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Corporate Enviornmental Accounting and Reporting Practices in India

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ABSTRACT

Customers nowadays expect firms to meet high standards of health and safety for workers, respect human rights, protect the interest of consumers and meet environmental standards, regardless of where they operate.(smith, 2002). Recent years have witnessed rising concern for environmental degradation, which is taking place mainly in the form of pollution of various types, viz. air, water, sound, soil erosion, deforestation, etc. Waste disposal costs and other environmental liability costs are crucial information to be disclosed by core sector companies as they have direct impact on the environment. The purpose of this paper is to identify the existing status of environmental disclosure practices by the Indian companies on their web sites and also in their annual reports. The paper finds that, although there are no regulations enforcing the disclosure of environmental information, most of the Indian companies have disclosed environmental information. These corporates provided about environmental information more on their web sites compared to the annual reports. The study contributes towards the development of a model which specifies six aspects to be covered in environmental accounting in order to measure the ultimate environmental performance of the organisation. The paper contributes to the existing literature on environmental accounting and reporting practices by Indian corporate. Further the work based on the preliminary findings may be used to asses the environmental accounting and reporting practice for a larger sample of Indian core sector companies

KEY WORDS:, Environmental accounting, Environmental Discloures, Annual reports, India.

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1. INTRODUCTION

In any country environment is the creator and facilitator of business organizations. It is expected from the companies to provide information about their environmental performance and policies together with the management system in operation to show their accountability towards both environmental performance and its public disclosure. The developing countries like India are facing the twin problem of protecting the environment and promoting economic development. A tradeoff between environmental protection and development is required. Responsibility towards environment has become one of the most crucial areas of social responsibility Accounting is no longer confined to the historical description of financial performances; rather, it is now regarded as one of the most important services of society. Recent years have witnessed rising concern for environmental degradation, which is taking place mainly in the form of pollution of various types, viz. air, water, sound, soil erosion, deforestation, etc.

Greater attention towards environmental issues may lead to an increase in cost and hence lower profits, but in the real world environmental practices have numerous advantages (Fortes,2002). Corporate enterprises are facing the challenges to determine their true profits, which are environmentally sustainable ones. For this, companies need to account for the environment. They should take account of its most significant external environmental impacts and in effect, to determine what profit level would be left (if any) if they attempted to leave the planet in the same state at the end of the accounting period as it was in the beginning (Mukesh Chauhan, 2005). As natural resources are invaluable and hence there is an urgent need to maintain accounts of such resources, and as a result, a new area of accounting under the heading "Environmental Accounting" has geared up all over the world Environmental accounting attempts to identify and bring to the light the resources exhausted and costs rendered reciprocally to the environment by the business houses. In other words, environmental accounting attempts to make the best possible quantitative assessment of the costs and benefits to an enterprise for activities specifically directed to environmental preservation.

The practice of corporate level environmental accounting has been growing during the few decades around the globe. In India also corporate bodies are increasingly disclosing environmental reporting in their annual report. In a study Paul and Pal (2001), on the-basis examination of environmental reporting practices, concludes that it has gained momentum with the passage of time even in the absence of any compulsion and standard guidelines. Chatterjee and Mir (2008) examined the status of environmental disclosure made by top 45 Indian companies in terms of market capitalization and concluded that most of the information disclosed by the sampled firms was narrative. Similarly, Sen (2011) examined the nature and extent of the environmental disclosure practices of Indian core sector companies and found that information disclosed was more qualitative than quantitative and varied across industries as well as companies. The existing literature on environmental accounting gives enough evidence that though environmental accounting and reporting has gaining momentum but it is not developed as it is desired by stakeholder. Therefore, it is important to find out the challenges faced in sound development of environment accounting and reporting practices.

2. Meaning of Environmental Accounting and Reporting



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Environmental accounting refers to the measurement and communication of information about the environmental responsibility performance of an organization to interested parties. It records and summarizes the value of environmental goods and services in monetary terms. It is about aggregation of data that links the environment to the financials of the company, which will obviously have a long-run impact on both economic and environmental policy of the organization. Basically, the environmental accounting is the treatment of various environmental issues of the corporate within the financial statements. Environmental accounting includes estimation of environmental expenditures, its actual determination, and recognition of environmental liabilities as well as, disclosure of all environmental liabilities in a specific section of the annual reports of a company.

The major purposes of green accounting is to help businesses understand and mange the potential quid pro quo between traditional goals and environmental goals. It even tries to quantify – both in money terms as well as in physical units - the costs and benefits enjoyed by an organization because of its contribution towards environment related activities. Environmental accounting has been accepted as an umbrella term with the various meaning and user, as presented in Table 1.

Table 1: Environmental accounting

National Income Accounting	Financial Accounting	Management Accounting or Corporate Environmental Reporting (CEP)
The focus is on measurement of nation's consumption of natural resource in physical or monetary unit and the users are the citizens	The focus is on disclosure of environmental liabilities and financially material environmental costs in the quarterly, half yearly and annual reports, and the users are shareholders / other stake holders such as government, tax authorities, customers, etc	environmental costs partly or fully by generating revenue through sale of waste by products etc. Investing in cleaner technology. Developing greener processes or products. Improving decisions regarding product retention, production n processes, etc. Meeting with the global standards imposed by WTO, GAAP, etc.

It has been noticed that environmental accounting in macro level as well as in micro level is gaining its importance. In macro level National environmental Accounting focuses on accounting of natural resources stocks & flows, environmental costs externality costs etc. In micro level corporate environmental accounting tries to account for environmental impact on corporate activities.

3. REVIEW OF LITERATURE

Over the past decades companies have recognized the benefits of environmental reporting. As a result, there was dramatic increase in the number of companies reporting in numerous ways.



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Early reporters are quick to realize that environmental disclosure is more of a governance and strategic issue than a simple reporting tool (Roome, 1992; Parker, 1997; Parker, 2000a). Regardless of the medium of reporting, companies are bound to satisfy country specific/international reporting standards and requirements. It is important to understand as to how far standard setting improves credibility in reporting through major surveys. However, most studies are based on content analysis of annual reports.

Nasir Zameer Qureshi et.al., (2012) in their research paper, environmental accounting and reporting: an essential component of business strategy, describes the environmental component of the business strategy, producing the required performance reports and recognizing the multiple skills required to measure, compile and analyze the requisite data. Special emphasis of the research is on generation of reports and their standards, for the range of business and regulatory purposes.

Malarvizhi P (2008) in a study corporate environmental reporting on the internet: an insight into Indian practices tried to establish the approach and scope of environmental accounting and reporting, as it exists today. The study was based on a sample of 24 documents comprising annual reports, environmental or sustainability reports and other relevant reports of past years. Initially companies in the sample were classified as manufacturing and nonmanufacturing sectors. Since some companies operate in both sectors analyzed, the assignment to a specific one was determined on the basis of main activity carried out by the company.

Haripriya Gundimeda et.al (2005). argue the case for Green Accounting for India (i.e. a framework of national accounts and state accounts showing genuine net additions to wealth) and to present a preferred methodology and models to reflect natural capital and human capital externalities in India's national accounts, measuring as depreciation the depletion of natural resources and the future costs of pollution, and rewarding education as an addition to human capital stock.

Mukesh Chauhan(2005), explains the various forms of environmental accounting, its scope, limitations and legal framework in Indian context. He came out with a suggested framework for implementing green accounting practices in India and concluded that It is the call of the time that corporate prepare a firm environmental policy, take steps for pollution control, comply with the related rules and regulations, mention adequate details of environmental aspects in the annual statements. For sustainable development of country, a well-defined environmental policy as well as proper follow up and proper accounting procedure is a must.

4. OBJECTIVES OF THE STUDY

- To identify the items of accounting involved in environmental accounting and reporting.
- To analyse the steps followed by Indian corportate houses for environmental reporting and accounting.
- To identify the key parameters on which environmental reporting is done by Indian corporates
- To find out the extent to which Indian Corporates practice voluntary environmental reporting

5. DIMENSIONS OF ENVIRONMENTAL ACCOUNTING

The various environment related accounting items can be classified into four basic dimensions such as, environmental assets, environmental liabilities, environmental expenditures/costs and environmental incomes/benefits.

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Environmental Expenditures/costs

Companies have divided environmental costs into six broad categories such as capital investment, operating cost, research and development cost, environment administration and planning costs, expenses for remediation measures and recovery expenses (Alok Kumar Pramanik, 2002).

Environmental Assets

They represent the assets possessed by an organization as a result of environmental protection, regulations and/or according to environmentally voluntary activities. In fact, such assets are part of man-made assets such as environmental protection equipment, pollution bonds...etc. it is worth mentioning that they might be fixed assets or current assets. Even that the same asset may be considered fixed in one organization while current in the other. All natural assets are environmental assets but not vice versa (Mohamed, 2002).

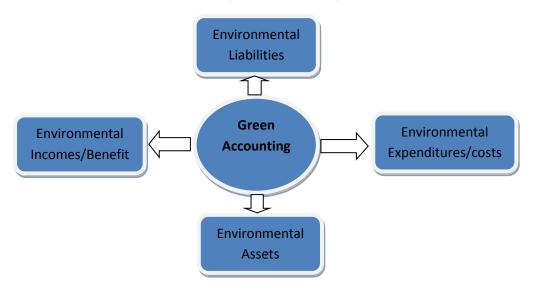


Figure 1: Dimensions of Environmental Accounting

Environmental Liabilities

A liability is a present obligation to make expenditure or to provide a product or service in the future. It is a legally enforceable obligation, whether it is voluntarily entered into as a contractual obligation, or is imposed unilaterally, such as the liability to pay taxes. The different types of environmental liabilities include Compliance Obligations – reporting, record keeping, treatment of air emission, release to surface water etc.; Remediation Obligations including cost of excavation, drilling, construction, pumping, soil and water treatment, and monitoring, and can include the response costs incurred by regulatory authorities. Fines and Penalties; Compensation Obligations such as personal injury, property damage and economic loss; Punitive Damages; and Natural Resource Damages (Mohamed, 2002).

Environmental Incomes

Environmental conservation benefit is measured in physical units and is the benefit obtained from the prevention, reduction, and/or avoidance of environmental impact, removal of such



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impact, restoration following the occurrence of a disaster, and other activities. By assessing the economic value of environmental conservation benefits which are measured in physical units, results are described in monetary values by some cases. Currently, in the field of environmental economics, a number of valuation methods are being developed for the purpose of determining the environment's economic value. It includes Environmental conservation benefit associated with the inputs of resources into business operations, Environmental conservation benefit associated with environmental impact and waste emissions from business operations, Environmental conservation benefit associated with the goods and services produced by business operations and Environmental conservation benefit associated with transports and other operations.

6 STEPS FOR DISCLOUSRES OF ENVIRONMENTAL ACCOUNTING IN INDIA

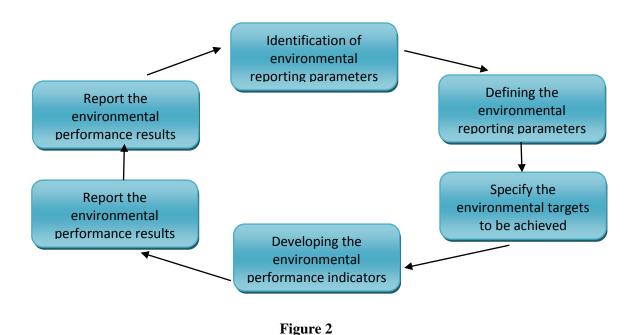
The study developed a model which specifies six aspects to be covered in environmental accounting in order to measure the ultimate environmental performance of the organization. The aim of this model is to present a novel view of the different activities to be undertaken by organizations to facilitate environmental accounting and reporting.

- Identification of Environmental Reporting parameters This is the first stage in environmental accounting process where in organizations identify their respective environmental reporting parameters such as environmental policy, health safety and environment, energy conservation, corporate sustainability/ environmental initiatives, sustainability reporting, waste management, water management, wind/renewable energy sources, environmental information system, environmental disclosure practices, environmental targets, environmental reporting indicators, environmental cost and benefits, environmental liabilities and environmental assets.
- **Defining the Environmental Reporting Parameters** The second stage in the environmental accounting process requires the organization to clearly spell out the operational meaning of each parameter they identified and on the basis of which they wanted to measure the environmental performance in the long run.
- Specify the Environmental Targets to be achieved It is in this stage that the organization tries to formulate the environmental targets to be achieved both in short run and long run, say the short term environmental policy of the organization as well as the long term environmental policy.
- Developing the Environmental Performance Indicators In this stage, organisations need to think about the indicators of their environmental performance such as environmental policy framework, health and safety standards to be followed, energy conservation practices to be followed, waste management programmed to be undertaken, water management policies etc.
- Measure the Environmental Performance Indicators Here, organizations try to measure the actual environmental performance in terms of the predetermined standard performance indicators. Measurement may be either qualitative or quantitative in nature. For instance, indicators such as environmental policy framework need to be qualitatively measured while; waste management programmes are to be measured quantitatively.
- Report the Environmental Performance Results In the last stage, organizations integrate their environmental performance with that of financial performance, so as to give the environmental impact on the financial performance

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Source: http://www.iiste.org

7. Regulations in India regarding environmental reporting

The main environmental laws in India include the:

- Water (Prevention and Control of Pollution) Act 1974 (Water Act), which also initially
 identified the powers, functions and hierarchy of the environmental agencies, the Central
 Pollution Control Board and the State Pollution Control Boards.
- Air (Prevention and Control of Pollution) Act 1981 (Air Act).
- Environment (Protection) Act 1986 (EP Act). This umbrella law enables the central government to take measures it deems necessary to protect and improve the environment, and to prevent, control and abate environmental pollution. A wide range of rules and notifications have been adopted under it, such as the:
 - E-Waste (Management) Rules 2016;
 - Bio-Medical Waste Management Rules 2016;
 - Construction and Demolition Waste Management Rules 2016;
 - Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016;
 - Manufacture, Storage and Import of Hazardous Chemicals Rules 1989;

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- Coastal Regulation Zone Notification 2011; and
- Environment Impact Assessment Notification 2006.
- Plastic Waste Management Rules 2016);
- Wild Life (Protection) Act 1972.
- Forest (Conservation) Act 1980.
- Public Liability Insurance Act 1991.
- Biological Diversity Act 2002.
- National Green Tribunal Act 2010.

Regulatory authorities

The key regulatory authorities are the:

- Ministry of Environment, Forest and Climate Change.
- Central Pollution Control Board.
- State Pollution Control Boards.

8. Research Method and Information analysis

8.1 Research Method

The aim of this study is to explore the state of environmental accounting and reporting practices by Indian companies through their websites and annual reports. Therefore in order to accomplish the aim, the websites of the corporates in the sample were visited to examine the accessibility and extent of environmental information disclosure. Next the annual reports for the 2016-17, as available on the company's websites were downloaded to investigate the extent of information disclosure in the annual reports. Environmental reporting encompasses those information items that communicate whether natural resources have been used responsibly or not (Fortes, 2002).

8.2 The sample

Sample for the study comprises of Top 25 Indian companies were SELECTED AS PER MARKET CAPITALISATION as listed on www.indiainfoline.com as on 31st December,2015. The use of "market capitalization" as a representative of firm size has been extensively used in some of previous literature(Debreceny et al.,2002 Chatterjee and Mir, 2008) and on the basis of the that the method was applied in our study. It is hypothesized that larger firms find disclosure of environmental information more advantageous to them than smaller firms, as they are more visible to external stakeholders than smaller firms and hence these firms are expected to bear the burden of the costs resulting from political actions(Cormier and Magnan,2003). Another reason behind selecting larger firms is that these firms possess the resources and expertise to meet diverse requirements of various groups of external stakeholders. From 25 Indian Companies 15 were shortlisted from manufacturing sector and 10 from non-manufacturing sector). A list of the sample companies along with the sector is provided in Table 2.

Table 2: List of companies

S.No	Name of the company	Manufacturing Sector /Non- Manufacturing sector
1	Bharat heavy Electrical Ltd	Manufacturing Sector

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2	National Aluminum Company ltd	Manufacturing Sector
3	Steel Authority of India Ltd	Manufacturing Sector
4	Grasim Industries Ltd	Manufacturing Sector
5	Wipro Ltd	Non-Manufacturing sector
6	Infosys Technologies Ltd	Non-Manufacturing sector
7	Hindustan Lever ltd	Manufacturing Sector
8	Satyam Computers Services Ltd	Non-Manufacturing sector
9	National Aluminum Company Ltd	Manufacturing Sector
10	HCL technologies Ltd	Non-Manufacturing sector
11	Tisco	Manufacturing Sector
12	Bajaj Auto Ltd	Manufacturing Sector
13	Mahanagar Telephone Nigam Ltd	Non-Manufacturing sector -
		Technology(telecom servies)
14	Zee Telefilms Ltd	Non-Manufacturing sector
15	Gujarat Ambuja Cements Ltd	Manufacturing Sector
16	Mahindra and Mahindra Ltd	Manufacturing Sector
17	Nestle India Ltd	Manufacturing Sector
18	Videsh Sanchar Nigam Ltd	Non-Manufacturing sector
19	Bharat Electronics Ltd	Non-Manufacturing sector -
		Technology(electronics)
20	Siemens Ltd	Non-Manufacturing sector
21	Shipping Corporation Of India Ltd	Non-Manufacturing sector -
		Transport service (shipping)
22	GlaxoSmithklin Pharmaceuticals Ltd	Manufacturing Sector
23	Jindal Steel and Power Ltd	Manufacturing Sector
24	Ambuja Cements Ltd	Manufacturing Sector
25	Bajaj Auto	Manufacturing Sector

9. Results and analysis

All the sample companies have reported their environmental initiatives in their annual reports in addition to their mandatory disclosures as required by the Companies Act. However, important fact is that the base of reporting is not uniform. Companies have reported such information either in the director's report, in sustainability report, in management discussion analysis report or any one of them. Table 3 reflects the distribution of environmental reporting of the sample companies. From the study, it reveals that 32% of sample companies reported such information only in the directors' report. 20% of the sample companies reported only in separate sustainability report. Contrary to that 28% of the sample companies reported such information in directors' report and management discussion &analysis report and 8% of sample companies reported environmental information in directors' report as well as separate sustainability report. Again few companies used to report such information in all of above sections. Study reveals that 2.5% of the sample companies reported such information in directors' report, management discussion &analysis and separate sustainability report. Such variation in the format of reporting may distort the utility of the information as it leads to spreading of information and in many cases there is repetition of information

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Table 3: Place of reporting Companies

Place of reporting	Companies
Only in directors report	8(32%)
In separate sustainability report	5(20%)
Only in management discussion and analysis	7(28%)
In directors report and management discussion and analysis	2(8%)
In separate sustainability report and directors report	1(2.5%)
In directors report, management discussions analysis and sustainability report	1(2.5%)
Total	25

Environmental Reporting Parameters

Based on the initial survey, the key parameters on which environmental reporting is done by Indian corporates were identified and includes variables such as environmental policy, health safety and environment, energy conservation, corporate sustainability/environmental initiatives sustainability reporting, waste management, water management, wind/renewable energy sources, environmental information system, environmental disclosure practices, environmental targets, environmental reporting indicators, environmental cost and benefits, environmental liabilities and environmental assets. A structured data analysis sheet has been prepared for capturing corporate environmental reporting practices using the key parameters identified during the initial survey.

Table 4: Extent to which Indian Corporates Practice Voluntary Environmental Reporting.

Parameters	Manufacturing (15)		Non-manufacturing (10)		Total (25)	
	Yes	No	Yes (%)	No (%)	Yes	No
	(%)	(%)			(%)	(%)
Environmental Policy	74.00	26.00	75.92	24.08	75.00	25.00
Health Safety and Environment	91.57	8.43	69.23	30.77	80.00	20.00
Energy conservation	76.00	24.00	61.54	38.46	69.00	31.00
Corporate Sustainability	83.33	16.67	84.62	15.38	84.00	16.00
Sustainability Reporting	41.67	58.00	30.77	69.23	36.00	64.00
Waste Management	83.33	16.67	38.46	61.54	60.00	40.00
Water Management	74.00	26.00	47.15	52.85	60.00	40.00
Wind Energy sources	58.33	41.67	15.38	84.62	36.00	64.00
Environmental information system	91.67	8.33	30.77	69.23	60.00	40.00
Environmental disclosure practices	41.67	58.33	46.15	53.85	44.00	56.00
Environmental targets	-	100.00	69.23	30.77	44.00	60.00
Environmental reporting indicators	74.00	26.00	76.92	23.08	76.00	24.00
Environmental costs and benefits	-	100.00	0.00	100.00	0.00	100.00
Environmental liabilities	-	100.00	0.00	100.00	0.00	100.00
Environmental assets	-	100.00	0.00	100.00	0.00	100.00

Factor Analysis: Environmental Reporting Parameters

The first four components (attributes/ factors) in the initial solution have an engine values over 1 and they account for more than 80 per cent of the variation in the environmental reporting practices of Indian corporates (Table 7). According to Kaiser criterion, only the first three factors (attributes) should be used because subsequent eigen values are less than 1. Factor loadings are

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used to measure correlation between variables and the factors. A loading close to 1 indicates strong correlation between a variable and the factor, while a loading closer to Zero indicates weak correlation. The factors are rotated with the Varimax with Kaiser normalization rotation methods (Table 8). Principal component analysis method was used for factor extraction taking those factors only whose values are greater than 0.5 for the purpose of interpretation.

Table 5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of	.654	
Bartlett's Test of Sphericity	343.205	
	df	105
	Sig.	.000

Source: Factor Analysis

Table 6: Communalities

	Initial	Extraction						
Environmental Policy	1.000	.939						
Health Safety and Environment	1.000	.820						
Energy conservation	1.000	.841						
Corporate Sustainability /Environmental Initiatives	1.000	.792						
Sustainability Reporting	1.000	.750						
Waste Management	1.000	.793						
Water Management	1.000	.548						
Wind/renewable Energy sources	1.000	.910						
Environmental information system	1.000	.748						
Environmental disclosure practices	1.000	.902						
Environmental targets	1.000	.871						
Environmental reporting indicators	1.000	.812						
Environmental costs and benefits	1.000	.911						
Environmental liabilities	1.000	.826						
Environmental assets	1.000	.743						
Extraction Method: Principal Component Analysis.								

Table 7: Total variance Explained

	Table 7. Total variance Explained									
]	Initial Eigen	values	Extraction Sums of Squared			Rotation Sums of Squared			
				Loadings			Loadings			
Component	Total	% of	Cumulative	Total	% of	Cumulative	Total	% of	Cumulative	
		Variance	%		Variance	%		Variance	%	
1	6.312	42.083	42.083	6.312	42.083	42.083	5.619	37.462	37.462	
2	2.529	16.861	58.944	2.529	16.861	58.944	2.378	15.855	53.317	
3	2.002	13.347	72.291	2.002	13.347	72.291	2.153	14.350	67.668	
4	1.364	9.095	81.385	1.364	9.095	81.385	2.058	13.717	81.385	
5	.880	5.864	87.249							
6	.532	3.549	90.798							
7	.503	3.356	94.154							

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8	.231	1.541	95.695			
9	.211	1.405	97.100			
10	.168	1.117	98.217			
11	.113	.751	98.968			
12	.074	.496	99.464			
13	.041	.271	99.734			
14	.033	.222	99.956			
15	.007	.044	100.000			

Source: Factor Analysis

Table 8 Rotated Component Matrix

	1	2	3	4				
Environmental Policy	878	260	302	099				
Health Safety and Environment	085	.105	.072	.983				
Energy conservation	.863	201	.190	139				
Corporate Sustainability	.776	.381	.138	157				
Sustainability Reporting	156	103	139	.834				
Waste Management	.151	.656	.562	192				
Water Management	.177	.708	.088	094				
Wind Energy sources	019	.012	951	068				
Environmental information system	.820	129	.154	187				
Environmental disclosure practices	873	359	.094	042				
Environmental targets	.505	002	.695	365				
Environmental reporting indicators	651	.613	040	.110				
Environmental costs and benefits	820	332	243	.264				
Environmental liabilities	.792	242	351	132				
Environmental assets	.047	704	.231	437				
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.								
Rotation converged in 6 iterations								

Source: Factor Analysis

From Table showing rotated component matrix it is clear that parameters like Energy conservation, corporate sustainability/environmental initiatives, environmental information system, and environmental liabilities have loading 0.863, 0.776, 0.820, and 0.792 respectively on factor one. This infers that factor one is a combination of these variables. This factor can be interpreted as Sustainability factors that independently responsible for contributed more than 42 per cent variation in environmental reporting practices. In factor two, variables like waste management, water management, environmental reporting indicators etc. have high factor

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loadings 0.646, 0.708, and 0.613, respectively indicating factor 2 as a combination of these attributes. This factor can be termed as resource management factors which contributed about 17 per cent variations independently. For factor three, it is evident from the Table 6 that renewable energy sources, environmental targets, have the highest loadings 0.951, and 0.695 respectively. This factor contributes 13 per cent variations in environmental reporting practices. Factor four, which accounts for nearly 10 per cent variation in environmental reporting practices, reported highest factor loadings for attributes such as health safety and environment(0.893), and sustainability reporting(0.834).

8. CONCLUSION

Environmental accounting and reporting practices are in the nascent stage in India. Even though Indian corporates comply with the rules and regulations with regard to environmental protection, till now no clear cut policies are framed and formulated at the National, State or even at the company level, for ensuring the level of compliance to environmental norms. This study was intended to find out the major environmental parameters reported by Indian Corporates as part of their Environmental reporting practice. The study also focused on the extent to which Indian Corporates practice, voluntary environmental reporting with regard to the environmental parameters identified.



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