



Comparative Analysis of Environmental Disclosure Scores Among Cement Companies in India

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ABSTRACT

Environmental accounting has been somewhat important lately; Gross investment has also grown more noticeable. As businesses becoming 'greener'. The accounting profession had to react to the developing tendency. Such developments have significant impact on accounting reporting, especially when the businesses relied on their annual reports as the primary source of communication about environmental and social concerns. Therefore, one may argue that environmental accounting is about looking at the economic activities' quantitative and qualitative impacts on natural resources. This paper examines the environmental disclosure of the chosen cement firms from the sample of seven businesses over ten years, 2012-13 to 2021-22. The ANOVA post Hoc test is then used to examine the data to determine the EDS score variations. This paper presents the findings.

Keywords: EDS, Cement companies, Cement industry, ANOVA.

Introduction

Environmental protection has become a key issue all over the world these days. Several factors and forces are responsible for destruction of environment. Of these, growing hazardous Industrialisation is a major culprit. Though swift industrialization is an essential requisite for overall economic growth, yet it is damaging environment drastically, water pollution, air, solid and toxic waste pollution, and other environmental contamination are common in many productions process- Every company has an overriding responsibility to make the fullest possible use of its resources both human and material. The issue of environmental responsibility and the sustainable industrial development has given birth to new branch of accounting i.e., environmental accounting and reporting. Environmental accounting is relatively a recent entrant in the domain of accounting. It is process of identification measurement and communication of information in the environmental responsibility performance of an entity to permit economic decision. In other words, "Environment accounting forms that part of accounting that deals with environmental concerns".

Environmental accounting is essential for an organization implementing the concept of sustainable development as it facilitates to consider ecological activities of an organization in economic measurement. Private sector companies and public sector organizations have become conscious of environment management, health and safety risks. Over the past few years, industry has increasingly come to realize that sound environmental management can be equated with good management. Moreover, better environmental management ensures resource saving and, hence, helps cut down the production cost. Recycle and reuse wastes have led to cost saving in many chemical processing industries. Several industries have adopted cleaner technologies that generate less waste and make production more profitable. Industry can, therefore, clearly benefit from a critical self-examination of the processes and technologies it employs to see in which areas there is scope for improvement and foresee the potential problem areas, particularly pollution and human health.

This paper measures environmental disclosure of the 7 selected cement companies for the period of 10 years, 2012-13 to 2021-22 to calculate and measure the differences in EDS scores.

Reviews of literature

Tregidga, H., & Laine, M. (2021)ⁱ shown the environment is in trouble. For instance, climate science and indices of biodiversity loss show how far environmental deterioration has gone and how unsustainable Earth is, or maybe more particularly, how well Earth can support (human) life. There is also growing awareness of the environmental catastrophe as urgent, as an emergency, but whether we are behaving adequately to the environmental disaster is still up for discussion. The COVID-19 epidemic has made these discussions more obvious and has helped to create a framework to think about how the environment may play a role in any post-COVID recovery and what it means to react to a crisis. This article begins with a discussion of the environmental crisis and the COVID-19 problem, followed by a reflection on crisis, urgency, and (in)action. We then turn to our primary emphasis: the

consequences for environmental accounting. Specifically, we propose that the development of environmental accounting as accounting for the long-term, an effort to contrast it with and overcome the issues with short-term conventional accounting, may help to shape the environment as lacking urgency and maybe allow its marginalisation. Environmental accounting, we argue, should be about the short-term if one is to fully use accounting's potential as a constitutive force able to help change preferences, choices, and behaviour in companies and society. Our work helps to shape the continuing debates on how accounting has to evolve to acknowledge the pressing character of the environmental catastrophe.

Qian, W., Tilt, C., & Belal, A. (2021)ⁱⁱ showed that this study aims to examine most recent social and environmental accounting (SEA) advancements in the setting of developing nations and to provide insights for the newest studies in this area. It also presents the AAAJ special edition. With an eye to find significant themes, trends, and future research paths, the writers have done a conceptual review how the subject evolved in the last two decades (2001–2020). The survey shows that in the previous 20 years just 43 SEA articles on contextual issues of poor nations have been published in prominent accounting journals. These periodicals' coverage is focused on a few countries and areas. The primary publication venues in this area are interdisciplinary accounting journals, particularly AAAJ. Though poor nations are more vulnerable to the dangers of climate change, water pollution and biodiversity loss, the subject areas are mostly dominated by social accounting issues with much less emphasis on environmental accounting. The literature examined employs three primary contextualisation strategies—elaborating, problematising, and theorising—to investigate contextual issues structured around regulatory, political, cultural and religious, and social-economic systems. Though different conceptual lenses have been used in the developing country SEA literature, the use of institutional theory and its several extensions to handle political and cultural complexity appears to be more prominent, as indicated in most of the papers included in this special issue.

Dutta, P. P. (2020)ⁱⁱⁱ revealed that environmental Accounting is a tool by which one can understand the role implemented by an organization for environmental safety and welfare. Since an enterprise is a corporate citizen like a human being, it is necessary to behave by the corporate entity as a good citizen. Similar to the economic performance of a corporate entity, its action in relation to the environment and society is required to be judged. To mandate the social responsibility of corporate sector for better development of Indian environment, there are many laws have been enacted and amended from time to time. The conservation of energy has been considered as Environmental Accounting by The International Accounting Standard Board (IASB) organized under International Financial Reporting Standard Foundation. India, being a developing country, it is necessary to promote economic development by safe or less environmental degradation i.e. the development must be environmentally sustainable. Therefore, accounting and its disclosure relating to environmental issues have been considered as one of the important and ethical dimension of corporate reporting. The present research paper aims on exploring the concept of Environmental accounting, its practices and legal issues as well as the Environment Accounting and Reporting Practice adopted by Numaligarh Refinery Limited situated in the District of Golaghat, Assam (India)

Tahajuddin, S., Xin, Z., & Kassim, A. W. M. (2020)^{iv} revealed that this paper investigates the effect of the pressure from external stakeholders on Environmental accounting reporting (EAR) in SMEs in Shanxi Province, China. A total of 88 response was collected in this study. The data were analyzed by utilizing Partial Least Squares-Structural Equation Modeling (PLS-SEM) using SmartPLS 3.3.2. The empirical results showed that the customers in SMEs in Shanxi province, china were able to pressure the companies to implement environmental accounting reporting. The study also found that, suppliers' pressure do not have influence on environmental accounting reporting. The results of this study prove that customers think about environmental issues, because environmental accounting reports can improve the profits of SMEs in terms of environment, cost, high-efficiency technology, and lowpollution, non-pollution products, so that customers can buy cheaper and better quality products.

Bhattarai, B. P. (2018)^v shown that economic growth all over the globe has social and environmental consequences that cause societal issues, global warming, natural catastrophes, and pollution. Many businesses have as much responsibility for social and environmental concerns as they do for financial ones. One explanation for this is that businesses express increasing worry regarding environmental damage. More efficient environmental regulations and the legal systems all over the globe have become crucial to industrial expansion and economic advancement. Environmental sustainability and material development complement one another. Environmental accounting is becoming more important as more people report because of growing worldwide environmental concern. Environmental accounting and reporting of Nepalese industrial and hospitality companies listed in Nepal Stock Exchange is the focus of the current work. The research has used primary and secondary data for this goal. Two standardised surveys provided the means of gathering the main data. To determine the variations in the perspective of the preparers and users about the requirement for a certain regulatory framework—including accounting rules, principles, and standards—for environmental accounting and reporting of listed Nepalese firms. Annual reports retrieved by personal visits to sample company corporate offices provided the secondary data. Covering the years 1998 to 2012, the annual reports of 16 listed firms This study uses two distinct EDS (environmental disclosure score) weights to meet the research goals. Empirical evidence from many nations studies on this topic has used as the foundation for secondary data analysis of the sample firms. Every year EDS has been computed; one using equal weights and the other using uneven weights. Twenty-three specified disclosure elements in the score sheet have been used to gather these items from the company's annual reports, hence enabling analysis of the degree of environmental disclosure. Secondary data has also been examined using descriptive statistics, correlation and regression analysis. The research investigates experimentally the link between corporate traits and EDS in the mentioned sample firms of Nepal. The outcome offers solid proof.

Adagye, D. I., & Abubakar, S. B. (2018)^{vi} Revealed that the increasing worry of civil society and the general public about corporations' environmental effects generates a need for measuring, monitoring, and screening, comparing and benchmarking the environmental performance of enterprises. Companies utilise several methods to this effect; some of these methods might clearly be seen as a factor affecting firm success under current circumstances. The study looked at the general idea of Environmental Accounting and also noted the particular company attitude towards it. The study included exploratory research meant to clarify and emphasise the relevance of the idea of environmental accounting and the different company techniques to acknowledge it. The goal of the research was met using secondary data sources and fairly recent significant literature on environmental accounting.

The study found that environmental accounting is a key instrument for grasping the values and functions the natural environment in the economy. It advised that practical efforts be made by individual businesses and corporations, civil societies and organisations, regulatory authorities, policy makers and professional accounting bodies to guarantee that environmental accounting is correctly introduced, acknowledged and included in final accounting and financial statements required by users of such information, which will go a long way in addressing the resources shortages required to address the great problems and costs imposed by pollution and resources degradation.

Otu, U. A., Okon, A. M., & Nnanna, O. L. (2018)^{vii} said that this research was done to investigate the kind of link between environmental accounting reporting and Oil firms' performance in Nigeria. Random selection from the Nigerian Stock Exchange yielded eleven (11) listed oil businesses. The audited financial accounts of the Oil businesses provided the secondary data needed. The expenses of air pollution, water pollution, land degradation, staff welfare, community welfare, and lawsuits quantified environmental accounting reporting. Return on capital employed (ROCE) was used to gauge oil firms' performance; net profit margin (NPM), split per share (DPS) and earnings per share (EPS). Multiple linear regression is the technique of hypothesis testing using statistics. The study's findings revealed no meaningful links between performance factors—that is, return on capital employed ($P = 0.175$), net profit margin ($P = 0.95$), earnings per share ($P = 0.423$), and dividend per share ($P = 0.542$)—and environmental accounting reporting. Given the results, it is therefore advised that government should require environmental disclosure and punish any Oil company in Nigeria found in violation; Oil companies' compliance should be treated seriously so that the environment will be safe for economic development and growth.

Shakkour, A., Alaodat, H., Alqisi, E., & Alghazawi, A. (2018)^{viii} revealed that the primary aim of this study is to identify how environmental or green Accounting could contribute and ensure sustainable development. It is a descriptive study which has investigated about the environmental accounting and sustainable development from the existing literature. The result indicated that most organizations often ignore large environmental costs. The sound green practice accounting is required. It has also been noted that accountants have unquestioned authority in the field of financial reporting for rights obligations arising under emissions trading schemes in the financial carbon accounting. Finally, the overall results summary of the review shows that the good practice of environmental accounting is vital for sustainability development, especially for focusing on environmental and environmental taxes, costs, and appreciation of ecosystem services, the cost of carbon dioxide, and the cost of water pollution which ensure the sustainable development.

Adeline (2017)^{ix} Given as article on "investments in green strategies improve company value" researcher spoke about the significance of green strategies has been drawing a lot of interest especially in current green economy context. From the financial perspective the link between green strategies and the company value were significant in order to imply the becoming green was financially advantageous to businesses. In this green economy, firms are supposed to participate and invest in certain green initiatives; such investments, however, need for benefit study before businesses can really implement green initiatives. For businesses, it may be somewhat problematic if such green strategy investments did not enhance their corporate value. Malaysian company's participation in green initiatives is still regarded as in infancy. The government of Malaysia urged the businesses to embrace green technologies and named green technology as bone of the essential drivers in their green economy. Established in early 2009, the energy, green technology, and water ministry sought to turn Malaysia into a green economy and country. Given that Malaysia is adopting a green economy, this research should be done there to help business judgement on investments in green initiatives. From an academic standpoint, this research aims to contribute to the knowledge growth & evolution of finance that has to be pertinent to the green economy of today.

Al-Shaer, H., Salama, A., & Toms, S. (2017)^x revealed that the purpose of this paper is to examine the determinants of the volume of environmental disclosures and their quality, with particular focus on the role of audit committees (ACs) and the effects of the Smith report recommendations for the UK Corporate Governance Code. Quantitative large sample analysis of UK FTSE350 companies for the period 2007-2011. Firms with higher quality ACs make higher quality disclosures. Larger firms with block shareholders have greater volume of disclosures, whilst AC quality does not increase disclosure volume.

Amaechi, E. P., & Nwankwoke, E. M. (2017)^{xi} disclosed the goal of the paper. This study aims to investigate why companies struggle to implement environmental accounting. The writers contend that one of the key tools corporate entities use to interact with the outside world is environmental accounting. Environmental information's importance for economic choice has been progressively rising as the commercial world becomes more complicated. Approach/approaches: The study is exploratory and only looks at a tiny fraction of Nigerian companies. Several companies, nevertheless, might have different difficulties implementing environmental accounting. T-values were used to analyse data from the field survey and four hundred (400) questionnaires. Scientific goal: The study looked at Nigerian companies' environmental accounting implementation issues. Results: The research revealed that environmental accounting adoption in Nigeria is hampered by employee lack of environmental knowledge, absence of environmental information, and more adaption expenses. Furthermore, there are no unambiguous environmental accounting rules on topics such environmental costs, assets, liabilities, acknowledgement and assessment of such expenses. By ensuring it dependable and relevant to users, government and accounting regulatory authorities should take more active part in the evolution of environmental accounting and reporting standards. In reality, Nigerian businesses should be given a deadline to completely adopt and carry out environmental reporting policies. Employees also need to be educated on environmental reporting methods.

Heflin, F. and Wallace, D. (2017) also ran comparable research using the BP oil catastrophe to show the consequences and motivations of environmental disclosures. US oil and gas companies with more environmental openness suffered less shareholder value loss after the catastrophe. This indicates that shareholders believed companies with more environmental disclosures were better placed to handle future environmental needs and less likely to experience similar environmental incidents. Environmental transparency rose in the year after the spill, especially with regard to disaster planning policies. Weaker environmental performers revealed more catastrophe preparation strategies. The improved post-spill performance of the poor pre-spill environmental performers warrants their increased disclosure. Our results confirm the voluntary disclosure model of environmental disclosure.

Reajmin Sultana (2017) also looked into Bangladeshi environmental accounting and reporting as part of the same research on disclosure. This study covers presentation and data needs of environmental accounting. This study looks at Petrobangla Companies' environmental accounting practices and provides suggestions for change. This study gathered both primary and secondary data. The study looked at 13 Petrobangla fossil fuel companies from Bangladesh. The writer found that environmental accounting enabled economic organisation managers to evaluate environmental costs and prevent environmental damage. He found that environmental reporting boosted Bangladeshi corporate profits. Petrobangla and its subsidiaries must do environmental accounting to match international norms.

Research methodology

As mentioned in chapter three out of all cement companies the sample units is 7 selected cement companies including Aditya Birla's UltraTech Cement Limited, Binani Cement Limited, JK Cement Limited, Wonder Cement Limited, Shree Cement Company, India Cement Company and ACC Cement Company units could be included for finding out disclosure practices as remaining units are not disclosing data for the chosen period of the study. For the purpose of finding out disclosure score ten most common variables have been chosen out of many variables reported in annual or sustainability report. They are Gas emission (CO₂), NoX emission, SoX emission, water consumption, waste management, electricity consumption, material handling, recycle, environmental cost and environmental saving.

It has been found during the course of the study that even the variables chosen are most common among the sample units even the reporting for them has not been found consistent. Hence, To analyse disclosure practices the scoring is divided into two categories are given from 0-5 depending upon the disclosure of data shown for the number of years i.e., if the company has disclosed the data for all five years a score of five has been given, if it is shown for four years score of four is given and so on for non-monetary disclosure. Assuming that monetary disclosure is more important than non-monetary disclosure, for monetary disclosure of environmental cost and saving for sample units the scores of five to nine are allotted in increasing order for disclosure of the financial data for one year and above, which means that a score of five is given for monetary disclosure of cost / saving if the data shown is only for one year, score of six for data shown for two year and so on. The total environmental score has been awarded out of 60 marks.

COMPARING INTER-Company EDS SCORE

Following hypothesis has been formulated to test the difference between disclosure practices across different continents.

Hypothesis 1 (null): There is no difference in disclosure practices between different Cement companies (on the basis of reporting period and content).

One method of testing the above hypothesis is using one way ANOVA to examine group variance. One-way ANOVA looks at mismatched groups. The P value evaluates the null hypothesis that data from all groups come from populations with equal means. A significant overall P value indicates that the data offers no cause for you to believe the means vary. A modest overall P value makes it improbable that the variations you noted are caused by random sampling. The ANOVA table produces the F ratio from which the P value is derived. ANOVA are beneficial because they provide a benefit over a two sample t-test. Running many two sample t-tests would raise the likelihood of making a type I mistake. For this reason, ANOVAs are helpful in contrasting three or more means.

Table 4.2: ANOVA Result- EDS score

| Descriptive | | | | | |
|------------------|-----------|----|--------|----------------|------------|
| Company | SPSS Code | N | Mean | Std. Deviation | Std. Error |
| UltraTech Cement | 1.00 | 10 | 1.9000 | 2.46982 | .78102 |
| Binani Cement | 2.00 | 10 | 3.5000 | 2.41523 | .76376 |
| JK Cement | 3.00 | 10 | 3.5000 | 2.41523 | .76376 |
| Wonder Cement | 4.00 | 10 | 2.6000 | 2.75681 | .87178 |
| Shree Cement | 5.00 | 10 | 4.4000 | 2.63312 | .83267 |
| India Cement | 6.00 | 10 | 3.0000 | 3.36650 | 1.06458 |
| ACC Cement | 7.00 | 10 | 4.3000 | 3.36815 | 1.06510 |
| Total | | 70 | 3.3143 | 2.80550 | .33532 |

| ANOVA | | | | | |
|----------------|----------------|----|-------------|-------|------|
| VAR00002 | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 48.286 | 6 | 8.048 | 1.025 | .418 |
| Within Groups | 494.800 | 63 | 7.854 | | |
| Total | 543.086 | 69 | | | |

Post Hoc Tests

| Multiple Comparisons | | | | |
|------------------------------|------------------|-----------------------|------------|-------|
| Dependent Variable: VAR00002 | | | | |
| Tukey HSD | | | | |
| (I) VAR00001 | (J) VAR00001 | Mean Difference (I-J) | Std. Error | Sig. |
| UltraTech Cement | Binani Cement | -1.60000 | 1.25331 | .860 |
| | JK Cement | -1.60000 | 1.25331 | .860 |
| | Wonder Cement | -.70000 | 1.25331 | .998 |
| | Shree Cement | -2.50000 | 1.25331 | .428 |
| | India Cement | -1.10000 | 1.25331 | .975 |
| | ACC Cement | -2.40000 | 1.25331 | .478 |
| Binani Cement | UltraTech Cement | 1.60000 | 1.25331 | .860 |
| | JK Cement | .00000 | 1.25331 | 1.000 |
| | Wonder Cement | .90000 | 1.25331 | .991 |
| | Shree Cement | -.90000 | 1.25331 | .991 |
| | India Cement | .50000 | 1.25331 | 1.000 |
| | ACC Cement | -.80000 | 1.25331 | .995 |
| JK Cement | UltraTech Cement | 1.60000 | 1.25331 | .860 |
| | Binani Cement | .00000 | 1.25331 | 1.000 |
| | Wonder Cement | .90000 | 1.25331 | .991 |
| | Shree Cement | -.90000 | 1.25331 | .991 |
| | India Cement | .50000 | 1.25331 | 1.000 |
| | ACC Cement | -.80000 | 1.25331 | .995 |
| Wonder Cement | UltraTech Cement | .70000 | 1.25331 | .998 |
| | Binani Cement | -.90000 | 1.25331 | .991 |
| | JK Cement | -.90000 | 1.25331 | .991 |
| | Shree Cement | -1.80000 | 1.25331 | .780 |
| | India Cement | -.40000 | 1.25331 | 1.000 |
| | ACC Cement | -1.70000 | 1.25331 | .822 |
| Shree Cement | UltraTech Cement | 2.50000 | 1.25331 | .428 |

| | | | | |
|--|------------------|----------|---------|-------|
| | Binani Cement | .90000 | 1.25331 | .991 |
| | JK Cement | .90000 | 1.25331 | .991 |
| | Wonder Cement | 1.80000 | 1.25331 | .780 |
| | India Cement | 1.40000 | 1.25331 | .921 |
| | ACC Cement | .10000 | 1.25331 | 1.000 |
| India Cement | UltraTech Cement | 1.10000 | 1.25331 | .975 |
| | Binani Cement | -.50000 | 1.25331 | 1.000 |
| | JK Cement | -.50000 | 1.25331 | 1.000 |
| | Wonder Cement | .40000 | 1.25331 | 1.000 |
| | Shree Cement | -1.40000 | 1.25331 | .921 |
| | ACC Cement | -1.30000 | 1.25331 | .943 |
| ACC Cement | UltraTech Cement | 2.40000 | 1.25331 | .478 |
| | Binani Cement | .80000 | 1.25331 | .995 |
| | JK Cement | .80000 | 1.25331 | .995 |
| | Wonder Cement | 1.70000 | 1.25331 | .822 |
| | Shree Cement | -.10000 | 1.25331 | 1.000 |
| | India Cement | 1.30000 | 1.25331 | .943 |
| *. The mean difference is significant at the 0.05 level. | | | | |

CONCLUSION

The difference between the study groups is not statistically significant, with a p-value greater than 0.05. Therefore, it can be observed that the EDS scores across all the companies show no significant differences from one another. To assess the robustness of the EDS score among various companies, a Post Hoc test is utilised. The mean value analysis indicates that the highest EDS score aligns closely with the industry standard. Based on the analysis presented, we can accept the null hypothesis, leading us to conclude that there is no significant difference in disclosure practices across various continents.

Our research corroborates earlier findings and highlights similar practices, showcasing the environmental scores of all sampled companies within the cement industry. Additionally, we conducted a comparison of these scores using ANOVA and Post Hoc tests, revealing that Shree Cement and ACC excelled, achieving the highest EDS scores among their peers. The additional hypothesis has been accepted, indicating a positive relationship between EDS and profitability variables across all continents, as demonstrated above.

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