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CONCLUSIONS AND RECOMMENDATIONS

Accounting and reporting for the environment has become an important dimension of corporate external information system in 21st century. The increasing pressure on companies to be responsible to the society, has influenced them to operate in an environmentally responsible manner. ‘The impact of environmental performance of an enterprise on its financial health’ has become a matter of growing concern to investors, creditors, government and public at large. As various stakeholders demand greater disclosure of environmental impacts and performance, a large number of companies, all over the world, have started reporting on these issues. In many countries, disclosure of some environmental information (in or outside the financial statements) has also been made mandatory. However, various research findings have shown that, in the absence of any accounting standard or guideline on the issue, this disclosure generally lacks quality and consistency in reporting. A more disciplined approach, therefore, is required for accounting and reporting of environmental information to improve its quality.

This research aimed at presenting various theoretical and legal considerations relating to environmental accounting and reporting (EAR). An analysis of EAR practices of Indian corporate sector is made in the thesis. An attempt is also made to examine existence of corporate EAR expectation gap in India. This Chapter presents important findings of the study and makes some recommendations. It is hoped that these observations and suggestions would be of immense use to investors, creditors, employees, government and other stakeholders. They would also help the companies and management in handling ‘green matters’ effectively and efficiently in the financial statements.

9.1 OBSERVATIONS

In recent years, environmental accounting has become a strong branch of accounting. The term environmental accounting can be explained at different levels. National level environmental accounting is a method of keeping accounts of natural resources and other environmental elements. It involves valuation of natural resources, measuring income there from, keeping records of costs relating to them, estimating them and providing depreciations on them. On the other hand, at corporate level, environmental accounting refers to the measurement and communication of information on the environmental responsibility
performance of an entity to the interested parties. It is a part of corporate social responsibility and attempts to evaluate impact of organisational activities on environmental resources. While environmental financial accounting deals with collection, measurement and reporting of environmental information for external reporting purposes; environmental management accounting is concerned with presenting environmental data to management for internal decision-making. The thesis examined the concept of environmental accounting at the corporate level only. It was observed that accounting of environmental information and its subsequent disclosure to various stakeholders is required to help them in making various relevant decisions. Information generated by environmental accounting system assists management in better decision-making. It helps in gaining competitive advantage by minimizing adverse environmental impacts through improved designs, products or processes. Also, by motivating to reduce the use of and the expenditure on natural resources and the cost and impacts of disposing of waste- the application of environmental accounting might help increase the profitability and productivity of organizations. By considering social and environmental externalities, an organization can start to assess its long-term sustainability. Reporting of this information to various interested stakeholders also promotes improved performance by forcing to reduce adverse environmental impacts of the company for the purpose of communicating them to various stakeholders. Thus, accountants and managers need to be aware of environmental issues. They should also consider influence of these issues upon both internal and external reporting.

Over the past few decades, a significant body of accounting and finance literature has witnessed an increase in the demand for company's environmental information. Investors, creditors, government and other stakeholders now demand disclosure of information regarding emissions (even if legal), failure to comply with environmental regulations and potential liability to environmental remediation requirements. It helps these stakeholders in assessing environmental risks and environmental performances of the companies and assists them in making informed decisions. They consider such information relevant to their decisions—and thus financially material. However, the availability of information on environmental issues has not kept pace with its growing financial significance.

The analysis of accounting standards and guidelines in different countries showed that the accounting standards setters at the international and national levels have generally chosen to avoid dealing directly with the topic of environmental issues in financial reporting. Till date, only a few international standards exist concerning how environmental issues may be treated in annual reports. The recommendations of the UN ISAR group and the EU represent
worthy attempts by non-accounting organizations to fill the gap and should be taken forward by various accounting standard setters.

Till date, in India, there is no financial reporting or auditing standard dealing explicitly with social, environmental or sustainability related issues. The current financial accounting framework in India appears to be ill-equipped to provide the information required by various internal and external stakeholders on environmental costs and liabilities, environmental risks involved in their investments, social costs or externalities and steps taken by companies to reduce global warming and improve sustainability. This shows that the accounting profession in India has yet to display significant role in sustainability. It should contribute in this area by developing an environmental and sustainability reporting framework on the lines of those developed by FEE and GRI. Environmental reporting should be made mandatory in India. Moreover, in order to provide relevant, reliable and comparable information to the interested stakeholders, it is necessary that only duly audited information is provided to them. This gives rise to the need for independent environmental information audit.

Disclosure of social and environmental information has been an area of substantial research in the past few decades. Since 1990, a number of studies have been made to examine the environmental reporting practices of the companies. A review of existing studies showed that though some international surveys (e.g., by KPMG and Sustainability at different points of time) examined environmental information disclosures by concerns from different countries, most of the country-specific works focused on the green reporting practices of corporations mainly from Europe and USA. Empirical evidences from the developing countries were very small in number. Most of the existing studies, analysed communication of environmental information by companies in general, without concentrating on quality of reporting. Very few studies had examined the impact of various corporate and industry-related variables on ecological disclosures. A preponderance of existing works were based on secondary data and lacked insight into various conceptual and theoretical considerations involved in accounting and reporting on environment.

Environmental accounting and auditing areas are yet to be explored by researchers (particularly in India). Most of the existing attempts on environmental accounting were quite general in nature and did not focus on the specific issues involved in accounting for environmental information (like expensing and capitalization of environmental costs, depreciation of environmental assets, and recognition and measurement of environmental liabilities). Only a few surveys (e.g., KPMG, 2002; ACCA, 2002) addressed the issue of
verification of environmental information reported by the companies. There seems to be no reported research work covering all the three aspects, namely environmental accounting, reporting, and auditing. In fact, there is a need to cover these issues together as these are interrelated and form an important part of a company’s environmental management system. The role of accounting in improving environmental performance of an organization is also required to be understood. The present work has attempted to bridge these research gaps.

9.2 THE STUDY OF INDIAN CORPORATE

Review of existing literature showed that environmental reporting in India is typically deficient and not of a standard to satisfy the information needs of various classes of report users. The present study tried to explore whether a potential demand/supply imbalance is due to differing perceptions between report users and preparers as to the various matters associated with EAR and importance of environmental information to the users’ decision making processes. For this purpose, the study surveyed the attitudes of senior executives in 100 large manufacturing companies in India (the preparers group) on various issues relating to EAR. An attempt was also made to obtain information on EAR practices of these companies from the executives. In addition, opinions of the selected individual Chartered Accountants (CAs), who were annual report users in different capacities, were obtained regarding their expectations about corporate EAR practices in India. An attempt was made to examine whether an EAR expectation gap exists within India.

The required information was obtained by using two structured questionnaires. The first questionnaire was used to obtain opinions of the CAs (selected from the directory prepared by ICAI) on various issues relating to EAR. The second questionnaire was used to examine EAR practices followed by the companies in India. The companies were selected from the recognized stock exchange’s List of top 500 companies in India. Manufacturing companies from both public and private sectors were approached for the survey. 100 companies supplied the desired information, which were used in the analysis. The findings of the primary data analysis have been presented in this part.
Generally, the CAS felt that 'environment' is a big challenge for business these days and companies must establish an efficient system of environmental management to take care of it. Establishment of a good EMS helps in maintaining clean and green environment around the factories, controlling pollution emission and thereby meeting legal standards in this area. The executives also found environment as one of the most important challenges faced by them. An examination of actual practices showed that about 90 percent of the companies already had EMS in their organizations, while some companies were planning to introduce it in near future.

The CAs as well as the corporate executives were of the view that the existing financial accounting framework is not comprehensive enough to deal with specific environmental problems. They realized the need for a separate standard on the issue to effectively deal with specific matters involved in accounting for the environment. The qualified accountants were of the view that a large number of companies do not prepare environmental accounts because these are not mandatory. ‘Lack of accounting standards’ and ‘ignorance of benefits of environmental accounting’ were other reasons considered important by some of them. They felt that companies should prepare environmental accounts mainly because it would help the companies in complying with various legislations. Moreover, adoption of environmental accounting system will facilitate decision—making by management and provide better estimates of the cost of production.

An analysis of environmental accounting practices of the sample companies also revealed that a large majority of the companies did not prepare environmental accounts for external reporting mainly because ‘it is not mandatory’. ‘No specific standards on the issue’ was cited as another reason for non-preparation of these accounts. Thus, a significant expectation gap exists in this area. While users want that companies should prepare environmental accounts, companies do not prepare these accounts mainly because this is not required by law. However, 57 percent of these companies informed that they generated some environmental cost information for internal decision-making. The study found popularity of the concept of environmental accounting in India only at the management accounting level.

A large majority of the respondents considered environmental cost information very important as it provides a significant input in making strategic business decisions like in environmental impact assessment, designing of various processes using eco-friendly
technologies, and evaluating environmental performance of a company. However, some of them did not find usefulness of this information in ‘planning cost reductions’. The respondents favored segregation of combined business expenses into environmental and other business costs. They felt that this segregation would help in finding out the full environmental costs incurred by a business and it would facilitate decision-making. Most of them favored development of some accounting standard or guideline for bifurcating these combined costs. However, some of them recommended use of industry guidelines or internal mechanism for this purpose in the absence of a separate standard.

By and large, the qualified accountants as well as the senior accounts executives preferred use of conventional financial accounting principles in treating environmental costs in the financial statements. Accordingly, environmental costs which do not give any future economic benefit should be charged to Profit and Loss Account in the same year in which these costs are incurred. If an environmental cost gives economic benefits to the company in future, it should be capitalized. However, about 60 percent of them were in favor of capitalization of even those environmental costs that do not give any direct future economic benefit to the company, but are necessary for the survival or continuation of business or are incurred for social benefits. The capitalized environmental assets should be depreciated over a reasonable period of time on the basis of relevant accounting standards or provisions of company law. Most of the respondents felt that environmental assets should be tested for impairment from time to time due to rapidly changing laws and technologies. Wherever appropriate, these assets should be written down to their recoverable amounts.

The respondents preferred following of the existing accounting standard to treat environmental costs relating to a prior period. Accordingly, an environmental cost related to a prior period should not be treated as a prior period adjustment unless there is some fundamental accounting error. About three-fourths of the CAs felt that pollution permits and emission rights must be treated as intangible assets, provided these are given for a longer period. However, 71 percent of the executives were not in favor of this, as at present the expenditure incurred in acquiring these rights is a recurring expenditure for factories.

The CAs, in general, did not favor separate recognition of environmental benefits in the financial statements. They were of the view that most of these benefits relate to future and keeping in mind ‘principle of conservatism’, should not be recognized in the current year’s accounts, ‘Intangible nature of most of the environmental benefits’, ‘difficulty in measurement’ and ‘automatic recording of realized environmental benefits’ were the other reasons cited by some of them. However, more than one-half of the executives favored
separate recognition of these benefits in the financial statements as it will ‘highlight an organizations commitment towards environment’ and will also ‘help in doing cost-benefit analysis’. Some of them felt that it will have motivational impact on management. These executives recommended separate recognition of current realised environmental benefits in the annual report or environmental statement. In addition, future/expected benefits can be mentioned in the footnotes/annexure to the financial statements.

The respondents generally supported recognition of environmental liabilities in the financial statements when there is an obligation (legal as well as constructive) on the part of a company to incur an environmental cost. When there is difficulty in estimating an environmental liability, a reasonable estimate of it should be provided. In rare circumstances, when it is not possible for a company to estimate environmental liabilities, this fact along with the reasons therefore, should be disclosed, measurement of long—term environmental liabilities, most of the respondents preferred use of ‘discounted present value of expected future costs using risk-free rate’.

A large majority of the CAs were of the opinion that companies should try to determine external adverse impact of their activities (social costs) and consider them in making strategic business decisions. Most of them also supported an attempt by companies to value these social costs. Regarding practices of the companies, while about four-fifths of them determined external adverse impacts of their activities; only 42 percent claimed that they also tried to value these external costs. Most of the companies considered these costs in making crucial business decisions (e.g., capital budgeting or corporate restructuring decision). Almost all the CAs and the senior managers were of the view that due to growing social and legal pressures, these external/social costs will become internal in future. Therefore, companies should adopt a proactive approach to control these social costs by protecting and conserving the environment; otherwise, they may have to bear penalties.

9.4 ENVIRONMENTAL REPORTING

The respondents generally felt that companies in India do not give environmental information because the disclosure may jeopardize confidentiality in the sensitive areas and thereby, may adversely affect their competitive position. A large majority of the CAs were in favor of mandatory disclosure of environmental information. About three-fourths of the executives were also of the same view. They felt that compulsory environmental information disclosures will increase seriousness in the issue and will lead to overall increase in environmental reporting by Indian companies.
The CAs recommended that a company should use environmental information for both internal decision-making and external reporting. They felt that companies must disclose qualitative as well as quantitative information on these issues. Most of them preferred disclosure of this information in separate environmental statements to ‘highlight its importance’ and to ‘avoid any confusion’. Furthermore, they also approved disclosure of qualitative information in the Director’s Report.

An examination of the actual practices revealed that the companies generally used environmental information for internal decision-making as well as for external disclosure. About one-half of the companies disclosed only qualitative information on environment in the annual reports. Only 38 percent of them reported both qualitative and quantitative information in these reports. The companies mainly used the Director's Report to supply environmental information to external stakeholders. Some companies also prepared separate environmental statements to communicate detailed information on environment. Some of the executives were of the view that disclosing these details in the main body of financial statements would serve a better purpose. However, more than one-half were against this as it may “make financial statements bulky’, ‘create confusion’ and will ‘not facilitate decision-making by stakeholders’. The study found existence of a significant environmental reporting expectation gap in India.

‘Usefulness in decision-making’ was considered as the most important characteristic of good environmental statements by majority of the CAs and the executives. For this, they felt that the information should be relevant and objective. They were of the view that benefits of environmental information to the potential users are greater than the cost of providing it. The environmental statements should be prepared keeping in mind users’ needs. ‘Society at large’ was considered to be the most relevant user of environmental information by the CAs. ‘Government’, ‘environmental organizations and ‘owners’ were other relevant users, according to them. However, the executives found ‘government’ to be the most important user of this information because these statements were mainly prepared by their companies to comply with the legal requirements. It helped them in reducing pressures from regulatory authorities.
9.5 ENVIRONMENTAL AUDIT

A large majority of the CAS were of the opinion that environmental statements prepared by a company should be verified by an auditor to 'increase credibility of information provided' in them. They felt that this audit will also help a company in complying with environmental laws. They, in general, favored appointment of a team, mainly comprising of external environmental auditors to do this task. 'Chartered accountants', 'engineers' and 'cost accountants' may also form a part of this team to handle specific tasks, according to them.

A scrutiny of actual practices followed by the companies revealed that most of them prepared statutorily required environmental statements, while about 39 percent also made these reports voluntarily. 48 percent of the companies (which prepared environmental statements) got these statements verified by an auditor. The task of environmental information audit was generally given to a team of auditors. About four-fifths of the companies appointed external environmental auditors for this purpose, while some companies assigned specific tasks to engineers and CAs.

9.6 ANALYSIS OF ANNUAL REPORTS

An examination of environmental disclosure practices of the selected Indian companies was made by analysing annual reports of 100 companies for 5 consecutive years from 2006-07 to 2010-2011. For this purpose, an 'Index of environmental disclosure' consisting of 24 items of environmental information that a company can disclose, was constructed. The CAs were requested to evaluate each of these items independently and assign them ranks on the basis of their importance and usefulness in making sound decisions and evaluating environmental performance of a company. The CAs considered all items given in the 'Index' as of some importance. Three items were considered as 'most important' by them. These were: 'prevention and repair of environmental damage', statutorily required measures taken for 'pollution control' and 'conservation of natural resources', In general, they were of the view that a company must disclose some information about all these items as these are useful for various stakeholders in making relevant investment and other decisions.

An analysis of environmental disclosure practices of the companies with the help of this 'Index' revealed that the companies failed to provide adequate environmental disclosures in the annual reports. In the absence of any accounting standard or guideline, both quantity and quality of disclosure was quite unsatisfactory. Moreover, there was no consistency in
these disclosures over the years. The common practice followed by these companies (of all industries and sectors) over the years was to provide descriptive information and itemize the same in the Director’s Report. Reporting of quantitative/financial information on environment was almost negligible. Most of the times, the disclosures were quite general in nature and in little specific details. Majority of the companies provided only statutorily required information on ‘conservation of energy’ in the annexure to the Director’s Report. Even when voluntary reporting was there, it was generally in few lines only. The majority of such disclosures could be characterized as statements of good intentions, legal compliance and selective self congratulatory assertions. These disclosures appeared to be made mainly for image building, improving public relations and reducing legal pressures. However, they generally lacked in information content and transparency. Thus, most of the companies provided mainly qualitative, statutorily required and positive information on environment.

9.7 RECOMMENDATIONS

The present study has covered three areas namely, environmental accounting, reporting, and auditing. Keeping in view the observations of the study, suggestions have been made in each of these three areas. The recommendations are for the benefit of professional accounting bodies, government, regulatory authorities, professional accountants, companies, and various stakeholders.

9.7.1 ENVIRONMENTAL ACCOUNTING

Environmental accounting at the corporate level includes preparation of environmental accounts for external reporting purposes as well as use of this information in internal decision-making. It was observed that in the absence of any regulatory framework and accounting guidelines on the issue, the companies in India find it difficult to incorporate environment related information formally in the books of accounts. Though the companies have started considering these issues for managerial decision- making, most of them do not prepare environmental accounts for external reporting. The following recommendations have been made to improve the use of environmental accounting system in India:

The study reinforces a great need for development of a separate conceptual framework and a standard on EAR to help companies in properly identifying, measuring, recognizing and disclosing relevant environmental costs, benefits, assets, liabilities and contingencies. Hence, it is recommended that professional accounting bodies at national and international levels should develop a separate conceptual framework on EAR (on the lines
prescribed by FEE) specifying objectives, general assumptions, qualitative characteristics and
guidelines for the companies. A standard should also be issued giving basis on which
environmental costs should be bifurcated from other costs, basis for expensing and
capitalization of environmental costs, depreciation of environmental assets, recognition of
environmental benefits and measurement and recognition of environmental liabilities and
contingencies. Some guidelines should also be provided for treatment of environmental costs
relating to prior period in the books of accounts and on recovery and impairment of
environmental assets. Existing accounting standards can also be modified to take care of
environmental issues. The ICAI should also develop a separate standard on Carbon (Emission
and Sequestration) Accounting (CES Accounting) which needs to be consistent with the
Intergovernmental Panel on Climate Change (IPCC) principles. In addition, the measurement
of externalities, tax treatment of environmental activities and verification of an entity's
environmental accounts by independent duly qualified assurors are some other issues to be
considered by the ICAI.

With growing legal and social awareness, there has been a significant increase in
environmental costs and liabilities, to the extent that they have become a significant part of
total costs and liabilities. Concealing them or their improper disclosure might expose
interested stakeholders to unknown levels of risk. Hence, significant environmental costs and
liabilities should be properly measured and reflected in the financial reports. It might not be
possible for a company to account for external effects of environmental pollution and
degradation within the current accounting framework. But the enterprises should take
initiative to track internal environmental costs and benefits to products and processes. They
should try to determine full extent of their environmental costs and integrate them into
decision-making.

It has been observed that the companies generally emphasize ever increasing
environmental costs, but environmental benefits (even significant financial benefits) from
incurring these costs are rarely discussed. The study recommends proper measurement and
separate recognition of significant financial benefits of being eco-efficient in the financial
statements. In addition, social! intangible costs and benefits can be disclosed in the footnotes,
annexure or separate environmental statements. The preparers of financial statements should
be acquainted with the benefits of adopting an environmental accounting system. The
significance of environmental information in making strategic business decisions, in
complying with environmental laws and other benefits should be popularized among CAs and
company officials
9.7.2 ENVIRONMENTAL REPORTING

The growing social, legal and judicial pressures have forced companies to disclose more and more information on environment in their annual reports. At present environmental reporting is not mandatory in India (except on energy conservation). Though some companies have started taking initiatives in this regard, reporting on these issues is still very limited in India. The following suggestions have been made to improve environmental reporting by the corporate sector: The findings of the study suggest that the main reason for non—disclosure of environmental information by the Indian companies is its voluntary nature. It is strongly recommended that environmental reporting should be made mandatory in India. As a first step, Indian Companies Act and other related statutes should be amended suitably requiring the companies to disclose information on some important items like measures taken for pollution control and conservation of natural resources, prevention and repair of environmental damage and legal compliance in the annual reports. Later on, some other items can be selected for compulsory disclosure in the annual reports in different phases.

In the absence of any accounting standard or guideline, identification, measurement and recognition of environmental costs, benefits, assets, and liabilities is, to some extent, judge mental. Till some concrete initiatives are undertaken by the Government and other regulatory bodies on this issue, companies should be required to provide a brief description of significant environmental accounting policies in the annual reports. It would reduce confusion in the mind of the users of these statements.

Companies in India (particularly those in the most polluting industries) should be asked to submit detailed environmental information to the government regarding emission of specific toxic chemicals, pollutants, effluents, damage to the environment and community health. They should also inform about the steps taken to reduce these externalities. In USA, Toxic Release Inventory (TRI) is maintained by Environmental Protection Agency (EPA). In Australia, National Pollutant Inventory (NPI) is recorded. On the similar lines, some records should be kept by Ministry of Environment and Forests (MoEF) in India, so that necessary steps to protect environment can be taken in time.

SEBI may require listed companies to disclose information on some important items like compliance with environmental laws, pending judicial proceedings arising under environmental laws and significant environmental liabilities on a prescribed form. For this purpose, a clause in the listing agreement (like clause 49 for Corporate Governance) may be inserted for strict compliance. Companies must disclose all types of relevant environmental
information like qualitative information (e.g., environmental objectives, policies, compliances), quantitative information (e.g., emissions, toxic releases, pollution levels, consumption of scarce natural resources) and financial information (e.g., significant environmental costs, benefits, assets and liabilities). A company can make narrative disclosures or present information by way of tables or graphs. In addition to positive information, significant negative developments like legal proceedings, major accidents or significant environmental degradations should also be disclosed. Needs of relevant users should be kept in mind while disclosing environmental information and deciding about the mode of disclosure.

In the annual reports, environmental disclosures can be made at different locations. In fact, different types of environmental information should be disclosed at different suitable places. For example, company’s commitment for environmental protection, broad objectives and policies can be shown in Chairman’s or CEO’s statement. Other qualitative disclosures (e.g., information about company’s environmental performance, legal compliance, establishment or existence of EMS, ISO 14000 certificates, steps taken to control pollution and protect environment) can be made in the Director’s Report or its annexure. Significant financial information on environment (e.g., significant environmental costs, benefits, assets and liabilities) must be disclosed in the main body of the financial statements. In addition, environmental contingencies, provisions, significant environmental accounting policies can be shown in the footnotes or annexure to financial statements. The environment is only one of the strategic issues that need to be addressed in the annual reports. Keeping in mind the limited space available, it may not be possible for companies to provide detailed information on environment in these reports. But environmental information should at least be given equal disclosure opportunities along with other strategic issues. When restricted by space in the main financial statements, the users should be referred to for further details in the annexure or notes to these statements. Further, to avoid any confusion for the users of the financial statements, the company may disclose detailed environmental information through stand-alone corporate environmental reports (CERs) or websites for the benefit of various stakeholders. It will also help a company in highlighting importance of these issues.
9.7.3 ENVIRONMENTAL AUDIT

To increase credibility and reliability of environmental information supplied to various interested stakeholders, it is necessary that it should be verified by some independent auditors. The following recommendations may help in ensuring accuracy and authenticity of information provided in these reports:

In major polluting industries, environmental audit should be made mandatory. This can be extended to other industries, after the audit systems in the polluting industries are well documented. An institute of Environmental Accountants and Auditors of India (IEAAI) may be established as a statutory body under an Act of Parliament to regulate the profession of environmental accountants and auditors. This institute will help in the field of environmental education, professional development as well as maintenance of high sustainability accounting, auditing and ethical standards. In the meantime, the ICAI should issue some guidelines or standards for verification of environmental information. In the absence of any accounting standard or legal requirements on the issue, companies should voluntarily provide environmental information verified by external auditors. They should appoint a team of external auditors to audit environmental statements and should entrust this task to some qualified environmental auditors. Professionals from other areas like chartered accountants, cost and work accountants, and engineers can also be appointed to handle specific tasks. Environmental audit report should be published along with annual financial statements or separate environmental statements to reduce the communication gap between the public and the industry. A copy of this report should be supplied to Ministry of Environment and Forests (Government of India) by companies in polluting industries.

In general, regulatory authorities (like SEBI and RBI) should encourage companies to spend more on environment by giving tax benefits, exemptions and preferential treatment to eco-efficient concerns in relation to matters like registration, listing or clearances. Professional bodies like ICWAI and ICAI should encourage companies to become environment friendly. Companies and professional accountants should be made aware of the benefits of being eco-conscious, e.g., significant social and financial benefits in using eco-efficient processes and technologies. Environmental accounting and auditing should be included in the curriculum for production management, environmental engineering, industrial management and specialized professional courses. Investors, consumers, employees and other stakeholders should also emphasize on the environmental performance of the company while dealing with a company.
9.7.4 FUTURE DIRECTIONS

As mentioned earlier, the present study is global in nature covering various aspects relating to EAR. It is based on primary as well as secondary data. Given the tremendous importance of environmental issues for social welfare, further research is desired to gain more insight into the issues raised in the study. Separate in—depth studies covering various issues in each of the areas environmental accounting, environmental reporting, and environmental audit can be undertaken for this purpose. Moreover, the opinions of other stakeholders like investors, creditors, customers and workers can be obtained on various issues relating to accounting and disclosure of information on environment.

Though findings of the study are quite comprehensive, relatively small sample size, at times, inhibits generalizing the results. Therefore, another study with a larger group can be conducted to generalize the results of the present Study. The present work is limited to large manufacturing companies situated in India only. Another research covering environmental issues in non-manufacturing sectors (like banks, hotels and educational institutions) can be undertaken. The scope of the study can further be extended by comparing the EAR practices of Indian and overseas companies using a common questionnaire duly adjusted for cultural, social and political influences. In addition, focusing on environmental, practice of small and medium enterprises (SMEs) can make significant contributions to the existing knowledge on the subject. A comparative analysis of the environmental reporting systems of the public and private limited companies can also help A the diversified stakeholders in making informed decisions.

This research has examined environmental information disclosure in annual reports only. An analysis of disclosure of information on environment by companies through other mediums like internet, press releases and separate corporate environmental reports (CERs) can be conducted.

Last but not the least, a study developing ways to recognize and measure social costs and benefits can be another pioneering research area.

9.8 TO SUM UP

Environmental issues have increased in importance in the past two decades. The concepts of EAR are now well established and are continuing to develop rapidly. In 21st century, there is an increasing acceptance to the need for EAR and sustainability accounting. That this trend promises to continue is reflected in the increasing financial attention firms are
giving to these issues. But the way in which most businesses accept or use EAR suggests that they have little understanding of what EAR is and how to implement it. One basic reason for this could be lack of accounting standards and guidelines on the issue. This study is with a very specific objective of providing a basic introduction to the concepts of EAR in India. It provides various theoretical considerations involved in EAR, regulatory environment in different countries, a comprehensive review of existing literature and evidences on current practice.

This introduction to the concepts and the legal requirements of EAR in different countries together with evidences on current practices would help companies and practitioners who want to begin the process of addressing environmental issues in their work. They will realize the need to be aware of environmental issues and to consider their influence upon both internal and external reporting. The evolution of the appropriate financial treatment for all these issues provides a challenge to the accounting profession in India. It must be understood that in responding to this challenge posed by the environment, all aspects of accounting including financial reporting, auditing, management accounting and taxation may have to be modified. Research into issues such as carbon pricing, life—cycle costing, environmental taxes, sustainability accounting, and carbon efficiency management, would perhaps be avenues by which the accounting profession can respond to the issue of environmentalism and can play its part in reducing global warming.

In modern times, the burning of fossil fuels like coal, oil and natural gas in industrial production, rising vehicular pollution levels combined with accelerated land clearance and deforestation has led to unprecedented levels of green house gas (GHG) emissions. The concentrations of greenhouse gases in the atmosphere have risen dramatically leading to an out-of-balance greenhouse effect. Most scientists say that as concentrations of these gases continue to rise, there will be a general and very rapid warming of the world’s climate. The effects of such warming may range from dire to mild, i.e., from widespread ecological changes in agricultural production and rising sea levels, to moderate changes in regional climates. It is predicted that if emissions of greenhouse gases continue to increase at the current rate, around 50 percent of the species on earth may become extinct during this century. Global warming will also lead to destabilization of the massive ice sheets in Greenland and Antarctica. With rise of sea levels, the world will lose coastal cities like Mumbai, Tokyo, New York, displacing millions of people. Thus, Global Warming is not just an environmental or health concern- it is a matter of human survival.
People have become increasingly concerned about the effects of global warming and resulting Global Climate Change (GCC). Governments and supra-national bodies have sought to respond to GCC in a variety of ways like by introducing carbon trading or imposing environmental taxes. The need for a reduction in carbon emissions was debated at the United Nations Conference on Environment & Development (The Earth Summit) in Rio de Janeiro in 1992, resulting in the adoption of United Nations Framework Convention on Climate Change (UNFCCC) which is designed to impose limits on greenhouse gas emissions and thus minimize the adverse effects of climate change. Subsequently an international treaty on environment was entered into known as Kyoto Protocol. The Kyoto protocol is a 1997 international treaty which came into force in 2005 and the Copenhagen summit in 2009. It is the first step towards stabilizing global emissions of carbon dioxide. It binds most of the developed nations to a cap and trade system for 6 GHGs. The main objective of the Protocol is achieving quantified emission limitations through specific policies and measures to minimize the adverse effects of climate change.

Under the UNFCCC, countries are permitted to use a trading system to help meet their emissions targets. The process of buying and selling of carbon credits is known as Carbon Trading (sometimes called cap and trade system). It is an administrative approach used to control pollution by providing economic incentives for achieving reductions in the emission of pollutants. The overall goal of an emissions trading plan is to reduce emissions of harmful GHGs. Trading of carbon credits occurs through certified emissions reductions (CERs). A CER is a certificate issued by the authorized body (CDM Executive Board) to the approved projects that have reduced GHG emission in a calendar year. For example, the emission of GHGs by an approved project shall be continuously measured for a period of one calendar year and the company concerned is entitled to receive 100 CERs if it has emitted 100 tons of GHGs lesser than its maximum allocated GHG emission limit. In principle, a country may allocate permits to individual companies for the emission of a certain quantity of greenhouse gases. If permits are only issued to a level equal to or below the assigned amount, then a country should meet its Kyoto commitment (assuming that the measures of its emissions are accurate). If a country is incapable of meeting its target, it can buy permits from countries that are under their targets. Similarly, companies within a country that prove more able to reduce their emissions are allowed to ‘trade’ excess permits to other, more polluting enterprises. (According to a survey by Price Waterhouse Coopers (PwC) and the International Emissions Trading Association (IETA), in the absence of clear international guidance on the issue companies are employing a variety of different accounting practices for carbon.
emissions. The survey found that companies covered by the EU Emissions Trading Scheme (ETS) had applied 15 distinctive approaches when accounting for EU allowances (EUAs), although there were six main approaches. Such diversity in accounting practice led to companies with similar emissions profiles providing very different results on the balance sheet. It is difficult to compare the business performance when accounting treatments are not clear or vary so greatly.

The Kyoto protocol prescribes three mechanisms which will help in reducing GHG emission, namely Clean Development Mechanism (CDM), Joint Implementation (JI) and International Emission Trading (IET). Under CDM, industrial organizations of developed countries can achieve the compliance by buying CERs from GHG reducing projects approved by UNFCCC set-up in developing countries. Under JI, a developed country with relatively high costs of domestic greenhouse reduction can set up a project in any developing country with relatively low costs for greenhouse gas reduction. Under IET, countries with shortage in carbon credits can buy from the countries with surplus carbon credits.

Carbon markets have the effect of putting a price on what was until very recently free and this change is likely to have financial consequences for firms in the longer term. As regards accounting issues, there are problems associated with the valuation of pollution allowances and their identification as assets (and the liabilities that arise if companies pollute beyond allowed levels). Till date, accounting standard setters have not issued clear guidelines on accounting of carbon trading. For example, it is not very clear that once allowances are issued, whether a company should recognize them as a new asset on the balance sheet. As actual emissions occur, whether availability should be recognized and whether changes in the market price of allowance (i.e., gains and losses on allowances) are to be recognized in the profit and loss account. Companies will also need to consider issues such as fair value accounting and impairment of assets. It has been left to organizations outside the accounting profession to develop CES accounting, measurement, reporting frameworks. There are only a few detailed approaches and metrics available on the issue and many of them are incompatible with each other. This lack of consistency has then resulted in almost no development in assurance standards, from within or outside the accounting profession. Companies to date have very little guidance from accounting and assurance standard setters as to the treatment of carbon related intangible assets.

The environment policy-related carbon trading has entered India also with many companies in India have started establishing systems for reducing carbon dioxide emissions in the atmosphere. The Multi Commodity Exchange of India Ltd. entered into an alliance...
with the Chicago Climate Exchange to introduce carbon credit trading in India in 2005. This association has integrated Indian markets with their global counterparts to cover risks associated with future trading of carbon credits and ensuring best prices. India's carbon credits' trading is reached approx. $100 billion in 2010. In 2007, a total of 160 new projects were registered with UNFCCC. The accounting issues arising due to carbon trading must be answered by accountants in India also one of the most important is the accounting treatment of emission certificates which are intangible assets like patents or copyrights. Valuation of these certificates at cost or at market price, amortization of these certificates, and measurement and recognition of related costs, benefits, assets and liabilities are many questions which are required to be decided by accountants. Though emission trading has come to India (within and outside the Kyoto Protocol), but the accounting standard setters have yet to come up with a standard or guideline to account for such activity. The Institute of Chartered Accountants of India (ICAI) must work on accounting norms for carbon credits.²

Carbon trading has given rise to many taxation issues also like whether CERs can be classified as goods or services for indirect tax purposes. Consequently, whether CERs would attract VAT (levied on sale of goods) or service tax (levied on rendering of services) and whether the sale of CERs to overseas buyers would qualify as export of goods or services is also not clear, To determine whether VAT or service tax would be applicable, it is relevant to determine whether CERs are classifiable as goods or services. At present, indirect tax legislation does not provide guidelines for such treatment and jurisprudence on this issue is yet to evolve. Lack of clarity on the treatment of CERs for indirect tax purposes exposes companies engaged in projects generating carbon credits to the threat of significant tax demands. In nutshell, public concern the world over has resulted in building mechanisms such as the Intergovernmental Panel on Climate Change (IPCC) and the Kyoto Protocol for Greenhouse gas (GHG) reduction. Many issues have emerged due to introduction of carbon trading. Governments need to consider carbon regulation issues such as rationing or taxing of net-CO₂ emitting entities (organizations and individuals) and providing credit allowances or tax-breaks for net-CO₂ absorbing entities. On the other hand, business entities need to consider issues such as trading in carbon allowances (or permits), investment in low-CO₂ emission technologies, counting the costs of carbon regulatory compliance and passing on the increased cost of carbon regulation to consumers through higher prices. These decisions and their consequences will impact the accounting profession significantly. Unfortunately, in terms of financial reporting, the current financial accounting framework in India appears to be ill equipped to provide the information required by companies to meet the challenge of
global warming. This is mainly because accounting information systems based on the accounting equation are not designed to cope with non-monetary measures such as CO2 sources and sinks. As such, despite the fact that emissions trading has come to India with big bang, the accounting standard setters have yet to come up with an acceptable standard to account for such activity.3

REFERENCE