharmaceutical firms can enhance investor confidence, regulatory compliance, and long-term business resilience.

As Bangladesh aspires to strengthen its position in the global pharmaceutical market, the adoption of climate-conscious business practices will be crucial for ensuring competitiveness and sustainability in an increasingly climate-sensitive world.

## II. LITERATURE REVIEW

Effective climate change reporting can serve as a crucial tool for mitigating risks and enhancing corporate resilience. Climate change reporting refers to the disclosure of climate related risks, mitigation efforts, and sustainability strategies by organizations. Several frameworks guide about climate change and its reporting, such as:

- The Task Force on Climate related Financial Disclosures (TCFD)
- Global Reporting Initiative (GRI)
- Sustainability Accounting Standards Board (SASB)
- Carbon Disclosure Project (CDP)

Risk management is the process of identifying, assessing and addressing any financial, legal, strategic and security risks to an organization (McGrath & Jonker, n.d.). Climate change reporting can serve as an essential risk management tool for any company through enhancing supply chain resilience, strengthening investor and stakeholder confidence, aligning with global best practices. Studies suggest that comprehensive climate reporting enhances corporate accountability (Kolk & Van Tulder, 2010) and improves stakeholder decision making (Eccles & Krzus, 2019). There are no established legal guidelines for climate change reporting in the annual reports of companies in Bangladesh. This situation opens up a valuable opportunity for business to enhance transparency and demonstrate their commitment to sustainability in a proactive manner. However, there are challenges in standardizing reporting practices and ensuring creditability for improving risk management and so that not many companies are making environmental disclosures in their annual reports altogether on their own willingness (Islam, Roy, Miah, Das, & Islam, 2020).

## III. OBJECTIVES OF THE STUDY

This study effectively evaluates the awareness level of climate change within Bangladesh's pharmaceutical industry regarding the impact of their activities on climate and assesses its reporting practices as a crucial aspect of risk management for the listed companies of Bangladesh.

## IV. METHODOLOGY

### ➤ Data & sample

Why choosing only pharmaceutical sector for this study is a big question? Yes, climate change reporting is crucial for

all industries, but the pharmaceutical sector in Bangladesh stands out as a priority due to its unique environmental, economic and public health implications. Furthermore, this sector is well known for its human activities in Bangladesh (Azim & Azam, 2013). Direct environmental impact of pharmaceutical manufacturing, play critical role in public health, its regulatory and compliance pressures, its economic significance in global trade, gaining competitive advantage and corporate reputation are the justified reasons for choosing this sector.

This report offers a comprehensive analysis based on secondary data obtained from the annual reports of pharmaceutical companies listed in Bangladesh. An annual report is a comprehensive report detailing a company's activities throughout the preceding year. Its purpose is to provide users, such as shareholders or potential investors, with information about the company's operations and financial performance (corporate Finance Institute, 2017).

Although the pharmaceutical and chemical industries are collectively listed on the Dhaka stock exchange but the study focuses specifically on 18 listed pharmaceutical companies (Dhaka Stock Exchange PLC., 2025). So, the sample size is 18. Annual reports of these selected pharmaceutical companies are used as the data source for the study.

### ➤ Development of a disclosure index:

This descriptive study uses content analysis to evaluate data from the annual reports of sampled companies, a common technique in similar research. As we know, Climate change is a significant issue, and the related disclosures are important as well.

A disclosure index has been created that includes several effective challenges based on the work of previous researchers (Salat, 2023) (Ahmed & Hossain, 2015) (Kolk & Tulder, 2010), (Islam, 2020) (Dey, 2017), different social and environmental reporting research organizations, climate change related content analysis of annual report.

The aforementioned source has highlighted climate change disclosure issues, encompassing 18 specific concerns organized under five overarching categories. Table 1 outlines these 18 specific issues categorized by the five general topics, regarding climate change reporting challenges need to be submitted for companies to achieve their risk management targets.

Table 1 Climate change reporting related specific challenges

General topics	Specific climate change related disclosers
A. Board Oversight & Management responsibility	<ol style="list-style-type: none"> <li>1. Organization has a specific board of committee to oversee the environmental affair.</li> <li>2. An organization has a specific committee on climate change related issues.</li> <li>3. CEO/Chairperson/Director express the organization's views on the issue of climate change through publicly available documents such as annual reports, sustainability reports &amp; website.</li> <li>4. Organization signed agreement with international NGO's for improving environment.</li> </ol>

B. Emission Accounting	5. An organization's report on carbon emission and control. 6. Separate section about climate change reporting in the annual report. 7. Report regarding tree plantation project for climate change. 8. Report of air pollution issues & its control from operation of pharmaceutical company. 9. Report regarding water pollution and its management. 10. Report of total energy consumed in pharmaceutical operation and savings of it. 11. Report regarding waste material recycling. 12. Methodologies used to calculate or measure emissions. 13. Report on reduction of the consumption of paper-based materials.
C. Research and Development	14. The organization has the policy to develop alternative /renewable energy such as solar panel energy, wind energy, Lower electricity consumption etc. 15. Company reports about efficient plant facility that environment friendly.
D. Future plan regarding climate change	16. Organization's report about their financing on the pollution control project. 17. Organizations that report their policy regarding environmental issues.
E. Potential liability towards climate change	18. Report about the conservation of natural resources by the organization.

## V. RESULT & DISCUSSION

This section examines the extent to which pharmaceutical companies in Bangladesh disclose information related to climate change. Without comprehensive reporting in this area, shareholders are unable to accurately evaluate the risks associated with their investments, and companies themselves may struggle to effectively manage those risks.

### A. Reporting by total

A total of 18 listed pharmaceutical companies are included in the overall report on the challenges posed by climate change. The disclosure scores for these companies are calculated using binary values: a score of 1 indicates the disclosure of a specific item, while a score of 0 denotes nondisclosure. The percentages are determined by dividing the number of companies that disclosed information by the total number of companies, which is 18.

Table 2 Overall reporting about the Challenges of climate change identified by Pharmaceutical companies in Bangladesh.

Overall Challenges	Number of Companies	Percentage (%)
The number of companies that disclose the topic but do not mention specific challenges.	03	17%
The number of companies disclosing at least 1 challenge	09	50%
The number of companies with no disclosure of challenges	06	33%
Total number of sample companies	18	100%

Table 2 shows that, on average, 50% of the sample companies disclosed their climate change reporting challenges, which is a positive sign. They provide specific details about the impact of their activities on climate change, it is important to elaborate on this topic as a serious matter. These companies recognize that addressing climate change is essential for effective risk management. In contrast, 33% of the sample companies did not mention anything about the disclosure. 17% of the sample company only mention the respective topic but do not mention any specific challenges.

By examining the table 2 above and verifying it against the sample annual reports of listed pharmaceutical companies, it becomes evident how companies are currently disclosing climate change reporting challenges. This analysis serves as an important tool, enabling pharmaceutical companies to effectively enhance their risk management processes as needed. Enhancing supply chain resilience: Companies that disclose climate related risks can develop proactive strategies to secure supply chains against climate

disruptions (Islam & Sultana, 2024), enhancing investor and stakeholder confidence: Transparent reporting attracts investors and ensures compliance with global sustainability standards (Chowdhury & Alam, 2021), aligning with global best practices are some criteria that enhance this tool.

### B. Disclosure of Challenges by Categories

This section's results are derived from the findings of 12 companies and a total of 18 companies respectively, as shown in Table 2. Among these 12 companies, 3 report on the topic of "climate change reporting" but do not specify any challenges. In contrast, 9 companies identify at least one challenge related to this topic. Also, table 3 is based on a total sample size of 18 companies. The column "number of companies disclosing the issue" indicates how many companies reported on the specific issue out of 12 companies and a total of 18 companies as well. To calculate the percentage of the total sample, divide the number of companies disclosed by the total number of companies, which is 18.

Table: 3 Climate change reporting related Specific challenges by several pharmaceutical companies

Specific Challenges	Number of companies disclosing the issue	Percentage of total number of challenges disclosing by companies (12)	Percentage of the total Sample (18)
<b>A. Board Oversight &amp; Management responsibility</b>			
1. Organization has a specific board of committee to oversee the environmental affair.	03	25%	17%
2. An organization has a specific committee on climate change related issues.	04	33%	22%
3. CEO/Chairperson/Director express the organization's views on the issue of climate change through publicly available documents such as annual reports, sustainability reports & website.	10	83%	56%
4. Organization signed agreement with international NGO's for improving environment.	1	8%	6%
<b>B. Emission Accounting</b>			
5. An organization's report on carbon emission and control.	5	42%	28%
6. Separate section about climate change reporting in the annual report.	6	50%	33%
7. Report regarding tree plantation project for climate change.	2	17%	11%
8. Report of air pollution issues & its control from operation of pharmaceutical company.	2	17%	11%
9. Report regarding water pollution and its management.	3	25%	17%
10. Report of total energy consumed in pharmaceutical operation and savings of it.	4	33%	22%
11. Report regarding waste material recycling.	2	17%	11%
12. Methodologies used to calculate or measure emissions.	1	8%	6%
13. Report on reduction of the consumption of paper-based materials.	1	8%	6%
<b>C. Research and Development</b>			
14. The organization has the policy to develop alternative /renewable energy such as solar panel energy, wind energy, Lower electricity consumption etc.	3	25%	17%
15. Company reports about efficient plant facility that environment friendly.	2	17%	11%
<b>D. Future plan regarding climate change</b>			
16. Organization's report about their financing on the pollution control project.	1	8%	6%
17. Organizations that report their policy regarding environmental issues.	3	25%	17%
<b>E. Potential liability towards climate change</b>			
18. Report about the conservation of natural resources by the organization.	8	67%	44%

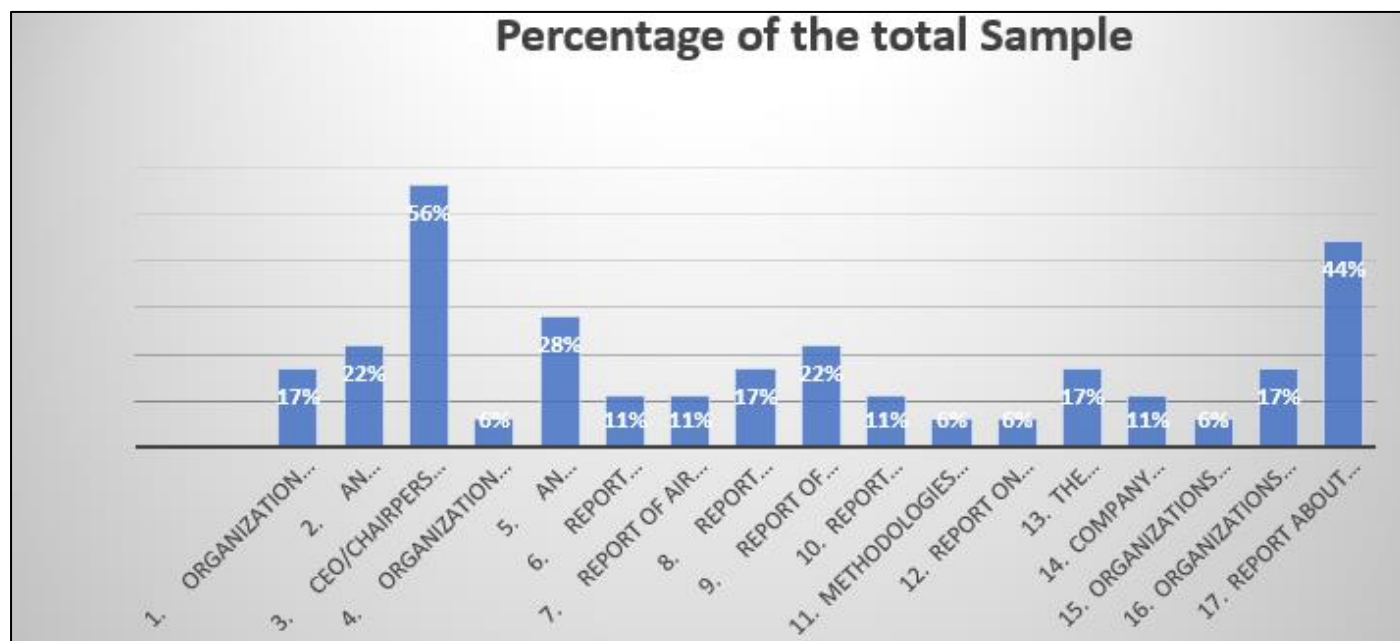


Fig 1 Disclosure Percentage of the total Sample of Specific Categories

#### F. Board Oversight & Management Responsibility

The findings reveal that most sample companies have inadequate board and management oversight on disclosures. Only three companies have a dedicated committee for environmental affairs, and four focus on climate change. Additionally, only one has partnered with two international NGOs to enhance environmental practices. The CEO's opinion on climate change is notably significant, representing 56% of the company's stance.

#### G. Emission Accounting

Detailed study highlights that different listed companies disclose their challenges regarding climate change reporting in various formats. Some companies only address the topic in their annual reports, without specifically detailing the steps they take to enhance their risk management processes related to these challenges. Renata PLC states that their CSR efforts focus on their employees, supporting the underprivileged, and promoting environmental sustainability. However, they do not specify the challenges they address or provide detailed information about their efforts regarding environmental issues or climate change (renata-ltd.com/annualreport, 2023-2024). Silva Pharmaceuticals Limited and Indo-Bangla Pharmaceuticals Limited use the same format as Renata PLC. Study also indicate that among these companies, ACI Limited, IBN SINA pharmaceutical industry PLC, and Square Pharmaceutical PLC present their annual reports concisely regarding climate change reporting disclosure. As per Square Pharmaceutical PLC, it maintains a high standard pollution free environment as per government laws, it discuss in detail about operational efficiency, energy usage, renewable energy adoption, reduction the consumption of paper based materials, lower electricity consumption etc. (squarepharma annual report, 2023-2024). Companies under study have utilized separate sections of their annual reports to provide disclosures related to climate change got the highest importance which is (33%).

Out of 18 companies, 5 reported on carbon emissions and control. Reporting on various projects included tree plantation and air pollution control (11% each), water pollution management (17%), and waste recycling (11%). Additionally, 4 companies (22%) reported on total energy consumption and savings in pharmaceutical operations, while only 1 company (6%) disclosed its methodologies for measuring emissions.

#### H. Research and Development

Out of 18 companies, 3 (17%) clearly prioritize the development of alternative renewable energy sources such as solar and wind energy. Additionally, 2 (11%) companies have reported having efficient, environmentally friendly plant facilities, demonstrating a commitment to sustainability.

#### I. Future plan Regarding Climate Change

Findings reveal that out of 18 companies, only 3 reported their policies regarding environmental issues, resulting in a score of 17%. More specifically, the companies' future plans for addressing climate change, particularly in terms of financing pollution control projects, are very limited. Only 1 company, representing 6% of the sample, reported on such initiatives.

#### J. Potential Liability Towards Climate Change

Executing policies for the conservation of natural resources is a crucial factor in addressing potential liabilities towards climate change from an organizational perspective. Out of 18 companies surveyed, 8 expressed concern about their liabilities and reported their efforts to conserve natural resources through their operations, achieving a score of 44%.



## VI. FINDINGS

The pharmaceutical industry produces medicines that are essential for saving lives, leading stakeholders to expect that their operations will have minimal harmful impact on the environment. The findings part of this study will benefit not only the company but also its investors by providing insights into their climate change disclosure performance compared to other companies in the industry. This will encourage pharmaceutical companies to become more environmentally conscious. Firms will be motivated to provide more comprehensive information by standardized reporting guidelines set by regulatory mandates to address the effects of climate change.

**Firstly**, studies suggest that there is no specific location mandated by the relevant authorities, highlighting the importance of effective risk management techniques. Relevant authorities should establish Comprehensive Reporting Framework and must follow it strictly so that climate change disclosure must be located in a specific section of the annual report. This allows relevant parties to easily identify the necessary information, which ultimately enhances firms' risk management.

**Secondly**, the study emphasizes the need for training and awareness programs to help companies effectively integrate climate risk assessments into their corporate strategies for better risk management and mitigation. This includes capacity building for managing climate change, aligning with international standards for climate change reporting, and encouraging internal sustainability initiatives through recognition policies. Additionally, collaboration with the media and promoting locally-led adoption stories, as well as utilizing digital platforms to raise awareness about the consequences of climate change, are crucial components of these programs.

## VII. CONCLUSION

The existing literature emphasizes the significance of climate change reporting as a risk management tool in the pharmaceutical sector. As a result, stakeholder expectations for ethical and environment friendly practices have been on the rise. This study examines the annual reports of selected pharmaceutical companies in Bangladesh, utilizing a self-designed disclosure index to assess how they report on climate change-related challenges.

However, listed pharmaceutical companies in Bangladesh encounter considerable obstacles in implementing standardized reporting practices. By addressing these challenges through regulatory reforms, industry collaboration, and corporate initiatives, transparency can be improved, risks can be mitigated, and the sustainability of these firms can be ensured.

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