Rajagiri Management Journal
Volume 8, Issue 1, June 2014

Environmental Reporting Practices among Select Industries in Rajasthan

Shubham Goswami[1]

Abstract

The management of environmental conservation activities is an effective way of achieving and maintaining sustainable business. Disclosure of environmental accounting information is a key process indicator of business accountability and sustainability. In addition, companies and other organizations are required to have accountability to stakeholders such as consumers, business partners and investors. Review of previous research found limited studies on environmental reporting practices by Indian companies (Chatterjee & Mir, 2008; Jose & Lee, 2007). The present study attempts to bridge this gap by analyzing reporting practices among select companies of cement, marble and mineral industry in Rajasthan. The state of Rajasthan is rich in minerals and has about 2 lakh registered small, medium and large units. The study has found that environmental reporting by companies is mostly guided by standard guidelines and does not have any standards designed for such disclosure.

Keywords: Environmental reporting, Rajasthan, Cement, Minerals, Marble.

1. Introduction

One of the significant buzzwords that emerged out of the globalization and privatization paradigms of the 1990s has been corporate social responsibility.

[1]Assistant Professor, School of Management, Sir Padampat Singhania University, Bhatewar, Udaipur - 313601, Rajasthan, India.
Email: shubham.goswami@spsu.ac.in

Responsibility towards environment has become one of the most crucial areas of social responsibility. Recent years have observed rising concern for environmental degradation, which is taking place mainly in the form of soil erosion, deforestation and pollution of various types, viz. air, water, sound etc. At the same time, there has been a growing awareness internationally on the disclosure and reporting of environmental performance, particularly from those firms that have a direct and substantial influence on the environment like manufacturing, power generation, mining etc. to provide information regarding the environment implications of their operations. There is a growing pressure on the corporate enterprises to consider environmental effects of their operation. As a result, accounting and disclosure of environmental matters have rapidly been emerging as an important dimension of environment management (Rao, Tilt & Lester, 2012). The developing countries like India are facing the twin problem of protecting the environment and promoting economic development. A careful assessment of the benefits and costs of environmental damages is necessary to find the safe limits of environmental degradation and the required level of development. The Indian corporate sector has started realizing the need for adequate corporate environment and social disclosures in order to repose the confidence of the stakeholders in the working of their enterprises and performance.

Today consumers expect firms to meet high health and safety standards for workers, respect human rights, protect the interests of consumers and meet environmental standards regardless of where they operate (Smith, 2002). Therefore, it is expected that companies provide relevant information about their environmental performance and policies, together with management systems in operation to support them, commonly known as the "triple bottom line" reporting. Environmental accounting is a process of identification of measurement and communication of information on the environmentally responsible activities for a business entity. Environmental reporting is commonly used for presenting environmentally related data regarding environmental risks, environmental impacts and policies (Qureshi, 2012).

Despite increasing awareness on environmental protection, there is very little reporting and disclosing practices adopted by companies. Managements seldom try to make proper arrangement to save the environment unless it is required as per law, as there is no direct relationship between investment and benefits (Anand, 2014). This research attempts to identify the current state of reporting and disclosure practices by sample companies in southern part of Rajasthan state. The study considers Rajasthan because of its contribution to mining industries in India. Mining is one of the most environmental hazardous industries.

Rajasthan accounted for about 12% of the total number of mines in the country in 2012-13. The State is also an important producer of marbles of various shades. It accounts for about 65 percent of total marble production in India (Annual Report, Ministry of Mines, 2012-13). The value of mineral production in Rajasthan during 2011-12 was Rs. 22,506.77 crore, which increased by 20.61% compared to the previous year (Annual Report, Ministry of Mines, 2012-13).The growth in industrialization is always attributed to the increase in environmental pollution particularly that related to inland water, air and noise because sustainable development is not possible if environmental concerns are overlooked.

2. Literature Review

With increasing emphasis on social and environmental concerns with respect to investment policies; the financial community is becoming increasingly interested in Environmental Reporting (Descano & Gentry, 1998). However, due to the voluntary nature of disclosures, this field is far from standardization (Monaghan, 1999). Denmark was the first country to introduce the requirement for public environmental reporting for companies followed by Norway, Sweden and the Netherlands in 1996 (Scott, 2003). Corporate environmental reporting has undergone a change in contents, use and management due to emerging philosophy of corporate governance and accountability. In 2005, the United Kingdom introduced changes in company law by including mandatory filing of environmental, social and community issues (Salama, 2005). The reasons for adopting environmental reporting vary with regions. Europe drivers for reporting include duty towards environment, public relations, gaining a competitive advantage, and legal compliance. In North America shareholder pressure seemed to be more significant than legal compliance. Consumer and shareholder pressure and public relations are prominent reasons for undertaking environmental reporting in Japan (Wheeler & Elkington, 2001).

A few international researches reveal that both size and environmental sensitivity are corporate characteristics that explain the extent of environmental reporting (Rao et al., 2009). A longitudinal study by Guthrie and Parker (1989) reported that given the increased attention to environmental issues, businesses must assure their stakeholders that they are environment friendly. A study of 115 South African companies by Savage (1994) reported that approximately 63 percent of companies were making environmental disclosures. Majority of companies in Bangladesh made disclosure on employees, marginally followed by disclosure on some environmental information (Belal, 1999). Tilt and Carol (2001) studied Australian companies and found a difference in the content of

their environmental policies and their disclosure. Although companies' annual reports have shown an interest via corporate environmental policy (CEP), they appear to report on the environment internally, than to external parties. Samuel and Towler (2004) reported that increasing number of companies in UK irrespective of their size are recognizing that corporate social reporting is beneficial for them. Yusoff, Lehman and Nasir (2006) examined environmental disclosure practices of Malaysian companies in environmental engagements and commitments. High levels of information in environmental disclosures are reported. Ousama and Fatima (2010) measured the extent of voluntary disclosure (EVD) in the annual reports of Shariah-approved companies and found that environmental information disclosure was 15 percent only. Most of the information was qualitative information on environmental protection activities undertaken by the companies.

In the Indian context, previous studies have reported that companies fail to report any damage regarding environmental protection and the disclosures are generally related to positive information, largely qualitative in nature and did not exceed one-fourth of the page (Eresi, 1996). Roy (2000) observed that Indian public and private sector companies were disclosing environmental information in descriptive form and itemized the same in director's report. Even the percentage of companies disclosing information is very low in both the sectors. Pramanik's (2002) research on environmental reporting by public sector companies concluded that major companies formally compiled the requirement of energy conservation measures, pollution control system. Pahuja (2009) studied the influence of selected company and industry related variables on environmental disclosure practices (EDPs) of the large manufacturing Indian companies and found strong evidence in support of the influence of variables size, profitability, sector, industry and environmental performance on disclosure practices. Sen, Mukherjee and Pattanayak (2011) examined the level of disclosure of environmental information and reported a variation across Indian industries as well as companies. More qualitative information is revealed in the annual reports than quantitative information. However, Bhatia and Mahajan (2013), in their research on disclosure and corporate attributes, such as size of a firm, its profitability found no significant association between CSR disclosure including environmental score and residential status of a company.

The constitutional provisions in India have a number of laws, acts, rules, and notifications like The Environment Protection Act, 1986 (this act came soon after the Bhopal Gas Tragedy); Prevention and Control of Pollution Act 1974; Forest Conservation Act 1980; Air Prevention and Control of Pollution Act 1981; The Water (Prevention And Control of Pollution) Act 1974; The Water (Prevention

and Control of Pollution) Act, 1977, Ozone Depleting Substances Rules, 2000; Noise Pollution (Amendment) Rules, 2002; Biological Diversity Act, 2002. Some indirectly related to environment protection acts are Constitutional Provision (Article 51A); The Factories Act, 1948; Hazardous Waste (Management & Handling) Rules, 1989; Public Liability Insurance Act, 1991; Motor Vehicle Act, 1991; Indian Fisheries Act, 1987; Merchant of shipping Act, 1958; Indian Port Act; Indian Penal Code; The National Environment Tribunal Act, 1995.

Companies around the world aspire consciously for improved transparency in environmental disclosures, as their core competence (Friedman, 2001). Disclosure through internet would be the future of scientific reporting. A review of literature indicates that there have been only limited attempts to study the environmental disclosure practices among Indian companies. The present study contributes to the literature by examining the existing status of environmental reporting by some of the polluting industries in Rajasthan like cement, marble and mineral mining. It reports the extent of environmental reporting in industries of Rajasthan and examines the disclosure practices of mandatory and voluntary items in financial reports. It further tests the association between the environmental disclosures and corporate characteristics such as size of the firm. The following section aims to present details on research methods, sampling plan, data analysis employed in achieving the results of present investigation.

3. Research Method

The present study is exploratory in nature and attempts to explore the environmental disclosure practices made by select companies. The number of mines which reported mineral production (excluding minor minerals, petroleum (crude), natural gas and atomic minerals) in India was 3108 in 2012-13, out of which largest number of mines were located in Andhra Pradesh (583) followed by Rajasthan (374), Gujarat (350). There are 13 large-scale cement factories with lime stone utilization from 1.0 to 3.0 million ton per annum at each factory (Rajasthan State Pollution Control Board, 2012). The sample for the study comprises of 12 companies selected from three environmentally sensitive industries like mineral, marble and cement manufacture via convenience sampling method. This study analyses the quality of environmental disclosure in the annual reports of the sample companies using content analysis and quantifies it by constructing an environmental disclosure index. The focus is to understand the sector wise practices of corporate environmental reporting. The present study is confined to six districts of Rajasthan: Udaipur, Rajsamand, Banswara, Dungarpur, Chittorgarh and Sirohi.

Table 1: Sample Profile

Company Name	Major Product (s)	Location in Rajasthan	No. of Employees (Year 2013)	Industry Type	Code used in study
Hindustan Zinc Limited	Zinc, Lead	RampuraAgucha, RajpuraDariba, Kayar and Zawar	6700	Mineral	HZL
Wonder cement ltd	Cement	Nimbahera	1000	Cement	WND
Rajasthan State Mines and Minerals Limited	Rock phosphate	Jhamarkotra	1900	Mineral	RSM
JK Cement Ltd.	Cement	Nimbahara	870	Cement	JKC
RK Marble Pvt. Ltd	Marble, granite	Rajnagar	4500	Marble	RKM
Binani Cement Ltd.	Cement	Pindwara	5000		BIC
Gorbandh Marbles	Marbles	Simalwada	200	Marble	GRM
Wolkem Ltd. & Calcite	Wollastonite	Pindwara	2000	Mineral	WLK
Birla Cement works Ltd.	Cement	Chanderia	2500	Cement	BRC
Golcha Associated Group	Talc	Udaipur	500	Mineral	GLA
Mumal marbles Pvt. Ltd.	Marble	Kesariyaji	500	Marble	MUM
Aditya Cement Works Ltd.	Cement	Shambhupura	4000	Cement	ACW

The researchers collected and pursued Annual Reports, environmental/ sustainability reports and other relevant reports like corporate social responsibility (CSR) reports of recent past year (2013). Data is collected via content analysis approach. Content analysis is a method in the social sciences for studying the content of those types of empirical documentation. The theme of disclosure has been classified on mandatory guidelines (based on

Environmental Act by Ministry of Environment and Forest) and voluntary disclosure. If any information exists in the reports related to the identified themes, then its occurrence is reflected by showing "yes" and is given score (+1) and if there is no information it is denoted by "no" and assigned a score of (0).

4. Hypothesis Development

To fulfil the research objectives and test the association, the study proposed four hypotheses.

It is argued that the industries with higher pollution and stricter regulation (such as chemicals, minerals, refineries, utilities and other industries) tend to disclose more environmental information. Meek, Roberts & Gray (1995) found that industrial variance has an impact on level of non-financial information disclosure. It is also argued that higher the environmental sensitivity of an industry, the more likely its shareholders may be concerned with the environmental disclosure. Other studies (Banerjee, 2002; Frost & Wilmshusrt, 2000; Deegan & Gordon, 1996) also reported a positive correlation between industry factors and environmental disclosures. Therefore the following hypothesis was formed to test the relation between the industry types and extent of disclosure.

H1: There is no significant difference in type of disclosure between industries.

Testing of hypothesis was performed by using Chi-Square statistical technique. To analyze the mode of quantitative disclosure, environmental measures are re-coded on the basis of information on monetary and physical terms. Environmental management accounting includes monetary environmental management accounting (MEMA), which is the central accounting source of information for internal management decisions and allocation of environmentally induced cost and benefits. Physical Environmental management accounting (PEMA) focuses on a company's impact on natural environment expressed in terms of physical units. It also serves as a tool for internal management decision (Bennett, Bouma & Wolters, 2002; Todea, Stanciu & Joldos, 2010). Despite the difficulties associated with the monetary approach, it gained a lot of interest as such data will enable companies to know the profit and loss associated with environmental operations and to get an environmentally adjusted economic indicator (Hamid, 2002). Following hypothesis is formed to test this relation:

H2: There is no significant relation between modes of disclosure across different industries.

It is clear from the review of relevant literature that a large majority of companies reported only qualitative/descriptive environmental information in the annual and other reports. Most of them only provide statutory information on conservation. However, some companies also provide details on voluntary information. Following hypothesis was formulated to test the relation between type of company and length of disclosure provided.

H3: There is no significant relationship between lengths of qualitative disclosure among companies.

Most of the studies found positive relationship between environmental disclosures and size. A number of prior studies report that large sized companies disclose more information on environment (Joshi & Gao, 2009; Jaffar, Iskandar & Muhamad, 2002; Gray, Javad & Sinclair, 2001; Deegan & Gordon, 1996). The study by Jaffar, Iskandar & Muhamad (2002) reported variability in company size and environmental disclosure among companies in Malaysia. It is also argued that contrary to the smaller enterprises, large-size companies are willing to disclose more information to reduce agency costs arising from asymmetric information and to gain public support for raising funds. The present study also examines this relation in context to industries in Rajasthan. This study uses log of number of employees as the indicator of size. The given hypothesis is formed for testing this relation.

H4: There is no relationship between disclosure score and company size.

5. Scale Development

National Guidelines on Social, Economic and Environmental Responsibilities were issued by the Ministry of Corporate Affairs in 2011. Principle 6 of the guidelines recognizes that environmental responsibility is a prerequisite for sustainable economic growth and for the well-being of society. International reporting initiatives include the Global Reporting Initiative (GRI). The GRI is a leading organization in the sustainability field. It promotes the use of sustainability reporting as a way for organizations to become more sustainable and contribute to sustainable development. The present study uses G4 guidelines released in May 2013 by the GRI. In particular, the present study improves on the prior literature by focusing on purely discretionary environmental disclosures. The study develops a content analysis index based on the National Voluntary Guidelines on Social, Environmental and Economical Responsibilities (2011) and the GRI sustainability reporting guidelines to assess the extent of discretionary disclosures in environmental and social responsibility reports.

Table 2: Index of Environmental Disclosure

Mandatory *
Percentage of materials used that are recycled input materials
Total energy consumed by the business entity for its operations
Statement on use of energy saving processes and the total energy saved due to use of such processes
Use of renewable energy as percentage of total energy consumption
Total water consumed and the percentage of water that is recycled and reused
Statement on quantum of emissions of greenhouse gases and efforts made to reduce the same
Statement on discharge of water and effluents indicating the treatment done before discharge and the destination of disposal
Details of efforts made for reconstruction of bio-diversity
Voluntary **
Energy
Report total fuel consumption from non-renewable sources in joules
Water
Sources of water: surface, ground, municipal, rainwater etc.
Emissions
Report the amount of GHG emissions reductions achieved, in metric tons of CO2 equivalent.
Waste
Total weight of hazardous and non-hazardous waste
Weight of Hazardous waste transported, waste imported, waste exported and waste treated
Products and Services
Report quantitatively the extent to which environmental impacts of products and services have been mitigated during the reporting period.
Report the percentage of reclaimed products and their packaging materials for each product category.
Compliance
Report monetary value of significant fines
Total number of non-monetary sanctions
Transportation
Report the significant environmental impacts of transporting products
Overall
Report total environmental protection expenditures: Waste disposal, emissions treatment, and remediation costs, prevention and environmental management costs

Supplier Environmental Assessment
Report the percentage of new suppliers that were screened using environmental criteria.
Report the number of suppliers identified as having significant actual and potential negative environmental impacts.
Environmental Grievance Mechanisms
Report the total number of grievances about environmental impacts filed through formal grievance mechanisms during the reporting period
Other* **
Implementation of ISO 14000 series and OHSAS at the plant and/or firm level
Health and safety
Adoption of environmental friendly technology
Noise emission information
Details of corrective action related to accidents
Source:
* Principle 6 (Environment) of National Voluntary Guidelines on Social, Environmental and Economical Responsibilities (July 2011).
** G4 Guidelines – Reporting Principles and Standard Disclosures (May 2013) on Mining and Metals Sector Disclosures.
*** Public Liability Act and Clean Technology Act.

6. Results

The study analyzed the nature of disclosure on broadly two classes: namely, qualitative and quantitative. By disclosing the quantitatively measured results of its environmental conservation activities, a company can influence the decision-making of stakeholders such as consumers, business partners, investors, local residents, and the government. To analyze the mode of quantitative disclosure, environmental measures are re-coded on the basis of information on monetary and physical terms. Despite the difficulties associated with the monetary approach, it gained a lot of interest as such data will enable to know the profit and loss associated with environmental operations and to get an environmentally-adjusted economic indicator (Hamid, 2002). In respect to qualitative disclosure, the length is classified into three major categories. The three categories are companies disclosing in 1-2 paragraphs, in one or more pages and with pictorial representations. To test hypothesis 1 (H1), hypothesis 2 (H2), hypothesis 3 (H3) and hypothesis 4 (H4), data were gathered from the annual reports, sustainability report, websites, annexure and other secondary sources of the company.

Table 3: Company-wise Results (in percent)

	Quanti-tative	Quali-tative	Both	MEMA	PEMA	1-2 Para-tative	1 or more page	Pictorial
Cement	**33.80**	**27.60**	**0.00**	**11.80**	**43.40**	**29.80**	**4.40**	**6.00**
ACW	13.00	5.00	0.00	11.00	44.00	19.00	0.00	0.00
BIC	48.00	30.00	0.00	37.00	44.00	30.00	0.00	30.00
BRC	12.00	10.00	0.00	11.00	33.00	37.00	0.00	0.00
JKC	63.00	67.00	0.00	0.00	63.00	37.00	22.00	0.00
WND	33.00	26.00	0.00	0.00	33.00	26.00	0.00	0.00
Marble	**5.00**	**11.00**	**0.00**	**0.00**	**5.00**	**11.00**	**0.00**	**0.00**
GRM	4.00	11.00	0.00	0.00	4.00	11.00	0.00	0.00
MUM	7.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
RKM	4.00	22.00	0.00	0.00	4.00	22.00	0.00	0.00
Mineral	**23.25**	**36.25**	**3.75**	**2.75**	**21.50**	**30.75**	**5.50**	**7.50**
GLM	4.00	30.00	0.00	0.00	4.00	30.00	0.00	0.00
HZL	52.00	41.00	11.00	7.00	48.00	19.00	15.00	30.00
RSM	33.00	37.00	4.00	4.00	30.00	37.00	7.00	0.00
WLK	4.00	37.00	0.00	0.00	4.00	37.00	0.00	0.00
Grand Total	**23.08**	**26.33**	**1.25**	**5.83**	**26.50**	**25.42**	**3.67**	**5.00**

From Table 3 it is clear that the overall percentages of qualitative and quantitative disclosure is very small at 23.08 percent and 26.33 percent, respectively. However, when we scan the data on industry-wise classification, it is evident that cement companies are disclosing more quantitative data (33.80 per cent) than qualitative. Even when compared to marble and minerals companies these percentages are higher. JK cement and Binani Cement had shown 50 to 60 percent of their disclosure in quantitative form. Marble companies are the poorest performers in the above analysis. Majority of marble companies are showing only qualitative description of their environmental responsibilities.

There is a large variance between overall percentage of MEMA and PEMA disclosure (i.e. 5.83 and 26.50 percent) respectively. Even when we analyze company wise data, then it becomes clear that cement companies are disclosing more monetary data (11.80 percent) than physical quantities. But this percentage is still very low as compared to the other industry disclosure practices worldwide. Most cement companies are disclosing the figure in units of emission or

consumption. Mineral companies are the close competitors of cement companies but still have to bridge a long percentage gap. For example, 48 percent of HZL disclosures are in physical units rather than monetary terms. In similar lines RSMML is also disclosing 30 percent of its environmental information in non-monetary terms. Marble companies are not disclosing in currency terms. Moreover a very small percentage of physical units reporting is found by these companies (5 percent).Chi-square test also confirms the findings. It means that the alternate hypothesis that there is a significant difference between disclosures among companies can be accepted.

Table 4: Chi-Square Tests Results

	Hypothesis 1			Hypothesis 2			Hypothesis 3		
	Value	df	Sig. (2-sided)	Value	df	Sig. (2-sided)	Value	df	Sig. (2-sided)
Pearson Chi-Square	34.505[a]	22	.044	20.216[b]	11	.042	68.324[c]	20	.000
Likelihood Ratio	36.325	22	.028	23.262	11	.016	73.005	20	.000
Linear-by-Linear Association	.002	1	.960	1.902	1	.168	13.433	1	.000
N of Valid Cases	164			104			110		

a. 24 cells (66.7%) have expected count less than 5. The minimum expected count is .05.
b. 17 cells (70.8%) have expected count less than 5. The minimum expected count is .18.
c. 25 cells (75.8%) have expected count less than 5. The minimum expected count is .33.

Environment Disclosure Score (EDS)

To test hypothesis 4 (H4), company-wise disclosure score was calculated to know the extent of environmental disclosure. EDS calculation was based on the information collected from the environmental index defined in previous section. If any information existed in the any financial report related to the identified themes then its occurrence was reflected by showing (+1). If there was no information it was denoted by score (0). Here equal weights were given to all items in index, whether it was a mandatory or voluntary disclosure item. Hughes, Anderson & Golden (2000) using quantitative disclosure measures assigned weights (importance score) to different disclosure items based on the perceived importance of each item to various user groups. Tuwaijri, Cristensen & Hughes (2004) also followed the same technique and assigned a score of (+3) for quantitative information, a score of (+2) for qualitative information and score (+1) for physical information. Based on previous literature, quantitative disclosures are more objective and informative to stakeholders than qualitative and narrative

information. Sen, Mukherjee & Pattanayak (2011) also adopted the same approach of assigning different weights to quantitative and qualitative disclosures. Thus based on previous studies, this study also assigned different weights for different types of quantitative and qualitative disclosures. Weights were also given based on place and length of environmental disclosure. EDS was calculated by the sum of product of presence score with corresponding weights, and dividing the value with the occurrence, i.e. presence of particular item in the disclosure index.

$$EDS = \frac{\Sigma \, presence\ score\ X\ weight}{occurrence\ score}$$

Table 5: Weights for Determinant of Environmental Disclosure

Reporting Type							Place of disclosure			
Quantitative		Qualitative /Descriptive				Both				
Mone-tary (MEMA)	Physical units (PEMA)	1-2 para	1 page	>1 page	picto-rial		Balance Sheet	Director's report or its annexure	P&L a/c.	other
2	1	1	2	3	4	5	4	3	2	1

Tables 6 and 7 provide the summary information on EDS of each company in the sample and the average for different industries, respectively.

Table 6: Individual Company-wise ED

Company	Type	EDS
HZL	Mineral	5.15
WND	Cement	2.35
RSM	Mineral	2.94
JKC	Cement	5.26
RKM	Marble	1.77
BIC	Cement	5.00
GRM	Marble	1.66
WLK	Mineral	1.73
GLM	Mineral	1.64
BRC	Cement	2.66
MUM	Marble	2.00
ACW	Cement	2.27

Table 7: Industry-wise ED

Industry	Average of EDS
Cement	3.51
Marble	1.81
Mineral	2.87

It is clear from the above tables that there is a large difference between disclosure score between industries. Cement companies are taking the lead in disclosure followed by mineral companies. Marble companies are lagging far behind from both the sectors. Individually HZL, JK cement and Binani Cement are disclosing more items of environmental protection and conservation than other companies in the sample. To statistically test hypothesis 4 (H4), bivariate Pearson's correlation coefficient is computed for the relationship between company-size and EDS score (Table 8).

Table 8: Correlation between Company Size and EDS Score

		EDS	Size
EDS	Pearson Correlation	1	.428
	Sig. (2-tailed)		.165
	N	12	12
Size	Pearson Correlation	.428	1
	Sig. (2-tailed)	.165	
	N	12	12

The p-value for the Pearson correlation is more than the level of significance ($p=0.165>0.05$). Thus we can accept the null hypothesis and can conclude that there is no relationship between environmental disclosure score and company size.

7. Conclusion and Discussion

Protecting the environment is the social responsibility and commitment of corporations towards the society. Environmental reporting has become a crucial issue in today's corporate reporting. Under this background the present study is carried out with the objective of identifying the reporting and disclosure practices of some environmentally-sensitive industries in India. The state of Rajasthan

was chosen for the study because of its importance in India's mining industry. A sample of 12 companies was selected from three sectors including mining. Content analysis of annual reports, financial statements, director reports and CSR reports were carried out for data collection. Based on the type and place of disclosure, an environment disclosure score was generated for each company across three industries. These scores were tested statistically. The study found that there was a large divergence in the disclosure scores of the companies. A majority of companies were disclosing qualitative data. Cement companies were disclosing more environmental information compared to mineral and marble companies. Further, the amount of quantitative disclosure, in monetary form, by cement industry is more in contrast to marble and mineral industries in Rajasthan. But interestingly, there is no relationship between company size and disclosures.

Every stakeholder shows a keen interest in knowing the environmental responsibilities carried out by their corporation. Corporate social reporting is mostly guided by standard guidelines. But India does not have any standards designed for social and environmental disclosures. Reporting guidelines are largely voluntary. These voluntary disclosures often lead to nondisclosure and mandatory disclosure leads to minimal disclosure. In addition, disclosure of environmental accounting information is a key process in performing accountability. Consequently, environmental accounting helps companies and other organizations to boost their public trust and confidence and is associated with receiving a fair assessment. There are several challenges of environmental accounting and reporting such as environmental accounting method, social values in applicable assumptions, economic value and lack of reliable industrial data. There is need for an integrated law on environment clearances and companies must be oriented towards their responsibilities towards maintenance and protection of environment and energy responsibilities. With increasing global concern over the protection of the environment, India too has set up a Union Ministry of Environment with the object of coordinating among the states and the various ministries, the environmental protection and anti-pollution measures. For sustainable development of country, a well-defined environmental policy as well as proper follow up and proper accounting procedure is a must. Indian companies have been facing strong international competition over the past few decades. These international firms are disclosing non-financial information including environmental information leading to an enhanced expectation from Indian companies to act responsibly towards the environment. Hence, to improve corporate image as a socially responsible company, it is expected that an increasing number of Indian companies will report their environmental performance in near future.

8. Limitations and Future Research

There are some limitations under which the study was carried out. The results of the study must be viewed in the context of such limitations. Certain limitations of the present research work are: the size of the sample is restricted to 12 and the list of mandatory and voluntary disclosures is not exhaustive but includes only selected current measures issued by Government and GRI (Global Reporting Initiative).

The study suggests that the environmental disclosures are low in the corporate sector in India. Further research can investigate the environmental efforts made by the companies which are listed in NASDAQ and other global stock exchanges. The case of small- and medium-scale industries in India is also worth examining. The cottage and small-scale industries have been excluded from this study. However, there is no denying the fact that the cottage and small-scale industries are playing an important role in the country's economic growth and development and at the same time they are also causing environmental pollution. It shall, therefore, be quite important and informative to investigate the role and responsibilities of cottage and small scale industries in the field of environmental accounting and reporting.

References

Al-Tuwaijri, S. A., Christensen, T. E., & Hughes Ii, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, organizations and society*, *29*(5), 447-471.

Anand, M. B., & Srineevasa, D. L. (2014). Environmental Accounting-An Essential Tool for Long Run Survival, *International Journal of current research and Academic Review*, *2*(3), 34-41.

Archel, P., Husillos, J., Larrinaga, C., & Spence, C. (2009). Social disclosure, legitimacy theory and the role of the state. *Accounting, auditing & accountability journal*, *22*(8), 1284-1307.

Banerjee, B. (2002). *Regulation of corporate accounting and reporting in India*. World Press Private Limited.

Belal, A. R. (1999). Green reporting practices in Bangladesh, *The Bangladesh Accountant, 1*, 107-15.

Bennett, M. D., Bouma, J. J., & Wolters, T. J. (Eds.). (2002). *Environmental management accounting: Informational and institutional developments* (Vol. 9). Springer.

Bhatia, A., & Mahajan, P. (2013). Determinants of Corporate Social Disclosure: An Empirical

Study of BSE-SENSEX Companies in India. *IIMS Journal of Management Science*, *4*(2), 191-204.

Chatterjee, B., & Mir, M. Z. (2008). The current status of environmental reporting by Indian companies. *Managerial Auditing Journal*, *23*(6), 609-629.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and business research*, *26*(3), 187-199.

Descano, L., & Gentry, B. S. (1998). Communicating environmental performance to the capital markets. *Corporate Environmental Strategy*, *5*(3), 15-19.

Friedman, A. L., & Miles, S. (2001). Socially responsible investment and corporate social and environmental reporting in the UK: an exploratory study. *The British Accounting Review*, *33*(4), 523-548.

Gray, R., Javad, M., Power, D. M., & Sinclair, C. D. (2001). Social and environmental disclosure and corporate characteristics: a research note and extension. *Journal of Business Finance & Accounting*, *28*(3-4), 327-356.

Guthrie, J., & Parker, L. D. (1989). Corporate social reporting: a rebuttal of legitimacy theory. *Accounting and business research*, *19*(76), 343-352.

Hamid, M. A. R. A. (2002). Theoretical framework for environmental accounting - application on the Egyptian Petroleum Sector. 9th Annual Conference of Economic Research Forum Sharjah, United Arab Emirates 26 - 28 October 2002. Retrieved from: http://www.erf.org.eg/cms.php?id=publication_details&publication_id=715

Hughes, S. B., Anderson, A., & Golden, S. (2001). Corporate environmental disclosures: are they useful in determining environmental performance? *Journal of accounting and public policy*, *20*(3), 217-240.

Idowu, S. O., & Towler, B. A. (2004). A comparative study of the contents of corporate social responsibility reports of UK companies. *Management of Environmental Quality: an international journal*, *15*(4), 420-437.

Jaffar, R., Iskandar, M., Muhamad, N. (2002). An investigation of environmental disclosures: Evidence from selected industries in Malaysia, *International Journal of Business and Society, 3*, 55-68.

Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: a content analysis based on website disclosures. *Journal of Business Ethics, 72*(4), 307-321.

Joshi, P. L., Gao, S. (2009). Multinational Corporations: Corporate Social and Environmental Disclosures (CSED) on Web sites, *International Journal of Commerce and Management, 19* (1), 27-44.

Maguire, B. J., Hunting, K. L., Smith, G. S., & Levick, N. R. (2002). Occupational fatalities in emergency medical services: a hidden crisis. *Annals of emergency medicine*, *40*(6), 625-632.

Meek, G. K., Roberts, C. B., & Gray, S. J. (1995). Factors influencing voluntary annual report disclosures by US, UK, and Continental European multinational corporations, *Journal of International Business Studies, 26*(3), 555-572.

Ministry of Corporate Affairs (2012). *National Voluntary Guidelines-2011*. Retrieved from: http://www.mca.gov.in/Ministry/latestnews/National_Voluntary_Guidelines_2011_12jul2011.pdf

Ministry of Environment and Forests (2012). *Rules and Regulations*. Retrieved from: http://envfor.nic.in

Ministry of Mines (2014). *2012-13 Annual Report*, Retrieved from: http://mines.gov.in/annual2013E.pdf

Monaghan, P. (1999). Warts and all reporting. *Accountancy*, *124*(1272), 61.

Ousama, A. A., & Fatima, A. H. (2010). Voluntary disclosure by Shariah approved companies: an exploratory study. *Journal of Financial Reporting and Accounting*, *8*(1), 35-49.

Pahuja, S.(2009). Relationship between environmental disclosures and corporate characteristics: a study of large manufacturing companies in India. *Social Responsibility Journal,* 5(2), 227-244.

Pramanik, A. K. (Ed.) (2002). *Environmental accounting and reporting*. Deep and Deep Publications.

Pramanik, A. K., Shil, N. C., & Das, B. (2008). Corporate environmental reporting: an emerging issue in the corporate world. *International Journal of Business and Management, 3*(12), 146.

Qureshi, D. N. Z., Kulshrestha, D. D., & Tiwari, S. B. (2012). Environmental Accounting and Reporting: An Essential Component of Business Strategy. *Asian Journal of Research in Banking and Finance, 2*(4).

Rajasthan Environment Information system (2014). *Industries in Rajasthan.* Retrieved from: http://rajenvis.nic.in/Envinfo_Industry.htm

Rao, K. K., Tilt, C. A., & Lester, L. H. (2012). Corporate governance and environmental reporting: an Australian study. *Corporate Governance*, *12*(2), 143-163.

Roy, M. N. (2000). Environmental disclosure in the corporate annual report, *Environment Management and Audit*, Deep and Deep Publications, 228-244.