

Environmental Accounting and Reporting Practices among Indian Corporates

Dr. Priyaka Khanna

Department of Commerce, Khalsa College for Women, Ludhiana-141 001 (India)

ARTICLE DETAILS

Article History

Published Online: 13 March 2019

Keywords

Social responsibility, environmental performance, environmental accounting, environmental Reporting.

ABSTRACT

Responsibility towards environment has become one of the most crucial areas of social responsibility. 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. 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. 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 organisation. 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.

1. Introduction

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. 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 Page | 22 of development. Responsibility towards environment has become one of the most crucial areas of social responsibility. 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. It is a worldwide phenomenon. It spoils human health, reduces economic productivity and leads to loss of amenities. 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).

2. Environmental Accounting: Conceptual Framework

Environmental accounting popularly called environmental accounting; resource accounting or integrated economic and environmental accounting refers to accounting practices incorporating the environmental costs, impacts and consequences. 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. It is something more than merely undertaking social cost benefit analysis of various projects or activities of the company or valuation of environmental goods and services produced. It is an effort to identify and portray the exhausted resources and cost rendered

by organizations in return, to the environment. Environmental Accounting is all about bringing transparency in accounts as to environmental costs. 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. Generally environmental accounting involves the identification, measurement and allocation of environmental costs, integration of these costs into business, identifying environmental liabilities, and communication the results to the stakeholders of the company as part of financial statements (Alok Kumar Pramanic, 2002).

Environmental Accounting is the term popularly used across nations for disclosure of environment related data, audited or not, regarding environmental risks, environmental impacts policies costs and liabilities. Corporate environmental protection should include environmental reporting initiatives taken by the enterprise, the adverse impact of its production process and products on the environment both in quantitative and qualitative terms and its initiatives in process and product innovations in order to achieve sustainable growth. Generally information disclosed by the companies in their annual report about environmental accounting and reporting include present and future costs for products as well as processes redesign, present and future capital expenditures for pollution and control, physical data related to the reduction of toxicity and waste, estimates of future environmental costs and benefits, accumulation of current environmental costs from current as well as past activities and products etc.(Nasir Zameer Qureshi et.al.,2012).

The basic objectives of environmental accounting include Segregation and collaboration of all environment related flows and stocks of assets or resources, taking the total stock of assets or reserves related to environmental issues, and changes, there in, Minimizing environmental impacts through improved product and process design, estimation of the total expenditure on protection or enhancement of environment, assessing changes of environment in terms of costs and

benefits, to identify that part of Gross Domestic Product this reflects the costs necessary to compensate for the negative impact of economic growth, reducing costs through resource cooperation and management and realizing organizational accountability and increasing environmental transparency (Nasir Zameer Qureshi et.al.,2012).

Scope of Environmental Accounting

Environmental Accounting involves estimation of environmental expenditures/cost, capitalization of those environmental expenditures, identification of environmental liabilities and measurement of environmental liabilities.

Environmental expenditures/costs

These are expenses or costs related to environmental measures including production-related costs and product research and development expenditures which are incurred primarily for ensuring protection of environment. Total environmental expenditures can be classified into six categories such as capital investment, operating costs, research and development cost, environment administration and planning, expenditures for remedial measures and recovery measures. **Capitalization of Environmental expenditures**

Capitalization of environmental expenditure is justifiable if the cost extends the life, increase the capacity or improve the efficiency or safety of the property owned by the company, the costs mitigate or prevent environmental contamination, the costs improve the property/resource in comparison to its condition at the time of acquisition, the costs are incurred in connection with preparing the property for sale.

Environmental liabilities

Obligation to pay future expenditure to remedy environmental damage that has occurred due to past events, activities or transactions or to compensate a third party that has suffered from damage. It may even include a contingent environmental liability that depends on occurrence or non-occurrence of one or more future uncertain events or to compensate a third party that has suffered from such damage.

Measurement of Environment liabilities Environmental liability may be a quantifiable one or non-quantifiable one. If it a quantifiable one – that is if we can measure its value accurately, give it in the balance sheet otherwise give a footnote explaining the nature of such liability.

3. Environmental accounting and reporting practices in India

Environmental Accounting and reporting in India is in developing stage both at the corporate level and at the national level. The entire process of Environmental Accounting encompasses three distinctive phases (V. Parameswaran, 2011). such as:

- Physical Accounting
- Determines the state of the resources types and extent in spatial and temporal terms.
- Monetary Valuation
- Valuation of resources - tangible and intangible in terms of its monetary aspects
- Integration with Economic Accounting

Integration of money value of environmental resources with that of other resources.

4. Review of literature

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. They also identified the major obstacles for environmental accounting and reporting and concluded that for sustainable development of country, a well-defined environmental policy as well as proper follow up and proper accounting procedure is a must. Unless common people of India are not made aware about environmental damages and safety, development of accounting in this regard is really becomes difficult.

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. A structured data analysis sheet has been used for capturing corporate environmental reporting practices on the internet. The data collection and analysis sheet was framed to gather data on, key environmental indicator areas, as identified by the World Business Council for Sustainable Development and by the Global Reporting Initiative. The most relevant types of environmental information, as identified by them are: Environmental policy; Environmental impacts; Environmental management systems; Environmental targets and Environmental performance disclosure.

Environmental Accounting methodology for India and its States, a project done by Haripriya Gundimeda et.al (2005). argue the case for Environmental 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. the purpose of the study is to show that Environmental Accounting for India is desirable, feasible, realistic and practicable and that a start can be made with available primary data already being collected by various official sources of the Government of India. They also pointed out that there is a dearth of focused sustainability analysis and information provided to policy makers at the National and State levels in India. As a result, the processes of public debate, government planning, budgetary allocation, and the measurement of economic results are in effect being conducted without a sustainability framework. High GDP

growth usually accompanies investment in physical infrastructure, which places mounting pressure on the country's environment and natural resources. However, there is an asymmetry between manmade and natural capital in that depreciation in the former reflects in GDP accounts but the latter does not. Recognizing that GDP growth is too narrow a measure of economic growth and not a measure of national wealth, they propose a "Environmental Accounting" framework for India and its States and Union Territories.

Hecht, Joy E. (1997), the world conservation union, explains Environmental accounting as an important tool for understanding the role played by the natural environment in the economy. Environmental accounts provide data which highlight both the contribution of natural resources to economic well-being and the costs imposed by pollution or resource degradation. It also explains what is environmental accounting why it matters how it is done who is working on it and how to get started. It talks about the System of National Accounts (SNA) which is the set of accounts which national governments compile routinely to track the activity of their economies. SNA data are used to calculate major economic indicators including gross domestic product (GDP), gross national product (GNP), savings rates, and trade balance figures. The data underlying these aggregate indicators are also used for a wide range of less publicized but equally valuable policy analysis and economic monitoring purposes.

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 Environmental Accounting practices in India and concluded that It is the call of the time that corporates 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.

5. Statement of the problem

Environmental Accounting is an important tool for understanding the role played by the natural environment in the economy. Environmental accounts provide data which highlight both the contribution of natural resources to economic well-being and the costs imposed by pollution or resource degradation. Business houses are using various natural resources to carry out the business activities without any hindrance. The industries should focus and set aside a part of their funds for environmental protection and ecological balance. Thus business organizations are expected to account for the use of substances which may damage the Environment. Environmental accounting is in preliminary stage in India. Corporates are now prepare a separate 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. 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. I is against this backdrop, the present study is conducted to develop a theoretical model of Environmental Accounting and reporting practices for Indian Corporates.

6. Objectives of the study

General Objective

The overall objective of the study is to develop a theoretical model explaining the entire procedure of Environmental Accounting for corporates in India.

Specific Objectives;

The specific objectives of the study are:

- 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.
- To identify the major factors considered by Indian corporates for environmental reporting

Accounting items on which environmental factors have a major impact identified, include Capital, assets, liabilities, expenditures and incomes. The various environment related accounting items can be classified into four basic dimensions of Environmental Accounting such as, environmental assets, environmental liabilities, environmental expenditures/costs and environmental incomes/benefits.

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).

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/benefits

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 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.

Methodology

This study sets out to examine the general trends in corporate environmental accounting and reporting practices. Aim of this study is to gain an insight into the corporate environmental accounting and reporting practices of selected companies. Companies are classified into two broad categories such as manufacturing and non-manufacturing. The purpose is to understand the sector wise practices of corporate environmental reporting. This can provide an important input to the varied environmentally sensitive groups in understanding the relevance of corporate environmental accounting and reporting practices.

Initial survey was conducted by going through the official websites of top 25 Indian companies as per Economic Times ranking, January 2012 survey (Economic Times, 2012). This was followed by an analysis of company annual reports and the stand-alone environmental reports if any. The study covered Annual Reports of 25 Indian Companies – 12 from manufacturing sector and 13 from non-manufacturing sector. Primary data were collected from top level managers of the selected 25 companies, through a structured interview schedule. Factor analysis is used to classify the 15 parameters identified through the initial survey of annual reports into different factors considered by Indian corporate for environmental reporting.

Environmental Accounting – The Conceptual Model

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 organisation. 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 of the organization.

7. Results and discussion

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.

Table1: Extent to which Indian Corporates Practice Voluntary Environmental Reporting.

S. No.	Parameters	Manufacturing (12)		Non-manufacturing (13)		Total (25)	
		Yes(%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
1	Environmental Policy	75.00	25.00	76.92	23.08	76.00	24.00
2	Health Safety and Environment	91.67	8.33	69.23	30.77	80.00	20.00
3	Energy conservation	75.00	25.00	61.54	38.46	68.00	32.00
4	Corporate Sustainability /Environmental Initiatives	83.33	16.67	84.62	15.38	84.00	16.00
5	Sustainability Reporting	41.67	58.00	30.77	69.23	36.00	64.00
6	Waste Management	83.33	16.67	38.46	61.54	60.00	40.00
7	Water Management	75.00	25.00	46.15	53.85	60.00	40.00
8	Wind/renewable Energy sources	58.33	41.67	15.38	84.62	36.00	64.00
9	Environmental information system	91.67	8.33	30.77	69.23	60.00	40.00
10	Environmental disclosure practices	41.67	58.33	46.15	53.85	44.00	56.00
11	Environmental targets	-	100.00	69.23	30.77	44.00	60.00
12	Environmental reporting indicators	75.00	25.00	76.92	23.08	76.00	24.00
13	Environmental costs and benefits	-	100.00	0.00	100.00	0.00	100.00
14	Environmental liabilities	-	100.00	0.00	100.00	0.00	100.00
15	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 eigenvalues over 1 and they account for more than 80 per cent of the variation in the environmental reporting practices of Indian corporates (Table 4). According to Kaiser criterion, only the first three factors (attributes) should be used because subsequent eigen values are less than 1.

Factor loadings are 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 6). 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 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.654
Bartlett's Test of Sphericity	Approx. Chi-Square	343.205
	df	105
	Sig.	.000

Source: Factor Analysis

Table 3: 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.		

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 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.

Reference

1. Abdel Rahim, Heba Y. and Abdel Rahim, Y. M (2010), Environmental Accounting – a proposition for EA/ER conceptual implementation methodology, *Journal of Sustainability and Green Business, Environmental Accounting*, 1-18.
2. Alok Kumar, Pramanik (2002). *Environmental Accounting and Reporting*. Soujanya Books, Delhi.
3. Atkinson, G. and Hamilton, K. (1996). Accounting for progress: Indicators for sustainable development. *Environment*, 38:16–44.
4. Bartelmus, P. (1996). Environmental accounting for sustainable development. In *pricing the planet: Economic analysis for sustainable development*, New York, Columbia University Press, 174–96.
5. Beets, S. D. and Souther, C. C. (1999). Corporate environmental reports: The need for standards and an environmental assurance service, *Accounting Horizons*, 13 (2), 129–145.
6. Brown, L. R. (1993). A new era unfolds. In *state of the world*, New York: W. W. Norton and Company, 3–21.
7. Burritt, R. L. (2002). Environmental reporting in Australia: current practices and issues for the future. *Business Strategy and the Environment* 11, (6).
8. Haripriya Gundimeda. Pavan Sukhdev. Pushpam Kumar. Rajiv Sinha. And Sanjeev Sanya (2005). TERI Press, December
9. Hecht, Joy E. (1997). *Environmental accounting : what's it all about*, IUCN US, Washington, DC
10. <http://economicstimes.indiatimes.com/et500list.cms>, retrieved on 3, July, 2013.
11. Malarvizhi P, Ms. Sangeeta Yadav(2008), *Corporate Environmental Reporting on the Internet: An Insight into Indian Practices*, 11th Annual Convention of the Strategic Management Forum, May 8 – 10, Indian Institute of Technology, Kanpur, India
12. Mohamed A. Raouf A hamid(2002), *Theoretical Framework for Environmental Accounting-Application on the Egyptian Petroleum Sector*, Ninth Annual Conference of the Economic Research Forum ,26-28 October
13. Mukesh Chauhan (2005), *Concept of Environmental Accounting and Practice in India*, The Chartered Accountant November 720-726
14. Nasir Zameer Qureshi et.al., (2012). *Environmental Accounting and Reporting: An Essential Component of Business Strategy*, *Asian Journal of Research in Banking and Finance*, Vol.2 Issue 4, April
15. Parameswaran, V (2011), *Environmental accounting: Indian Perspective*, International seminar on Green economy and Official Statistics, 6-8, July
16. Sherine Farouk, Jacob Cherian & Jolly Jacob, *Environmental Accounting and Management for Sustainable Manufacturing in Developing Countries*, *International Journal of Business and Management*; Vol. 7, No. 20; 2012.