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REVIEW OF LITERATURE
NEED/IMPORTANCE OF THE STUDY
STATEMENT OF THE PROBLEM
OBJECTIVES
HYPOTHESIS (ES)
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
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RECOMMENDATIONS/SUGGESTIONS
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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

REPORTING PRACTICES OF THE ENVIRONMENTAL MANAGEMENT ACCOUNTING AND LEVEL OF DISCLOSURE PREFERRED BY STAKEHOLDERS – A STUDY ON CEMENT COMPANIES IN INDIA

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ABSTRACT

Environmental accounting is a vital tool for accepting the role played by the natural environment in the economy. The research article looks at the method in which companies report for issues other than immediate financial concerns. This includes environmental accounting and its application. The study identifies that the Indian cement industry complies with Kyoto protocol norms and several environmental disclosures resulting in exceptional performance in improving environmental pollution. Cement is the single most important and profitable product in the building material sector. Indian cement industry has a market of opportunities to be enchased but at the same time, Indian cement industry is experiencing a huge demand. Production of Cement releases CO_2 and brings change in the climate of the earth. Hence, despite its profitability, the cement industry faces many challenges regarding environmental concerns and sustainability issues. In order to minimize the impact of all of the above mentioned issues, it is clear that the cement and construction industry will have to adapt to be able to maintain and in this process a number of innovative and new practices have to be adopted. The objective of this research paper is to study the reporting practices of the environmental management accounting and level of disclosure preferred by stakeholders of cement companies and to classify the factors under which the Indian Cement companies can provide details of accounting information for a long time. It is important to see that the reporting of information is according to stakeholder's requirement. The accounting areas of reporting is explored so that the requirements of reporting in terms of financial character can be filled in which might lead to change in the practices under which the current financial statement provides financial information of sustainable activity as non-financial activity and its cost is usually shown as miscellaneous expenditure.

KEYWORDS

cement industry, environmental accounting, financial information, global environmental accounting reporting, sustainable reporting and corporate environmental accounting.

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B26

INTRODUCTION

We make the world we live in and build our own Environment. Environmental pollution is the build-up and concentration of toxic levels of chemicals in the air, water, and land, which reduces the ability of the affected area to sustain life. Pollutants might be gaseous- ozone, carbon monoxide, liquid-discharge from industrial plants and sewage systems or solid land-fills or junkyards which in response causes global warming.

In broad-spectrum environment refers to surroundings of an object. Environmental accounting is a significant tool for understanding the role played by the natural environment in the economy. Environmental accounts presents data, which highlights both the involvement of natural resources to economic well being and the costs imposed by pollution on resource degradation. Due to lack of knowledge of environmental problems such as global warming, rapid changes in climate, glacier meltdown etc are commonly experiences in the present century for which both developed and developing nation may be held responsible. So in 21st century there is an urgent need of protecting our environment because environment is in charge for survival of human beings. The issue of environmental dependability and the sustainable industrial development has given birth to new branch of accounting i.e. environmental accounting.

Environmental accounting is on a development path. With increasing social focus on the environment, accounting fills an expectation part, to determine environmental performance only stressing on the economic and industrial growth. Unfortunately, India forgot the significance of environmental accounting and the result of such ignorance gave birth to unremarkable occurrence of Bhopal chemical leak (1984), tsunami in India (2004).

For proper performance of environmental accounting in India a great number of researches, planning, accounting standards and framework is necessary. The status of environmental understanding provides a vibrant business reporting in its environmental performance.

Environmental Accounting includes economic and environmental information for acquiring sustainable growth, maintaining a positive association with the community, and pursuing effective and efficient environmental conservation activities.

Financial performance can be defined as a subjective measure of how well a firm can utilize assets from its primary method of business and produce revenues (Mills, 2008). This term is also used as a common measure of a firm's in general financial strength over a given period of time, and can be used to match up to related firms across the same industry or to compare industries or sectors in aggregation.

Environmental Management Accounting may be defined as 'The management of the environmental and economic performance, through the development and implementation of suitable environment-related accounting systems and practices. While this may comprise reporting and auditing in some companies, environmental management accounting usually involves lifecycle costing, full cost accounting, benefits evaluation, and strategic planning for environmental management.'

Environmental Management Accounting focuses on making internal business approach decisions. It is defined as "the recognition, compilation, analysis, and use of two types of information for internal decision making." The information required is one, the physical information, on the use, flows and facts of energy, water and other resources (including wastes). Secondly, the monetary information of environmental connected costs, earnings and savings. Environmental Financial Accounting is used to provide information required by external stakeholders on a company's financial presentation. This type of accounting allows companies to arrange financial reports for investors, lenders and other involved parties.

REVIEW OF LITERATURE

Heba Y.M. etal (2014) entitled 'Green Accounting – A Proposition for EA/ER Conceptual Implementation Methodology' have discussed about the idea and accepting on the environmental accounting education. This editorial explores the concepts of environmental accounting and the likelihood of increasing the applicability of the environmental reporting idea to be utilized by governments to make businesses more responsible for their externalities.

John Lintott (1999) argued that the environmental accounting evaluates a universal measure of wellbeing or growth, for guidelines to intend to maximize. Problems of monetary estimation are expected to lead to vast underestimation of environmental costs. Issues of difference and deficiency, necessary to a more healthy vision of sustainability, are ignored.

Joy E. Hecht (1999) entitled 'Environmental Accounting' Where We Are Now? In this study, the author discusses about the existing trends on the global environmental accounting in the international education systems. The author discussed some questions pertaining to why change, which indicators are useful, who is doing this, how to account etc.

The original book (1995) on Environmental Accounting for the Sustainable Corporation: Strategies and Techniques are written by a Canadian chartered accountant who has focused in environmental accounting for the last five years. The topic of environmental accounting assumes greater significance for the practicing accountant. Environmental reserves include pollution abatement technologies, reengineering of plants, products and processes so as to use again waste products; and environmental management systems, as well as an expanded environmental auditing ability published by the National Public Accountant.

Odum Howard T. (1924) his book entitled 'Environmental Accounting Energy and Environmental Decision Making' discussed the environmental management maximizes economic strength with fewer check and error society that may get better efficiencies, innovate with less failures and adapts to modify more quickly. It also discussed the energy budget of the earth. It also discussed the nature of expenses on the energy and money etc.

United Nations Handbook of National Accounting, Studies in Methods Series F, No. 78 Integrated Environmental and Economic Accounting: An Operational handbook, United Nations discussed on increasing pressures on the environment and increasing environmental consciousness that have been generated the need to account for the various relations among all sectors of the economy and the environment.

From the above literature review, it can be concluded that the basic principle behind environmental management accounting is that organizations must internalize environmental costs. Presently these costs are externalized, and the society bears the impact of an organization's unfavorable activities on the environment owing to the reality it is a "public good". It is likely that once organizations are made responsible for these costs, they would be required to lessen the potentially harmful effects of such activities. As environmental management accounting requires organizations to predict the potential environmental impact of their activities and consequently estimation their contingent liabilities and create provisions for environmental risks. To compel businesses in performing accountability, disclosure of environmental management accounting information has become a key process.

OBJECTIVES OF THE STUDY

1. To examine the need and importance of environmental management accounting.
2. To identify the important sustainability factors on environmental, social and economic dimension for select cement industry in India.
3. To analyze the gap between the existing reporting practices and level of disclosure desired by stakeholders of cement companies.

INDIAN CEMENT INDUSTRY

Cement as a product plays a very important role in the development of a nation, as it is a vital raw material for concrete, which is a key raw material in key sectors like infrastructure, construction, commercial and residential real estate. Internationally, cement contributes about 5% of the total CO_2 emissions. Cement sector causes environment contamination problems, and the pollutants of the cement sector produced the unpleasant impact on air, water and land. Throughout the last decades, the discharge of dust from cement factories has been increased disturbingly due to expansion of more cement plants. The escalating concentration of cement dust pollutant and several gaseous air pollutants are readily recognized as being the reason of damage to a variety of type of vegetation. In India, the cement sector is one of the outstanding contributors to conventional as well as GHG emissions. Carbon dioxide creates universal warming and it increases global emissions of carbon from fossil-fuel combustion and other smaller industrial sources.

A variety of parameters like eco-logical rucksack, eco logical foot print, carbon foot print, coal foot print and water foot print can be implemented for finding out the environmental accounting.

To minimize the impact of environmental issues, cement and construction industry will have to become accustomed to stay sustainable and adopt a number of innovative and new practices. The cement companies in the past have been recognizing their sustainable practices but there is too little commitment to disclose the financial information related to these activities. Only a few have discretely recognized this amount in the Profit and Loss account in the form of green belt development or horticulture expenses. A few companies have reported this as "any significant accounting or reporting policies' or 'extraordinary items' in the annual report. This shows that in India, quantitative /financial reporting on Environmental issues is still at the infancy stage. The annual reports show that most polluting companies disclose more environmental information than the entities in the less polluting industries.

As a practice regarding environment disclosure, the companies regarding environment offer descriptive information in the annual reports. This development is increasing over the years. However, the companies that disclose financial information on environmental issues do not provide any item-time wise break up of expenditure or its accounting treatment in these reports. But at the same time some companies provided complete information by means of charts and tables on pollution levels or emission of pollutants. The majority of companies disclose only qualitative/descriptive information on the environment in the annual report. Though a few companies have started reporting quantitative /financial figures on the issue, the information provided is generally brief and lacks specific details. Moreover, there is no consistency in this kind of reporting (Andreson & Skjott –Larsen, 2009).

HYPOTHESES

H1: There is a difference between the sample companies in terms of accounting reporting.
H2: There is a significant difference between the item wise disclosures by the selected cement countries in India.

RESEARCH METHODOLOGY

This chapter analyses the methods to be used for conducting the study on result about the benefits and uses of environmental management accounting for firms. Moreover, the research attempts to carry out an in-depth investigation of environmental management accounting system and the need to draw a framework to increase and put into practice an environmental management accounting system within an organization. The data is primarily collected from various secondary sources pertaining to this topic from different books, articles and several web sites relating to environmental management accounting and the working of cement sector in India. The data collected is analyzed for the application of environmental management accounting practices in the Indian cement industry.

DATA ANALYSIS

Secondary data is used for the research article, which is collected from the financial reports of the cement industries under study and also from the internet.

As cement is considered the single most important and profitable product, it becomes essential to analyze the production and consumption of cement in India over the years.

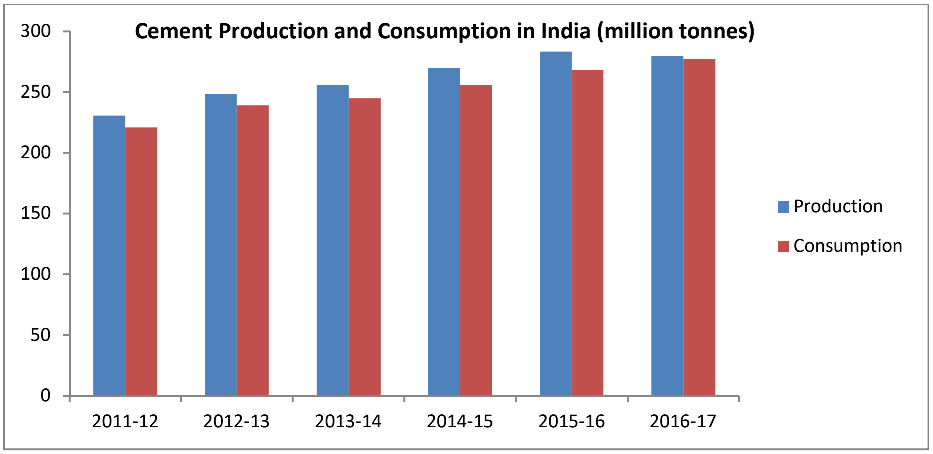
The table below shows the production and consumption of cement (in million tonnes) in India for the period 2012- 2017

TABLE 1

Year	Production	Consumption
2011-12	230.49	221.00
2012-13	248.23	239.00
2013-14	255.83	245.00
2014-15	270.04	256.00
2015-16	283.46	268.00
2016-17	279.81	277.00

Source: Business Standard, Ministry of External Affairs, (Investment and Technology Promotion Division

GRAPH 1



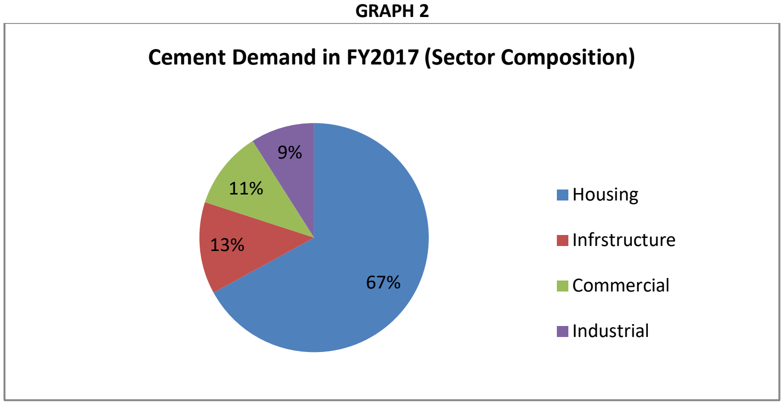
From the above Table 1 and Graph 1 it is seen that the total production of cement in India for the study period is increasing from 2012 to 2017. There is a huge demand for the commodity and as can be seen from the above graph the consumption is almost equal to the production.

TABLE 2: CEMENT DEMAND FY17 (SECTOR COMPOSITION)

Sector	% Demand
Housing	67%
Infrastructure	13%
Commercial	11%
Industrial	9%

Source: Annual Report 2016-17

GRAPH 2



From the above table 2 and Graph 2 it is seen that the demand of cement in the housing sector is the maximum (67%) followed by Infrastructure (13%), Commercial 11% and Industrial 9%.

SUSTAINABILITY REPORTING FACTORS

For the purpose of current research paper, a sample of 10 cement companies in India is taken to understand the sustainable accounting practices and find out the areas in which companies are reporting sustainable accounting. The table 3 below shows area covered under various factors of sustainability development taken from the annual report of the selected cement companies in India. Various environmental, social and economic factors have been considered.

TABLE 3: AREAS COVERED UNDER DIFFERENT FACTORS RELATING TO SUSTAINABILITY

Environmental Factors	Social Factors	Economic Factors
Energy	Community investment	Accountability/ Transparency
Water	Working condition	Corporate Governance
Greenhouse Gases Emission	Human rights and fair trade	Stakeholder value
Hazardous and non-hazardous waste	Public Policy	Economic performance
Recycling	Diversity	Fuel and Material
Agro based Livelihood	Safety	Training
Mine development	Education	Financial Performance
Waste Heat Recovery	Health and Family Welfare	
Concrete Recycling	Anti-corruption	
Packaging	Women Empowerment	
	Self Help Groups (SGHs)	

28 variables related with sustainable accounting reporting practices were selected with 10 cement companies as a representative sample among cement companies in India. The annual reports and sustainability report of various sample companies were analyzed to identify their sustainability reporting. For this purpose, the information received is divided into 3 parts i.e., non-disclosed (1), non-Financial disclosure (2) and financial disclosure (3). The best way of reporting this sustainable information is to report for all the above items financially (3). As per the objectives of this paper, first it is analyzed that whether there is a difference between the sample companies in terms of accounting reporting. For this purpose, one sample T test is being used for the data collected from the sample cement companies. The descriptive of the data are shown in Table 4.

TABLE 4: DESCRIPTIVE STATISTICS OF EXISTING SUSTAINABLE REPORTING PRACTICES OF INDIAN CEMENT COMPANIES

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
ACC	28	2.00	1.00	3.00	2.1265	0.1285	0.71611	0.513
AMBUJA	28	2.00	1.00	3.00	2.5908	0.0875	0.49909	0.249
BIRLA	28	2.00	1.00	3.00	1.9122	0.1272	0.70904	0.503
JK	28	2.00	1.00	3.00	2.1265	0.1189	0.66510	0.442
ULTRATECH	28	2.00	1.00	3.00	2.6905	0.0764	0.44016	0.194
SHREE	28	2.00	1.00	3.00	2.4836	0.1258	0.70190	0.493
DALMIA	28	2.00	1.00	3.00	1.9836	0.0936	0.53152	0.283
PRISM	28	2.00	1.00	3.00	1.8408	0.1363	0.75723	0.573
OCL INDIA	28	2.00	1.00	3.00	1.9836	0.1672	0.92061	0.848
INDIA Cement	28	2.00	1.00	3.00	1.8765	0.1320	0.73437	0.539
Valid N	28							

Source: Annual Reports of the cement companies under study

Above Table 4 shows that there is a significant difference between the reporting patterns of sustainability of the different cement industries under study, as the value of standard deviation of the reporting varies between 0.4 to 0.9. The results of t-test are presented in the Table 5 below.

TABLE 5: ONE SAMPLE T-TEST

Test Value = 3						
					95% Confidence Interval Of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
ACC	-4.991	27	0.000	-0.63000	-1.11140	-0.48560
AMBUJA	-2.678	27	0.008	-0.28751	-0.50300	-0.06740
BIRLA	-6.654	27	0.000	-0.94692	-1.28500	-0.66760
JK	-5.425	27	0.000	-0.75500	-1.01260	-0.48740
ULTRATECH	-2.007	27	0.062	-0.18757	-0.35200	0.00550
SHREE	-2.719	27	0.009	-0.40286	-0.68780	-0.10680
DALMIA	-8.233	27	0.000	-0.90186	-1.12170	-0.66900
PRISM	-7.024	27	0.000	-1.00571	-1.43310	-0.73180
OCL INDIA	-5.012	27	0.000	-0.92086	-1.26360	-0.53010
INDIA Cement	-6.748	27	0.000	-1.00500	-1.31850	-0.69950

Source: Annual Reports of the cement companies under study

Inference: One sample Test of various cement companies shows that only in one company similar pattern of reporting is adopted ($t=-2.007$ and $p=0.062>0.05$), while in rest of the companies the difference in reporting of sustainable accounting reporting is significant (as p= <=0.05). This is also evident by the mean difference, as the difference from the mean in case of ULTRATECH Cement is minimum (-0.18757) while is more in other companies and highest difference were found in Prism Cement company (- 1.00571).

t-test was also used to identify the differences between the reporting of sustainable variables in selected cement companies. This test was used to find out whether the item-wise reporting of selected variables were similar among the different companies or not. The data collected for the above t test was divided into same 3 parts i.e., non-disclosed (1), non-Financial disclosure (2) and financial disclosure (3). The best way of reporting this sustainable information is to report for all the above items financially (3). As per the objectives one sample t- test is being used for the data collected from the sample cement companies. The descriptive of the data were shown in Table-6.

TABLE 6: DESCRIPTIVE STATISTICS OF ITEM WISE DISCLOSURE OF SUSTAINABLE BY INDIAN CEMENT COMPANIES

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Energy	10	1.00	2.00	3.00	2.7825	0.13317	0.42314	0.179
Water	10	1.00	2.00	3.00	2.2825	0.15259	0.48455	0.235
Greenhouse Gases Emission	10	2.00	1.00	3.00	2.0825	0.23317	0.73936	0.547
Hazardous & non-hazardous waste	10	2.00	1.00	3.00	2.0825	0.23317	0.73936	0.547
Recycling	10	2.00	1.00	3.00	1.8825	0.27673	0.87710	0.769
Agro based Livelihood	10	2.00	1.00	3.00	1.6825	0.29984	0.95018	0.903
Mine Improvement	10	2.00	1.00	3.00	2.1825	0.24928	0.79031	0.625
Waste Heat Recovery	10	2.00	1.00	3.00	1.7825	0.24928	0.79031	0.625
Concrete Recycling	10	2.00	1.00	3.00	1.3825	0.22095	0.70071	0.491
Packaging	10	2.00	1.00	3.00	2.3825	0.22095	0.70071	0.491
Community investment	10	1.00	2.00	3.00	2.4825	0.16651	0.52855	0.279
Working condition	10	2.00	1.00	3.00	2.2825	0.21328	0.67645	0.458
Human rights and fair trade	10	2.00	1.00	3.00	2.2825	0.21328	0.67645	0.458
Public Policy	10	1.00	2.00	3.00	2.2825	0.15259	0.48455	0.235
Diversity	10	2.00	1.00	3.00	2.2825	0.21328	0.67645	0.458
Safety	10	1.00	2.00	3.00	2.3825	0.16314	0.51790	0.268
Education	10	2.00	1.00	3.00	1.9825	0.29798	0.94431	0.892
Health Welfare	10	1.00	2.00	3.00	2.4825	0.16651	0.52855	0.279
Anti corruption	10	2.00	1.00	3.00	1.9825	0.25804	0.81800	0.669
Women Empowerment	10	2.00	1.00	3.00	1.3825	0.22095	0.70071	0.491
Self Help Groups (SGHs)	10	2.00	1.00	3.00	1.4825	0.26858	0.85134	0.725
Accountability/ Transparency	10	1.00	2.00	3.00	2.7825	0.13317	0.42314	0.179
Corporate Governance	10	0.00	3.00	3.00	2.9825	-0.00016	0.00150	0.000
Stakeholder value	10	0.00	3.00	3.00	2.9825	-0.00016	0.00150	0.000
Economic performance	10	0.00	3.00	3.00	2.9825	-0.00016	0.00150	0.000
Fuela and Material	10	1.00	2.00	3.00	2.6825	0.15259	0.48455	0.235
Training	10	2.00	1.00	3.00	2.2825	0.21328	0.67645	0.458
Financial Performance	10	0.00	3.00	3.00	2.9825	0.00000	0.00000	0.000

Source: Annual Reports of the cement companies under study

Table 6 shows that there is a significant difference between the item wise disclosures by the selected companies. Corporate Governance, Stakeholder Value, Economic performance and Financial Performance are among the variables in which no differences were observed, as the standard deviation is 'zero', while in case of Agro based Livelihood the standard deviation is highest (0.95018). t test values were further calculated for calculating the mean difference, results of which were shown in Table 7.

TABLE 7: ONE-SAMPLE TEST OF ITEM WISE DISCLOSURE OF SUSTAINABLE REPORTING BY INDIAN CEMENT COMPANIES

Test Value = 3						
95% Confidence Interval of						
the Difference						
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Energy	-1.485	9	0.1695	-0.2000	-0.4771	0.1031
Water	-4.568	9	0.0025	-0.7000	-1.0211	-0.3529
Greenhouse Gases Emission	-3.842	9	0.0055	-0.9000	-1.4033	-0.3729
Hazardous & non-hazardous waste	-3.842	9	0.0055	-0.9000	-1.4483	-0.3707
Recycling	-3.958	9	0.0045	-1.1000	-1.7019	-0.4721
Agro based Livelihood	-4.318	9	0.0035	-1.3000	-1.9541	-0.6199
Mine Improvement	-3.192	9	0.0125	-0.8000	-1.3398	-0.2342
Waste Heat Recovery	-4.796	9	0.0025	-1.2000	-1.7398	-0.6342
Concrete Recycling	-7.221	9	0.0015	-1.6000	-2.0757	-1.0983
Packaging	-2.699	9	0.0255	-0.6000	-1.0757	-0.0983
Community investment	-2.985	9	0.0165	-0.5000	-0.8525	-0.1215
Working condition	-3.265	9	0.0115	-0.7000	-1.1583	-0.2157
Human rights and fair trade	-3.265	9	0.0115	-0.7000	-1.1583	-0.2157
Public Policy	-4.568	9	0.0025	-0.7000	-1.0211	-0.3529
Diversity	-3.265	9	0.0115	-0.7000	-1.1583	-0.2157
Safety	-3.659	9	0.0065	-0.6000	-0.9449	-0.2291
Education	-3.339	9	0.0095	-1.0000	-1.6499	-0.3241
Health and Family Welfare	-2.985	9	0.0165	-0.5000	-0.8525	-0.1215
Anti corruption	-3.858	9	0.0055	-1.0000	-1.5596	-0.4144
Women Empowerment	-7.221	9	0.0015	-1.6000	-2.0757	-1.0983
Self Help Groups (SGHs)	-5.567	9	0.0015	-1.5000	-2.0834	-0.8906
Accountability/ Transparency	-1.485	9	0.1695	-0.2000	-0.4771	0.1031
Fuel and Material	-1.949	9	0.0825	-0.3000	-0.6211	0.0471
Training	-3.265	9	0.0115	-0.7000	-1.1583	-0.2157

Source: Annual Reports of cement companies under study

One sample Test of various sustainability factors shows that only three factors were having a similar pattern of reporting i.e., Energy (t=-1.485, p=0.1695 >0.05), Accountability/Transparency (t=- 1.485, p=.1695>0.05) and Fuels and Material (t=-1.949 and p=0.0825>0.05), while on rest of the variables the difference in reporting of sustainable accounting reporting factors were significant (as p=<.05)

CONCLUSION

Cement consumption is one of the major factors, which are behind the growth of the country, but manufacturing of cement is always creating carbon and other factors, which damage the environment due to which these companies are called as environment hazardous companies. To convert these environmental hazardous companies sustainable, compulsory regulations are required in terms of disclosure under accounting and reporting related to sustainable issue in proper format i.e., in terms of financial character which effect and convert them into sustainable. Environmental Sustainable Accounting is helpful for these companies in this regards. The current study has undisclosed the fact that Sustainable Accounting reporting factors taken from company annual reports, which were examined, by taking sample of top 10 Indian cement companies resulted that except one company Ultratech Cement, uniform reporting pattern was not observed. Also the reporting of most of various sustainability variables were found to be unusual accept Energy efficiency, accountability, use of sustainable fuels and material. Hence, it can be finally concluded that unless there is a uniform accounting reporting system for sustainability practices, comparison between different companies will not be possible. Hence, it can be proposed that a framework of sustainable accounting reporting must be developed which provide a details of similar factors on sustainable reporting should be done by in Indian Cement companies.

Thus, there are a number of environmental issues linked to the cement sector, such as control of air pollutants (dust and gaseous emissions), lessening of green house gases (GHG), the control of fugitive dust and use of injurious wastes as alternate fuels and the preservation of natural resources. The Indian cement sector has revealed extraordinary performance in terms of improving air quality. Dust emissions are reduced and cement plants conform to the environmental parameters set by statutory bodies like Central Pollution Control Board of India. Government policies have energized and motivated the sector to take new measures to look after the environment and get better the lives of people working in the plant and living in close proximity. Environmental regulations operating in India that have given new direction to the cement sector in terms of environmental management

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