Environmental Social Responsibility: A Comparative Analysis of Perceptions of Indian Managers

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Abstract

Corporate social responsibility of business has become a favourite topic of discussion for businessmen, academicians, politician and social organisations. It includes operational social, economics, and environmental aspects of social responsibility practices followed by corporate. This study investigates views of corporate managers about the environmental social responsibility practices of Nifty and Non-Nifty companies. The study also examines whether the responses on these topics differ among the different groups of managers. The data are obtained from a mail survey sent to 105 nifty and non-nifty companies' top managers and middle managers of Indian firm listed on the BSE. Based on 64 usable responses, the empirical results show that most survey respondents believe that to fulfil the environmental social responsibility firm should give priorities to reduce water use, use of environmental friendly technology, prevention of biodiversity and reduce energy use. Finally, the respondents from the all groups surveyed are found to be holding similar views about environmental social responsibility of corporate.

Key Words: *Environmental Social Responsibility, Indian Managers, Nifty and Non–Nifty Managers.*

Introduction

The natural environment and the corporate manufacturing functions are becoming inextricably linked. Profitability, productivity and environmental consciousness are increasingly viewed as integral goals of manufacturing organizations. The balancing of economic, environmental and social issues, *i.e.* sustainability, has received significant attention and caused additional pressures – competitive, regulatory or otherwise – on industrial manufacturers throughout the world. Organizational environmental sustainability has been the mantra of many management theorists and forward thinking practitioners throughout the early portions of the 1990s and continues even today. It is unlikely that this shift in thought and philosophy will return to the classical economic perspective of the firm as a single-minded profit seeking entity. As progress continues and industrial society continues to mature, the pressures that have been felt for an increased focus on the natural environment will not cease. The role of the manufacturing firm with respect to environmental practice and strategies has evolved over a period of time. In the

early 1970s, organizations were under a command-and-control mentality that required them to comply with regulations and legislation. More recently, firms and government agencies, in the US and internationally, have sought a compromise situation that could best be termed collaborative. Regulatory pressures still exist, but organizations have taken on a more enlightened and strategic viewpoint that there may exist competitive advantages from appropriate environmental strategies (Hoffman, 2001). Some of these advantages may arise from reactive measures, such as responses to regulatory policy (Van der Linde and Porter, 1995). These advantages may also arise from such more proactive measures as green marketing, technology development reduction in wastes, and product stewardship. These win/ win situations (where improved environmental and financial performance of organizations positively correlate) many times do exist. Yet, like any other policies, strategies or programmes, risk is involved and sometimes the win/win situations may not arise (Walley and Whitehead, 1994). The manufacturing function will be central and critical to an organization's role in the eccentric (Shrivastava, 1995), eco-efficient (Schmidheiny, 1992), and/or eco-effective (McDonough & Braungart, 1998) organization of the next industrial revolution.

Issues of Environmental Social Responsibility

Organizational strategy and the environment:

There has been significant progress recently in the development of management and organization theory as it applies to the natural environment. These developments include literature related to business and society research, where the specific social dimension is the natural environment. A major portion of the philosophical content of these concepts includes "stakeholder" theory, which incorporates environmental concerns as part of stakeholder concerns (Starik, 1995); natural recourses based view (Hart, 1995), and eccentric management (Shrivastava, 1995). These theories help to explain and guide the organization's practice with relation to the natural environment. There is a clear linkage between impacts on organizational development and strategy and impact on manufacturing strategy.

Manufacturing strategy and the environment:

The discussion on a general manufacturing strategy considers both product and process categories. The perspective will be more general than the traditional volume/variety matrix and production process comparisons (Hayes and Wheelwright, 1979). In addition, a "practices" section is included to incorporate some of the more organizational and philosophical elements of manufacturing strategy. Within these categories a "technological" dimension is integrated with manufacturing strategy, since manufacturing is a function that is very technology driven. Initially, some issues related to technology, manufacturing and the environment are presented. Technological influences and the relationship to manufacturing strategy process, Manufacturing process developments from an environmental perspective can be linked to issues of reduction, reuse, recycling and remanufacturing. Reduction from a process perspective will require integration of ideas for waste minimization. Reduction is easy to introduce for organizations that have strategic quality initiatives. Recycling, remanufacturing, and reuse, are

all differing levels of the general term, recycling. Wastewater closed-loop production processes are being increasingly adopted by industry, primarily due to the ease of incorporating such systems and their accrued benefits.

Product:

Product strategy within a manufacturing function is the most closely associated with Design for the Environment (DfE) and Life-Cycle Analysis (LCA) issues. Product and materials flexibility will be necessary for both product development and materials substitution. This capability should be adopted not only for environmental reasons, but competitive reasons as well, as product life-cycle will continue to decrease and product customization increases. DfE and LCA influence an organization's "product" stewardship philosophy. Product stewardship is the minimization of the product's harmful effects on the environment in every stage of its product life-cycle, from design and development to manufacturing, distribution, use and disposal (Hickle and Stitzhal, 2003).

Practice:

From a policy perspective, the expertise and knowledge of the organization relied on manufacturing personnel to realize and "buy-in" and the idea of evaluating products and processes based on environmental characteristics. Similar to Total Quality Management (TQM) initiatives where empowerment makes everyone responsible for equality in a manufacturing setting, organizations need to mature environmental responsibilities to level of pervasiveness. Integrating environmental management knowledge into every day workforce practice will require similar efforts as diffusing equality management responsibility. This is the role of Total Quality Environmental Management (TQEM). TQEM has become increasingly used in pollution prevention and other environmental management strategies (Sarkis, 1998; Pojasek, 2000).

Another environmentally based influence of concern to organizational manufacturing practices is ISO 14000 certification. ISO 14000 certification (or any other technology, programme, etc.), alone, does not guarantee a successful environmentally benign system. In one study of three organizations, Kitazawa and Sarkis (1998), found that environmental management systems (two of which were ISO 14000 certified) to be successful at waste minimization and source reduction, required significant employee support. That is, along with environmental management systems, employee practices, training, support, was necessary for successful implementation of source reduction programmes. Just-In-Time (JIT) manufacturing practices will also have implications for environmental management and sustainability within organizations. Many aspects of JIT are environmentally sound. For example, a major tenet of JIT and TQM is the minimization of waste (reduction and prevention) (Klassen, 2000).

Other Manufacturing Strategy Related Issues

Control and measurement systems:

One of the central production control systems in a manufacturing setting is manufacturing resources planning and requirements planning systems (MRPII,

MRP). These systems will require integration of a number of environmental characteristics, especially in a remanufacturing environment. The research, and practice, in this area have been quite limited (Guide, *et al.*, 1996). One such issue is the integration of reverse bills of material that will aid in managing inventory disassembly of products. The planning and forecasting for material flows into a system will also be an issue. The diversity of "suppliers" in this type of environment is greater since it is heavily dependent on the variety of customers. Another reason for the uncertainty is due to the immature reverse logistics channels in most manufacturing industries. Completing master scheduling plans for materials that organizations have little control over is also a concern (Guide, *et al.*, 1996).

Location and facility decisions:

Location and expansion decisions for manufacturing facilities are also impacted by environmental issues. The location/expansion of plants may be limited by the permitting process, which only allows facilities' waste generation capacity (into air, water) up to a certain level. Facility development has to take into consideration new developments, practices and technology. For example, for the design of a new facility in a developing country, Intel corporation designers considered possible improvements in chemical, water, and energy use of possible future technology. Flexible facility design is critical to the cradle-to-grave mentality of product stewardship (Denton, 1998).

Customer and supplier relationships:

Manufacturing process inputs and outputs play a role in how effectively manufacturing can become green. Managing these inputs and outputs are central to supply chain management (*EPA*, 2000). The supply chain, of which manufacturing is the central component, for an organization includes relationships with other organizations, primarily as suppliers or customers. Closing the "external" loop with manufacturing will require the efforts of the partners. The manufacturing organizations will be heavily reliant on customers as suppliers of used materials and products. These practices cover a broad set of industries from ceramics and abrasives where Norton Company has a programme to recycle grinding wheel stubs, to electronic equipment such as computers and copiers, such as Xerox and Hewlett Packard.

In addition, customer-supplier relationships will involve joint projects and designs of processes and products, requiring participation with internal design teams from both these groups. Sharing and integrating environmental ideas and concerns organizational boundaries will greatly enhance the abilities of the manufacturing function to remain green.

Numerous examples appear in which multiple multi-organizational relationship benefit from environmentally conscious partnerships. For example, DuPont has developed a partnership with Ford Motor in which DuPont's payments are based on the number of cars that are painted. This creates an incentive for the two companies to use paint as efficiently as possible (Denton, 1998).

Interventional relationship:

Interventional relationships with manufacturing are now described, especially those relationships that will influence corporate environmental issues. Included in this set of organizational functions are marketing, accounting/finance, human resources and information systems. Engineering is another function which could be viewed as separate from manufacturing.

Marketing, manufacturing and the environment:

Green marketing will be greatly influenced by the manufacturing capabilities of most organizations. Organizations will make appeals to green consumers concerning the environmental soundness of their products. This green marketing will include process capabilities and product characteristics.

Another dimension of marketing and services associated with demanufacturing and disassembly from a marketing (and profitability) perspective is evidenced by Digital's (now Compaq) materials recovery facilities (Sarkis *et al.*, 1998). These facilities began as cost centres to help defuse and manage the costs associated with the end of life for Digital electronic equipment. Eventually, marketing viewed this as another capability of the "services" that can be offered by Digital. To effectively be marketed as a green company, an image is not enough; "practising what you preach" is critical (Ottman & Terry, 1998). Environmentally conscious manufacturing is central to the practice.

Accounting, finance, manufacturing and the environment:

Accounting and finance's major relationships to manufacturing include cost management, performance measurement, and capital budgeting. Each of these areas will necessarily have to be adjusted to include environmental concerns and impacts within the manufacturing function. Manufacturing practices will change when environmental influences (whether proactive or reactive) put more pressure on the function. Accounting and finance practices need to be willing to change. Costing products and activities within the manufacturing function is already a tricky proposition with the debate focusing on traditional versus activity based costing approaches. Categorizing and estimating costs based on environmental factors will make the problem more complex.

Human resources, manufacturing and the environment:

Total quality initiatives, source reduction, introduction of new technologies are all part of integrating and improving the eco-efficiency of organizations. The success or failure of these programmes and initiatives begins with upper management. The implementation and execution progress rests with the lower level employees of the organization. Training and expertise for evaluating environmental issues within a manufacturing plant are difficult. Similar in context to quality, the roles of shop floor personnel do not include responsibility for the measurement and management of environmental issues. The environmental management of organizational processes and practices has traditionally been relegated to the specialized staff personnel, with technical skills required to manage these activities. Empowerment, within the environmental management context, implies that

workers will have to become more capable at evaluating the environmental ramifications of their equipment's operations.

Manufacturing information systems:

Information systems permeate every function within the organizations. It is expected that enterprise wide systems will be commonplace. Accounting systems need to incorporate environmental factors so that accurate costing of products and costs can be properly allocated across systems and products. From a control perspective traditional manufacturing control system (*e.g.* MRP and ERP) will require adaptation. An important environmental management factor for consideration is that information systems will be required to trace and help in the planning and control of mass balances of environmentally sensitive products. This tracing may be required for either regulatory or competitive reasons. These systems will also be critical from a life-cycle analysis situation where information on process inputs and outputs will be needed to make more accurate evaluations of product/material environmental impacts.

Relevance of the Study

Considering the above issues in the present paper an attempt has been made to study the perceptions of nifty and non-nifty companies' manager about the environmental social responsibility practices. The reason being that most of the companies either are green companies or environmental friendly companies. Many service organizations appearing in nifty and non-nifty companies are more of free companies which never contribute in polluting the environment. However, it is expected that all the companies do provide conceptual support and financial adjutancy to NGO for environmental cleanliness. While discussing to mangers, it became evident that the government is expected to play the most crucial role in the environment related issues. As discussed in the conceptual understanding, the environment is both local and global issue and nowadays positive steps are taken at the global and government level as they are committing to the emission reduction for the country as a whole. Nowadays, it is also observed that companies are paying due attention to the demands of all three, *i.e.* government, NGOs and stakeholders. Few reputed groups in India are actively contributing to the forestation of the land and prevention of the spreading seawater in the agricultural land. It was further concluded from the discussion that the focus of the twenty-first century is green and environmentally free technology for all classes and it was further observed that companies have got special budget for replacing polluting technologies with green technologies.

Hypothesis of the Study

There is no significance difference in the attitudes of managers towards practising of environmental social responsibility of nifty and non-nifty companies.

Methodology of the Study

The Sample:

The study aims at implementing "an evaluation of environmental social responsibility practices of selected corporate units." To complete the whole study

there was the need for the generation of primary data. For the nifty companies, the whole universe was selected, as there were only 50 companies in the whole group. For non-nifty companies, the convenient sampling method was used, as there was the need to select equivalent number of companies for the non-nifty group. While selecting non-nifty companies, a special care is given and only those companies were selected which have national presence and which can stand in comparison with the nifty companies.

Data collection

The present study is based on primary data related to the practice of the social responsibility of the selected corporate units. For this purpose, a questionnaire is prepared related to various parameters of environmental aspect of corporate social responsibility. Then the questionnaire is sent to the nifty and non-nifty compenies' managers by e-mail as well as by post. Twelve statements have been included in the questionnaire so as to know the perceptions of managers about environmental social responsibility practices. Questions have been set on Likert-type scale to obtain responses relating to attitudes where measurement is sought in terms of degree of importance or agreement with the scale of 5-Very strongly agree/very much important to 1-Very strongly disagree/very much unimportant.

The received filled up questionnaires have been classified in the following manner:

1. NSE (Nifty)	2. NSE (Nifty)
Top Managers	Middle Managers
15 Companies	17 Companies
3. Non (Nifty)	4. Non-Nifty
Top Managers	Middle Managers
16 Companies	16 Companies

Tools of analysis

Data collected through the questionnaire have been grouped and regrouped in following seven different categories for the purpose of meaningful analysis.

- Group 1 represents the analysis and valuation of the information for all the managers under study.

- Analysis and evaluation of the information of all top and middle level managers covered under Group 2.

- Data for nifty managers and companies across management hierarchy, *i.e.* top and middle level management presented as group 3.

- Data for the non-nifty managers across management hierarchy presented as group 4.

- Evaluation of the data by comparison between all nifty managers with all non-nifty managers *i.e.* across corporate ownership denoted as group 5.

- Analysis and interpretation of the data for top managers across corporate ownership, *i.e.* between nifty companies and non-nifty companies denoted as group 6.

- Evaluation of the information for middle managers across corporate ownership, *ie.* between nifty and non-nifty companies denoted as group 7.

The purpose of creating and grouping and regrouping the data in seven groups was to check the relationship and cross relationship of the differed groups, and to test various dimensions. For example, whether there is similarity in thought and practice of the top managers of nifty and middle managers of the nifty companies or say whether there is a difference between the practice of the nifty companies and non-nifty companies. For the purpose of analysis, responses of five-point scale were tabulated group-wise as described in the statistical analysis and mean score for each parameter of every question was generated. The questionnaire was developed in such a way that most of the questions have multiple responses. So that later on each response can be treated as a separate number of responses. Each mean score against response represents the average measures of attitude of each group. Mean score equal to three represents uncertain attitudes while greater than three represents a favourable attitude. Mean score less than three represents an unfavourable attitude of the group. For the purpose of testing of hypothesis t-Test has been applied.

Analysis of Data

The data collected through questionnaire from nifty firm and non-nifty firm managers are tabulated and presented in the table 1 to 7. Table 8 shows the results of t-test among the different groups of managers of firms under study.

Environmental aspects of social responsibility practices of all managers (Nifty and Non Nifty firms top and middle) presented in table -1.

Table - 1: Environmental aspects of social responsibility practices by all managers

Sr. No.	Criticism	Mean	Rank	S. D.
1	Does your company respect the principle of preventive action?	3.36	5	1.38
2	Does your company support a precautionary approach to environmental challenges?	3.09	12	1.44
3	Does your company rectify environmental damages as a priority at source?	3.20	11	1.42
4	Does your company respect the principle that the polluter bears the environmental costs?	3.34	7	1.38
5	Does your company take necessary steps to promote greater environmental responsibility?	3.31	9	1.34
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.69	2	1.33
7	Does your company contribute to the prevention of bio-diversity?	3.55	3	1.44

Sr. No.	Criticism	Mean	Rank	S. D.
8	Does your company take necessary steps to reduce energy use?	3.47	4	1.38
9	Does your company, if necessary, limit or alter material use?	3.28	10	1.42
10	Does your company take necessary steps to reduce water use?	3.83	1	1.25
11	Does your company take necessary steps to limit emission?	3.33	8	1.47
12	Does your company reduce water?	3.36	5	1.44

During the survey all the managers were asked to give priorities to various factors influence the environmental social responsibility of firms. The result of the survey indicates that the firm should take necessary steps to reduce water use, which has the highest priorities and followed by the impetus for development and diffusion of environmentally friendly technologies. The result of standard deviations of all factors indicates very low deviation among the views of all managers.

Table – 2 Environmental aspects of social responsibility practices by all top managers–all middle managers/across management hierarchy

Sr. No.	Criticism	Top Mgmt. (N=216)			Middle Mgmt. (N=313)			Mean Differ-
		Mean	Rank	S. D.	Mean	Rank	S. D.	ence
1	Does your company respect the principle of preventive action?	3.23	8	1.43	3.48	6	1.35	0.26
2	Does your company support a precautionary approach to environmental challenges?	3.16	11	1.49	3.03	12	1.42	0.13
3	Does your company rectify environmental damages as a priority at source?	3.32	6	1.42	3.09	11	1.42	0.23
4	Does your company respect the principle that the polluter bears the environmental costs?	3.29	7	1.42	3.39	9	1.37	0.10
5	Does your company take necessary steps to promote greater environmental responsibility?	3.06	12	1.34	3.55	3	1.33	0.48
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.65	2	1.40	3.73	2	1.28	0.08
7	Does your company contribute to the prevention of bio-diversity?	3.65	2	1.40	3.45	7	1.48	0.19

Sr. No.	Criticism	Top Mgmt. (N=216)			Middle Mgmt. (N=313)			Mean Differ-
		Mean	Rank	S. D.	Mean	Rank	S. D.	ence
8	Does your company take necessary steps to reduce energy use?	3.42	4	1.43	3.52	4	1.35	0.10
9	Does your company, if necessary, limit or alter material use?	3.35	5	1.40	3.21	10	1.45	0.14
10	Does your company take necessary steps to reduce water use?	3.87	1	1.23	3.79	1	1.29	0.08
11	Does your company take necessary steps to limit emission?	3.23	8	1.50	3.42	8	1.46	0.20
12	Does your company reduce water?	3.19	10	1.42	3.52	4	1.46	0.32

The research survey of all top managers and all middle managers/across management hierarchy has been presented in table – 2. During the survey among top management numbers of observations were 216 and in middle level management numbers of observations were 313. The survey results indicate that there is no any difference among all top managers and all middle managers about the top priority should be given to fulfil the environmental social responsibility of the firm, both levels of managers have given the first and second rank to reduce water use and the use and development of environment friendly technology. The result of standard deviation and mean difference indicate a minor difference in the views of managers under study.

Table - 3 Environmental aspects of social responsibility practices by nifty top/middle managers

Sr. No.	Criticism	Top Mgmt. (N=216)			Middle Mgmt. (N=313)			Mean Differ-
		Mean	Rank	S. D.	Mean	Rank	S. D.	ence
1	Does your company respect the principle of preventive action?	3.27	8	1.39	3.59	4	1.33	0.32
2	Does your company support a precautionary approach to environmental challenges?	3.13	10	1.51	3.29	9	1.40	0.16
3	Does your company rectify environmental damages as a priority at source?	3.53	3	1.41	3.06	11	1.43	0.47
4	Does your company respect the principle that the polluter bears the environmental costs?	3.20	9	1.47	3.59	4	1.37	0.39
5	Does your company take necessary steps to promote greater environmental responsibility?	2.87	12	1.41	3.53	6	1.37	0.66

Sr. No.	Criticism	Top Mgmt. (N=216)			Middle Mgmt. (N=313)			Mean Differ-
		Mean	Rank	S. D.	Mean	Rank	S. D.	ence
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.53	3	1.46	3.76	2	1.35	0.23
7	Does your company contribute to the prevention of bio-diversity?	3.73	1	1.44	3.53	6	1.46	0.20
8	Does your company take necessary steps to reduce energy use?	3.60	2	1.40	3.47	8	1.42	0.13
9	Does your company, if necessary, limit or alter material use?	3.13	10	1.41	3.06	11	1.43	0.07
10	Does your company take necessary steps to reduce water use?	3.53	3	1.41	3.88	1	1.27	0.35
11	Does your company take necessary steps to limit emission?	3.33	6	1.59	3.29	9	1.40	0.04
12	Does your company reduce water use?	3.33	6	1.45	3.65	3	1.41	0.31

The views of nifty firm top and middle managers about environmental social responsibility practices have been presented in table -3. The views of managers have been taken on 12 statements on 5 point scale questionnaire. The top managers have given top priority to the contribution of firm to the prevention of biodiversity, while on other hand middle level managers have given top priorities to the steps taken by the firm to reduce water use. The detailed study of table also indicates that there is a disagreement among top managers and middle managers in giving the second priority for fulfilment of environmental social responsibility of firm. Top managers have given rank to that firm which has taken steps to reduce energy use, while middle managers have given second priority to encouragement of use of environment friendly technologies. It can be concluded from the table that there is no any agreement among top and middle managers of nifty firms because there is a high deviation in the rank assigned by the both levels of managers. It means there are different views among the managers under study about how to fulfil the environmental social responsibility of the firm.

Table - 4 Environmental aspects of social responsibility practices by non-nifty top/middle managers

Sr. No.	Criticism	Top Mgmt. (N=216)			Middle Mgmt. (N=313)			Mean Differ-ence
		Mean	Rank	S. D.	Mean	Rank	S. D.	
1	Does your company respect the principle of preventive action?	3.19	8	1.52	3.38	6	1.41	0.20
2	Does your company support a precautionary approach to environmental challenges?	3.19	8	1.52	2.75	12	1.44	1.56
3	Does your company rectify environmental damages as a priority at source?	3.13	10	1.45	3.13	11	1.45	0.47
4	Does your company respect the principle that the polluter bears the environmental costs?	3.38	5	1.41	3.19	10	1.38	0.21
5	Does your company take necessary steps to promote greater environmental responsibility?	3.25	6	1.29	3.56	3	1.31	0.03
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.75	2	1.39	3.69	1	1.25	1.63
7	Does your company contribute to the prevention of bio-diversity?	3.56	3	1.41	3.38	6	1.54	0.76
8	Does your company take necessary steps to reduce energy use?	3.25	6	1.48	3.56	3	1.31	0.87
9	Does your company, if necessary, limit or alter material use?	3.56	3	1.41	3.38	6	1.50	0.53
10	Does your company take necessary steps to reduce water use?	4.19	1	0.98	3.69	1	1.35	1.83
11	Does your company take necessary steps to limit emission?	3.13	10	1.45	3.56	3	1.55	0.01
12	Does your company reduce water use?	3.06	12	1.44	3.38	6	1.54	0.3

Table – 4 presents the results of the views of non-nifty top and middle managers of the firms under study. Both the groups of managers have assigned first and second priority for fulfilment of environment corporate social responsibility of the firm to take necessary steps to reduce water use and development and diffusion of environment friendly technologies. Non-nifty top and middle managers of the firms' views on the other priority for environment corporate social responsibility are highly deviant. The rank analysis further indicates that both the managers believe in different ways towards the priority of the firm to fulfil the environment corporate social responsibility.

Table - 5Environmental aspects of social responsibility practices by all nifty managers – all non-nifty managers/across corporate ownership + AD1

Sr. No	Criticism	Nifty Co.			Non-Nifty Co.			Mean
		Mean	Rank	S. D.	Mean	Rank	S. D.	Difference
1	Does your company respect the principle of preventive action?	3.44	6	1.34	3.28	8	1.44	0.16
2	Does your company support a precautionary approach to environmental challenges?	3.22	10	1.43	2.97	12	1.47	0.25
3	Does your company rectify environmental damages as a priority at source?	3.28	9	1.42	3.13	11	1.43	0.16
4	Does your company respect the principle that the polluter bears the environmental costs?	3.41	7	1.41	3.28	8	1.37	0.13
5	Does your company take necessary steps to promote greater environmental responsibility?	3.22	10	1.41	3.41	5	1.29	0.19
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.66	2	1.38	3.72	2	1.30	0.06
7	Does your company contribute to the prevention of bio-diversity?	3.63	3	1.43	3.47	3	1.46	0.16
8	Does your company take necessary steps to reduce energy use?	3.53	4	1.39	3.41	5	1.39	0.13
9	Does your company, if necessary, limit or alter material use?	3.09	12	1.40	3.47	3	1.44	0.38
10	Does your company take necessary steps to reduce water use?	3.72	1	1.33	3.94	1	1.19	0.22
11	Does your company take necessary steps to limit emission?	3.31	8	1.47	3.34	7	1.49	0.03
12	Does your company reduce water use?	3.50	5	1.41	3.22	10	1.48	0.28

Survey results of all nifty and all non-nifty managers' views are presented in table – 5. The detailed analysis of table indicates that there is high degree of agreement among the managers of nifty and non-nifty firms towards the environment corporate social responsibility practices of the firm because both the groups of managers have given same rank to first three variables, *i.e.*, steps taken by the firm to reduce water use, encouragement of use of environmental friendly technologies and contribution of the firm to the prevention of bio-diversity respectively. In the later part of rank, it has been found that there is a disagreement among the groups of managers.

Table - 6 Environmental aspects of social responsibility practices by top nifty managers-top non-nifty managers/across corporate ownership

Sr. No.	Criticism	Nifty Co.			Non Nifty Co.			Mean
		Mean	Rank	S. D.	Mean	Rank	S. D.	Differ-ence
1	Does your company respect the principle of preventive action?	3.27	8	1.39	3.19	8	1.52	0.08
2	Does your company support a precautionary approach to environmental challenges?	3.13	10	1.51	3.19	8	1.52	0.05
3	Does your company rectify environmental damages as a priority at source?	3.53	3	1.41	3.13	10	1.45	0.41
4	Does your company respect the principle that the polluter bears the environmental costs?	3.20	9	1.47	3.38	5	1.41	0.18
5	Does your company take necessary steps to promote greater environmental responsibility?	2.87	12	1.41	3.25	6	1.29	0.38
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.53	3	1.46	3.75	2	1.39	0.22
7	Does your company contribute to the prevention of bio-diversity?	3.73	1	1.44	3.56	3	1.41	0.17
8	Does your company take necessary steps to reduce energy use?	3.60	2	1.40	3.25	6	1.48	0.35
9	Does your company, if necessary, limit or alter material use?	3.13	10	1.41	3.56	3	1.41	0.43
10	Does your company take necessary steps to reduce water use?	3.53	3	1.41	4.19	1	0.98	0.65
11	Does your company take necessary steps to limit emission?	3.33	6	1.59	3.13	10	1.45	0.27
12	Does your company reduce water use?	3.33	6	1.45	3.06	12	1.44	0.27

The perception of top nifty managers and top non-nifty managers/across corporate ownership about environmental corporate social responsibility practices of the firm is presented in table – 6. The nifty firm managers have identified top five variables for fulfilment of environment corporate social responsibility practices which were, contribution of the firm to the prevention of bio-diversity, steps taken by the firm to reduce energy use, encouragement of use of environmental friendly technologies, steps taken by the firm to reduce water use, and firm has rectifying environmental damages as a priority at source. While on the other hand, non-nifty firm managers

have identified top five variables for environment corporate social responsibility practices which were steps taken by the firm to reduce water use, encouragement of use of environmentally friendly technologies, firm has put control over use of material or use of alternate use of materials, contribution of the firm to the prevention of bio-diversity and firm respects the principle that the polluter bears the environment cost.

Table - 7 Environmental aspects of social responsibility practices by middle nifty managers-middle non-nifty managers/across corporate ownership

Sr. No.	Criticism	Nifty Co.			Non-Nifty Co.			Mean
		Mean	Rank	S. D.	Mean	Rank	S. D.	Differ-ence
1	Does your company respect the principle of preventive action?	3.59	4	1.33	3.38	6	1.41	0.21
2	Does your company support a precautionary approach to environmental challenges?	3.29	9	1.40	2.75	12	1.44	0.54
3	Does your company rectify environmental damages as a priority at source?	3.06	11	1.43	3.13	11	1.45	0.07
4	Does your company respect the principle that the polluter bears the environmental costs?	3.59	4	1.37	3.19	10	1.38	0.40
5	Does your company take necessary steps to promote greater environmental responsibility?	3.53	6	1.37	3.56	3	1.31	0.03
6	Does your company encourage the development and diffusion of environmental friendly technologies?	3.76	2	1.35	3.69	1	1.25	0.08
7	Does your company contribute to the prevention of bio-diversity?	3.53	6	1.46	3.38	6	1.54	0.15
8	Does your company take necessary steps to reduce energy use?	3.47	8	1.42	3.56	3	1.31	0.09
9	Does your company, if necessary, limit or alter material use?	3.06	11	1.43	3.38	6	1.50	0.32
10	Does your company take necessary steps to reduce water use?	3.88	1	1.27	3.69	1	1.35	0.19
11	Does your company take necessary steps to limit emission?	3.29	9	1.40	3.56	3	1.55	0.27
12	Does your company reduce water use?	3.65	3	1.41	3.38	6	1.54	0.27

Table – 7 shows the perception of middle level nifty managers and middle level non-nifty firm managers towards fulfilment of environmental corporate social responsibility of the firm. Both the groups' managers have been given priority to fulfil the environmental corporate social responsibility to the steps taken by the firm to reduce water use and, encouragement of use of environmental friendly technologies as top priority variable. It has been found from the detailed study of the table that the views related to priority level of both the managers were different among the other variables.

After studying the tables 1 to 7, it can be summarized that all the managers have assigned the highest rank to reduce the water use by corporate. While all top and middle managers, nifty middle managers, non-nifty top and middle managers. All nifty and non-nifty managers, top non-nifty managers and middle nifty and non-nifty managers have also assigned the highest rank to reduce the water use by corporate. Nifty managers and non-nifty managers have given the highest rank to the contribution of company towards the prevention of bio-diversity.

The same is evident in the standard deviation, as it being 1.2 to 1.6; there exist variation in the responses. Over here, it is further observed that responses generated have greater effect of the activity of the company than the policy of nifty and non-nifty company. The reason being that there can be a heavy difference in the opinion of a green company engaged in service operations and another company in the manufacturing activity.

Table – 8 shows the result of correlation and t-test among the various groups of managers under study. The result of the correlation analysis indicates that there is a high degree of correlation (0.58) among the views of all top managers–all middle managers/across management hierarchy. While among the views of nifty top/middle managers and top nifty managers – top non-nifty managers/across corporate ownership has very low positive correlation towards the environmental aspect of social responsibility practices of the firm.

The result of t-test has been presented in table – 8. The calculated values of t-test for various categories of managers are 0.40, 0.86, 0.57, 0.83, 0.07, and 1.27. While the critical value of t-test at 10 degree of freedom is 2.228. All the calculated values are lower than critical value of t-test. This indicates that null hypotheses for all the cases are accepted and we can state that there does not exist significant difference in thoughts and responses of different groups of managers related to environmental aspect of social responsibility practices.

Conclusion and Future Directions for Research

In the present environment, there has been a great importance given by all corporates to fulfilment of corporate social responsibility. In CSR the important elements is to protect environment. Environment can be protected through use of proper technology. Our survey results suggest the non-existence of across management hierarchy effects. Specifically, the perceptions of managers from nifty and non-nifty firms differ on the importance of various factors influencing the environmental social responsibility policy of their firms. Nonetheless, managers of these seven sub-groups rank the same four factors as most important. These

Table -8 Environmental aspects of social responsibility practices by t- tests statistics for tables 1 to 7

Sr.No	Group	Mean Value	S. D. Value	Correlation Value	Correlation Inter-pretation	Correlation Signi-ficance	t-Test Calculated Value	t-Test Critical Value	t-Test Acceptance	Degree of Freedom	Significance
1	All top managers – all middle managers/Across management hierarchy	0.02	0.19	0.58	H. D. P. R.	0.64	0.40	2.228	H_0 Accept	10	0.70
2	Nifty-top/middle managers	0.08	0.32	0.09	L. D. P. R.	0.79	0.86	2.228	H_0 Accept	10	0.40
3	Non-nifty top/middle managers	0.04	0.90	0.28	L. D. P. R.	0.39	0.57	2.228	H_0 Accept	10	0.58
4	All nifty managers – All non-nifty managers/Across corporate ownership–AD1	0.07	0.28	0.29	L. D. P. R.	0.37	0.83	2.228	H_0 Accept	10	0.42
5	Top nifty managers – Top non-nifty managers/Across corporate ownership	0.01	0.35	0.04	L. D. P. R.	0.90	0.07	2.228	H_0 Accept	10	0.94
6	Middle nifty managers – middle non-nifty managers/Across corporate ownership	0.12	0.34	0.33	L. D. P. R.	0.32	1.27	2.228	H_0 Accept	10	0.23

determinants of environmental social responsibility are to reduce water use, use of environment friendly technology, prevention of biodiversity and reduce energy use. In addition, managers of the sub-groups differ in their level of agreement to statements about the variables of environmental social responsibility priorities Although their views differ significantly involving some statements used to explain environmental social responsibility, they rank statements. Our categorization shows managers of nifty and non-nifty firms perceive environmental social responsibility unanimously in many respects. This evidence supports the standard practice of nifty and non-nifty firms. All top level, middle level managers of nifty firms and non-nifty firms' views are the same and there is a positive correlation among their views.

In the present area, there is a huge scope for research. Researcher may undertake a study on views of managers how organization can fulfil environmental responsibility, corporate social responsibility and financial performance comparative study of corporate social responsibility, environmental social responsibility practices of India and any other developing country of the world Such study will provide an informative input to Indian managers as well as to the top management and policy-makers.

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