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RESEARCH ARTICLE

Corporate Carbon Accounting Practices in Bangladesh: Current Practices, Gaps and Policy Implications

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Abstract

Climate change and global warming overshadow concerns about the sustainability of human existence and progress. As a result, there have been numerous worldwide efforts to reduce the negative effects of climate change and promote a sustainable future. Companies use corporate carbon accounting (CCA) as a key strategy to adapt to climate impacts. Therefore, this study aims to evaluate the current state of CCA practices in Bangladesh. The authors gathered secondary sources of information for the study. The researchers analysed the annual reports of 154 companies across 11 industries listed on the Dhaka Stock Exchange (DSE). The authors developed the 'Corporate Carbon Accounting Practice Index (CCAP)' based on existing literature and international standards. This study used content and thematic analysis, following specific criteria. The results indicated that a mandatory legal framework influences CCA practices. However, most companies have not yet implemented CCA procedures, with only a few meeting certain standards. The main reason for Bangladesh's current CCA situation is the absence of a strong legislative framework. This study provides specific guidance for policymakers interested in CCA, helping them identify the best actions to mitigate climate change risks and support sustainable development, including establishing and enforcing a robust mandatory legal framework.

Keywords: Carbon accounting; mitigation approaches; environmental sustainability; climate vulnerability

Introduction

Climate change, a major global issue, directly and significantly affects economies and societies. Consequently, various initiatives are underway to promote the reduction of greenhouse gas emissions through both market-based and non-market-based policies. Therefore, climate change circumstances and carbon institutions

inevitably impact business behaviors (Luo et al., 2022). Firms and enterprises are considered the main actors responsible for the shift towards sustainability and the achievement of ecologically sustainable economies, based on the 'Ecological Modernization' ideology and current environmental regulations (Lippert, 2015). Therefore, since the extent of global greenhouse gas emissions increases the impact of climate change, there is a need for creative, all-encompassing approaches to avoid and lessen its negative impacts. Better ways to evaluate and convey the new information requirements were also required, as was advice on creating accounting plans that encourage greater accountability and transparency in decision-making in government, business, academia, and nonprofit organizations (Schaltegger and Csutora, 2012; Uddin et al.25). As a result, carbon accounting can help businesses measure carbon emissions from both unsustainable practices and long-term improvements in carbon management across a range of areas, including supply chain management, innovation, marketing, production, distribution, and procurement (Schaltegger and Csutora, 2012; Norol-janah, 2020).

Corporate Carbon Accounting

Following the 1997 Kyoto Agreement, the area of carbon accounting began to take shape in commercial economies. At multiple levels, such as organizational, process, product, or supply chain levels, it includes a range of operations, including measuring, calculating, monitoring, reporting, and auditing greenhouse gas emissions. Companies are encouraged to employ carbon accounting techniques by the Greenhouse Gas Protocol and the Carbon Disclosure Project (Csutora and Harangozo, 2017). The practice of collecting, recording, and analyzing data on climate change via accounting methods is known as "carbon accounting." In order to help internal management and external stakeholders make choices, it entails monitoring and reporting carbon-related assets, liabilities, costs, and revenue (Thang, 2017). Additionally, measuring and reporting carbon assets and liabilities, as well as managing and accessing carbon-related activities, are the main focuses of corporate carbon accounting. Additionally, it takes into account the assurance of carbon data, the disclosure of carbon information, and the impact of carbon concerns on the financial market (Luo et al., 2022). The criticality of climate change is exacerbated by the fact that, despite scientists' calls for additional policy steps, most countries have not made much headway in the negotiation and development of climate change concerns. In response, more businesses are being forced to recognize and reduce their susceptibility to climate change issues due to a number of global efforts, increased media coverage, disgruntled customers, legislative changes, and governmental inactivity. It's happening all around the globe right now, and it's dangerous for both the present and the future. Carbon accounting processes may modify carbon reduction plans and policies in this situation (Schaltegger et al., 2015). Additionally, it is important to note that corporate carbon disclosure remained voluntary in the majority of cases, which led to a lower standard of quality in corporate carbon disclosure. Many scholars are concerned about this problem (Luo et al., 2022). Additionally, companies tend to disseminate information on carbon via a variety of channels, such as annual reports, sustainability reports, CSR reports, corporate websites, and third-party platforms like the CDP survey (Luo et al., 2022).

Corporate Carbon Accounting in Bangladesh

According to a 2022 study by Paryen et al., Bangladesh's coastline position makes it one of the nation’s most vulnerable to the impacts of climate change. Numerous climate-related calamities are already plaguing Bangladesh (Paryen et al., 2022). A lack of management leadership, a weak regulatory framework, a lack of external stakeholder pressure, a propensity for noncompliance with environmental laws, a socioeconomic structure, and a lack of government environmental initiatives are some of the reasons for Bangladesh's poor environmental reporting practices (Uddin et al., 2023). Since the Kyoto Agreement in 1997, wealthy countries

have benefited most from the advancements in carbon accounting. In underdeveloped countries like Bangladesh, the idea of carbon accounting has not taken off as much as expected and very little study has been done on the topic. Therefore, this empirical research will be the first to examine how carbon accounting procedures are currently used in Bangladesh by including a significant number of sectors and companies listed on the DSE.
Thus; several pertinent inquiries arise:

i. What is the present state of carbon accounting practices at the corporate level in Bangladesh?
ii. What factors influence an organization's carbon accounting practices?

Literature Review

Corporate carbon accounting has become a major concern on a global scale, leading to a tremendous deal of study. A few pieces of research on corporate carbon accounting will be covered here.

Corporate Carbon Accounting in Global Aspect

Macro-level research indicates that climate change is becoming worse, and most nations have not made much headway in climate change legislation and discussions. Astute business executives have responded by starting a range of projects and initiatives, while governments have enacted several pieces of legislation with varying degrees of success. Due to global initiatives, public attention, consumer dissatisfaction, regulatory changes, and political inaction, more businesses need to identify and reduce their climate change risk. Although reducing greenhouse gas emissions is crucial, climate change has already occurred. Strategies for adaptation and mitigation are needed for this. The company's susceptibility, as well as the options, consequences, and costs of lowering emissions and adapting, must all be evaluated to create a business climate plan (Schaltegger et al., 2015). This situation is relevant to climate change accounting, a subset of environmental management accounting. Despite its complexity, the accounting method for climate change remains poorly understood. The system that captures and analyzes climate change data, as well as accounts for and reports carbon-related assets, liabilities, costs, and income for decision-making, is referred to in this work as carbon accounting. The research clarifies the use of cutting-edge methods to create workable carbon accounting policies, processes, and initiatives (Tang, 2017). Since there is a negative link between carbon emissions and carbon management systems, the empirical results show that the rule of material balances applies to carbon emissions. The effects of this association are not substantial, however. In only two years, the harmful impacts of these contaminants have become apparent. Target, project, GHG (greenhouse gas) accounting, and openness are the criteria used to evaluate the quality of carbon management systems (CMS) (Stechemesser and Guenther, 2012). Businesses may gain from carbon accounting in two ways: by identifying and eliminating unsustainable behaviors and by enhancing sustainability. These methods are becoming more and more important for corporate services, including marketing, supply chain management (SCM), manufacturing, distribution, procurement, and innovation. The consequence is much the same regardless of whether a department's major objective is to enforce regulatory compliance, manage energy and material flows to avoid substantial cutbacks, improve eco-efficiency, stimulate product innovation, create legitimacy, or any combination of these goals. Accounting for carbon management has the potential to benefit decision-makers at all levels (Sial et al., 2022).

Corporate Carbon Accounting for Environmental Sustainability

There are two ways that carbon accounting might assist businesses in managing their carbon emissions: sustainable and unsustainable. Both strategies are more often used in corporate services, including marketing,

manufacturing, distribution, procurement, supply chain management, innovation, and communication. Whether a department is attempting to structure energy and material flows for considerable savings, comply with laws, or enhance eco-efficiency, product innovation, or legitimacy, carbon management accounting may assist all organizational levels in making choices. This article distinguishes between internal carbon accounting practices and applications inside companies. For business decision-makers, the environmental management accounting framework offers an organized summary of financial and physical carbon accounting techniques. Researchers need to develop new methods, such as input-output-assisted hybrid accounting, as carbon accounting broadens to include supply chains and product life cycles (Schaltegger and Csutora, 2012). To more precisely allocate carbon-related costs and overheads to particular items, such as goods, services, customers, and business procedures, carbon accounting employs sophisticated techniques like activity-based management and life-cycle costing. Through hypothesis testing and analysis, we found a statistically significant relationship between carbon accounting and the performance of a selection of listed industrial enterprises. According to the aforementioned findings, businesses should put more effort into adapting to long-term changes in their natural environments and extending the use of their accounting and financial systems beyond short-term outcomes. According to Egbunike and Emudainohwo (2017), this means integrating long-term climate threats into costing, reporting, and disclosure procedures. Some environmental impacts, especially those linked to the emission of toxic substances, often vary less than the effects of climate change. In these situations, the carbon footprint is a poor measure of how products affect the environment. When goods are adjusted to be more environmentally friendly, environmental management that only concentrates on carbon footprints faces the risk of inadvertently spreading the problem to additional environmental implications (Laurent et al., 2012). Adoption of EMA has a significant and positive impact on company carbon emissions control and disclosure quality, according to empirical studies. According to other research, the use of audit and benchmarking tools in conjunction with control systems significantly affects carbon disclosure and management. Measurement instruments, however, revealed no appreciable effects (Qian et al., 2018). However, there is enough research available on corporate carbon accounting procedures worldwide. Since Bangladesh is now a climate-vulnerable nation, it is worth looking at how common corporate carbon accounting techniques are there.

Corporate Carbon Accounting in Bangladesh

Disclosures on the environment and climate change are now quite low in Bangladesh. Most businesses disclosed information only in the "energy usage" category, which is mandatory, despite the fact that 91% of corporations reported in at least one area. In certain areas, a far lower percentage of businesses offered information on climate change. Important categories were not disclosed, such as GHG emissions. Regarding climate change, adaptation measures were the second most popular category. Among the many environmental disclosures, one noteworthy finding is that just 5% of firms (or 6% of the businesses listed on the website) disclosed that they possessed an effluent treatment plant. A deeper look at the different kinds of disclosures reveals that most of them have positive and descriptive content (Belal et al., 2010). The average frequency of climate change data provided by Bangladeshi firms is 2.23%. In particular, because of their established market positions, large enterprises are reporting on climate change issues in more detail than smaller businesses. There is extremely little openness on climate change as a result of a lack of laws and a culture of little social responsibility inside businesses. Strangely, multinational companies are not being transparent enough (Nurunnabi, 2016). The social, economic, and environmental performance of a firm directly impacts its sustainability. We identified additional factors, including quantitative environmental reporting, standard method, voluntary environmental disclosure, legal requirements, company size, volume of environmental disclosure, material flow analysis, and life cycle assessment, as complementary measures to improve the economic, social,

and environmental performance of Bangladeshi corporations and achieve sustainable development (Kumar, 2017). Additionally, there is a dearth of research on environmental disclosure, environmental accounting and reporting, sustainability reporting, and environmental risk reporting (Uddin et al., 2023; Uddin et al., 2022; Uddin et al., 2019). Corporate carbon accounting is a method used by many businesses worldwide to attain environmental sustainability. According to the literature assessment, corporate carbon accounting is a subject that is expanding quickly on a worldwide scale. Specifically, in industrialized economies, corporate carbon accounting has become a hot subject. The company is able to regulate carbonation as a result. Additionally, organizations work to achieve sustainability. Corporate carbon accounting has gotten minimal attention in Bangladesh, despite environmental reporting and transparency methods receiving a lot of attention. There hasn't been any direct research on corporate carbon accounting procedures in Bangladesh.

Accordingly, this study proposes the following objectives:

i. Providing an overview of corporate carbon accounting practices in Bangladesh, with the goal of ensuring corporate environmental sustainability.
ii. Identify the factors that influence the level of corporate carbon accounting practices.
iii. To provide specific guidelines for future directions in corporate carbon accounting to support corporate environmental sustainability management.

Methodology

Sector Selection

We selected twelve of the 22 different sectors listed on the Dhaka Stock Exchange (DSE) due to their strong correlation with carbon sentiments. This selection is shown in the table below.

Table 1: Selected Sectors from DSE

Sl. No.	Name of the Industry	Number of companies listed at DSE
1.	Cement	7
2.	Ceramics Sector	5
3.	Engineering	42
4.	Food & Allied	21
5.	Fuel & Power	23
6.	Jute	3
7.	Paper & Printing	6
8.	Pharmaceuticals & Chemicals	33
9.	Tannery Industries	6
10.	Telecommunication	3
11.	Travel and Leisure	5
Total		154

Source: Dhaka Stock Exchange (DSE)

Data Set Development

The researchers created a data set by carefully examining the corporate annual reports of the businesses selected for the Corporate Carbon Accounting Practices Index study.

Development of Corporate Carbon Accounting Practices Index (CCAPI)

The Corporate Carbon Accounting Practices Index (CCAPI) is an index of corporate carbon accounting practices created by the project investigator. The existing global literature on corporate carbon accounting (He et al., 2022) serves as the foundation for this index.

Table 2: Components of CCAPI

Coding	Board Aspect
$CAAPI_1$	General Discussion
$CAAPI_2$	Policy Discussion
$CAAPI_3$	Specific Corporate Carbon Issues
$CAAPI_4$	Financial Accounting for Carbon Assets
$CAAPI_5$	Financial Accounting for Carbon Liabilities
$CAAPI_6$	Carbon Disclosure
$CAAPI_7$	Carbon Assurance
$CAAPI_8$	Carbon Management
$CAAPI_9$	Carbon Reporting Procedure
$CAAPI_{10}$	Carbon Performance Evaluation
$CAAPI_{11}$	Carbon Reduction Target
$CAAPI_{12}$	Monetary Incentives for Attainment of Carbon Performance
$CAAPI_{13}$	Carbon Performance
$CAAPI_{14}$	Carbon Risk Management
$CAAPI_{15}$	Carbon Mitigation and Reduction Approaches
$CAAPI_{16}$	Impact on Capital Market

Sources: Developed by authors based on existing literatures

Performance calculating Model

To determine the firm's performance on the 'Corporate Carbon Accounting Practice,' the authors developed and used the following formula.

$$PCCAP = \frac{Actual\ Numbers\ of\ Index\ on\ CCAPI}{Total\ Numbers\ of\ Index\ on\ CCAPI} \times 100$$

Where,

PCCAP = Performance of Corporate Carbon Accounting Practices

CCAI = Corporate Carbon Accounting Practices Index

Analysis Method (content and thematic analysis, and codding framework)

Content analysis is described as a method that employs a series of procedures to derive valid inferences from texts (Smith, 2004). The content analysis technique has historically been used for the examination of texts and documents, aiming to measure content according to specified categories in a systematic and reproducible fashion (Bryman and Hardy, 2009).The content analysis method is employed to discern the attributes and quantify the information within a text by categorizing it based on specific criteria, allocating each information unit to a category, and tallying the total occurrences and frequencies within each category (Data and Silverman,

2011). Accordingly, this study examines the extent to which it measures the quality and quantity of corporate carbon accounting practices in companies' annual reports. Thus, the content and thematic analysis of the firms' corporate annual reports is the main focus of this research. The data set was manually compiled by the researcher using the company's annual reports for selected companies. The pre-established indexed items were scored as 1 for correct disclosure and 0 for improper disclosure. Corporate carbon accounting techniques have a score ranging from 0 to 1. A score of 1 indicates full disclosure of corporate carbon accounting methods, while a score of 0 means they are not disclosed. For each of the example firms, an Excel spreadsheet was developed, with rows denoting the obtained score and columns representing the various index components.

Theoretical Orientation

We often use many theories when examining the causes and justifications for carbon disclosure. These consist of the institutional theory, the signaling theory, the shareholder theory, and the validity theory. Despite divergent scholarly opinions, a company's intention to provide accurate information about its carbon emissions and carbon management is influenced by social, market, economic, legal, and institutional factors. This alters the incentives for sharing (He et al., 2022).

Results, Analysis, and Discussion

Performance of Cement Industry on CCAPI

Table 3: Performance of Cement Industry on CCAPI

Sl. No.	Cement Companies (Acronym)	Performance (%)
1.	ARAMITCEM	0.00
2.	CONFIDCEM	0.00
3.	CROWNCEMNT	0.00
4.	HEIDELBCEM	6.25
5.	LHBL	18.75
6.	MEGHNACEM	0.00
7.	PREMIERCEM	6.25

Source: Calculated by Authors

As of June 15, 2024, the DSE listed seven cement-related businesses. According to Table 3, most of the companies in our study didn't fit any of the 16 preset requirements. LHBL is the only company that satisfies all three requirements. Furthermore, only two companies have met the requirements for broad disclosure: PREMIERCEM and HEIDELBCEM. With an average of just 4.46%, the cement industry's corporate carbon accounting procedures are often woefully insufficient.

Table 4 illustrates, as of 2024, the DSE listed five companies in the ceramics sector. According to our analysis, the majority of the companies did not meet any of the sixteen requirements established by Corporate Carbon Accounting Practices. Only one of the five companies (RAKCERAMIC) was able to meet three of the sixteen requirements. Additionally, SPCERAMICS was the only company to receive general discussion regarding the sixteen criteria. This is a really depressing reality.

Performance of Ceramic Industry on CCAPI

Table 4: Performance of Ceramic Industry on CCAPI

Sl. No.	Ceramic Companies (Acronym)	Performance (%)
1.	FUWANGCER	0.00
2.	MONNOCERA	0.00
3.	RAKCERAMIC	18.75
4.	SPCERAMICS	6.25
5.	STANCERAM	0.00

Source: Calculated by Authors

Performance of Engineering Industry on CCAPI

Table 5: Performance of Engineering Industry on CCAPI

Sl. No.	Engineering Companies (Acronym)	Performance (%)
1.	AFTABAUTO	0.00
2.	ANWARGALV	0.00
3.	APOLOISPAT	0.00
4.	ATLASBANG	0.00
5.	AZIZPIPES	0.00
6.	BBS	0.00
7.	BBSCABLES	12.50
8.	BDAUTOCA	0.00
9.	BDLAMPS	0.00
10.	BDTHAI	0.00
11.	BENGALWTL	0.00
12.	BSRMLTD	25
13.	BSRMSTEEL	25
14.	COPPERTECH	0.00
15.	DESHBANDHU	0.00
16.	DOMINAGE	0.00
17.	ECABLES	0.00
18.	GOLDENSON	0.00
19.	GPHISPAT	6.25
20.	IFADAUTOS	6.25
21.	KAY&QUE	0.00
22.	KDSALTD	0.00
23.	MIRAKHTER	0.00
24.	MONNOAGML	0.00
25.	NAHEEACP	0.00
26.	NAVANACNG	0.00
27.	NPOLYMER	0.00
28.	NTLTUBES	0.00
29.	OAL	0.00

Table 5 continued . . . .

30.	OIMEX	0.00
31.	QUASEMIND	0.00
32.	RANFOUNDRY	0.00
33.	RENWICKJA	0.00
34.	RSRMSTEEL	0.00
35.	RUNNERAUTO	12.5
36.	SALAMCRST	0.00
37.	SHURWID	0.00
38.	SINGERBD	12.5
39.	SSSTEEL	0.00
40.	WALTONHIL	43.75
41.	WMSHIPYARD	6.25
42.	YPL	0.00

Source: Calculated by Authors

Table 5 indicates that the engineering sector also directly contributes to carbon emissions. The DSE currently lists 42 engineering-related businesses. As of right now, companies listed in the engineering sector do not meet most of the sixteen criteria that we developed in light of the carbon accounting practices of businesses worldwide. This implies that corporate carbon accounting procedures are not of special relevance to the engineering component businesses. Although a section on corporate carbon accounting procedures has not been specifically included by BSRMLTD and BSRMSTEEL, their annual reports cover environmental accounting in great detail and discuss important issues in this field. Terms pertaining to environmental governance, like environmental strategy and environmental governance policy, are used in the user's content. An environmental manifesto, which is a public statement of environmental values and goals, is also mentioned. Climate change, a major worldwide concern, is also mentioned in the book. Lastly, the word "safety," which may be related to environmental concerns, is mentioned in the text. Sustainability statements, environmental, health, and safety management statements, as well as carbon reduction initiatives, are produced by WALTONHIL. Additionally, Western Marine Shipyard Limited has ISO 14001:2004 certification for a safe workplace.

Performance of Food and Allied Industry on CCAPI

Table 6: Performance of *Food and Allied* Industry on CCAPI

Sl. No.	Food and Allied Companies (Acronym)	Performance (%)
1.	AMCL(PRAN)	0.00
2.	APEXFOODS	0.00
3.	BANGAS	0.00
4.	BATBC	37.5
5.	BDTHAIFOOD	0.00
6.	BEACHHATCH	0.00
7.	EMERALDOIL	0.00
8.	FINEFOODS	0.00
9.	FUWANGFOOD	0.00
10.	GEMINISEA	0.00

Table 6 continued . . . .

11.	GHAIL	0.00
12.	LOVELLO	0.00
13.	MEGCONMILK	0.00
14.	MEGHNAPET	0.00
15.	NTC	0.00
16.	OLYMPIC	0.00
17.	RAHIMAFOOD	0.00
18.	RDFOOD	0.00
19.	SHYAMPSUG	0.00
20.	UNILEVERCL	0.00
21.	ZEALBANGLA	0.00

Source: Calculated by Authors

Table 6 indicates that, there are now 21 businesses actively involved in the food and light industries listed on the DSE. Most businesses in the food and related industries have lack of disclosure to meet the corporate carbon accounting guidelines based on our pre-established 16 variables. Additionally, the typical standard for corporate carbon accounting practices in this business is rather low.

Performance of Fuel and Power Industry on CCAPI

Table 7: Performance of Fuel and Power Industry on CCAPI

Sl. No.	Fuel and Power Companies (Acronym)	Performance (%)
1.	AOL	0.00
2.	BARKAPOWER	0.00
3.	BDWELDING	0.00
4.	BPPL	0.00
5.	CVOPRL	0.00
6.	DESCO	0.00
7.	DOREENPWR	0.00
8.	EASTRNLUB	0.00
9.	EPGL	0.00
10.	GBBPOWER	0.00
11.	INTRACO	0.00
12.	JAMUNAOIL	0.00
13.	KPCL	0.00
14.	LINDEBD	0.00
15.	LRBDL	0.00
16.	MJLBD	12.5
17.	MPETROLEUM	0.00
18.	PADMAOIL	0.00
19.	POWERGRID	0.00
20.	SPCL	0.00
21.	SUMITPOWER	43.75

22.	TITASGAS	0.00
23.	UPGDCL	12.5

Source: Calculated by Authors

Table 7 indicates that the fuel and electricity sector is believed to have the highest carbon emissions. This industry consumes a substantial amount of carbon. 23 companies have been listed on the DSE in the fuel and electricity industries. Upon reviewing the annual reports of twenty-three distinct fuel and power sector businesses, we discovered that most of them lack of relevant practice about corporate accounting practices related to carbon. The average ratings in the industry are quite low, and this remains true even for firms that do not adhere to our 16 pre-established guidelines for corporate carbon accounting procedures.

Performance of Paper and Printing Industry on CCAPI

Table 8: Performance of Paper and Printing Industry on CCAPI

Sl. No.	Paper and Printing Companies (Acronym)	Performance (%)
1.	BPML	6.25
2.	HAKKANIPUL	0.00
3.	KPPL	0.00
4.	MONOSPOOL	0.00
5.	PAPERPROC	0.00
6.	SONALIPAPR	0.00

Source: Calculated by Authors

Table 8 shows that the paper and printing industry is another important sector in terms of carbon emissions. Companies operating within this industry are continuously releasing carbon into the atmosphere, which harms the environment. Six businesses are now registered as paper and printing companies with the DSE. The majority of these companies do not adhere to the proper protocols for corporate carbon accounting, according to an analysis of their annual reports. None of the businesses have complied with the bulk of our predetermined 16 parameters. Additionally, these firms' overall score is below expectations, and their individual ratings are relatively poor.

Performance of Pharmaceuticals and Chemicals Industry on CCAPI

Bangladesh's economy greatly benefits from the pharmaceutical and chemical industries, which are important areas of the nation's economy. This industry is accountable for a considerable quantity of carbon and hazardous material emissions within the same time period. In keeping with that rationale, this research examined the yearly reports of thirty-According to table 9, three chemical and pharmaceutical companies that are listed on the Bangladeshi DSE. The results of the study show that registered companies in the chemical and pharmaceutical industries exhibit reporting gaps corporate accounting for carbon emissions, even though these industries are carbon emitters.

Table 9: Performance of Pharmaceuticals and Chemicals Industry on CCAPI

Sl. No.	Pharmaceuticals and Chemicals Companies (Acronym)	Performance (%)
1.	ACI	0.00
2.	ACIFORMULA	0.00
3.	ACMELAB	0.00
4.	ACMEPL	0.00
5.	ACTIVEFINE	0.00
6.	ADVENT	0.00
7.	AFCAGRO	0.00
8.	AMBEEPHA	0.00
9.	ASIATICLAB	0.00
10.	BEACONPHAR	0.00
11.	BXPHARMA	18.75
12.	CENTRALPHL	0.00
13.	FARCHEM	0.00
14.	GHCL	0.00
15.	IBNSINA	6.25
16.	IBP	0.00
17.	JHRML	0.00
18.	JMISMDL	0.00
19.	KEYACOSMET	0.00
20.	KOHINOOR	0.00
21.	LIBRAINFU	0.00
22.	MARICO	0.00
23.	NAVANAPHAR	0.00
24.	ORIONINFU	0.00
25.	ORIONPHARM	0.00
26.	PHARMAID	0.00
27.	RECKITTBEN	6.25
28.	RENATA	6.25
29.	SALVOCHEM	0.00
30.	SILCOPHL	0.00
31.	SILVAPHL	0.00
32.	SQURPHARMA	12.5
33.	WATACHEM	0.00

Source: Calculated by Authors

Performance of Service and Real-estate Industry on CCAPI

Table 10: Performance of Service and Real-estate Industry on CCAPI

Sl. No.	Service and Real-estate Companies (Acronym)	Performance
1.	EHL	0.00
2.	SAIFPOWER	0.00
3.	SAMORITA	0.00
4.	SAPORTL	0.00

Source: Calculated by Authors

Table 10 indicates that, according to the 16-characteristic Corporate Carbon Accounting Practice Index, most companies in the real estate and service sectors are dealing with difficult situations. None of the four companies listed on the DSE face significant issues with corporate carbon accounting methods.

Performance of Tannery Industry on CCAPI

Table 11: Performance of Tannery Industry on CCAPI

Sl. No.	Tannery industry (Acronym)	Performance
1.	APEXFOOT	12.50
2.	APEXTANRY	0.00
3.	BATASHOE	0.00
4.	FORTUNE	0.00
5.	LEGACYFOOT	0.00
6.	SAMATALETH	0.00

Source: Calculated by Authors

Table 11 shows that the tannery industry is often regarded as one of the most ecologically damaging sectors of the global economy. This is primarily because the tannery sector is the one that manages waste and produces the most pollution of any business. There are six tannery companies in Bangladesh that are listed on the DSE. Corporate carbon accounting techniques in these firms are not supported by scientific data. The yearly records they were expected to produce on issues that ought to have been included in their annual reports were not provided by them. We discovered a notable absence of enthusiasm for corporate carbon accounting methods.

Performance of Telecommunication Industry on CCAPI

Table 12: Performance of *Telecommunication* Industry on CCAPI

Sl. No.	Telecommunication Companies (Acronym)	Performance (%)
1.	BSCCL	0.00
2.	GP	12.5
3.	ROBI	18.75

Source: Calculated by Authors

Table 12 shows that, one of the sectors with the highest carbon emissions is the technology-driven telecoms industry. Bangladesh's DSE now lists three telecoms industry companies. The three companies' individual

corporate reports are accessible. An examination of the annual reports of the three corporations indicates that companies in the telecommunications industry are not interested in using corporate carbon accounting techniques. They have very little information regarding their canons. The results of the study indicate that their corporate carbon accounting disclosure falls well short of what is required.

Performance of Travel and Leisure Industry on CCAPI

Table 13: Performance of Travel and Leisure Industry on CCAPI

Sl. No.	Travel and Leisure Companies (Acronym)	Performance
1.	BDSERVICE	6.25
2.	BESTHLDNG	0.00
3.	PENINSULA	0.00
4.	SEAPEARL	0.00
5.	UNIQUEHRL	25

Source: Calculated by Authors

According to table 13, four of the five registered travel and leisure firms did not include any information in their annual reports on their corporate carbon accounting or any other environmental or carbon-related information. Nonetheless, one business fulfilled four of the sixteen requirements and revealed a substantial quantity of environmental data in their annual report.

Conclusion

New, more comprehensive approaches to climate change prevention and mitigation are needed due to the global nature of greenhouse gas emissions and the growing effects of climate change. The situation calls for better methods to foresee and satisfy new information needs, as well as instructions on how to use changing accounting practices for accountability, transparency, and decision-making in businesses, governments, and other organizations. Climate change and corporate carbon accounting have a close relationship. Since the Kyoto Protocol was ratified, corporate carbon accounting has expanded around the globe. Unfortunately, only in developed countries has corporate carbon accounting progressed and expanded. The practice of corporate carbon accounting has not developed to the expected degree in coastal nations like Bangladesh. It's also important to highlight that corporate carbon accounting methods in Bangladesh are still in their infancy and are often voluntary, which has led to a drop in the caliber of such reporting. Furthermore, it is typical for businesses to provide information on carbon via a range of platforms, including annual reports, sustainability reports, CSR reports, and company websites. There is no supervisory structure in place in Bangladesh for firms' accounting of carbon emissions. One main reason carbon accounting techniques are now seen a concerning lack of engagement in the corporate sector is the lack of a legal framework for them in Bangladesh. Businesses participate in carbon accounting voluntarily, meaning they raise environmental issues on their own initiative, since it is not legally required.

Policy Guidelines

The current research may contribute significantly in a number of ways. In the end, the results of this study have the potential to greatly impact the formulation of recommendations for corporate carbon accounting practices by policy makers and pertinent agencies. The results of the research are meant to help scholars and decision-

makers understand how companies respond to corporate carbon accounting to achieve environmental sustainability. The main cause of Bangladeshi companies' disinterest in the aforementioned carbon accounting techniques is the lack of a strong legal framework in the nation. This is by far the most important concern. The lack of a strong legal framework is the investigation's most persuasive conclusion. Improving corporate carbon accounting practices requires the establishment of a strong legal framework. The study's conclusions also indicate that companies have the discretion to decide whether to include corporate carbon accounting issues in their annual reports. This indicates that these companies discuss environmental concerns in their annual reports without following any particular structure since there is no legislative framework in place. Establishing a legal framework with suitable oversight will enable the implementation of corporate carbon accounting in Bangladesh. To avoid and mitigate the negative impacts of climate change and global greenhouse gas emissions, new and more comprehensive methods must be developed. Leading the charge in this endeavor might be appropriate corporate carbon accounting procedures. To meet the growing information needs of corporate carbon accounting, government agencies, corporations, academic institutions, and nonprofit groups will require enhanced methods. To promote sustainability and environmental transparency, they will also need direction on how to use sophisticated corporate carbon accounting systems. A thorough framework for defining carbon accounting practices in Bangladesh may be built using the 16 elements of the Corporate Carbon Accounting Practices Index that are described in this study.

Declaration

The undersigned authors affirm that this content is wholly original and has not been submitted or published elsewhere. Every author significantly contributed to the research, composition, and final endorsement of the paper.

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