



Ethical Environmental Disclosure and Reporting Practices: A Comparative Study of Cement and Textile Industries in India

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ABSTRACT

Ethical environmental disclosure and reporting have become crucial for corporate governance as stakeholders increasingly demand transparency and accountability. This study examines the ethical environmental reporting practices of selected Indian companies in the Cement and Textile industries for FY2023–24. The Environmental Disclosure Index (EDI) was used to measure disclosure levels, and an independent sample t-test was applied to assess industry-wise differences. The results showed that Cement companies reported higher average EDI scores than Textile companies, but the transformation was not statistically significant. Both industries demonstrated progress in sustainability disclosures, yet gaps remained in quality and consistency. The study emphasizes the need for standardized frameworks, expanded reporting coverage, and stronger alignment with global sustainability norms.

KEY WORDS: *Ethical Environmental disclosure, Sustainability Reporting, Environmental Disclosure Index (EDI), Cement Industry, Textile Industry.*

JEL Codes: Q56, M14, L74, L67

1. INTRODUCTION

Ethical environmental disclosure and reporting have become central to corporate governance as businesses are progressively detained responsible for their environmental and social impacts. Stakeholders now expect companies to disclose not only monetary performance but also their contributions to sustainability and environmental responsibility.

In India, regulatory frameworks such as the Companies Act, 2013, and the Securities and Exchange Board of India's (SEBI) mandate of the Business Responsibility and Sustainability Report (BRSR) have reinforced the position of sustainability disclosures. Global initiatives such as the Global Reporting Initiative (GRI) further



encourage companies to adopt systematic environmental reporting. Despite these developments, disclosure practices still vary significantly across businesses and companies.

The Cement and Textile industries are especially appropriate to the study of ethical environmental reporting. Cement production is energy intensive and contributes heavily to carbon emissions, while Textile manufacturing faces challenges in water use, chemical discharges, and waste management. Comparing disclosure practices across these businesses delivers valuable perceptions into how environmentally sensitive sectors address sustainability.

Although prior studies have inspected environmental reporting in India, many relied on outdated data, focused narrowly on single sectors, or provided only descriptive analysis. Few studies employed statistical methods to test whether differences across industries were significant.

This study discourses these gaps by applying the Environmental Disclosure Index (EDI) and an independent sample t-test to compare ethical environmental reporting practices in selected Cement and Textile companies for FY2023–24. The findings aim to provide insights for companies, regulators, and researchers regarding the current state of reporting and areas requiring improvement.

2. LITERATURE REVIEW

- 1) (Almasyhari, Rachmadani , & Priatnasari, 2024)** explored the effectiveness of environmental accounting systems in improving governance. They determined that standardized frameworks reduced inefficiencies and enhanced compliance. Their work was basically hypothetical and offered limited evidence on how disclosure practices differ across industries.
- 2) (Prajapati & Shah, 2024)** specifically studied the Cement sector in India and found that larger companies such as UltraTech had more comprehensive disclosures, driven by stakeholder pressure and global linkages. While insightful, their study was confined to a single industry and did not deliver evaluations with others.
- 3) (Veeravel , Murugesan , & Narayanamurthy, 2024)** investigated the influence of ESG disclosure on firm performance in emerging economies. Their results indicated a optimistic connotation between transparent reporting and financial outcomes. Yet, the study examined ESG broadly without differentiating the unique challenges of industries such as Cement and Textile.
- 4) (Javed, 2023)** analysed how ESG disclosures were integrated into corporate strategy. The findings revealed that higher-quality disclosures improved market credibility and attracted socially responsible investors. The study, however, was conceptual in nature and lacked industry-specific analysis.
- 5) (Alghamdi & Agag, 2023)** examined the role of sustainability reporting in building consumer trust and strengthening corporate reputation. Their study showed that transparent environmental disclosure



enhanced brand loyalty and long-term competitiveness. However, the focus was primarily on consumer perspectives rather than investor decision-making.

- 6) (Khandelwal & Chaturvedi, 2021) assessed corporate sustainability practices in Indian manufacturing firms. They reported that disclosure levels varied widely, with some companies exceeding regulatory requirements while others disclosed only minimum information. Although the study emphasized the need for comparability, it did not apply statistical tools to test industry-level differences.

Overall, previous research established the value of environmental reporting for governance and performance. Though, many studies used outdated data, limited industry scope, or descriptive methods. Very few applied statistical testing or cross-industry comparisons. These gaps provide the basis for the present study, which employs the EDI and a t-test to compare ethical environmental reporting in the Cement and Textile industries.

3. RESEARCH GAP

Although numerous studies have addressed environmental reporting in India, important gaps remain. First, most research relied on outdated data that did not imitate recent regulatory requirements such as BRSR. Second, limited studies have compared reporting practices across industries, particularly Cement and Textile. Finally, few studies applied statistical testing to determine whether differences were significant.

This study fills these gaps by applying the EDI and an independent sample t-test to evaluate ethical environmental reporting in selected Indian Cement and Textile companies for FY2023–24.

4. RESEARCH OBJECTIVES & HYPOTHESES

4.1 Research Objectives

- 1) To evaluate the level of ethical environmental disclosure in selected Indian companies using the Environmental Disclosure Index (EDI).
- 2) To compare ethical environmental accounting and reporting practices between the Cement and Textile industries.
- 3) To identify disclosure gaps and highlight best practices.
- 4) To provide insights and recommendations for improving ethical environmental reporting in India.

4.2 Research Hypotheses

Based on the objectives and prior literature, the subsequent hypotheses were formulated:

H₀ (Null Hypothesis): There is no significant difference in ethical environmental disclosure and reporting practices between the Cement and Textile industries.



H₁ (Alternative Hypothesis): There is a significant difference in ethical environmental disclosure and reporting practices between the Cement and Textile industries.

5. RESEARCH METHODOLOGY

5.1 Research Design

The present study adopts an analytical research design to evaluate ethical environmental disclosure and reporting practices in selected Indian companies. It focuses on two environmentally intensive sectors Cement and Textile and compares their disclosure practices using the Environmental Disclosure Index (EDI) and statistical testing.

5.2 Sample Selection

The study considered five companies each from the Cement and Textile industries. The selection was based on market capitalization and the availability of recent sustainability disclosures. This ensured representation of leading firms that are expected to follow standardized reporting practices.

Table 1: Selected sample companies

Cement Industry	Textile Industry
UltraTech Cement Ltd.	Arvind Ltd.
Shree Cement Ltd.	Trident Ltd.
The Ramco Cements Ltd.	Alok Industries Ltd.
Nuvoco Vistas Corporation Ltd.	K.P.R. Mill Ltd.
JK Lakshmi Cement Ltd.	Pearl Global Industries Ltd.

(Source: Computed by Author)

5.3 Data Sources

The analysis was founded on secondary data collected from annual reports, Business Responsibility and Sustainability Reports (BRSR), Global Reporting Initiative (GRI) disclosures, and company sustainability reports for FY2023–24. Further supportive data was got from company websites and stock exchange filings.

5.4 Environmental Disclosure Index (EDI)

Table 2: Environmental Disclosure Index (EDI) Scoring

Disclosure Category	Weightage	Scoring Criteria	Maximum Score
Emissions & Air Quality	20%	Disclosure of CO ₂ , NO _x , SO _x , PM levels, and control measures	20



Energy Usage & Efficiency	20%	Reporting on energy consumption, renewable energy use, and efficiency measures	20
Water Management & Waste Handling	20%	Disclosure of water consumption, recycling, wastewater management, and waste reduction initiatives	20
Environmental Certifications & Climate Risk	20%	ISO 14001, other certifications, and climate risk mitigation efforts	20
CSR & Sustainability Initiatives	20%	Projects and initiatives related to environmental sustainability and community welfare	20

(Source: Computed by Author)

Total Maximum Score: 100

Notes:

Each company is scored out of 20 points per category, based on disclosure completeness and quality.

The scores were then summed to compute the total EDI score out of 100.

This framework allows a clear, quantitative comparison between Cement and Textile companies.

5.5 Tools and Techniques of Analysis

1. Environmental Disclosure Index (EDI) Scoring

EDI scores were calculated across predefined categories of environmental reporting, including emissions, energy, water, waste management, and CSR initiatives.

2. Industry-wise Comparison

Average EDI scores were computed for the Cement and Textile industries.

3. Statistical Analysis (t-test)

To evaluate industry-wise differences in disclosure practices, an independent sample t-test was applied. The test compared the mean EDI scores of Cement and Textile companies to regulate whether differences in reporting were statistically significant.

4. Software

Microsoft Excel was used for data tabulation, computation of EDI scores, and t-test analysis.

5.6 Period of Study

This study emphasizes on the fiscal year 2023–24 to ensure that the findings are current and relevant.



6. DATA ANALYSIS AND FINDINGS

This segment presents the outcomes of the Environmental Disclosure Index (EDI) analysis for selected Cement and Textile companies and interprets the statistical test applied to compare industry-wise differences.

6.1 Company-wise EDI Scores (FY2023–24)

Table 3: Environmental Disclosure Index (EDI) Scores – Cement Industry

Category	Company				
	UltraTech	Shree	Ramco	Nuvoco	JK Lakshmi
Emissions & Air Quality (20)	18	17	16	15	14
Energy Usage & Efficiency (20)	17	16	15	15	14
Water & Waste Management (20)	16	15	15	14	13
Certifications & Climate Risk (20)	18	17	16	15	14
CSR & Sustainability Initiatives (20)	17	16	15	14	13
Total EDI Score (100)	86	81	77	73	68

(Source: FY2023–24 annual reports, BRSR/GRI disclosures, and CSR reports)

Table 4: Environmental Disclosure Index (EDI) Scores – Textile Industry

Category	Company				
	Arvind	Trident	Alok	K.P.R. Mill	Pearl Global
Emissions & Air Quality (20)	16	15	14	13	12
Energy Usage & Efficiency (20)	15	14	14	13	12
Water & Waste Management (20)	14	14	13	12	11
Certifications & Climate Risk (20)	15	14	14	13	12
CSR & Sustainability Initiatives (20)	16	15	14	13	12
Total EDI Score (100)	76	72	69	64	59

(Source: FY2023–24 annual reports, BRSR/GRI disclosures, and CSR reports)

Interpretation:

The results showed variation in disclosure practices both within and across industries. While certain Cement companies achieved consistently higher scores, some Textile companies reported fewer environmental parameters. This suggested that disclosure practices were not unvarying and depended on company-specific priorities and compliance levels.



6.2 Industry-wise Average EDI Scores (FY2023–24)

Table 5: Average EDI Scores of Cement & Textile Industry

Industry	Average Emissions & Air Quality	Average Energy Usage & Efficiency	Average Water & Waste Management	Average Certifications & Climate Risk	Average CSR & Sustainability Initiatives	Average Total EDI Score
Cement	16	15.4	14.6	16	15	77
Textile	14	13.6	12.8	13.6	14	68

(Source: FY2023–24 annual reports, BRSR/GRI disclosures, and CSR reports)

Interpretation:

The Cement industry reported a higher average EDI score compared to the Textile industry, reflecting relatively stronger disclosure practices. However, the difference in average scores was not actual wide, suggesting that both sectors were progressing toward improved reporting.

6.3 t-Test Analysis (Cement vs Textile)

Table 6: t-Test for Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	77	68
Variance	48.5	44.5
Observations	5	5
Hypothesized Mean Difference	0	
df	8	For testing a hypothesis, p-value 0.070 is more than 0.05 Hence, The null hypothesis has been Accepted at 5% level of significance.
t Stat	2.087	
P(T<=t) one-tail	0.035	
t Critical one-tailed	1.860	
P(T<=t) two-tail	0.070	
t Critical two-tailed	2.306	

(Source: Microsoft Excel Data Analysis Tool Pak)

Interpretation:

The calculated p-value (0.070) was greater than the 0.05 level of significance. Hence, the null hypothesis was accepted, representative that there was no statistically significant difference in ethical environmental reporting practices between the two industries. Although the Cement industry recorded slightly higher scores, the variation was not strong enough to confirm significant industry-level differences.



6.4 Hypothesis Testing

Hypotheses:

H₀ (Null Hypothesis): There is no significant difference in ethical environmental disclosure and reporting practices between the Cement and Textile industries.

H₁ (Alternative Hypothesis): There is a significant difference in ethical environmental disclosure and reporting practices between the Cement and Textile industries.

Test Results:

Based on the results of the t-test, the p-value (0.070) exceeds the 5% significance level. So, the null hypothesis (H₀) is accepted, and the alternative hypothesis (H₁) is rejected.

This outcome specifies that, while Cement companies show relatively higher EDI scores compared to Textile companies, the difference is not statistically significant. The findings suggest that reporting practices across both industries share similarities, and any pragmatic differences may not be strong enough to generalize. To establish clearer distinctions, future studies may need to use larger samples or multi-year data to provide stronger statistical support.

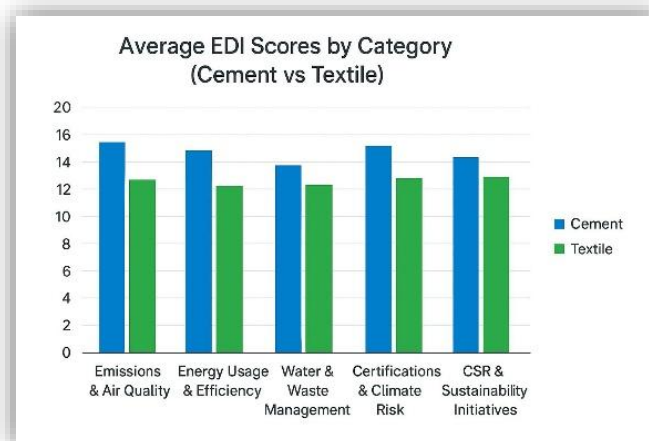
Summary:

The analysis indicates that while cement companies show somewhat higher EDI scores than textile companies, the difference is not statistically significant at the 5% significance level.

Therefore, based on the FY2023–24 data for these ten companies, we cannot conclude a significant difference in environmental reporting practices between the two industries.

6.5 Graphs & Visual Representation

Figure 1: Bar Chart of Average EDI Scores (FY2023–24)

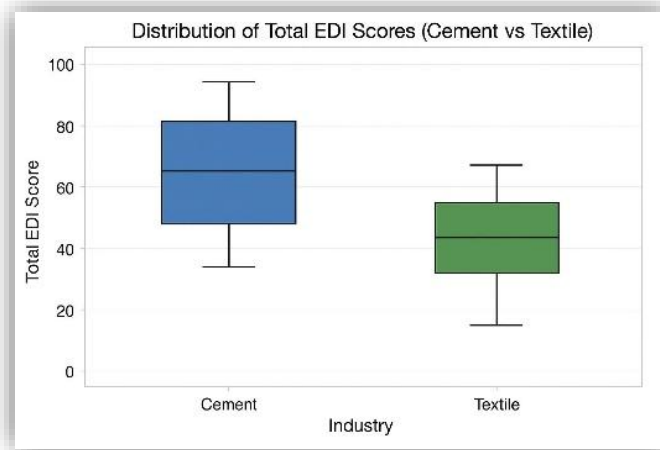


(Source: Compiled by author from company sustainability disclosures and annual reports FY2023–24)



Interpretation: Cement companies have somewhat higher average scores in all categories, reflecting better reporting.

Figure 2: Boxplot of EDI Scores by Industry (FY2023–24)



(Source: Compiled by author from company sustainability disclosures and annual reports FY2023–24)

Interpretation: Cement scores were generally higher and less dispersed than textile scores, indicating slightly more consistent reporting practices.

6.6 Observations & Insights

1. Company-wise EDI Scores:

Among Cement companies, UltraTech Cement Ltd. scored the highest (86/100), reflecting comprehensive reporting of emissions, energy, water, certifications, and CSR initiatives.

In the Textile sector, Arvind Ltd. achieved the highest total score (76/100), indicating relatively better reporting among its peers.

Overall, Cement companies reliably scored complex across all disclosure categories than textile companies, suggesting stronger environmental accountability.

2. Industry-wise Comparison (Bar Chart):

The average EDI scores per category show that cement companies outperform textile companies in every category, particularly in Emissions & Air Quality and Certifications & Climate Risk.

Both industries show similar performance in CSR & Sustainability Initiatives, reflecting the company's efforts in social and environmental programs.



3. Distribution of Total EDI Scores (Boxplot):

Cement scores were generally higher and less variable than textile scores, indicating more consistent reporting practices across the industry.

Textile companies exhibited a wider spread, suggesting an uneven adoption of environmental reporting practices among firms.

4. Hypothesis testing (t-test):

The independent samples t-test produced a t-value of 2.087 and a p-value of 0.070.

Since $p > 0.05$, the null hypothesis (H_0) is accepted, meaning the difference in total EDI scores between Cement and Textile industries is not statistically significant at the 5% level.

This indicates that while cement companies show slightly higher reporting scores, the evidence is not strong enough to conclude a significant difference with this sample size.

5. Key Insights:

Cement companies demonstrate slightly stronger environmental disclosure and reporting practices than textile companies, especially in emissions management and certifications.

Textile companies have room for development in water and waste management and energy efficiency.

This study highlights the importance of standardized reporting frameworks and regular assessments to improve ethical environmental disclosures across industries.

Summary:

The analysis suggests a trend of better reporting in cement companies, though the difference is not statistically important.

These insights can guide regulators, policymakers, and corporate managers in implementing strategies to enhance transparency and sustainability reporting across Indian industries.

7. DISCUSSION

The findings of this study show that Cement companies reported higher average EDI scores compared to Textile companies, though the difference was not statistically significant. This outcome highlights that while the Cement industry is relatively more advanced in its sustainability disclosures, both industries are converging toward improved reporting practices.



These results are dependable with prior studies such as (Prajapati & Shah, 2024), who observed that large Cement firms, particularly those with global linkages, tend to disclose more comprehensively due to external stakeholder pressure. Similarly, (Khandelwal & Chaturvedi, 2021) noted wide variations in Indian manufacturing firms' reporting, which align with the intra-industry differences found in this study.

The acceptance of the null hypothesis confirms that disclosure practices are not pointedly different across Cement and Textile industries. This aligns with (Veeravel , Murugesan , & Narayanamurthy, 2024), who suggested that environmental disclosures in emerging economies are progressively becoming more uniform across sectors. However, the present findings differ from (Prajapati & Shah, 2024), who emphasized a distinct advantage in disclosure by Cement companies.

The absence of a significant difference also reflects the Increasing role of regulatory requirements such as the Business Responsibility and Sustainability Report (BRSR), which has standardized reporting formats across industries. This supervisory push, combined with global frameworks such as GRI, is reducing industry-level variation.

Overall, the study contributes by empirically confirming, through statistical testing, that while Cement companies generally lead in disclosures, the differences with Textile companies are narrowing. This demonstrates that ethical environmental reporting is becoming a shared responsibility across industries in India.

8. LIMITATIONS OF THE STUDY

- 1) The analysis was based solely on secondary data collected from company reports and disclosures. Any gaps or biases in reporting may have influenced the findings.
- 2) The sample was limited to ten companies (five from each industry). A larger sample covering more firms could provide more generalizable results.
- 3) The study focused only on two industries Cement and Textile. Expanding the scope to include other environmentally sensitive sectors could yield broader insights.
- 4) The Environmental Disclosure Index (EDI) was constructed using selected parameters. Although comprehensive, it may not detention all proportions of ethical environmental accounting.
- 5) The research sheltered one financial year (FY2023–24). A multi-year analysis could reveal trends and changes in disclosure practices over time.

9. RECOMMENDATIONS

- 1) Companies should strengthen the scope and depth of their disclosures by aligning more closely with global frameworks such as the Global Reporting Initiative (GRI).
- 2) Industry relations can promote best practices by facilitating knowledge sharing and benchmarking across firms.



- 3) Policymakers and regulators should consider refining reporting standards to enhance comparability and reduce inconsistencies.
- 4) Future research should expand the scope to other industries and adopt a multi-year perspective to capture changes in disclosure practices over time.

In conclusion, while development has been made, ethical environmental reporting in India requires continued improvement to meet global expectations, support investor decision-making, and contribute meaningfully to sustainable development goals.

CONCLUSION

This study observed ethical environmental disclosure and reporting practices in selected Indian companies from the Cement and Textile industries for FY2023–24. Using the Environmental Disclosure Index (EDI) and an independent sample t-test, the analysis found that Cement companies reported higher average disclosure scores than Textile companies. However, the difference was not statistically important, suggesting that both industries are gradually converging toward improved and standardized reporting practices.

The findings highlight the growing influence of regulatory measures such as the Business Responsibility and Sustainability Report (BRSR), which has encouraged greater uniformity in disclosures across industries. While variations remain, particularly at the company level, the overall trend indicates that ethical environmental reporting is becoming a shared priority.

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