Chapter IV
Disclosure Practices of Selected Environmental Parameters: Case study analysis

4.1 Introduction

The review of literature divulges the impact of environmental accounting and auditing practices by corporates on its financial performance. Number of research work completed across the globe to check the environmental accounting and auditing practices having impact on financial performance. Previous study of potential determinants of environmental disclosure by analyzing the annual reports of top 200 Indian companies, explored that there was a positive association of financial performance and size of the firm with environmental disclosure. The study also identified that there was a negative relationship of systematic risk. Results of these surveys are producing a concoction of feelings of both positive and no effects of adoption of environmental accounting and auditing practices on financial performance of the businesses. Here in this chapter qualitative research is undertaken with the help of case study of select three business giants representing environment sensitive industries.

With the economic development and emerging business potentials, variety of economic activities led to the pressure on the environment and became part of socio-economic life. Different enterprises started consuming the natural resources abundantly for large scale production and maximization of wealth. Subsequently, in the wake of need the greed surmounted and the business groups started exploiting water, air, soil, wood, flower and fauna and even species. Due to this concern, demands arose from various sections of groups across the continents towards addressing the environmental information in the form of environmental accounting, environmental auditing and corporate environmental reporting. According to Hecht, J. (2007) initially environmental accounts were constructed in several European countries working independently of each other where Norway being pioneer. Influenced by the publication of ‘Limits to Growth’ and a burgeoning environmental movement, Norwegian officials were concerned that their natural resources, on which their economy is relatively dependent compared with other European countries, would run out. They therefore developed accounts to track use of their forests, fisheries, energy, and land. In the 1980s, they developed accounts for air pollutant emissions, which were closely tied to the energy accounts.

Environmental costs are one of the many different types of costs, businesses incur as they provide goods and services to their customers. Environmental performance is one of the many important measures of business success. Environmental costs and performance deserve management attention for the following reasons:

a. Environmental accounting and auditing draw the attention of business and its stakeholders towards environmental costs and motivates to adopt operational and housekeeping changes as well as investment in new environmental friendly technology i. e. acceptance and implementation of *'greener process'* technology. This can be helpful in significant reduction of environmental costs. Thus, better management of environmental costs can result in improved environmental performance and thereby significant benefits.
b. Understanding the environmental costs and performance of processes and products can promote more accurate costing and pricing of products and can aid companies in the design of more environmentally preferable processes, products, and services for the future. This can attract employees, customers, suppliers and thereby becomes helpful to increase size of the business.
c. Image of environmentally preferable companies in the eyes of customers generates competitive advantage which makes business more profitable
d. Social scientists and researchers often argue that addressing environmental issues positively is likely to have positive effect on firm's reputation with stakeholders & customers, and its attractiveness to current and potential employees. This helps to improve financial performance of the business. This argument is supported by number of research works carried out in different countries. One of the studies, undertaken by Murphy (2002) who performed an extant literature review of research conducted within the time span of 1994 to 2001 to investigate the nature of relationship between

environmental and financial performance, and found a vivid positive association between them.

Current environmental accounting practices focus primarily on environmental reporting. Consideration of internal environmental accounting mechanisms is often neglected. An immense literature is devoted towards the reporting of environmental information in annual reports. On the other hand, fewer studies have concentrated on the actual evolution of environmental accounting systems in organizations, from the establishment of environmental policies to the reporting and evaluation of environmental information. The desirability of environmental accounting practices cannot be appropriately measured by the number of lines attributed to environmental information in annual reports. This is due to the attempts by organizations to focus only on favorable events and use environmental disclosures as public relations exercises (Owen, 1992, 1993, Gray et al. 1993, Deegan and Gordon 1996, Gallhofer and Haslam, 1996, Burritt and Welch, 1997, Tilt, 1997, Neu et al., 1998).

After the introduction of environmental auditing practice in the corporate world, in the late seventies in the U.S.A. after environmental disaster of Allied Chemical Inc. plant, need was felt to make strict enactments. Thereafter at international level, for physical verification of plant activities and to certify the measures taken for pollution abatement and environmental protection, the requirement for environmental auditing practice was recognized by the governments, environmental lobby groups, customers and social scientists.

After the evolution and some developmental phases of environmental accounting and auditing, the need of communiqué was realized through the practice of environmental reporting by corporates in their annual reports. Before it the Corporate Social Responsibility (CSR) aspect was debated much and its implementation was started in many countries. So, even environmental reporting practice was embedded in the CSR practice. Environment associated financial and non-financial information is among the performance indicators disclosed in Corporate Social Responsibility (CSR) reports. CSR disclosures comprise of monetary and non-monetary information that communicates the aptitude of an entity to produce business value through the administration of its social and environmental risks and opportunities. Also known as Triple Bottom Line Reports or Sustainability Reports, CSR Reports are progressively compiled on a stand-alone format as all stakeholders demand comprehensive information about a company's economic, social and environmental performance. Transparency about the sustainability of organizational activities is also important to a more diverse range of stakeholders, including labor, non-government organizations, customers, suppliers, the media, and others. Traditionally focused on philanthropic work, CSR today incorporates an organization's water and energy use, biodiversity-related policies, customer privacy practices, and human rights training programs, among others.

Number of studies across the globe has suggested that ethical practices by corporates towards communication to stakeholders increase value of the firm by getting favor from different sections of the society including investors, customers, suppliers, employees, etc. Even after such conclusions and suggestions for fair disclosure practices, sample companies here in this study are found less sensitive towards most important challenging and perilous to existence of human issue of environment and its disclosure. The findings of the present study expounded in previous chapter, support the findings of number of earlier studies.

In the previous chapter of this research study, Content analysis of 200 companies representing different industries having zero to highest degree of environmental sensitivity reveals that all the companies are not giving the same weightage to the disclosure of environmental parameters. This result of the present study is also supported by results of content analysis carried out by social scientists in different part of the world. One of the important study conducted in Europe by Roberts C. (1991) explored that the environmental disclosure practices in five countries had no uniformity at that point of time.

Meanwhile, after the emerging trend of environmental accounting, environmental auditing and environmental disclosure practices worldwide, some researchers started exploring the nature of relationship between financial performance and environmental performance. Murphy (2002) performed an extant literature review of research conducted within the time span of 1994 to 2001 to investigate the nature of relationship between environmental and financial performance, and found a vivid positive association between them. Particularly, it was concluded that firms with high environmental ratings and firms that exceed regulatory requirements experience higher market valuation; while firms with negative environmental performance (e.g. environmental accidents, oil spills, harmful substance releases, etc.) experience decline in stock prices.

Some researches indicate incidences of adverse relationship between environmental performance and financial performance. Roy and Ghosh (2011) examined bilateral association between economic performance and quality of voluntary disclosure of sustainable environmental practices in an Asian perspective, focusing on seven Asian countries including India. The primary research results suggested that they were not simultaneously related. Further, study demonstrated a negative or very insignificant relation between them. However, study provided mixed results and no clear trend on the dependence of voluntary environmental disclosures on economic performance. Also, they observed that companies in environmentally sensitive industries make less objective and lower quality disclosures.

4.1.1. Relationship between firm's environmental accountability and financial performance

Several theoretical analysis and empirical researches have been conducted to examine the relationship between environmental accountability i.e. responsibility cum disclosures and financial performance of the firm. But the results are mixed, inconsistent and often contradictory; ranging from positive, to negative, to statistically insignificant relationship; depending upon the choice of measure of environmental responsibility, measure of financial performance, sample composition, time-period and control variables.

Rio Tinto (1998) has explored that over recent years there has been a swing as companies come round to the view that excellence in environmental performance is an integral part of excellence in business. Early environmental regulations were seen as a costly add-on to production. Now it is realized that, unlike taxes, environmental performance is intimately tied in with efficiency of production.

Subsequently, Fortes (2002) also found that above view is increasingly being reflected by the disclosure of company responses to environmental matters through the development of environmental reports. The demand for greater transparency and responsibility has developed from increased social awareness of the damage caused by pollution and from the debate about sustainable development. The responsible use of natural resources has become a major social and political issue. As such, it has also developed into a significant factor in business decision-making, and accounting practice now needs to include the measurement and analysis of environmental costs as part of the information provided to decision-makers. Environmental reporting aims to take the communication of such information to a wider range of interested parties. It provides the basis of a dialogue with stakeholders, which include company management, employees, shareholders, government and society in general. He has found that environmental reporting shows significant business benefits. It demonstrates and strengthens the internal commitment of companies to the environment and appraises stakeholders of company progress with respect to caring for the environment, both of which help in achieving improved public relations and a deeper awareness of environmental issues on the part of employees.

Akbas, H. E. (2014) has found that company size, industry membership and profitability are important company characteristics that can have influence on the extent of environmental disclosure. According to the results of his study, size and industry membership have a positive and statistically significant relation with the extent of the environmental disclosure, while profitability has a negative relationship. In consistent with the previous studies, finding supports the argument that larger firms disclose more environmental information than smaller firms for the purpose of increasing their legitimacy (Huang and Kung, 2010).

The feature of environmental reporting gained importance after the evolution and spread of environmental auditing practices. During the exercise of Auditing, communication to interested parties/ stakeholders through written Auditor's Report is the heart of entire auditing practice. So, now-a-days many companies have started communicating its stakeholders through sustainability reports along with regular annual reports.

Earlier, Johnson (1993) has studied that environmental reporting encompasses both recognition and disclosure; environmental accounting encompasses only recognition (the formal recording of environmental outlays in the main body of financial statements), measurement of those amounts, and display. Questions and uncertainties associated with those outlays create significant challenges for accountants in terms of how to depict environmental outlays when they are made (that is, whether to capitalize or expense them, and how to attribute them to accounting periods), when (and if) to recognize as liabilities events, and how to measure those expected outlays. Often, the difficulties associated with recognition make it impossible, thereby leaving disclosure as the only resource for environmental reporting.

Environmental reporting involves a lot of accounting techniques and needs to be matched up with auditing techniques. Environmental accounting creates a link between economic development and environmental resources based on related environmental laws and regulations, using monetary measurement in recognizing, measuring and recording environmental assets and liabilities, and analyzing the effects of the environmental efficiency of activities on the financial performance of business organizations. It is thus, a combination of accounting and environmental economics, which coordinates economic development and environmental protection through effective value management.

In consideration of above trinity of environmental accounting, environmental auditing and environmental reporting, few past studies are significant to be understood. Especially, here an attempt is made to expound the disclosure practices on the front of Environmental Reporting.

In "Theory and practice of environmental management accounting: Experience of implementation in China", Li Xiaomei (2004) has explored that- in recent years, the requirement for the disclosure of environmental information has become increasingly rigorous on enterprises operating in all countries, including developing countries. According to an investigation made by some international accounting service, 65 per cent of the corporations surveyed reported their environmental information in 1994; 77 per cent in 1995; and 85 per cent in 2002.

Kolk, (2003) has found that over the years, societal expectations of corporate performance have changed considerably. At the heart of this change is the call for greater environmental sustainability. Different stakeholder groups, especially the regulatory and corporate watchdog groups, are putting great pressure on corporations to become more environmentally responsible. There has been an increase in the number of countries that have passed regulations requiring some sort of public disclosure of corporate environmental information. Examples of such countries include Japan, Denmark, New Zealand, and Netherlands.

Given the ever-increasing number of internet users, companies have turned to it from more traditional mass media as their preferred communication channel (Snider et al, 2003). The 2002 KPMG Survey of Corporate Sustainability Reporting also shows that more and more companies are using the Internet as a tool to communicate their environmental performance.

4.1.2. Exploring the path for environmental disclosure analysis

In western countries regulatory and statutory bodies made environmental accounting, auditing and reporting mandatory by obliging through stringent enactments in 1970s. In India keeping pace with world community, Pollution Control authorities were formed to prevent environmental damages by industrial establishments. Such authorities were also assigned job to prevent environmental damages as well as to take up compensatory initiatives for such damages. It is experienced at large that such authorities were not much effective as statutory bodies as well as society in general were not much concerned and aware about threats to the society and mankind from such environmental damages. After lots of initiation and international regulations made by world communities, India wakes up in the beginning of the present decade which is very late. Even after late initiation, statutory bodies came out with voluntary disclosure practices in the year 2011 which is followed by some mandatory disclosures for listed companies by Securities and Exchange Board of India (SEBI).

This research endeavor intends to expound environmental auditing practices by corporates in India with intention to check environmental auditing practices and its impact. The chapter Review of Literature of this research exposes poor initiation and response by statutory and regulatory bodies as well as corporates towards environmental auditing practices in India. Further, to verify environmental auditing practice by corporates in India, in the third chapter of the present study, content analysis is carried out. For content analysis 200 listed companies with NSE were selected.

It is found that there is significant difference in environmental disclosure practices in Annual reports pertaining to selected six parameters applied to Nifty 200 companies ranging from different industries under the study for the financial year 2014-15. Content analysis is carried out in the previous chapter of the present study, based on disclosure of six selected environmental parameters viz. carbon disclosures; GRI reporting guidelines; ISO 14001 adoption and compliance; renewable energy measures; awards and accolades for better environmental performance and research and development investments for environment protection, broadly it is observed that-

- Half of the Companies (52%) have incorporated efforts undertaken to control and minimise the carbon footprints on planet earth by disclosure in Annual Reports.
- Few companies (16%) have adopted Global Reporting Initiative (GRI) practices in annual reports to create the brand in the corporate sector as per globally well accepted trend.
- Comparatively, many companies (41%) have adopted ISO 14001 model of Environmental Management System (EMS) in their entity to run the entity efficiently with vision of environment protection in responsible manner.

- Majority of the companies (76%) have followed practices in the area of Renewable Energy against utilisation of conventional source of energy in their entity to reduce the impact on environment of Earth.
- Some companies (38%) have bagged the awards and accolades for best practices and examples set in the areas of technological innovation, energy and water conservation, input material reduction, exploration and implementation of alternatives against use of scarce natural resources, afforestation drive, etc. towards environmental protection.
- Half of the companies (50%) have invested in research and development towards better environmental practices in terms of Environmental conservation, protection and pollution abatement to minimise the impact on environment.

The result of content analysis reveals the fact that there is significant difference across the companies as well as industries as a whole as far as disclosure parameters are concerned. Industries are found not very keen on environmental issues and environmental disclosure and auditing practices adopted.

These findings prompt some questions like,

I. Why companies do not practice environmental auditing?
II. Does environmental auditing practice has impact on results of the business?
III. Is it possible to deal with issues related to environmental auditing objectively?

Therefore, to fetch answers of all these questions, this chapter intends to check the objectivity of environmental auditing and disclosure norms and practices followed by Indian corporates. It appears that Indian corporates are not following environmental auditing practices considering moral social responsibility but, it is accepted as unwanted obligation. Even after following the environmental auditing practices, different organisations are following different criteria and disclosure practices. Therefore, to assess the objectivity of the environmental auditing practice followed by Indian organisations this chapter undertakes the case study analysis. For the case study analyses following three companies representing different environmental sensitive industries are selected:

I. Tata Steel Ltd.
II. Reliance Industries Ltd.
III. Larsen & Toubro Ltd.

Three corporate players from Steel, Petrochemicals cum Energy and Infrastructure industry have been selected viz. Tata Steel Ltd., Reliance Industries Ltd. and Larsen & Toubro Ltd. respectively for analysis purpose. Normally, Steel, Petrochemicals and Infrastructure industry are considered polluting the environment. Annual Reports from 2003-04 to 2014-15 (time span of twelve years) and available Sustainability Reports from the websites of the above selected company are considered as secondary data for analysis.

Here above three corporate giants have been selected for case study in wake of their robust financial performance, their vibrant operations and due to diversity in product and service delivery. The nature and variety of operations and processes carried out in the business make the selected companies exposed to inherent environmental risks. For this case study analysis, a systematic approach has been adopted for the selection of the companies. Three giant corporates are selected here in terms of turnover, variety of products and profit and profitability with high growth rate but having different reputes as far as social and environmental issues concern. All three companies are selected because in the post globalized and liberalized era of Indian economy, they have performed well by showing tremendous development with stiff global competition.

4.1.3. Methodology

The methodology adopted in this study is an analytic-descriptive approach where observation and review of financial documents are the key techniques. Study of the reporting practices has been carried out considering Environmental Reporting and Auditing by procuring the financial information for the year 2003-2004 to 2014- 2015. Ensuring a high un-biased and consistent conduct of this study, multiple data analysis methods are used. Case study is used as one of the research methodologies to establish a connect between the theory of environmental auditing and the practices of environmental reporting at the actual ground level in the select companies. The rationale behind using the case study is that as there has been less uniformity in the guidelines, procedures and practices of environmental accounting, environmental auditing and environmental reporting, there exist several unanswered questions about the verification of organizational ethics and conduction of these ethics in actual practice. This study is an attempt to find out answers of these questions through qualitative analysis.

For an in-depth case study, analysis of three companies is carried out to check the environmental auditing practice and its impact with the help of following research methodology:

I. Time series

This section studies the behavior of individual variables over a period of twelve years duration i.e. financial year 2003-04 to 2014-15. The present analysis introduces selected variables under study and explains as to how the company discloses in the annual reports and sustainability reports these vital financial and environment related variables. This section studies the disclosure of individual variables, which are considered for the study.

II. Variables

Based on sensitivity of environmental concerns and previous literature, in present study seven environmental parameters have been identified. These variables are:

(i) Carbon disclosure
(ii) Global Reporting Initiatives (GRI)
(iii) Environmental Policy
(iv) ISO 14001
(v) Renewable Energy
(vi) Awards and accolades for environmental performance
(vii) Research and development in the environmental area.

In context of present case study, all these parameters have been briefly explained later.

III. Techniques of analysis

The case study analysis has been carried out using basic statistical techniques viz. content analysis, correlation analysis and single factor ANOVA analysis.

IV. Data source (secondary data, from online annual reports)

The data used in the study has been collected from the annual reports and sustainability reports of selected three companies for the Financial years from 2003-04 to 2014-15. These reports have been downloaded from the websites of the corporate selected.

4.2. Disclosure requirements in Indian corporates

National Environment Policy, 2006 (NEP, 2006), prepared by the Ministry of Environment & Forest, Government of India, was the outcome of extensive consultations with experts in different disciplines, Central Ministries, Members of Parliament, State Governments, Industry Associations, Academic and Research Institutions, Civil Societies, NGOs and the Public. In this Policy statement, certain suggestions on Action Plan pertaining to policy preparation, compliance of standards and guidelines and research and development activities and are also contained.

Ministry of Corporate Affairs, Government of India, in July 2011, came out with the 'National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business'. These guidelines contain comprehensive principles to be adopted by companies as part of their business practices and a structured business responsibility reporting format requiring certain specified disclosures, demonstrating the steps taken by companies to implement the said principles.

In line with the above Guidelines and considering the larger interest of public disclosure regarding steps taken by listed entities from (a) Environmental, (b) Social and (c) Governance ('ESG') perspective, it has been decided to mandate inclusion of Business Responsibility Reports ('BR Reports') as part of the Annual Reports for listed companies. Therefore, in line with the objective to enhance the quality of disclosures made by listed entities, certain listing conditions are specified by way of inserting Clause 55 in the equity Listing Agreement.

Certain key principles to assess the fulfillment of listed entities and a description of the core elements under these principles are self-explanatory.

Applicability of Business Responsibility Reports is as under:

a. The requirement to include BR Reports as part of the Annual Reports shall be mandatory for top 100 listed entities based on market capitalization at Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). Those listed entities which have been submitting sustainability reports to overseas regulatory agencies/stakeholders based on internationally accepted reporting frameworks need not prepare a separate report for the purpose of these guidelines but only furnish the same to their stakeholders along with the details of the framework under which their ‘BR Report’ has been prepared and a mapping of the principles contained in these guidelines to the disclosures made in their sustainability reports.

b. The provisions of the Circular issued by Securities and Exchange Board of India (SEBI) vide CIR/CFD/DIL/8/2012 dated 13th August, 2012 were made applicable with effect from financial year ending on or after December 31, 2012. Pursuant to notification of Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 (“Listing Regulations”), the aforesaid Circular dated August 13, 2012 was rescinded. As per clause (f) of sub regulation (2) of regulation 34 of Listing Regulations, the annual report shall contain a business responsibility report describing the initiatives taken by the listed entity from an environmental, social and governance perspective, in the format as specified by the Board. So, the above matter was brought to the notice to recognized stock exchanges and through them to the listed companies vides Circular CIR/CFD/CMD/10/2015 dated 4th November, 2015.

Under Business Responsibility Report format, Principle wise performance is to be disclosed by the company. Principle 2 and Principle 6 pertains to the Environment related information viz.

Principle 2 requires disclosure on-

- List up to 3 of your products or services whose design has incorporated social or environmental concerns, risks and/or opportunities.
- For each such product, providing the details in respect of resource use (energy, water, raw material etc.) per unit of product (optional)
- Does the company have procedures in place for sustainable sourcing (including transportation)? If yes, what percentage of your inputs was sourced sustainably? *Also, provide details thereof, in about 50 words or so.*
- Has the company taken any steps to procure goods and services from local & small producers, including communities surrounding their place of work? If yes, what steps have been taken to improve their capacity and capability of local and small vendors?

Principle 6 requires disclosure on-

- Does the policy related to Principle 6 cover only the company or extends to the Group/Joint Ventures/Suppliers/Contractors/NGOs/others.
- Does the company have strategies/ initiatives to address global environmental issues such as climate change, global warming, etc? Y/N. If yes, please give hyperlink for webpage etc.
- Does the company identify and assess potential environmental risks? Y/N
- Does the company have any project related to Clean Development Mechanism? If so, provide details thereof, in about 50 words or so. Also, if Yes, whether any environmental compliance report is filed?
- Has the company undertaken any other initiatives on – clean technology, energy efficiency, renewable energy, etc. Y/N. If yes, please give hyperlink for web page etc.
- Is the Emissions/Waste generated by the company within the permissible limits given by CPCB/SPCB for the financial year being reported?
- Number of show cause/ legal notices received from CPCB/SPCB which are pending (i.e. not resolved to satisfaction) as on end of Financial Year.

4.3. Applicability of Environmental Parameters

Here, in this study content analysis is carried out based on certain criteria or themes related to environmental information. Content analysis refers to a set of procedures for collecting and organizing information in standardized format (GAO, 1982). As stated in Holland and Foo (2003), "Content analysis is defined as the method of a research technique for the objective, systematic and quantitative description of the manifest content of communication (Berelson, 1971)." Mukherjee, K. et al. (2010) have observed in their research study that the growing global concern towards corporate environmental disclosure has led to the voluntary reporting of environmental information by Indian companies as well. However, the nature and content of disclosure vary across industries and firms, and these variations can be attributed to various firm specific factors. Environmental disclosure was measured by developing an environmental disclosure index based on prior literature. The sample for the study comprised select companies chosen from ten environmentally sensitive industries, viz., distillery, sugar, fertilizer, pulp and paper, chlor alkali, pharmaceuticals, dyes and dye intermediates, pesticides, oil and refinery and petrochemicals. These themes were chosen based on previous empirical literature (Wiseman, 1982; Blacconiere and Patten, 1994; Burritt, 1997; Holland and Foo, 2003; Dixon et al., 2005; Clarkson et al., 2007; and Chatterjee and Mir, 2008)

Ullah, M. H., et al (2014) have made the study on Environmental Disclosure Practices in Annual Report of the listed Textile industries in Bangladesh and revealed that more than two-third (69%) of the sample companies addressed no environmental issues in their annual reports. For development of Disclosure Index environmental items considered were environmental policy, environmental product process, environmental energy, environmental cost/investment etc.

Based on above disclosure requirements and previous literature review, in present study seven environmental parameters have been identified in terms of (i) Carbon disclosure; (ii) Global Reporting Initiatives (GRI); (iii) Environmental Policy (iv) ISO 14001; (v) Renewable Energy measures; (vi)

Awards and accolades for environmental performance and (vii) Research and development in the environmental area.

The study of vision statements of select three well established companies with a promising history of Corporate Social Responsibility (CSR) revealed a common occurrence of concern towards environment protection and conservation. Therefore, Environmental policy is incorporated as an added environmental parameter in the already existing list used in previous chapter for Content analysis.

Adoption, application and disclosure through reporting of these parameters can facilitate to understand the accountability and responsibility of any corporate entity towards various stakeholders in letter and spirit also.
Seven parameters selected in present study are to be understood in brief.

4.3.1. Carbon Disclosure

At present pressure is surmounting on the corporates to minimise the impact on environment. Emission of Carbon Dioxide (CO_2) and other GHGs have substantially damaged the planet Earth due to industrial activities. So, companies have started taking steps towards disclosing the efforts and steps taken on ‘carbon footprint’. (http://www.footprintnetwork.org/en/index.php/GFN/page/carbon).

4.3.2. Global Reporting Initiative (GRI)

GRI has pioneered corporate sustainability reporting since 1997, transforming it from a niche practice to one now adopted by a growing majority of organizations. GRI is an international, independent organization that helps businesses, governments and other organizations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, corruption and many others (https://www.globalreporting.org/information/news-and-press-center/pre.).

4.3.3. Environmental Policy

Now-a-days corporates have begun to formulate Environmental Policy to address the local, national and global demands from various stakeholders. Here, considering the nature of activities and operations, companies prepare the draft of Environmental Policy which becomes the guiding force to internal workforce towards preservation and nurturing the environment. Such environmental policy resembles as a mission statement for the company.

4.3.4. ISO 14001- Environmental Management System (EMS)

An ISO 14001 Environmental Management System (or commonly referred to as an EMS) is a structured system designed to help organisations manage their environmental impacts and improve environmental performance caused by their products, services and activities. An environmental management system provides structure to environmental management and covers areas such as training, record management, inspections, objectives and policies. (http://www.environmentalmanagementsystem.com.au/what-is-an-envir).

4.3.5. Renewable Energy

Renewable energy is energy generated from natural resources—such as sunlight, wind, rain, tides and geothermal heat—which are renewable (naturally replenished). Renewable energy technologies range from solar power, wind power, hydroelectricity/micro hydro, biomass and biofuels for transportation. This energy cannot be exhausted and is constantly renewed. Alternative energy is a term used for an energy source that is an alternative to using fossil fuels. Generally, it indicates energies that are non-traditional and have low environmental impact. The term alternative is used to contrast with fossil fuels according to some sources. By most definitions alternative energy doesn't harm the environment, a distinction which separates it from renewable energy which may or may not have significant environmental impact (http://extension.psu.edu/natural-resources/energy/what).

4.3.6. Research and Development

Environmental research provides knowledge for the development of sound evidence-based policies and strategies towards conservation of natural resources. Globally, environmental research has provided important inputs for devising strategies to ensure ecological security and sustainable development.

4.3.7. Awards and Accolades

Awards and accolades provide impetus to any individual or entity for better performance. In corporate world various kinds of presentations are applauded in terms of various awards by different organisations and institutes. Here the awards and recognition granted for Environmental activities, processes and recitals are to be considered for the study.

4.4. Disclosure of selected environmental parameters in select companies

Disclosure of select identified environmental parameters in annual reports and sustainability reports in the select three corporates viz. Tata Steel Ltd., Reliance Industries Ltd. (RIL) and Larsen & Toubro Ltd. (L & T) are discussed in the following part of the study. The content analysis is undertaken of annual reports and available sustainability reports three companies for twelve years of time span. “Content analysis is defined as the method of a research technique for the objective, systematic and quantitative description of the manifest content of communication (Berelson, 1971).”

4.4.1. Tata Steel Ltd.

The Company was originally incorporated as “The Tata Iron and Steel Company Limited” on August 26, 1907 as a public limited company, under the provisions of the Indian Companies Act, 1882. The Company was established by Jamsedji N. Tata, the founder of the Tata companies.

The true mettle of an organisation is tested when it is able to respond to the challenges the environment throws up and turn them into an advantage. Staying alert to the dynamics of the steel industry and remaining responsive to it, has enabled the company to manage the impact of these challenges and come out stronger. Company has seeded several initiatives and projects that will bear fruit in the coming years. A tightening of processes has enabled the company to become more agile than ever before. And an ongoing focus on continuous improvement is helping it innovate to achieve even greater efficiencies (http://www.tatasteel.com/investors/performance/annual-report.asp).

Mission consistent with the vision and values of the founder Jamsedji Tata, Tata Steel strives to strengthen India's industrial base through the effective utilization of staff and materials. The means envisaged to achieve this are high technology and productivity, consistent with modern management practices. Tata Steel recognizes that while honesty and integrity are the essential ingredients of a strong and stable enterprise, profitability provides the main spark for economic activity. Overall, the company seeks to scale the heights of excellence in all that it does in an atmosphere free from fear, and thereby reaffirms its faith in democratic values. The philosophy of the Founder, J N Tata - "In a free enterprise, the community is not just another stakeholder in business, but is in fact, the very purpose of its existence," - is Tata Steel's corporate credo.

Tata Steel's vision is: "We aspire to be the global steel industry benchmark for Value Creation and Corporate Citizenship". "We want to retain our pre-eminent position as the oldest and most value creating steel company in India. And we need to look after our stakeholders in an integrated manner, so whether it is the community, suppliers, customers, the lenders, the shareholders, the employees or any other. We need to look at our sustainable model, which is what Tata Steel has always wanted to do, our Founder's view." (http://www.tatasteel.com/investors/performance/annual-report.asp)

In the Table 4.1 given under for Tata Steel Ltd. the disclosure of select seven environmental parameters is summarized.

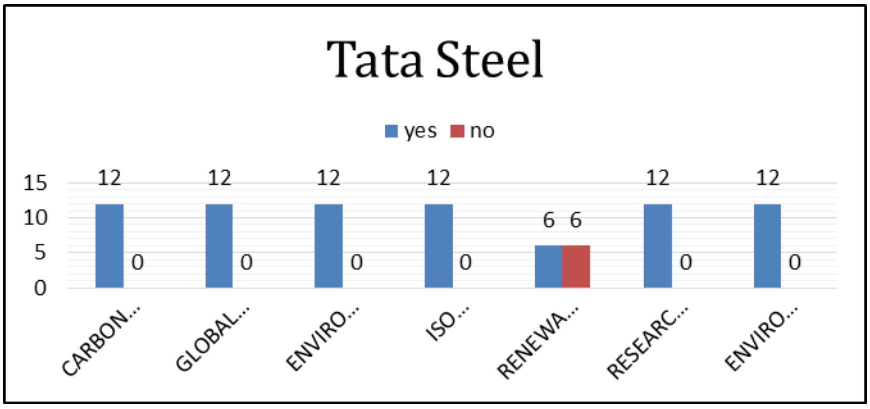
Table 4.1

Tata Steel Ltd. - Disclosures of Environmental Related Parameters

	1	2	3	4	5	6	7
Financial Year	Carbon Issues	Global Reporting Initiatives	Environmental Policy	ISO 14001 Certification	Renewable Energy Adoption	Research & Development	Environmental Awards
2003-04	YES	YES	YES	YES	NO	YES	YES
2004-05	YES	YES	YES	YES	NO	YES	YES
2005-06	YES	YES	YES	YES	NO	YES	YES
2006-07	YES	YES	YES	YES	NO	YES	YES
2007-08	YES	YES	YES	YES	NO	YES	YES
2008-09	YES	YES	YES	YES	YES	YES	YES
2009-10	YES	YES	YES	YES	NO	YES	YES
2010-11	YES	YES	YES	YES	YES	YES	YES
2011-12	YES	YES	YES	YES	YES	YES	YES
2012-13	YES	YES	YES	YES	YES	YES	YES
2013-14	YES	YES	YES	YES	YES	YES	YES
2014-15	YES	YES	YES	YES	YES	YES	YES

Graph 4.1

Environmental parameters disclosure by Tata Steel Ltd.



Conclusion:

- Tata Steel Ltd. has disclosed all parameters namely Carbon Issues, Global Reporting Initiatives, Environmental Policy, ISO 14001 Certification, Research & Development in Environment and Environmental Awards in all twelve years starting from 2003-04 to 2014-15. But in the area of Renewable Energy adoption disclosure is reported for only six years within the span of twelve years.

4.4.2. Reliance Industries Ltd. (RIL)

Dhirubhai Ambani returned to India in 1957 after a stint with A. Besse & Co., Aden, Yemen. He started a yarn trading business from a small 500 sq. ft. office in Masjid Bunder, Mumbai, but dreamt of establishing India's largest company.

With effect from 11th March, 1977 Reliance Textiles Industries Ltd. was established. The company manufactures synthetic blended yarns and fabrics polyester filament yarn polyester, staple fibre chemicals and allied products, colour TV glass shells and colour TV picture tubes. The company's fabrics are marketed under the brand name "VIMAL".

To ensure a vigorous sustainability practice that will help advance business priorities, drive innovation, and achieve a competitive advantage, Reliance Industries Ltd. (RIL), company's 4P approach, along with key focus areas, delineate actionable points in order to percolate sustainability within every facet of the organisation. During Financial Year 2014-15, RIL has undertaken numerous initiatives directed towards these four categories: (i) planet, (ii) people, (iii) products & processes and (iv) profits. The importance of a business' role in creating economic value is a well-accepted paradigm. However, the extended role of the business to manage its environmental and social impacts is gaining momentum. Among Indian corporates, RIL is one of the forerunners of inclusive growth with its deep rooted philosophy of growth as a universal concept that touches all aspects of life. The Company's vision is to create value for the nation, enhance quality of life across the entire socioeconomic spectrum, and help spearhead India as a global leader in the domains where it operates. This manifest in the Company's core values; Customer Value, Ownership Mindset, Respect, Integrity, One Team and Excellence.(http://www.ril.com/InvestorRelations/FinancialReporting.aspx retrieved on 26/12/2015).

RIL commenced annual reporting on its triple-bottom-line performance from the Financial Year 2004-05. All its sustainability reports are externally assured and Global Reporting Initiative (GRI) application level checked. The maiden report received 'in-accordance' status from GRI and all subsequent reports are 'GRI G3 Checked A+' application level reports. From Financial Year 2006-07, in addition to referring GRI G3 Sustainability Reporting Guidelines, RIL refers to the American

Petroleum Institute / the International Petroleum Industry Environmental Conservation Association Sustainability Reporting Guidelines and the United Nations Global Compact Principles. RIL has also aligned its sustainability activities with the focus areas of the World Business Council for Sustainable Development. From the Financial Year 2011- 12, Reliance adopted the newly published GRI G3.1 guidelines and is additionally referring to GRI G3.1 – Oil & Gas Sector Supplement.

RIL works towards attaining a sustained financial bottom line along with enhancing natural, human capital and product development. It is committed to reduce its negative impacts and enhance its positive impacts on the society as well as the natural environment. In addition to making a positive economic contribution to the nation and society at large, it has focused its energies on identifying specific impact areas. It endeavors to alleviate the underprivileged and marginalized sections of the society and has an active engagement with them to ensure their holistic development.

It aims to develop innovative products and processes to sustain its growth momentum. It also invests in R&D across its businesses, to serve the current and emerging needs of growth and efficiency of its businesses, and to develop new path breaking technologies.

In the Table 4.2 given under for Reliance Industries Ltd. the disclosure of select seven environmental parameters is summarized.

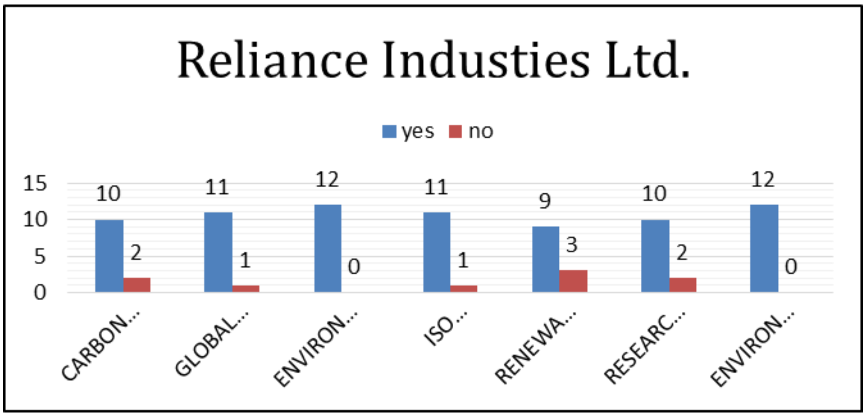
Table 4.2

Reliance Industries Ltd - Disclosure of Environmental parameters

	1	2	3	4	5	6	7
Financial Year	Carbon Issues	Global Reporting Initiatives	Environmental Policy	ISO 14001 Certification	Renewable Energy Adoption	Research & Development	Environmental Awards
2003-04	NO	NO	YES	NO	NO	NO	YES
2004-05	NO	YES	YES	YES	NO	NO	YES
2005-06	YES	YES	YES	YES	NO	YES	YES
2006-07	YES	YES	YES	YES	YES	YES	YES
2007-08	YES	YES	YES	YES	YES	YES	YES
2008-09	YES	YES	YES	YES	YES	YES	YES
2009-10	YES	YES	YES	YES	YES	YES	YES
2010-11	YES	YES	YES	YES	YES	YES	YES
2011-12	YES	YES	YES	YES	YES	YES	YES
2012-13	YES	YES	YES	YES	YES	YES	YES
2013-14	YES	YES	YES	YES	YES	YES	YES
2014-15	YES	YES	YES	YES	YES	YES	YES

Graph – 4.2

Environmental parameters disclosure by Reliance Industries Ltd.



Conclusion:

- Reliance Industries Ltd. has disclosed Environmental Policy and Environmental Awards in all twelve years starting from 2003-04 to 2014-15. Disclosure is found in Carbon Issues and Research & Development in Environment area to the extent of 83.33% within the span of twelve years. Disclosure is explored in Global Reporting Initiatives and ISO 14001 Certification by 91.67%. In Renewable Energy Adoption 75% disclosure is reported during the span of twelve years.

4.4.3. Larsen & Toubro Ltd. (L & T)

The evolution of Larsen & Toubro Ltd. (L&T Ltd.) into a major engineering and construction organization is among the more remarkable success stories in Indian industry. It was founded in Mumbai (then Bombay) in 1938 by two Danish engineers, Henning Holck-Larsen and Soren Kristian Toubro. Beginning with the import of machinery from Europe, L & T Ltd. took on engineering and construction assignments of increasing sophistication. Today, the company sets engineering benchmarks in terms of scale and complexity.

At the heart of company's approach to business is a sustainable model of development. It is built on the pillars of inclusive growth and a commitment to environment conservation, where expediency does not compromise long-term interests. Apex level CSR committee, comprising Board Members, has decided to

focus on a unifying theme - 'Building Social Infrastructure'. This covers water conservation, education, skill-building and healthcare.
In its segment, L & T Ltd. was the first engineering and construction company in India to publish its Corporate Sustainability Report. In 2007, it set up a dedicated team of coordinators throughout the independent companies to report on environmental and social performance, and implement sustainability initiatives. Over the years, the team has evolved from the early stages of implementing initiatives to embedding sustainability more and more deeply within the organization's culture.

On Environmental front, company's business is governed by comprehensive policies on quality, health & safety. Green initiatives to protect natural resources begin at the design stage and extend through the product and project life cycle.

The Company is steadfast towards National Action Plan on Climate Change (NAPCC) and its eight missions instituted by Government of India. L & T Ltd. continues to invest in technologies towards increasing energy efficiency, enhancing renewable energy usage and water footprint reduction etc. L & T Ltd. also helps its customers to reduce their energy and carbon footprint through green product and processes portfolio. This not only helps in reducing the emissions but also helps to progress on low carbon economy path.

At L&T, management has been constantly integrating more sustainable ways of working across business - from design to production to logistics. While offering the best in class products the company is limiting its ecological footprints. While this work propels to forward, it also recognizes that as a leader from the industry company is in a position to leverage the power of corporate brand to drive positive change across entire value chain, within industry and beyond and working towards the same.

Company strives for performance that goes beyond the regulatory compliances by reducing environmental impacts. It works towards conserving the natural capital and preserve the resources for future generations. Company has set examples of these from project sites, campuses and offices. Sustainability performance is monitored periodically and aligned to the sustainability goals set. (http://investors.larsentoubro.com/Download.aspx retrieved on 31/12/2015)

In the Table 4.3 given under for L & T Ltd. the disclosure of select seven environmental parameters is summarized.

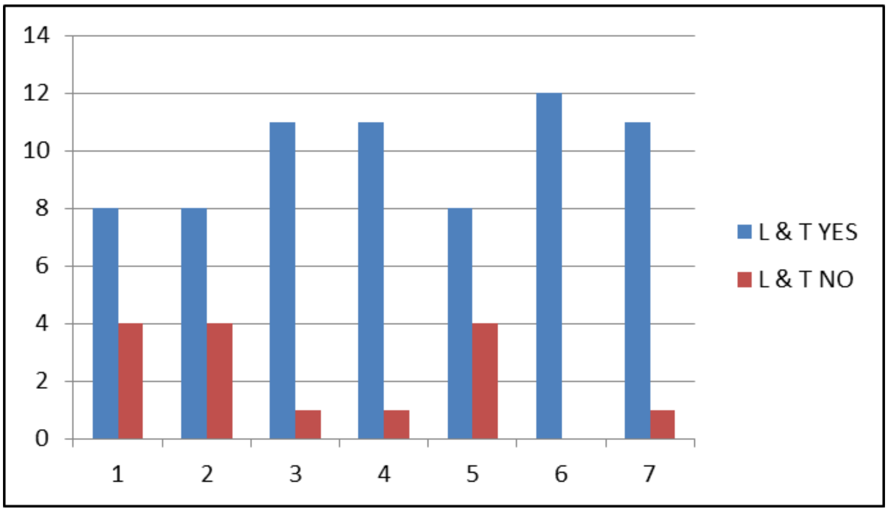
Table 4.3

L & T Ltd. - Disclosure of Environmental parameters

	1	2	3	4	5	6	7
Financial Year	Carbon Issues	Global Reporting Initiatives	Environmental Policy	ISO 14001 Certification	Renewable Energy Adoption	Research & Development	Environmental Awards
2003-04	YES	YES	YES	YES	NO	YES	YES
2004-05	YES	YES	YES	YES	NO	YES	YES
2005-06	YES	YES	YES	YES	NO	YES	YES
2006-07	YES	YES	YES	YES	NO	YES	YES
2007-08	YES	YES	YES	YES	NO	YES	YES
2008-09	YES	YES	YES	YES	YES	YES	YES
2009-10	YES	YES	YES	YES	NO	YES	YES
2010-11	YES	YES	YES	YES	YES	YES	YES
2011-12	YES	YES	YES	YES	YES	YES	YES
2012-13	YES	YES	YES	YES	YES	YES	YES
2013-14	YES	YES	YES	YES	YES	YES	YES
2014-15	YES	YES	YES	YES	YES	YES	YES

Graph 4.3

Environmental parameters disclosure by L & T Ltd.



Conclusion:

- Larsen & Toubro Ltd. has reported Research & Development in Environment in all twelve years starting from 2003-04 to 2014-15. It has disclosed the work in the area of Environmental Policy, ISO 14001 Certification and Environmental Awards to the tune of 91.67% in twelve years. In Carbon Issues, Global Reporting Initiatives and Renewable Energy Adoption 66.67% disclosure is shown by the company.

4.4.4. Summary of select environmental parameters in the corporates

Overall summary of select environmental parameters in three companies is compiled in the following part.

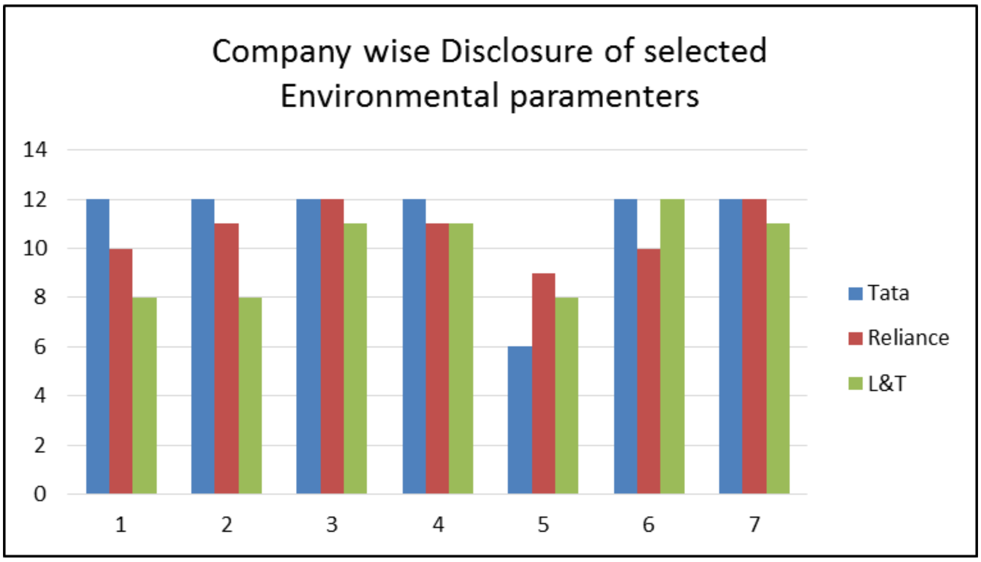
Table 4.4

Summary of disclosure in select companies

No.	Environmental Related Parameters disclosed (Yes)	Company		
		Tata Steel	Reliance	L &T
1	Carbon Issues	12	10	8
2	Global Reporting Initiatives	12	11	8
3	Environmental Policy	12	12	11
4	ISO 14001 Certification	12	11	11
5	Renewable Energy Adoption	6	9	8
6	Research & Development	12	10	12
7	Environmental Awards	12	12	11

Graph 4.4

Company wise disclosure of select environmental parameters



It is explored from the above Tables that-

- Tata Steel Ltd. has disclosed the Renewable Energy adoption measures for six years out of selected twelve years. It has disclosed all parameters namely Carbon Issues, Global Reporting Initiatives (GRI) compliance, Environmental Policy, ISO 14001 Certification, Research & Development in environment and bagging Environmental Awards in all twelve years.
- Reliance Industries Ltd. has disclosed Environmental Policy and bagging of Environmental Awards for remarkable performance throughout selected twelve years. Disclosure is found in Global Reporting Initiatives (GRI) compliance and ISO 14001 Certification for eleven years. Disclosure is reported in Carbon Issues and Research & Development in environment area for ten years. In Renewable Energy Adoption measures, disclosure is reported for nine years.
- Larsen & Toubro Ltd. has reported Research & Development in environment in all twelve years starting from 2003-04 to 2014-15.It has disclosed the work in the area of Environmental Policy, ISO 14001 Certification and bagging Environmental Awards for eleven years. In Carbon Issues, Global Reporting Initiatives (GRI) compliance and Renewable Energy Adoption measures disclosure is shown by the company for eight years.

4.4.5. Single factor ANOVA analysis

Analysis of variance (abbreviated as ANOVA) is a useful technique concerning researches in the fields of economics, biology, education, psychology, sociology, business/industry and in researches of several other disciplines. This technique is used when multiple sample cases are involved. The ANOVA technique enables to perform simultaneous test and as such is considered to be an important tool of analysis in the hands of a researcher. Using this technique, one can draw inferences about whether the samples have been drawn from populations having the same mean.

ANOVA Tables are used to test hypotheses about the population means. When the null hypothesis of equal means is true, the two mean squares estimate the same quantity (error variance), and should be of approximately equal magnitude. In other words their ratio should be close to 1.

It is a statistical method used to test differences between two or more means. Here, inferences are made by analyzing variance.

Now, whether all the three companies have given due importance to all selected seven environmental parameters or not is to be statistically verified. For that Single factor ANOVA technique is applied herewith.

Table 4.5

Summary of single Factor ANOVA Analysis

SUMMARY				
Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	7	78	11.14286	5.142857143
Column 2	7	75	10.71429	1.238095238
Column 3	7	69	9.857143	3.142857143

Table 4.6

Summary of single Factor F cal Analysis

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6	2	3	0.945	0.407136	3.554557
Within Groups	57.14286	18	3.174603			
Total	63.14286	20				

Ho1 = All three companies uniformly consider and disclose the selected environmental parameters.

Reject null hypothesis if Fcal> F tab

Conclusion:

Here Fcal = 0.945 is not greater than F tab = 3.55 so we do not reject null hypothesis and conclude that all three companies have uniformly considered and disclosed the selected environmental parameters.

4.5. Analysis of financial data and disclosure practices

After the study of the disclosure practices adopted by selected three Indian corporates, here financial data has been compiled and analyzed for establishment of some crucial relationships between financial performance and disclosure practices.

Here the Financial data of three companies Tata Steel Ltd., Reliance Industries Ltd. and Larsen and Toubro Ltd. are taken from the Annual reports for the financial year 2003-04 to 2014-15.

Table 4.7

Basic Financial data of all three Companies

	EPS (BASIC) (Rs. Per Share)			PROFIT AFTER TAX (Rs. Crores)			DIVIDEND (Rs. Crores)		
Financial Year	TATA	L&T	RELIANCE	TATA	L&T	RELIANCE	TATA	L&T	RELIANCE
2003-04	47.32	10.71	36.8	1746.22	533	5160	416.25	199.04	733
2004-05	62.77	12.94	54.24	3474.16	984	7572	820.43	227.37	1045
2005-06	63.35	12.68	65.1	3506.38	1012	9069	820.43	302.25	1393
2006-07	73.76	16.74	82.2	4222.15	1403	11943	1104.33	56.65	1440
2007-08	67.17	25.2	105.3	4687.03	2173	19458	1393.55	438.49	1631
2008-09	69.45	39.67	49.68	5201.74	3482	15309	1492.5	614.94	1897
2009-10	60.26	49.18	49.65	5046.8	4376	16236	755.65	752.75	2084
2010-11	75.63	43.55	62	6865.69	3958	20286	1151.06	882.84	2385
2011-12	67.84	48.61	61.21	6696.42	4457	20040	1165.46	1010.46	2531
2012-13	50.28	53.33	64.82	5062.97	4384	21003	776.97	1138.47	2643
2013-14	64.21	59.36	68.05	6412.19	5493	21984	971.21	1320.85	2793
2014-15	64.49	54.46	70.25	6439.12	5056	22719	776.97	1510.54	2944

In the following section an attempt is made to explicate the relationship between the profitability and environmental disclosures for the select three companies. For this analysis the statistical tool in the form of correlation is used. Separate analysis is carried out individually for all select companies.

Correlation is statistical technique to find out the relationship between two or more variables. There are different types of correlations. Types of correlation are classified on the basis of number of variables involved and on the basis of how they are related. On the basis of number of variable involved, it can be classified into Simple correlation, Partial correlation and Multiple correlations. On the basis of their relationship it is classified as Linear and Non-Linear correlation.

In this study only two variables viz. profitability and disclosure of environmental parameters in annual reports and sustainability reports are studied. So it is simple correlation and their linear relationship is also tested. So it is called Simple Linear Correlation. That can be measured by Karl Pearson's Correlation Coefficient (ρ). This is computed as :

$$\rho = \frac{COV(X,Y)}{\sigma_X \sigma_Y}$$

Where $COV\ (X,Y) = covariance\ between\ X\ and\ Y = \frac{1}{N}\sum(X-\bar{X})(Y-\bar{Y})$

$$\sigma_X = standard\ deviation\ of\ X = \frac{1}{N}\sum(X-\bar{X})^2$$

$$\sigma_Y = standard\ deviation\ of\ Y = \frac{1}{N}\sum(Y-\bar{Y})^2$$

Karl Pearson's Correlation Coefficient can be statistically tested by using Student's t-test. This can be shown as Study of simple linear correlation coefficient between Number of 'Yes' towards disclosure of environmental parameters and Profit After Tax (PAT) of the select company.

Correlation of Profit After Tax (PAT) and Environmental parameter disclosures

At first instance the relationship between Profit After Tax (PAT) and the disclosures of environmental parameters made by the Tata Steel Ltd. in the annual reports and sustainability reports is explored.

Tata Steel Ltd.

For Tata Steel Ltd., in the following table, correlation is explored between Profit After Tax (PAT) and disclosure of seven select environmental parameters in consecutive twelve years.

Ho2 = There is no linear relationship between Profit After Tax (PAT) and disclosure of selected environmental parameters in annual reports of the company.

Table 4.8

Summary of Disclosures and PAT of Tata Steel Ltd.

Financial Year	No. of Yes disclosures	PAT (Rs. Crores)
2003-04	6	1746.22
2004-05	6	3474.16
2005-06	6	3506.38
2006-07	6	4222.15
2007-08	6	4687.03
2008-09	7	5201.74
2009-10	6	5046.8
2010-11	7	6865.69
2011-12	7	6696.42
2012-13	7	5062.97
2013-14	7	6412.19
2014-15	7	6439.12

$sample\ correlation\ r = 0.788011$

$H_0: population\ correlation\ \rho \leq 0$

$H_1: population\ correlation\ \rho > 0$

Test statistic $t_{cal} = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$ =4.047536

Table value at 5% level and $n - 2 = 10$ degrees of freedom is 1.8124

Reject H_0 if $t_{cal} > t_{tab}$

Conclusion:

Here $t_{cal} = 4.047536 > t_{tab} = 1.8124$ so we reject null hypothesis at 5% level of significance, 10 degrees of freedom and conclude that there is positive correlation between Number of 'Yes' and PAT. In other words, as Profit After Tax (PAT) increases, Number of 'Yes' towards disclosure of environmental related aspects also increases. It implies that due to sound profitability, there are more chances of environmental disclosures.

Reliance Industries Ltd.

For Reliance Industries Ltd., in the following table, correlation is explored between Profit After Tax (PAT) and disclosure of seven select environmental parameters in consecutive twelve years.

Ho3 = There is no linear relationship between Profit After Tax (PAT) and disclosure of selected environmental parameters in annual reports of the company

Table 4. 9

Summary of Disclosures and PAT of Reliance Industries Ltd.

Financial Year	No. of Yes Disclosures	PAT (Rs. Crores)
2003-04	2	533
2004-05	4	984
2005-06	6	1012
2006-07	7	1403
2007-08	7	2173
2008-09	7	3482
2009-10	7	4376
2010-11	7	3958
2011-12	7	4457
2012-13	7	4384
2013-14	7	5493
2014-15	7	5056

$sample\ correlation\ r$ =0.798269

$H_0: population\ correlation\ \rho \leq 0$

$H_1: population\ correlation\ \rho > 0$

Test statistic $t_{cal} = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}} = 4.191176$

Table value at 5% level and $n-2=10$ degrees of freedom is 1.8124

Reject H_0 if $t_{cal} > t_{tab}$

Conclusion:

Here t_{cal} =4.191176$> t_{tab} = 1.8124$ so we reject null hypothesis at 5% level of significance, 10 degrees of freedom and conclude that there is positive correlation between Number of 'Yes' an PAT. In other words, as Profit After Tax (PAT) increases, Number of 'Yes' towards disclosure of environmental related aspects also increases. It implies that due to sound profitability, there are more chances of environmental disclosures.

Larsen & Toubro Ltd.

For L & T Ltd., in the following table, correlation is explored between Profit After Tax (PAT) and disclosure of seven select environmental parameters in consecutive twelve years.

Ho4 = There is no linear relationship between Profit After Tax (PAT) and disclosure of selected environmental parameters in annual reports of the company.

Table 4.10

Summary of Disclosures and PAT of L & T Ltd.

Financial Year	No. of Yes Disclosures	PAT (Rs. Crores)
2003-04	1	533
2004-05	4	984
2005-06	4	1012
2006-07	4	1403
2007-08	7	2173
2008-09	7	3482
2009-10	7	4376
2010-11	7	3958
2011-12	7	4457
2012-13	7	4384
2013-14	7	5493
2014-15	7	5056

$sample\ correlation\ r = 0.848162$

$H_0 : population\ correlation\ \rho \leq 0$

$H_1 : population\ correlation\ \rho > 0$

Test statistic $t_{cal} = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}} = 5.063124$

Table value at 5% level and $n - 2 = 10$ degrees of freedom is 1.8124

Reject H_0, if $t_{cal} > t_{tab}$

Conclusion:

Here $t_{cal} = 5.063124 > t_{tab} = 1.8124$ so we reject null hypothesis at 5% level of significance, 10 degrees of freedom and conclude that there is positive correlation between Number of ‘Yes’ an PAT. In other words, as Profit After Tax (PAT) increases, Number of ‘Yes’ towards disclosure of environmental related aspects also increases. It implies that due to sound profitability, there are more chances of environmental disclosures.

4.6. Findings and Conclusions

Reporting form is one of the important steps of auditing exercise. After due verification and evaluation of books of accounts, other relevant documents and stipulated criteria, unambiguous and unbiased reporting from organization or entity is crucial for decision making to stakeholders. Annual Reports compiled and published along with annexures is significant medium of communiqué to interested internal and external stakeholders. The corporate financial reporting is a system of communication between the management and the user-groups of the financial statements; in order to report the results of the business activities of a corporate enterprise and also to demonstrate the credibility, accountability and reliability of its working (Saeed,1990). Considering the importance of stakeholders and having detailed information about the business, corporate reporting practices gained importance and its nature also improving over the years. Thus, corporate reporting communicates about required important issues of concern for society in general as well as specific stakeholders. The American Accounting Association also established corporate reporting as instrument to communicate internal information to the stakeholders. AAA identifies the financial reporting as the movement of information from the private domain (i.e. inside information) into the public domain. With time improvement in technologies responding to social demand for sophistication and facilities of human beings, exploitation of resources and attachment of interest of different sections of the society with business has increased demand for corporate social responsibility reporting. Therefore, now-a-days annual reports contain the details pertaining to financial position, Corporate Social Responsibility (CSR) activities and even environmental performance.

This chapter presents the case study with a view to understand the process and issues underlying the disclosure practices followed by Indian companies. In order to understand the different variables and their frequency of use with consistent track record, case study of three select companies is carried out.

Following findings are noted from the present study-

1. With respect to Carbon issues parameter –

   Industrial activities performed by the companies affect directly or indirectly in adverse way to the environment of our mother Earth. In wake of moral consideration, Indian corporates have started disclosing these issues in their Reports.

   - Tata Steel Ltd. might have begun its journey of disclosing carbon issues from Financial Year 2003-04 or even earlier, which is remarkable. It has disclosed this parameter evenly throughout the selected duration of twelve years.
   - L & T Ltd. also might have started disclosing carbon issues from Financial Year 2003-04 or even earlier, which is notable. Company has disclosed this parameter consistently throughout the particular duration of twelve years.
   - Reliance Industries Ltd. has initiated disclosure of carbon issues from the Financial Year 2005-06. It has disclosed this parameter consistently throughout ten years out of the selected duration of twelve years.

2. With regard to adoption of Global Reporting Initiatives (GRI) Guidelines –

   GRI has pioneered corporate sustainability reporting since 1997, transforming it from a niche practice to one now adopted by a growing majority of organizations. GRI is an international, independent organization that helps businesses, governments and other organizations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, etc. The GRI Sustainability Reporting Guidelines are now generally regarded as the most trusted and respected.

- Tata Steel Ltd. might have begun its drive of adopting Global Reporting Initiatives Guidelines from Financial Year 2003-04 or even earlier, which is noteworthy. It has followed Guidelines evenly throughout the selected duration of twelve years.
- L & T Ltd. has adopted Global Reporting Initiatives Guidelines from Financial Year 2007-08. It has prepared the Reports following the GRI Guidelines from F. Year 2007-08 onwards.
- Reliance Industries Ltd. has adopted Global Reporting Initiatives Guidelines from Financial Year 2004-05. Company has prepared the Reports in consonance with the requirements of the GRI Guidelines from Financial Year 2004-05 onwards which is noticeable.

3. With respect to formulation of Environmental Policy –

   Environmental Policy statement prepared by the entity can become a guide for the activities, processes and operations to be carried out considering the objective of minimizing the impact on planet Earth. On these lines, companies have started taking initiatives on this aspect, which can be considered as integral precursor towards the Environmental Auditing exercise.

   - Tata Steel Ltd. might have begun its journey of preparing and disclosing Environmental Policy of the company from Financial Year 2003-04 or even earlier, which is significant. It has disclosed this parameter evenly throughout the selected duration of twelve years.
   - L & T Ltd. also might have started preparing and disclosing Environmental Policy of the company from Financial Year 2004-05 which is notable. Company has disclosed this parameter consistently throughout the eleven years.
   - Reliance Industries Ltd. has initiated a drive of preparing and disclosing Environmental Policy of the company from Financial Year 2003-04 or even earlier, which is noteworthy. It has disclosed this parameter evenly all over the selected length of twelve years.

4. With respect to compliance of ISO 14001 Certification –

   ISO has a multi-dimensional attitude to cater the requirements of all stakeholders from trade, industry, governmental establishments and customers, as well as nongovernmental organizations, in the field of the environment. ISO 14001 is the most recognized framework for Environmental Management Systems (EMS) applied that aids organizations together to accomplish better the impact of their actions on the environment and to validate all-encompassing environmental management.

   - Tata Steel Ltd. might have taken initiative of adopting and disclosing ISO 14001 Certification from Financial Year 2003-04 or even earlier, which is incredible. It has revealed this parameter evenly throughout the selected duration of twelve years.
   - L & T Ltd. also has started adopting and disclosing ISO 14001 Certification from Financial Year 2004-05, which is noticeable. Company has disclosed this parameter in eleven years out of the selected duration of twelve years.
   - Reliance Industries Ltd. has commenced disclosure of ISO 14001 Certification from Financial Year 2004-05.

5. With regard to adoption of Renewable Energy sources in place of conventional energy sources-

   Renewable energies indicate energies that are non-traditional and have low environmental impact. The term alternative energy is also used in contrast with fossil fuels according to some sources. By most definitions, alternative energy doesn't harm the environment. In present case study it is explored that in select three Indian companies, whether these three have adopted the measures for renewable and alternate energy and how this parameter of environmental concern is addressed to stakeholders in the reports:

   - Tata Steel Ltd. has begun disclosing action taken in the field of Renewable energy adoption from Financial Year 2008-09.
   - L & T Ltd. has started disclosing steps taken in the field of Renewable energy adoption from Financial Year 2007-08.

- Reliance Industries Ltd. has started unveiling measures taken in the field of Renewable energy adoption from Financial Year 2006-07.

6. With respect to institutionalised Research and Development activities in entity to protect environment -

   Environmental research offers understanding for the expansion of sound evidence-based policies and tactics towards preservation of natural resources. Worldwide, environmental research has provided important inputs for formulating strategies to confirm ecological safety and sustainable development:

   - Tata Steel Ltd. might have activated its drive of adopting and disclosing Research and development activities in environment from Financial Year 2003-04 or even earlier, which is notable. Company has disclosed this parameter evenly throughout twelve years.
   - L & T Ltd. also has started the drive of adopting and disclosing Research and development activities in environment from Financial Year 2003-04 or even earlier, which is prominently appreciable.
   - Reliance Industries Ltd. has initiated efforts of adopting and disclosing Research and development activities in environment from Financial Year 2005-06.

7. With regard to bagging of Environmental awards and accolades as rewards in lieu of best activities and practices in entity to nurture the nature –

   Awards and accolades deliver incentive to every individual or entity for healthier performance. In corporate domain numerous kinds of presentations are commended in terms of various awards by different organisations and institutes. Here, the awards and recognition bagged for Environmental activities and processes are to be considered for the study:

   - Tata Steel Ltd. has bagged Environmental awards and accolades from Financial Year 2003-04 or even earlier, which is incredible. Company has disclosed this parameter throughout twelve years.

- L & T Ltd. has bagged Environmental awards and accolades from Financial Year 2004-05.
- Reliance Industries Ltd. has bagged Environmental awards and accolades from Financial Year 2003-04 or even earlier, which is noticeable. Company has disclosed this parameter throughout twelve years.

8. From financial data analysis it is found that the company with sound track record of profitability is performing well towards the measures to be taken for carbon remedial issues, research and development expenses and some innovative environmental protection plans and policies.

   It is found that the company having sound profitability can perform well on environmental issues and disclose those aspects positively in the annual reports and sustainability reports. In this study, select three corporates have shown considerably good track record of profitability and simultaneously satisfactory performance in terms of selected environmental parameters which have been disclosed in their form of communiqué to the stakeholders.

Nakao et al. (2007) studied relationship between financial performance and environmental disclosures using the data from 1999-2003, where study showed positive effect of corporate environmental activities on financial performance and was verified more clearly when information about firms' responses to environmental policies were included with information about environmental management activities.
Aggarwal P. (2013) critically analysed prior studies pertaining to relationship between environmental responsibility and financial performance of firm. Two major schools of thought emerged from the review of literature (a) cost-concerned approach, and (b) value-creation approach. Upon organising the studies on the basis of relationship, it was explored that the results were positive, negative, mixed and insignificant. From the review, analysis and summary of eighteen studies, out of which sixteen studies, treated environmental performance as independent variable. Out of these sixteen studies, the majority of studies, i.e. eight studies showed positive relationship, three showed negative relationship and five studies provided mixed or no significant

results. Two studies treated disclosure of environmental performance as dependent variable which demonstrated that environmental disclosures are influenced by corporate activities such as level of harmful emissions, press release activity, external financing, etc. Finally, researcher concluded from review of literature that corporate sustainability, social and environmental responsibility improve financial performance. The main arguments supporting this favourable positive impact include - good relations with stakeholders; enhanced reputation; ability to attract and retain qualified employees, investors and customers; cost savings; operational efficiencies; innovations; long-term orientation; better access to capital; secured license to operate and increase in competitiveness.

Here, in the present case study it is observed that the corporate with sound profitability can disclose various environmental parameters with positivity. The new direction for further study can encourage researchers for undertaking the analysis of data of Indian corporates falling in environment sensitive categories. This study vehemently asserts that companies that are consistently performing activities for preserving and protecting environment and also disclosing them with transparency are more prone to better financial performance and profitability. This practice helps the company earn the trust of all stakeholders, as such practices help in building organizational reputation and credibility in the market.

There is still a lot of scope for further studies to explore the relationship between the disclosure of environmental parameters and profitability of entity. An attempt can also be made to explore the possibilities of environmental reporting and auditing practices for Micro, Small and Medium enterprises engaged in various industrial and manufacturing operations.

References

- Aggarwal P. (2013), Relationship between environmental responsibility and financial performance of firm: a Literature review, IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 13, Issue 1 (Sep. - Oct. 2013), PP 13-22 www.iosrjournals.org
- Akbas, H. E. (2014) Company Characteristics and Environmental Disclosure: An Empirical Investigation on Companies Listed on Borsa Istanbul 100 Index, The Journal of Accounting and Finance, April 2014, pp. 145-164
- Berelson B (1971), "Content Analysis in Communication Research", in J Guthrie and L Parker (Eds.), Corporate Social Disclosure Practice: A Comparative International Analysis, Advances in Public Interest Accounting, Vol. 3, No. 2, pp. 159-175
- Burritt, R.L; and Welch, S; (1997) Accountability for Environmental Performance of the Australian Commonwealth Public Sector Accounting, Auditing, and Accountability Journal, Vol.10, No. 4, pp. 532-561
- Deegan, C. and Gordon, B. (1996) A Study of the Environmental Disclosure Practices of Australian Corporations Accounting and Business Research Vol. 26, No. 3 pp. 187- 199
- Fortes, H (2002) The Need for Environmental Reporting by Companies: Use of Environmental Reports by Swedish Public Companies. *Greener Management International-GMI 40* (DP-12; London: MiddlesexUniversity)
- Gallhofer, S and Haslam, J (1996) The direction of green accounting policy: critical reflections Accounting, Auditing, and Accountability Journal, Vol. 10, No. 2 pp. 148-174
- Gray, R.H., Bebbington, J and Walters, D. (1993) Accounting for the environment, Paul Champan Publishing, UK
- Hecht, J. (2007), National Environmental accounting: a practical introduction, International review of Environmental and resource economics
- Huang, Cheng-Li - Kung, Fan-Hua. (2010), "Drivers of environmental disclosure and stakeholder expectation: Evidence from Taiwan", Journal of Business Ethics, Vol. 96, No. 3, pp. 435-451
- Johnson, L. Todd (1993), Research on Environmental Reporting. *Accounting Horizons, American Accounting Association, Vol. 7 No. 3*, pp 118-123
- Kolk, A. (2003).'Trends in Sustainability Reporting by the Fortune Global 250'.Business Strategy and the Environment, Vol. 12, pp. 279-291.
- Li Xiaomei (2004), 'Theory and practice of environmental management accounting: Experience of implementation in China' International Journal of Technology Management and Sustainable Development Volume 3 Number-1
- Murphy, C. J. (2002). The profitable correlation between environmental and financial performance: a review of the research. Light Green Advisors, Inc. Retrieved from http://www.lightgreen.com/files/pc.pdf
- Nakao, Y., Nakano, M., Amano, A., Kokubu, K., Matsumura, K., & Gemba, K. (2007a), Corporate environmental and financial performances and the effects of information-based instruments of environmental policy in Japan. International Journal of Environment and Sustainable Development, 6(1), 95-112.
- Neu, D; Pedley, R.V; and Warsame, H; (1998) Managing Public Impressions: Environmental Disclosures in Annual Reports Accounting Organisations and Society Vol. 23 No. 3 pp. 265-282
- Owen, D.L.; The emerging green agenda : a role for accounting ? in Smith, D (ed.) (1993) Business and the Environment : Implications of the New Environmentalism St. Martin's Press New York
- Rio Tinto (Rio Tinto plc) (1998) Annual Report and Accounts (Rio Tinto)
- Roberts, C. (1991) Environmental disclosures: A note on reporting practices in Mainland Europe, Accounting, Auditing and Accountability, Volume 4, Issue: 3
- http://www.footprintnetwork.org/en/index.php/GFN/page/carbon

- Roy, A., & Ghosh, S. (2011). The Bilateral Association between Discretionary Environmental Disclosure Quality and Economic Performance: An Asian Perspective. The IUP Journal of Accounting Research & Audit Practices, 10(2), pp.7-27
- Snider, J., Hill, R. P. and Martin D. (2003). 'Corporate Social Responsibility in the 21st Century: A View from the World's Most Successful Firms'. Journal of Business Ethics, Vol. 48(2), pp. 175-187.
- Tilt, C.A. (1997) Environment Policies of Major Companies: Australian Evidence British Accounting Review Vol. 29, 367- 394
- Xiaomei, L. (2004), 'Theory and practice of environmental management accounting. Experience of implementation in China', *International Journal of Technology Management and Sustainable Development Vol. 3: 1*, pp. 47–57, doi: 10.1386/itjm.3.1.47/0
- https://www.globalreporting.org/information/news-and-press-center/pre
- http://www.environmentalmanagementsystem.com.au/what-is-an-envir
- http://extension.psu.edu/natural-resources/energy/what
- http://www.tatasteel.com/investors/performance/annual-report.asp retrieved on 29/12/2015
- http://investors.larsentoubro.com/Download.aspx retrieved on 31/12/2015