

## **CHAPTER VI**

### **ENVIRONMENTAL AUDITING AND ENVIRONMENTAL ACCOUNTABILITY DISCLOSURE INDEX**

The present chapter fulfills the last two objectives of the study. The last two objectives pertain to environmental auditing and establishment of environmental accountability disclosure index.

The layout of the chapter is as follows. The chapter has three key sections. The first section of the chapter looks into the final requirement of environmental accountability i.e., the need for auditing of environmental information reported. In the wake of environment pollution, there is demand from society to provide separate information on the amount of environmental activities undertaken. Not only that, the society needs to be assured of the truthfulness of the information provided. Therefore, integral to practice of 'Accountability' is the necessity of 'Auditing' because it provides confidence to the public about the veracity of the information disclosed. Looking into the importance of auditing function, an attempt was made to understand the theoretical foundation of auditing function in an organization in brief. In addition, the perspectives of Corporate and ENGOs were also empirically analyzed to understand their expectations from auditing function. The first part of the chapter offers a brief description of the meaning, definition and benefits of auditing towards to various stakeholders.

The next section presents the results of empirical analysis of corporate managers regarding present status of environmental audit performance and; members of ENGOs regarding their expectations of environmental audit.

The third section of the chapter discusses the last objective of the study. The last objective is an attempt to establish a disclosure index that would measure the extent of accountability of an enterprise. It is in effect the epitome or essence of the entire study. The various objectives studied in the previous chapter formed the substance of the study lending a structure to the final formation of the environmental accountability disclosure index. The chapter ends with a brief summary.

## 6.1 Introduction

Corporate, now-a-days, is producing large amounts of information on financial, social and environmental issues. The underlying idea behind disclosure of such information is that it satisfies the legitimacy claims of corporate. The legitimacy theory suggests that only when a corporate undertakes appropriate activities for the welfare of society then only the society will grant it the legitimacy of existence. The dissemination of information thus serves the purpose of making the society aware of the activities undertaken by the corporate to provide welfare to the society. Disclosure is, in fact, a window of the corporate activities to the outside world. In an accountability framework, the disclosures establish a link between stakeholders and corporate. The auditing plays a very important role at this juncture as it allows the trust to be built between the two groups, namely, corporate and society (stakeholders); where environment 'information' gives a picture of corporate impacts on nature and environmental audit determines the quality of corporate environmental information disclosed (Lehman, 1999).

Auditing as a corporate function provides 'attestation' or authenticity to firm's accounts (Gray, 2000). Attestation is explained by Merriam-Webster online dictionary as, 'to show, prove, or state, affirm that something is true or real officially'. Therefore, an auditor comments upon the firms' accounts to affirm that the accounts are reliable and truthful. This criterion of authenticity is vital for development of accountability due to the presence of multiple factors like voluntariness in environmental performance, methods are selective (Lehman, 1999) and discretionary, no uniformity of formats, feeble stakeholders power and weak environmental law and regulations. Under such circumstances there is a great likelihood that the information disclosed turns out to be a mere dramatized display or corporate propaganda, therefore, auditing becomes crucial and vital.

The current chapter looks at the auditing from environmental perspective, as a tool to accomplish accountability, and revisits the gaps which voice concerns of society that whether the information vetted to be true is really true or is it just a means to satisfy managerial objectives (Gray, 2000).

### **6.1.1 Concept of environmental audit**

The Confederation of British Industry, 1990, defines environmental audit in an idealistic and comprehensive manner as, “The systematic examination of the interactions between any business operations and its surroundings. This includes all emission to air; land and water; legal constraints; the effects on the neighbouring community, landscape and ecology; and the public’s perception of the operating company” (as cited in Pramanik, 2003, pp-263). The definition suggests that environmental audit does not merely restrict itself to commenting on compliance with legislation only relating to emission, technology adoption etc, but suggests that environmental audit should comment on impacts of company operations beyond its boundaries. This is an idealistic concept which needs to be verified in comparison with actual performance.

A rather contemporary definition which is more specific and provides a clear-cut understanding suggests that it is a management tool that undertakes a systematic inspection of a project, organization or equipment in a periodic manner and produces document of its evaluation objectively towards environmental safety. In this manner it facilitates management to control environment practices and also helps in compliance with environment policies and regulations. (Glossary, European Commission, accessed 06/05/14). In a nutshell, Environmental auditing is a process to evaluate whether the environmental policies are observed and whether compliance with respect to environment has been achieved continuously.

Tracing the origin of Environmental Audit, it is said to have begun in America, followed by European countries and Asian countries in 1970, 1980, and 1990s respectively. Regarding the audit process, the United States Environmental Protection Agency (EPA) published its environmental audit policy in 1986. The International Chamber of Commerce produced a booklet on Environmental Auditing in 1988. In 1990, UNEP published their technical report on Environmental Audit. In 1992, British Standards Institute published BS 7750 Specifications for Environmental Management System. ISO (International Organization for Standardization) is the world’s largest developer of voluntary International Standards for products, services and good practices among industry in general. Its 14000 series covers audit procedure and management of environmental audit, site assessment, labelling performance evaluations and life cycle

analysis. ISO also published its new International Standard ISO 19011:2011 “Guidelines for auditing management systems” on November 15th 2011 for auditing the management systems. These are applicable to management systems relating to Quality (ISO 9001), Environmental (ISO 14001), Health & Safety (OHSAS 18001), Food Safety (ISO 22000), Information Security (ISO 27001), Social Responsibility (SA 8000), Energy (ISO 50001), Sustainable Event Management (ISO 20121). It identifies the following principles of auditing, which are:

- Integrity – “The foundation of professionalism”;
- Fair presentation – “The obligation to report truthfully and accurately”;
- Due professional care – “The application of diligence and judgement in auditing”;
- Confidentiality – “Security of information”; (latest addition)
- Independence – “The basis for the impartiality of the audit and objectivity of the audit conclusions”;
- Evidence-based approach – “The rational method for reaching reliable and reproducible audit conclusions in a systematic audit process”.

(Source: Highlights, [www.apcer.pt](http://www.apcer.pt) , retrieved on 7<sup>th</sup> May, 2014)

The conduct of environmental audit proceeds through three clearly defined stages, namely; pre-audit, on-site audit and post-audit stages. The audit activities commence well before the conduct of actual checking of various accounts. Before the actual conduct of audit, it is essential to ensure that overall management is interested in the audit process for smooth functioning of the audit process and for requesting any additional information from the management. In addition, it is essential to be clarified about the goals and objectives against which the audit process would offer its comments. Furthermore, the audit function does not end with conduct of audit process, it, in fact, goes beyond it. Auditors are required to offer suggestions and comments upon the observations made so that any loopholes can be taken care of by the management in future. Hence, audit function involves three stages; namely, Pre-audit stage, Actual Audit Stage, and Post audit stage. The various activities that are undertaken for the completion of each stage are listed as follows:

### **1. Pre-audit stage**

- Ensure full management commitment;
- Setting overall goals, objectives, scope and priorities;

### **2. On-site Audit**

- Selection of professionally competent team;
- Using protocols or checklists as developed in pre-audit stage;
- Review of documents and records;
- Review of policies;
- Interviews;
- Site inspection;

### **3. Post-audit stage**

- Evaluation of findings;
- Reporting with recommendations;
- Preparation of an action plan; and
- Follow-up.

#### **6.1.2 Scope of environmental audit**

The scope of environmental audit can be narrow where it relates to only verification of environmental compliance with regulations usually conducted by environmental agencies like Pollution control boards; or wider where environmental audit involves examination of the presence and functioning of Environmental Management System (EMS) by a professional auditor. It can include financial, non financial aspects or both in case where a corporate wishes to disclose Triple Bottom Line values and thereby increasing the overall level of environmental awareness (**Leung 1994**). Scope of environmental audit is dependent upon the type of environmental audit which are gathered from various national and international studies and elaborated as under:

##### **A. Environmental audit on the basis of type of assurance**

Depending upon the type of assurance, the environmental audit can be either internal audit or external audit. *Internal audit*, also called first-party audits are generally conducted by the organisation itself for management review and other internal purposes and for declaring their conformance with regulations. *External audit* can be second and

third-party audits. Second-party audits are generally understood to be conducted by parties having an interest in the organization and to inspect the due diligence. Example includes customers, or any person on their behalf. Third-party audits are conducted by external, independent auditing organizations generally regulatory agencies, such as those providing registration or certification like ISO 9001 or ISO 14001.

### **B. Environmental audit on the basis of specific function**

Further, Environmental Audit can also be categorized on the basis of specific function for which they are conducted. The categorization can be as follows:

#### **Environmental management audits**

Environmental Management Audits check the functioning of environmental management systems in place. It ensures that there are proper guidelines, operating procedures, guidelines, work instructions, periodical training of employees.

#### **Environmental Management Systems (EMS)**

An EMS is a tool and a process which is integrated with the main stream management. It is a continuous process devoted to enhancement of environmental performance. It involves a number of stages like:

- Establishment of an environmental policy for assured commitment and continuous improvement;
- Undertaking environmental review to identify significant issues and their probable effects;
- Outlining environmental procedures for setting up of objectives, targets and actions;
- Establishing environmental management system to ensure the implementation and achievement of set objectives;
- Undertaking environmental audits periodically to assess the performance;
- Preparing an environmental statement on environmental performance;
- Lastly, obtaining independent verification of the environmental statement.

#### **Environmental compliance audits**

Environmental compliance audits test the level of compliance (legal and corporate) towards environmental policies, objectives, laws, regulations, standards.

Compliance audits verify environmental compliance at the time of performance of audit generally once or twice a year, whereas EMS audits ensure that management system is in place on a continuous basis throughout the year. This leads to lesser violations and more chances of self disclosure and prompt actions to correct violations. The organisation also saves itself from specific punitive penalties, criminal prosecutions and repeated requests for environmental audit reports.

#### **Environmental assessment audit**

An environmental assessment audit is designed to check that an Environmental Impact Assessment has been made through proper legal process and that it complies with the minimum legal requirements.

#### **Waste audits**

Waste audits are environmental audits that look after waste management methods, procedures and systems. It monitors various aspects of wastes produced by an organisation and suggest action plan for its reduction.

#### **Material audit**

Material audit examines the material storage, usage and handling methods. It checks the wastages, losses during production, processes, handling and storage. It looks at the conservation efforts and appropriate technology used towards material management.

#### **Energy audit**

Energy audit investigates the various forms of energy alternatives utilised, overall energy consumption, cost of energy with respect to production and pollution created during energy use.

#### **Water audit**

Water audit evaluates the consumption and discharge of water in various processes, operations. It examines the performance of water treatment plants, cost involved with water treatment, technology used.

#### **Health and safety audit**

In reference to relevant laws and rules, this type of audit examines the risk and incidence of occupational diseases, accident, adequacy of safety measures, physical inventory of chemicals, and other hazardous substances and their management, fire prevention measures, awareness level etc.

### **Environmental quality audit**

It examines the status of existing air quality within industrial complex, noise level, functioning of effluent treatment plant, pollutant from smoke emission, review of greening programme etc.

### **Engineering audit**

Engineering aspects like efficiency of plant and machinery, their designs, efficiency, alternative techniques and methods are examined.

### **Environmental due diligence audits**

Environmental due diligence audits specifically take care of actual and potential environmental liabilities of a site or operation. They are generally carried out before any purchase of property to look into past dumping or burying of hazardous waste which could cause pollution to groundwater or other pollutions. If such pollution content is found then the owner is asked to bear the burden of clean up costs so that any such liability does not occur later on to the buying concern.

### **Supplier audits**

A supplier audit, also known as second party audit, is an audit carried out by an organisation to test the environmental compliance of a contractor or supplier as per standards set out in the contract. The main purpose is to ensure the quality of the contractor's service for the organisation.

### **6.1.3 Critical contributions of environmental audit towards CEA**

Environmental auditing is complementary to the achievement of environmental accountability. It can critically and authentically provide focus on preventive actions not only within the factory gates but also by the involvement of various constituents of society. Its key contributions can be listed as follows:

- It forms the basis for installing and monitoring the performance of Environmental Management Systems
- It helps in integration of Environmental Management Systems with Environmental Impact Assessment and corporate environmental objectives
- It enables the establishment and implementation of procedures to control, mitigate and monitor pollution

- It helps in the management of the environmental footprint of the corporate activities among broader society
- It is a prerequisite for the observance of environmentally responsible goals among the supply chain members
- It creates assurance among stakeholders regarding the environmental performance
- It enables conservation of natural resources
- It pinpoints areas of lag in performance
- It identifies potential liabilities
- It enables cost reduction by reduction of waste and increasing the efficiency of production and processes by reminding of performance gap
- It encourages good relations with regulators
- It reduces the chances of punitive penalties and criminal proceedings due to past certification of good conduct
- It reduces exposure to litigation
- It increases employee awareness of environmental policies and accountability
- It boosts staff morale and commitment to nature conservation
- It leads to establishment of environmental targets and gives credit for its achievement
- It helps in exploration of new markets and commercial opportunities
- It facilitates competition and superior performance on ecological grounds
- It indirectly assists in increasing the net wealth of stakeholders
- It establishes authenticity to the corporate reporting and suggests observance of accountability feature of operations
- It helps in providing an edge over competitors on Green concerns

#### **6.1.4 Status of environment audit in India**

Various factors like industrial accidents, regulatory pressure, increased awareness witnessed through instances of public litigation have forced the corporations to voluntarily submit an audited report of its environmental activities. Earlier in 1991, the Ministry of Environment and Forest required every company to report in Directors statement the following:

- Compliance with environmental laws
- Adoption of clean technologies for prevention of pollution, waste minimisation, waste recycling and utilisation
- Adoption of pollution control measures
- Investment on environmental protection and impact of these measures on waste reduction, water and other resource conservation

Environmental audit was formally introduced in India by a gazette notification issued by the Ministry of Environment and Forests on March 13th, 1992 and later amended on April 22<sup>nd</sup>, 1993. The provision was initially contained under Section 25 and 21, where the earlier referred to prevention of water pollution and the latter was meant to control air pollution. Any industry or process was required to obtain ‘consent to operate’ under the earlier mentioned two sections or both, or authorisation under the Hazardous Wastes (Management and Handling) Rules, 1989 issued under the Environmental Protection Act, 1986 (29 of 1986) shall submit an environmental audit report for the financial year ending on March, 31<sup>st</sup> to the concerned State Pollution Control Board, on or before 30th September of the same year, beginning from 1993. The Environmental Audit Report was renamed as Environmental Statement in 1993. Now every industrial unit is required to submit the Environmental Audit Report for the financial year ending 31<sup>st</sup> March to the concerned State Pollution Control Board (SPCB) on or before the 15<sup>th</sup> May every year.

These environmental reports should provide information on:

- Water and raw material consumption;
- Pollution generated;
- Nature of hazardous wastes and solid wastes and disposal practices;
- Impact of pollution control measures on conservation of natural resources.

### **6.1.5 Challenges for environmental audit in India**

India is the first country in the world to make environmental audits compulsory way back in 1992 with much fanfare wherein all industries were required to provide annual environmental statement of their operations detailing resources used, and pollution and wastes generated by them. The country expected to reduce and control the pollution

created by industry by way of environmental audits. However, research indicates that the scheme suffers on various counts.

- Failure to provide environmental statement by industries on time or not at all;
- Lack of specific audit manual and guidance;
- Lack of proper infrastructure and specialized environmental auditors;
- The environmental statement is only an undertaking that efforts have been made towards environmental issues which may be at variance with actual audit reports;
- The Pollution Control Boards do not verify the correctness of data submitted;
- Apprehension among industry regarding disclosing the environmental process, and results as this might lead to unnecessary litigation, inappropriately used by regulators for criminal punishments;
- Perception of the industry that public does not have enough skill in understanding environmental audit report;
- Perception that publishing environmental process and details of wastes, emissions, raw materials might lead to leak in trade secrets;
- It is recognized as a costly affair for small industries to hire environmental audit agencies services;
- Lack of proper feedback or appreciation by regulatory agencies on proper submission and completion of audit reports;
- Industries can be prosecuted on exceeding the pollution limits, but the irony is that after submission of audit statement, industries cannot be sued when the report has been accepted by SPCB;
- It may be difficult to conceal any environmental information later on;
- There might be higher and higher demands for conformance to standards;
- Negative information may reflect badly on corporate image and may have long term impact and much more adverse than positive information disclosed later on or any remediation efforts undertaken;
- It might alert the regulators who may drive for greater enforcements.

### **6.1.6 Corporate concerns over environmental audit**

The corporate apprehensions over environmental audit relate to the following:

- Increase in costs due to adoption of certification;
- Disclosed information could be used for public litigation;
- Regulating agencies may become stricter in view of disclosed information;
- Corporations may face enforcement actions in the form of civil litigation and criminal charges from regulatory agencies for violations so uncovered;
- It may fuel claims by private citizens for compensation through toxic tort lawsuits and documents resulting from self-audits may be used as evidence against the corporation concerned.

### **6.1.7 Recommendations for effective implementation of EA in India**

In the context of globalization India has to compulsorily recognize the vital importance of environmental audit to compete internationally. In addition, the above challenges should be properly handled in the following manner:

- Green audits i.e., environmental audit should be made compulsory by investment institutions;
- Auditors should be properly trained on the basics of environmental auditing principles, procedures and environmental laws that are to be complied with;
- Devise specific regulations for enforcement of Environmental Audit;
- Special training should be provided to human resource of industries to eradicate their apprehensions on the use and misuse of audit report as perceived by them;
- Increase awareness on the importance and benefits of environmental audit, through talks, training, campaigns, promotions and bulletins;
- Recognise and promote environmental auditors as important professionals in the development of the nation;
- Provide incentives to organisations practicing good environmental audits – this can be done through awards and tax incentives;

- Train more environmental auditors to encourage the proper application of environmental audit;
- An empowered national body for monitoring, enforcing environmental legislation and coordinating various state agencies;
- Proper staffing and provision of resources to state environmental agencies;
- Local decision-making protecting traditional knowledge and focusing on aligning with national policy;
- Provision of adequate capital backed with political will;
- Removal of immunities-from-prosecution to non compliant organizations based on audit report, or to produce it as an evidence;
- Environmental audits should focus also on natural resource consumption along with industrial processes;
- Voluntary adoption of environmental auditing practice to enhance transparency and authenticity of disclosure.

Besides, environmental audit programme should have the support of top management, emphasis should be on internalization of auditing programs; in addition, the auditors should be independent and examine the commitment towards achievement of environmental policies (**Tucker & Kasper, 1998**).

In a nutshell, corporations must incorporate above key elements into their auditing programmes so that due diligence becomes apparent and effectiveness becomes possible. Environmental audit would provide the reliable and useful information to the management in its endeavour but the need of the hour is to make it mandatory.

## **6.2 Empirical analysis of views of corporate**

The present section examines environmental audit practices currently taking place in sampled companies. The corporate respondents were asked about the frequency of environmental audit, type of person responsible to conduct the audit and potentially desirable areas upon which environmental audit should express its comments in future. The responses with regard to frequency, type and areas are presented in the Table 49, Table 50 and Table 51 respectively.

### 6.2.1 Frequency of environmental audit

Table 49 presents the corporate response towards the frequency of environmental audit. Various variables relating to environmental audit upon which responses were requested ranged from general level audit functions like compliance of regulatory requirements to specific audits pertaining to EMS, hazardous waste, pollution prevention, environmental liabilities and risks. The frequency was measured over three categories namely, ‘more than once a year’, ‘annually’ and ‘sometimes’. The distribution of responses is presented as under in Table 49 and Figure 22

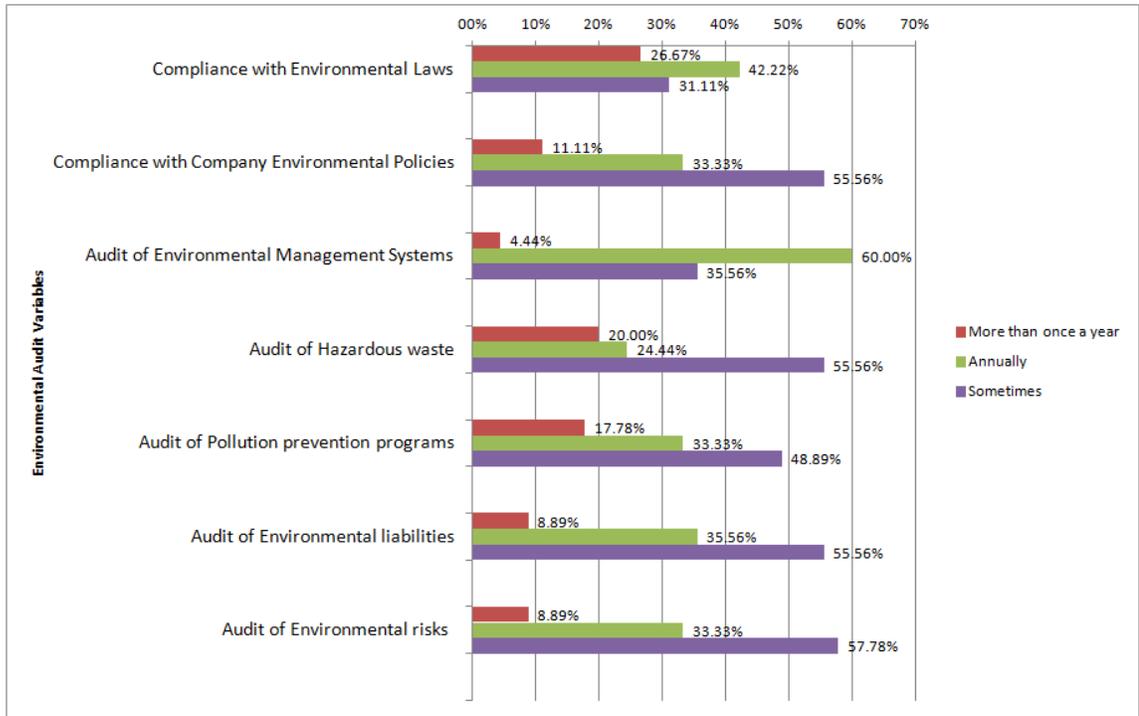
**Table 49: Corporate Response towards Frequency of Environmental Audit**

Minimum Value = 1  
Maximum Value = 3  
(N=45 MGRs)

Environmental Audit Variables	More than once a year	Annually	Sometimes	Mean	Standard Deviation
Compliance with environmental laws	26.67% (n=12)	42.22% (n=19)	31.11% (n=14)	1.96	0.767
Compliance with company environmental policies	11.11% (n=5)	33.33% (n=15)	55.56% (n=25)	1.56	0.693
Audit of Environmental Management Systems	4.44% (n=2)	60.00% (n=27)	35.56% (n=16)	1.69	0.557
Audit of Treatment, storage and disposal of hazardous waste	20.00% (n=9)	24.44% (n=11)	55.56% (n=25)	1.64	0.802
Audit of Pollution prevention or waste minimization programs	17.78% (n=8)	33.33% (n=15)	48.89% (n=22)	1.69	0.763
Audit of Environmental liabilities	8.89% (n=4)	35.56% (n=16)	55.56% (n=25)	1.53	0.661
Audit of Environmental risks	8.89% (n=4)	33.33% (n=15)	57.78% (n=26)	1.51	0.661
Overall Percentage	14%	37%	49%	1.65	0.712

(More than Once a Year = 3, Annually = 2, Sometimes = 1)

As evident from the table overall score, only 14% of the respondents suggested that they conduct auditing more than once a year, while around 37% of respondents agreed that it is conducted once a year (annually), around half of the respondents (49%) suggested that they conduct it ‘sometimes’.



**Figure 22: Frequency of Environmental Audit**

The above figure gives a pictorial view of frequency of environmental audit. Overall the highest bar belongs to the preference for conduct of environmental audit ‘sometimes’. Looking at the response of corporate managers on individual variables, the preference for ‘Annual’ conduct of the audit appears only in case of ‘Compliance with environmental laws’ (42.22%) and ‘Environmental audit of EMS’ (60%), while in all other cases the highest response density is for ‘Sometimes’. It might be due to the fact that former is compulsory while the other variables are voluntary.

### 6.2.2 Scope of internal and external audit

The following Table 50 presents the response of corporate managers in a tabular form towards the type of assurance provided i.e., whether the assurance or auditing was conducted by internal person or by external person. It is pertinent to mention here the crucial advantage of external or independent auditors over internal auditors. The external auditor belongs to an independent organisation specialising in auditing of corporate accounts and therefore is more specialised. In addition, the report readers place more faith on independent assurance as they may not be under any pressure from the corporate

and therefore free from any bias towards the firm. Accordingly, the response categories were broken down into ‘internal person’, ‘external person’ and ‘both’ and their score ranged from 1 to 3 respectively. The responses are presented as follows:

**Table 50: Corporate responses over the certification by Internal or External auditor**  
**Minimum Value = 1**  
**Maximum Value =3**  
**(N=45)**

<b>Environmental Audit Variables</b>	<b>Internal Person Only</b>	<b>External Person Only</b>	<b>Both</b>	<b>Mean</b>	<b>Standard Deviation</b>
Compliance with environmental laws	37.78% (n=17)	20.00% (n=9)	42.22% (n=19)	2.04	0.903
Compliance with company environmental policies	60.00% (n=27)	13.33% (n=6)	26.67% (n=12)	1.67	0.879
Audit of Environmental Management Systems	57.78% (n=26)	4.44% (n=2)	37.78% (n=17)	1.80	0.968
Audit of Treatment, storage and disposal of hazardous waste	66.67% (n=30)	4.44% (n=2)	28.89% (n=13)	1.62	0.912
Audit of Pollution prevention or waste minimization programs	51.11% (n=23)	8.89% (n=4)	40.00% (n=18)	1.89	0.959
Audit of Financial accounting for environmental liabilities	77.78% (n=35)	4.44% (n=2)	17.78% (n=8)	1.40	0.780
Audit of Environmental risks	44.44% (n=20)	4.44% (n=2)	51.11% (n=23)	2.07	0.986
Overall Percentage	56.51%	8.57%	34.92%	1.78	0.933

(Both Internal and External Person = 3, External Person = 2, Internal Person = 1)

The above table presents corporate response on how the audit is conducted on various variables of importance. The researcher accumulated the response under three categories of conduct, namely, by internal person only, by external person only and by both. The conduct by internal person suggests lack of intensity of actions, whereas ‘both’ option indicates presence of strong inclination. The responses are represented through classified table and through chart as well.

The above table and the Figure 23 clearly indicate that mostly it is the ‘Internal Person’ who conducts the audit. While it is in the case of ‘Compliance with environmental law and reporting’ (42.22%) that both internal and external person are roped in and interestingly, another audit object i.e., environmental risks and liabilities also is audited by both (51.11%). This may be due to the fact that there is increase in public interest litigations and increased awareness among stakeholders.

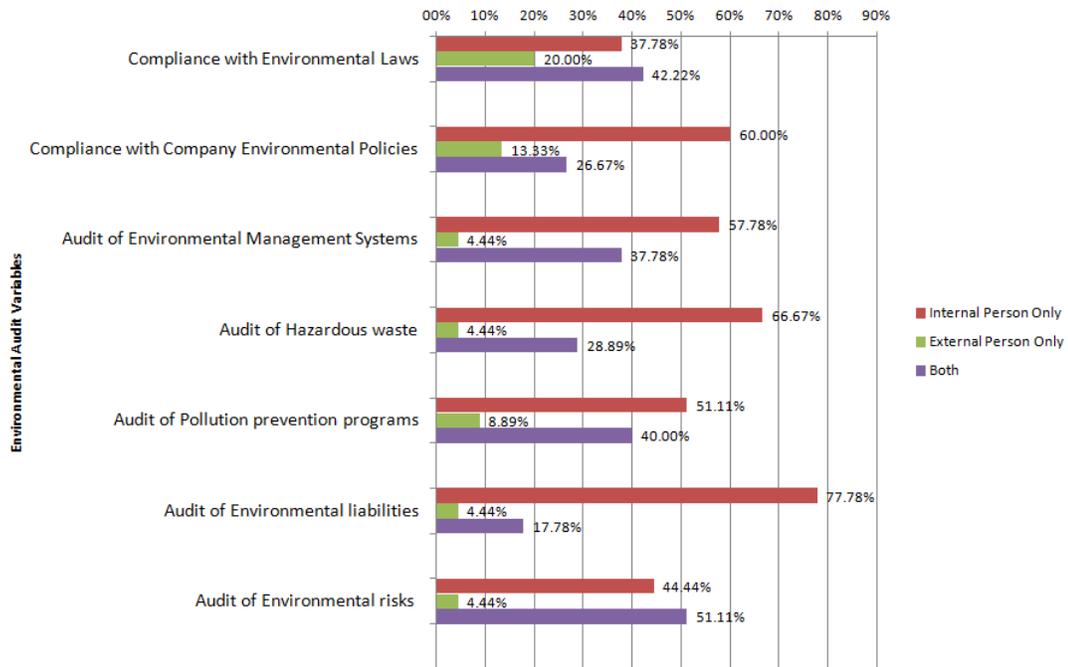


Figure 23: Corporate response over the internal or external auditor

### 6.2.3 Potential areas of environmental audit in future

The response of corporate was requested over the future desirability of environmental audit upon areas which they feel need urgent focus and attention. Five areas were identified as presented in the table below and responses were solicited over three categories marked as ‘Yes’, ‘Somewhat’ and ‘No’.

Table 51: Corporate Response on Potential areas of Environmental Audit

Minimum Value = 1, Maximum Value =3, (N=45)

Variables upon which Environmental Audit should express its Comments	Yes	Somewhat	No	Mean	Standard Deviation
Audit expresses opinion on EMS	73.33% (n=33)	26.67% (n=12)	0.00% (n=0)	2.73	0.447
Adequacy of environment disclosures	66.67% (n=30)	20.00% (n=9)	13.33% (n=6)	2.53	0.726
Errors in disclosure	46.67% (n=21)	28.89% (n=13)	24.44% (n=11)	2.22	0.823
Unreported pollutants and environmental frauds	8.89% (n=4)	42.22% (n=19)	48.89% (n=22)	1.60	0.654
Non compliance with environmental regulations	53.33% (n=24)	22.22% (n=10)	24.44% (n=11)	2.29	0.843
Overall Percentage	49.78%	28.00%	22.22%	2.28	0.804

(Yes = 3, Sometimes = 2, No = 1)

The respective scores were 3, 2 and 1 for three categories. The results are presented as follows in Table 51 and Figure 24. The present table and accompanying chart illustrates the views of corporate managers regarding what ‘environmental audit’ should express opinion on? As clearly evident from the chart, almost all the options barring one received a predominant ‘Yes’. It was the case of ‘Unreported pollutants and environmental frauds’ that higher response is on ‘No’ (48.89%). It still creates a picture that there are high chances that the corporate does not report pollutants completely.

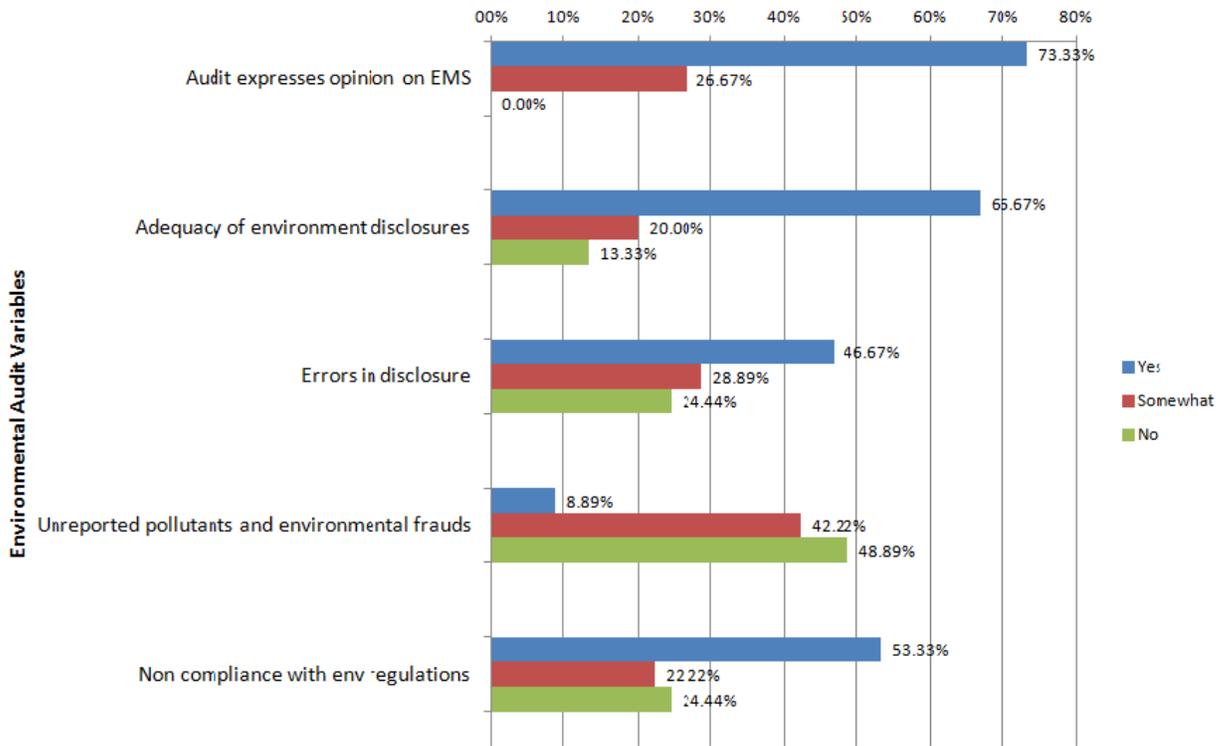


Figure 24: Corporate Response over Potential areas of Environmental Audit

### 6.3 Empirical analysis of expectations of ENGOS

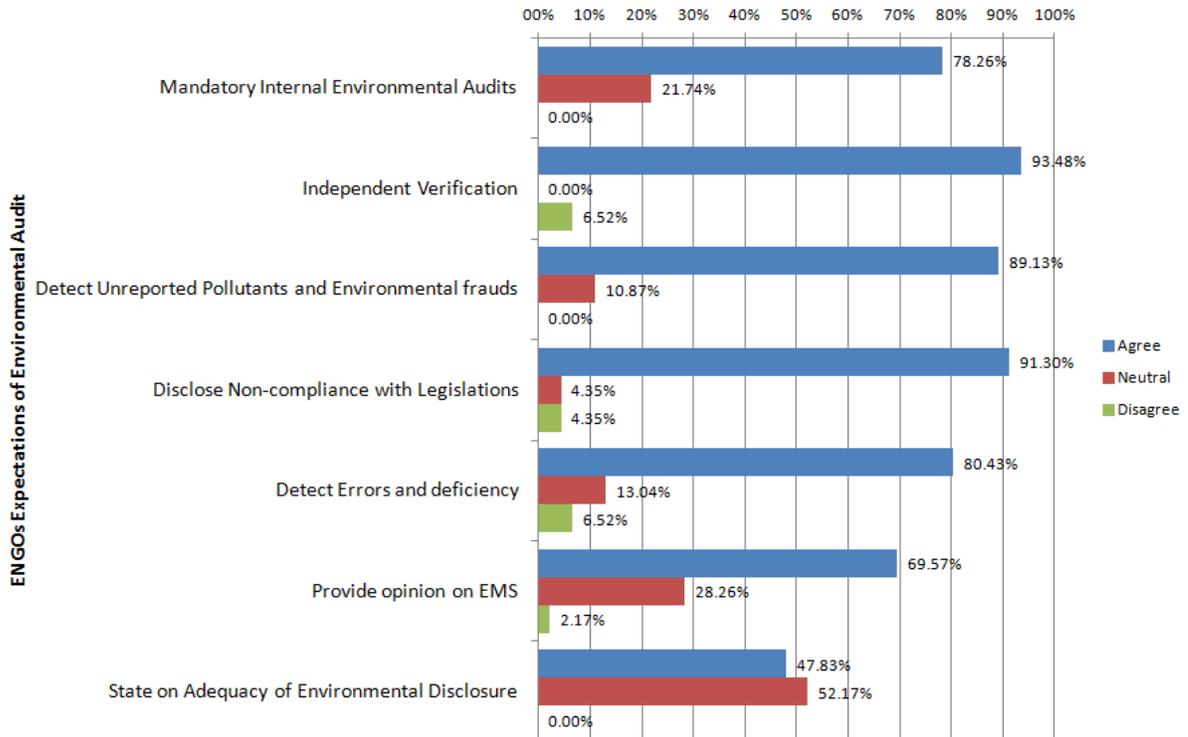
ENGOS are also important independent stakeholders whose views are considered to evaluate the measures to be taken from an outside-in perspective to motivate proper conduct of environmental audit. Responses were solicited on the importance of environmental audit as presented in Table 52 and Figure 25.

**Table 52: Environmental Audit Expectations from ENGOs Perspective**

Minimum Value = 1 (SD)  
 Maximum Value =5 (SA)  
 N = 46(Members of ENGOs)

Environmental Audit Expectations	Agree	Neutral	Disagree	Mean	Standard Deviation
Mandatory Internal Environmental Audits	78.26% (n=36)	21.74% (n=10)	0.00% (n=0)	4.37	0.826
Independent Verification	93.48% (n=43)	0.00% (n=0)	6.52% (n=3)	4.33	0.944
Env. Audit (EA) to detect unreported pollutants and environmental frauds	89.13% (n=41)	10.87% (n=5)	0.00% (n=0)	4.24	0.639
EA to disclose non-compliance with env. Legislations	91.30% (n=42)	4.35% (n=2)	4.35% (n=2)	4.13	0.859
EA to detect errors and deficiency	80.43% (n=37)	13.04% (n=6)	6.52% (n=3)	3.93	0.772
EA to provide opinion on EMS	69.57% (n=32)	28.26% (n=13)	2.17% (n=1)	3.83	0.709
EA to state on adequacy of disclosure of Environmental Information	47.83% (n=22)	52.17% (n=24)	0.00% (n=0)	3.59	0.686
Overall Results	78.57%	18.63%	2.80%	4.06	0.820

(5= Strongly Agree - SA, 4= Probably Agree-PA, 3=Neutral, 2=Probably Disagree-PD, 1=Strongly Disagree-SD)  
 (Agree = SA + PA, Disagree= PD + SD)



**Figure 25: ENGO members' Expectations from Environmental Audit**

As evident from table 52 and adjacent figure, the highest mean score was gained by the variable of 'Environmental Audit to be made mandatorily internal' (Mean 4.37, S.D. 0.826). Larger agreement to the tune of 93% approx was visible for variable of need for 'Independent Verification' (Mean 4.33, S.D. 0.944). This response was in agreement with the literature review that the auditing should be performed by independent auditor. Among various duties of Environmental Auditing (EA). The highest positive response to the tune of 91% approx was obtained for EA to disclose non-compliance with environmental legislation (Mean 4.13, S.D. 0.859), the least score was obtained for EA to comment on adequacy of existing disclosures. About 52% approx of respondents largely remained neutral over the statement that environmental auditing should comment on the 'adequacy' of disclosure (Mean 3.59, S.D. 0.686).

This means that ENGOs are more in favour of having an urgent requirement of mandatory auditing program and independent verification done of the environmental information than commenting on the adequacy of existing disclosure.

#### **6.4 Environmental disclosure status in annual reports**

The last objective of the study required the establishment of corporate environmental accountability index. The reason for selection of this objective was based on the realization (after review of relevant literature) that corporate annual reports demonstrate that there has been increasing trend towards observing 'Corporate Social Responsibility (CSR)' but many times it is merely an eye wash when selective information is disclosed which projects a good image of the company in the eyes of the society. But in actual practice this is not so. Ruefully, there have been instances of disclosure-performance gap. An attempt was made therefore, to establish an environmental accountability index that would ascertain the level of accountability. Along with the scorecard that calculates index, a checklist is attempted that enables the corporate to examine within their organisations regarding the presence or absence of the earmarked variables which will greatly benefit a company in assuming accountability towards environmental concerns. Nevertheless, before the establishment of corporate environmental accountability index, an analysis of corporate annual reports was undertaken to analyze the presence of various disclosure variables because suggestions to include or increase the information contained

can be provided only after a perusal of actual items disclosed in the corporate annual reports. Analysis of actual annual reports was also preconditioned by the inclusion of two questions in the questionnaire that checked the sufficiency and relevancy of provided information. The variables against which both the groups were required to mention their preference were collected by the perusal of annual reports of Indian companies and also a few annual reports of advanced countries as per their availability. Hence, the stage was set for completion of fifth objective as well.

#### ***Examination of annual reports of sampled companies***

For the purpose of examining the annual reports, four key sections of the annual reports were considered, namely, chairman speech, directors note, management discussions along with auditors note for fifty companies present in the sample. The chairman speech was considered because it is indicative of predisposition of strategic level managers. It is a common understanding that, an organization is an artificial being run by managers who act as agents of the stakeholders. Since an organization is composed of persons, an organization would become accountable only when its people right from top to bottom level recognizes it as a part of their virtuous behaviour. A sound environment policy is expected to be clearly indicated in the chairman speech or directors note. As it sets the goals of environment conservation, suggests solutions, supports environmental investments, lays down system of involvement of all stakeholders in decision making, standards to benchmark performance and environmental performance based reward system. It also prevails over other policy areas where a conflict arises. Hence, all in all, it clarifies and underlines the company's commitment towards environmental protection. Similarly, directors note and other parts of annual reports were evaluated for identifying significant information contributing materially towards environmental accountability.

A list of twenty six factors was built to be verified from annual reports. For the purpose of examination of various factors, the most recent reports as available from Prowess were gathered (belonging to year 2012-13). The list of total variables is produced as follows:

**Table 53: List of Disclosure Variables examined in the Annual Reports**

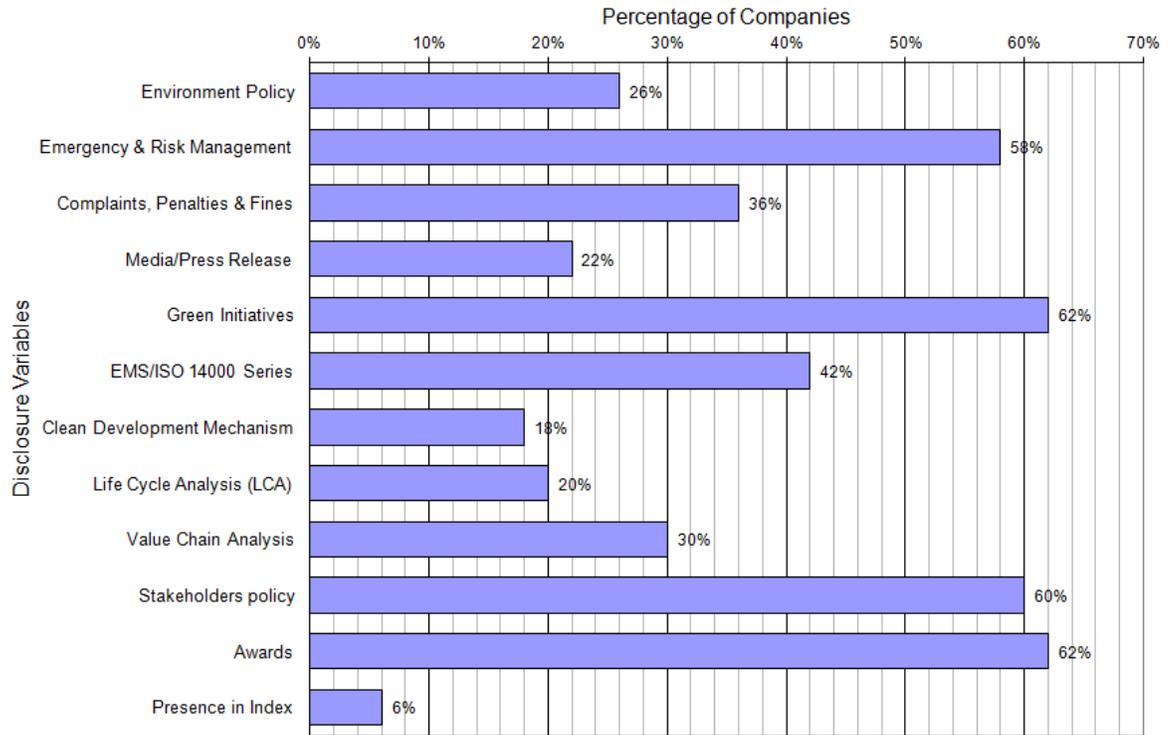
<b>SN</b>	<b>Disclosure Variables</b>	<b>SN</b>	<b>Disclosure Variables</b>
1	Environment Policy	14	Biodiversity
2	Emergency & Risk Management	15	Carbon Emissions/Credits
3	Complaints, Penalties & Fines	16	Technology Absorption
4	Media/Press Release	17	Corporate Sustainability Reporting
5	Green Initiatives	18	Triple Bottom Line adoption
6	EMS/ISO 14000 Series	19	Environmental audit
7	Clean Development Mechanism	20	Internal audit
8	Life Cycle Analysis (LCA)	21	External audit
9	Value Chain Analysis	22	Business Responsibility Report
10	Stakeholders policy	23	Cement Sustainability Initiatives (CSI)
11	Awards	24	Global Reporting Initiatives (GRI)
12	Presence in Index	25	Green House Gas (GHG)
13	Research on Environment	26	National Voluntary Guidelines (NVG)

The analysis of the corporate annual reports was undertaken over the above mentioned 26 variables. For the ease of pictorial presentation and readability, the variables will be depicted in the following manner. The first Figure 26 would cover variables from 1 to 12, followed by the next Figure 27 depicting variables from 13-21; the rest of the variables i.e., from 22-26 will be shown in Figure 28. Similar scheme would be followed for the presentation of comparative data relating to top 15 and bottom 15 companies from my sample of 50 companies. The results are presented as follows:

#### **6.4.1 Status of selected disclosure variables (from 1 to 12)**

As explained before hand, the following figure captured the variables from 1-12. These variables were largely non-financial variables but not trivial as they indicated the presence of environmental concerns at strategic level. The vertical axis displayed various environment related variables and the length of the bar denoted the presence of each variable in the corporate annual reports. Within the area enclosed in the figure, the various vertical lines provide information relating to percentage of companies ranging

from 0% to 100%. The annual reports belonged to 50 companies forming the sample of the present study. The presence of selected twelve disclosure variables is shown as follows:

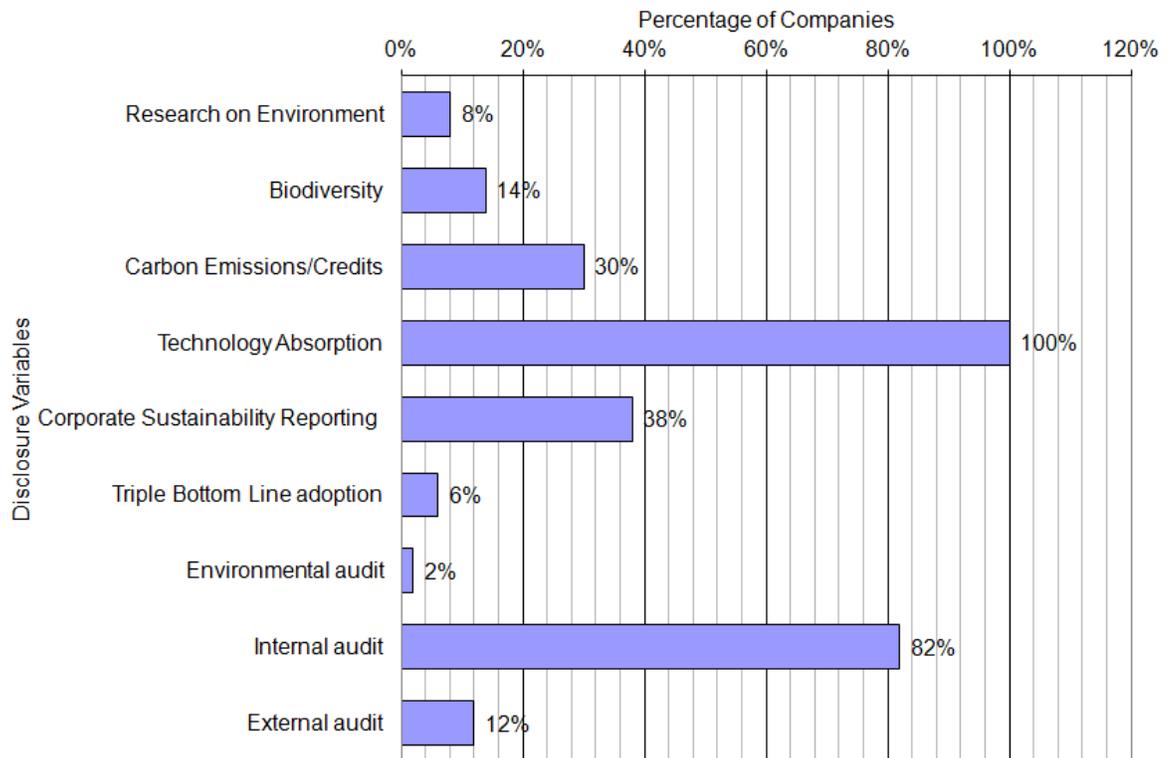


**Figure 26: Status of Corporate Disclosures (1-12)**

As shown in above figure, more than 50% of corporate-annual-reports indicate that they produce environmental information relating to risk management, green initiatives, stakeholders policy, awards; while information relating to complaints (penalties or fines), value chain, ISO 14000 compliance is produced by 30% -50% of sampled companies. However, for rest of variables like appearance in any kind of index, usage of clean development mechanism, life cycle analysis etc. the related information is produced by less than 30% of companies.

#### **6.4.2 Status of selected disclosure variables (from 13 to21)**

The next figure displays the presence of next nine disclosure variables numbered from 13 to 21 in the list provided in Table 53, in the annual reports of selected companies.



**Figure 27 : Status of Corporate Disclosures (13-21)**

The above Figure 27 covers variables from 13-21, an observation of above figure reveals that conduct of ‘internal audit’ and disclosure of ‘Technology absorption’ was evident in more than 80% of companies. Noticeably, the other variables relatively appeared on a low scale. Most importantly, ‘environmental audit’ was cited by a low percentage of only 2% of companies. However, promising was the fact that 38% of companies produced ‘Sustainability Reports’.

### **6.4.3 Status of selected disclosure variables (from 22 to 26)**

The next figure displays the presence of next five disclosure variables numbered from 22 to 26 in the list provided in Table 53, in the annual reports of selected companies. These five variables are of concurrent importance for successful implementation of environmental accountability. The Figure 28 covered environmental disclosure variables from 22 to 26 as cited in the list provided in Table 53. The above table reveals that as on 2012-13, only 20% of companies shared their information about GHG emissions, only 18% companies produced reports based on GRI framework, National Voluntary

Guidelines were followed by only 4% of companies. Production of Business responsibility report is a recent initiative of the government and as per the analysis, only 6% of companies in the sample produced the said report.

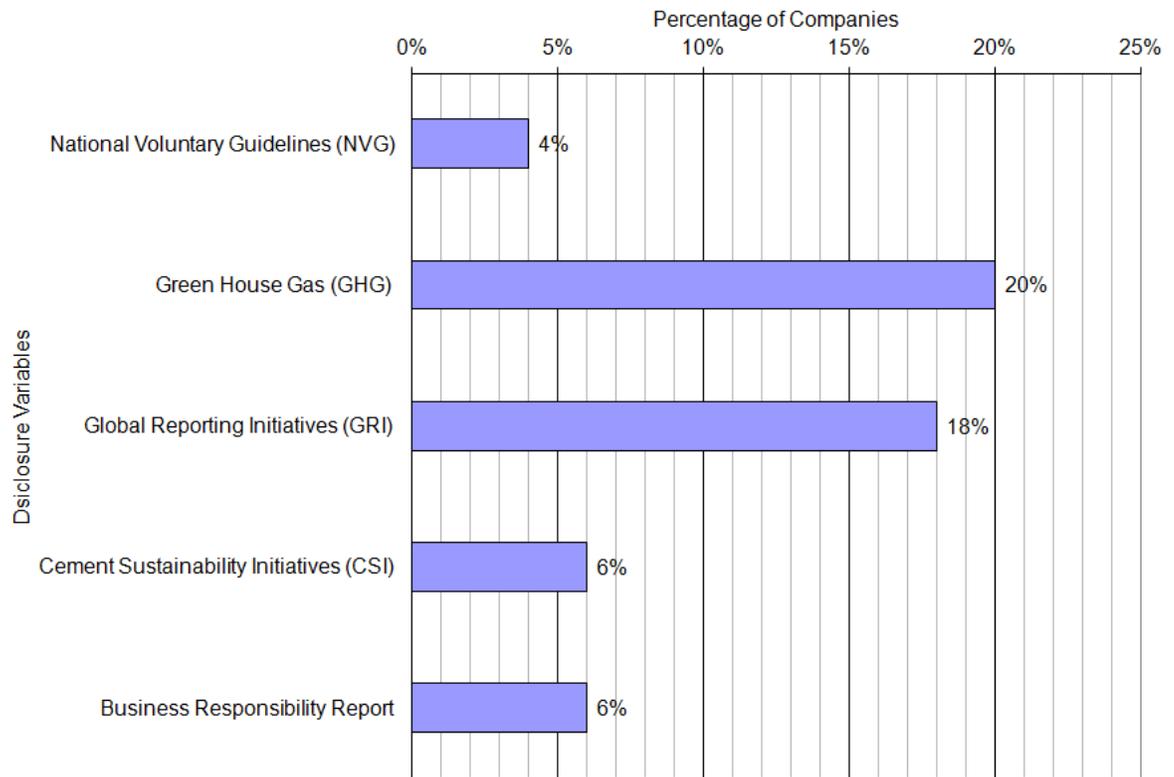


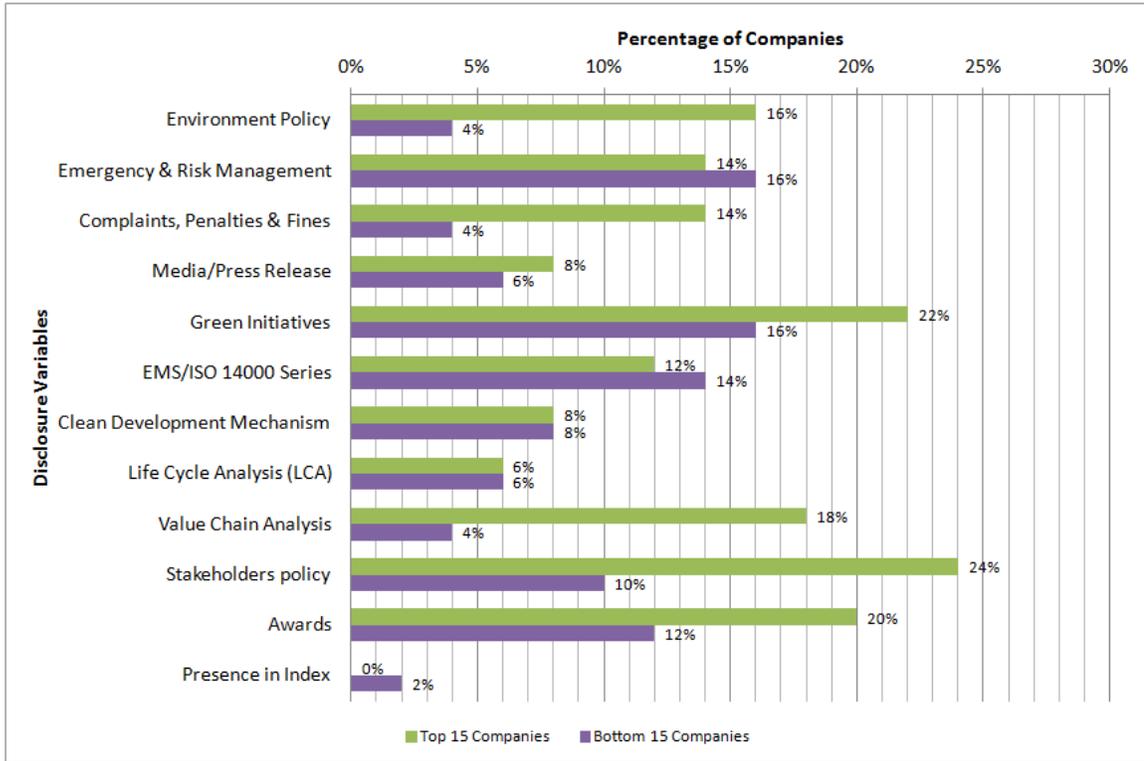
Figure 28: Status of Corporate Disclosures (22-26)

### 6.5 Comparison of disclosure status of top 15 and bottom 15 companies

Disclosure of top 15 and bottom 15 companies were compared to capture any difference of disclosure practice between these two groups. The categorization was based on market capitalization. As indicated in earlier chapter relating to research methodology, market cap was the basis for finalizing the fifty companies that composed the sample of the study. From the same sampled list of fifty companies, top 15 and bottom 15 were selected for comparison of disclosure variables as well. The results are produced in the following Figure 29 to Figure 31.

### 6.5.1 Status of selected disclosure variables (from 1 to 12)

The following figure displays the presence of twelve disclosure variables numbered from 1 to 12 in the list provided in Table 53, in the annual reports of top and bottom 15 selected companies as explained in the previous paragraph.

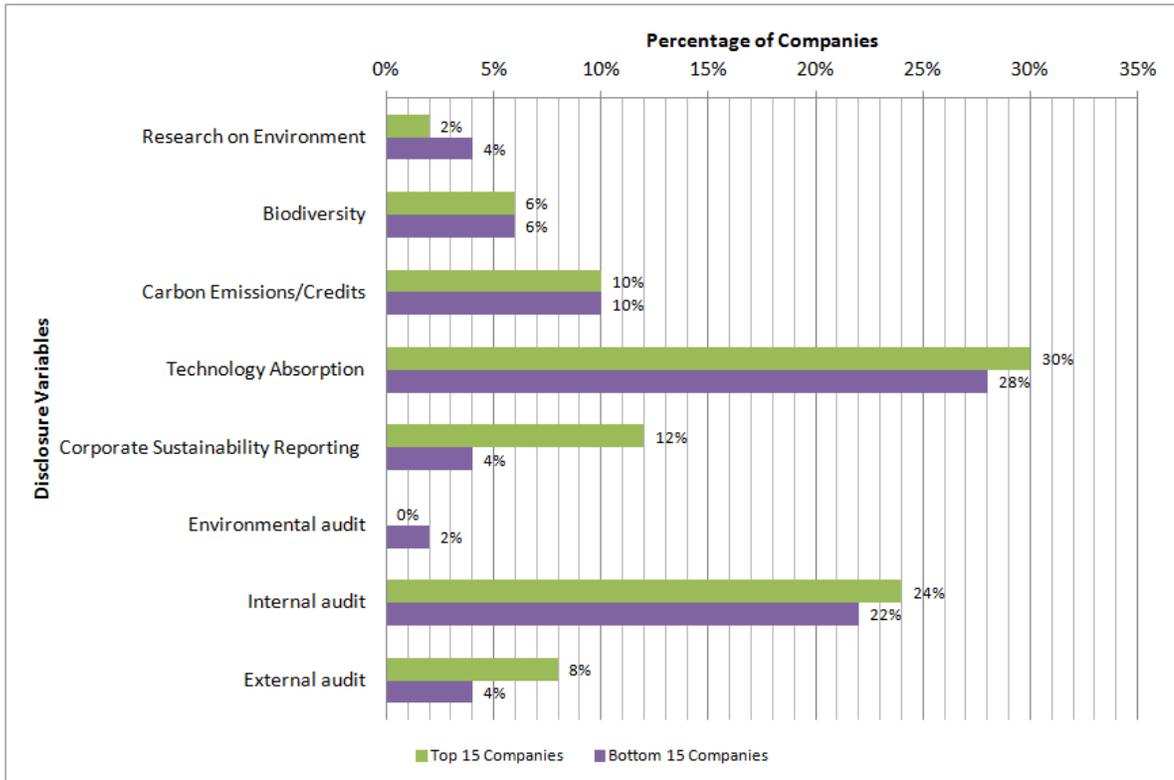


**Figure 29: Disclosures of Top 15 and Bottom 15 Companies (1-12)**

The Figure 29 covers environmental disclosure variables from 1-12 of the list presented in Table 53. Similar to the earlier explained figures, the vertical axis represented environmental variables which were scanned from the corporate reports and horizontal axis represented their percentage existence in the sample. The green bar showed the combined data for top 15 companies and purple bar represented bottom 15 companies. As evident from the above figure, there is an overall predominance of top 15 companies over bottom 15 companies towards the disclosure of various environmental variables. This reveals that disclosure is highly related with market capitalization or financial strength of the firm

### 6.5.2 Status of selected disclosure variables (from 13 to 21)

The next figure displays the presence of next nine disclosure variables numbered from 13 to 21 in the list provided in Table 53, in the annual reports of selected thirty companies (top 15 and bottom 15 on the basis of market cap).



**Figure 30: Disclosures of Top 15 and Bottom 15 Companies (13-21)**

The above figure covers environmental disclosure variables from 13-21. Here again, the top 15 companies seem to predominate over bottom 15 companies over various disclosure variables strengthening the fact that higher financial strength means more environmental coverage.

### 6.5.3 Status of selected disclosure variables (from 22 to 26)

The following Figure 31 displays the presence of final five disclosure variables numbered from 22 to 26 in the list provided in Table 53. The figure covers rest of the variables from 22-26. Large presence is visible of top 15 companies over disclosure of environmental variables. However, overall the disclosure is quite low with regard to various variables as the highest disclosure itself rests at 8% (see Green House Gas disclosures in the figure)

After the examination of corporate annual reports the stage was set to build a scorecard that would determine the environmental accountability index of corporate disclosures. A checklist was also prepared to provide a guideline to corporate managers against which they can check their current efforts expended corporate towards building strong environmental presence and incorporation of stakeholders’ environmental concerns.

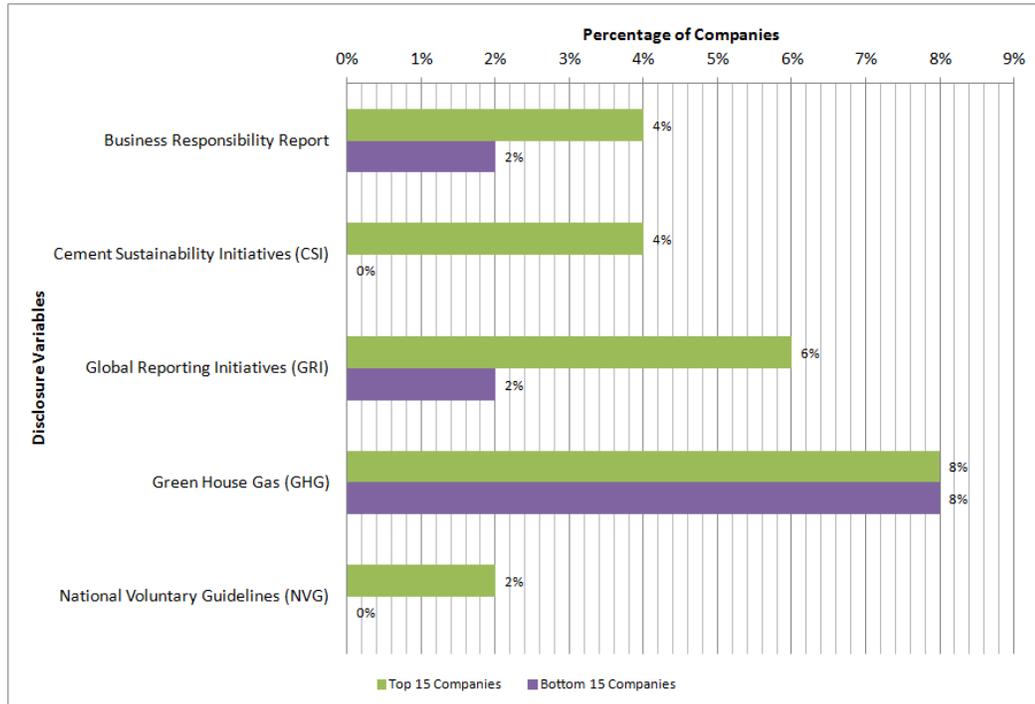


Figure 31: Disclosures of Top 15 and Bottom 15 Companies (22-26)

## 6.6 Establishment of disclosure index to assess CEA

The present study endeavors to establish disclosure index to assess corporate environmental accountability in a large measure. An index is an instrument that measures the extent of presence of variables under study. For the purpose of study, the Disclosure Variables are classified as ‘hard’ and ‘soft’ variables. Hard variables are identified as those which are apparent in financial or other stand alone reports whereas soft disclosure variables (as enlisted in Table 55) are those which are not apparent and hence are to be embedded by companies in their organizational framework. The index is based on a scorecard which comprises various dimensions along with their relevant predictors labeled as ‘Hard Accountability Predictors’ as shown in Table 54 below. Based on the

observations of actual disclosures and relevant literature, there was found a significant gap in what is expected to be disclosed for the purpose of establishment of environmental accountability. The variables identified as lacking were clubbed and produced in the form of a checklist as presented in Table 55.

**Table 54: Environmental Accountability Scorecard**

<b>SN</b>	<b>Dimensions</b>	<b>Hard Accountability Predictors (P<sub>i</sub>); N=60</b>	<b>Score</b>
D <sub>1</sub>	Vision (inspired by environment)	Mission Statement including environment	1 or 0
		Written Environment Policy	1 or 0
		Environment Policy based financial/operational Objectives	1 or 0
		Time-bound environmental goals	1 or 0
		Successful achievement of environmental vision based goals	1 or 0
D <sub>2</sub>	Environmental Preparedness	Status of Emergency Management Policy	1 or 0
		Recognition of Environmental Risks	1 or 0
		Breaches of Environmental standards	1 or 0
		Types and Frequency of conducting Safety Checks	1 or 0
		Details of amount spent on Maintenance of safety	1 or 0
		Presence of Rescue Plan or intervention plan in case of emergency	1 or 0
D <sub>3</sub>	Mandatory Compliance	Compliance with mandatory environmental regulations	1 or 0
		Disclosure of Penalties and Fines for any environmental violations	1 or 0
		Submission of Environmental Impact Assessment report	1 or 0
		Disclosure of achievements exceeding mandatory requirements	1 or 0
		Reporting of Technology absorption and benefits gained	1 or 0
D <sub>4</sub>	Voluntary Standards	Presence of External Environmental Standards	1 or 0
		Presence of Internal Environmental Standards	1 or 0
		Signatory to Environmental Agreements	1 or 0
		Undertaking Environmentally responsible investments	1 or 0

		Industry leader in following/establishing of external/internal standards	1 or 0
		Identification of own position vis-a-vis industry leader	1 or 0
D <sub>5</sub>	Realization of Impacts of Voluntary Adoptions	Increase in Share prices	1 or 0
		Enhancement in Corporate image	1 or 0
		Increase in Profits attributable to pro Environmental activities	1 or 0
		Expansion in Business at global level	1 or 0
		Other Non-financial benefits gained from voluntary adoption	1 or 0
		Other Financial benefits realized from voluntary adoption	1 or 0
D <sub>6</sub>	Environmental Processes	EMS installed and benefits realized	1 or 0
		Life cycle analysis with the involvement of suppliers	1 or 0
		Research expenses on improvement of processes	1 or 0
		Plan for recycle of products after expiry of useful life with the involvement of end users	1 or 0
D <sub>7</sub>	Employee Awareness	Creating Environmental Awareness among employees	1 or 0
		Employee training on environmental issues	1 or 0
		Safety rules and breaches	1 or 0
		Setting up of green adjusted targets	1 or 0
		Presence of environment based incentives	1 or 0
		Recognition of employees contribution towards environmental issues	1 or 0
D <sub>8</sub>	Financial Accounting and Reporting	Environmental expenditure and its impact on results	1 or 0
		Statement of present vs past expenditures and benefits realized	1 or 0
		Disclosures of mandatory items such as <ul style="list-style-type: none"> <li>• Efficiency achieved in inputs, recycle;</li> <li>• Energy sources utilised and efficiency achieved;</li> <li>• Outputs in terms of emissions, discharges and its impact on greenhouse gases</li> </ul>	1 or 0
D <sub>9</sub>	Other Reporting framework	Sustainability reporting	1 or 0

		Business Responsibility Report	1 or 0
		Industry specific reporting	1 or 0
		Global Reporting Initiatives (GRI)	1 or 0
D <sub>10</sub>	Carbon Disclosures	Disclosure of Green House Gases inventory	1 or 0
		Disclosure of Carbon credits	1 or 0
		Carbon disclosure in comparison with industry	1 or 0
		Reduction in carbon emissions and	1 or 0
		Benefits realised from reducing carbon emissions	1 or 0
D <sub>11</sub>	Auditing and Internal Control	Certification by External auditor	1 or 0
		Certification by Internal Auditor	1 or 0
D <sub>12</sub>	Bio diversity and Neighborhood	Any contributions to bio-diversity	1 or 0
		Green Initiatives undertaken and benefits to society	1 or 0
D <sub>13</sub>	Stakeholders Involvement	Information on stakeholders' involvement and feedback	1 or 0
		Amount donated to environmental groups	1 or 0
		Statement of queries handled from social groups	1 or 0
		Positive/Negative Media reports	1 or 0
D <sub>14</sub>	Environmental Awards	Sustainability awards presented by ENGOS	1 or 0
		Awards presented by others	1 or 0

**Corporate Environmental Accountability Index (CEAI) over 14 dimensions is calculated as**

$$CEAI = \frac{\sum_{i=1}^N P_i}{N}$$

Where;

$P_i$  is the  $i^{th}$  hard accountability predictor variable which is either Zero or One indicating its absence or presence respectively in the score card;

$N$  is the total number of hard accountability predictors;

The value of CEAI varies between 0 and 1 where zero denotes total absence of all predictors and value one denotes total presence of all predictors.

Value close to one indicates presence of high accountability.

## 6.7 Proposed corporate environmental accountability checklist

As explained in the previous section, a checklist was formed that display the desirable disclosure variables that should constitute a part of regular corporate practice. The checklist is produced as follows along with their relevant dimension under which the predictors should appear:

**Table 55: Corporate Environmental Accountability Checklist**

<b>SN</b>	<b>Dimensions</b>	<b>Soft Accountability Predictors</b>
1	Vision	Is there Reference to environmental policy in annual report?
		How far the financial/operational environmental objectives derived from environmental policy have been achieved?
2	Voluntary Standards	Is there any reference to number of meetings attended with industry members on environmental issues?
		Does the company maintain a record of meeting and important decisions taken with respect to environmental concerns?
		Does the company adopt other global environmental principles like Global Compact, Sullivan principles?
3	Stakeholders (ENGOS)	Does the company maintain a list of important stakeholders in general?
		Is environment (ENGOS) recognized as corporate stakeholder?
		Does the company have a stakeholder involvement policy?
		Does the stakeholder policy appear in annual report?
		Does the company have a Stakeholders management and information cell?
		Does the company maintain a record of requests received for additional environmental information?
		How rapidly the information was sent?
		Does the company try to gain a feedback of satisfaction from information received?

		Is the technology like internet etc made use of for receiving user's feedback?
		How much money is spent on maintenance of stakeholders' relationship?
		Is there any formal collaboration of managers with ENGOs?
4	Public Interest Litigation	Does it maintain a record of PIL cases?
		How quickly are the PIL settled?
5	Financial accounting and reporting	Does it maintain a record of environmental assets and liabilities?
		How is the information related to environment presented (statement or monetary terms)?
		What guidelines are followed in preparation of environmental accounts?
		Are there clarification or elaboration of technical terms presented?
		Are there any links to webpage shown in annual report?
		Are there any code of conduct followed by the industry for honest reporting
		Does the company maintain and report environmental costs of various operations?
		Is there any reference to use of Green budgeting?
6	Web based reporting	How interactive is web page disclosure?
		Does it disclose names of contact persons with emails?
		What is the number of mails received and replied?
		How many requests are not responded?
7	Employees Incentives System	Are there any career enhancement plans based on Environmental targets?

8	Bio diversity and Neighborhood	Does the company maintain a record of sickness level of people around their facility?
		Does the company maintain a record of health and sickness level of employees?
		What amount of money is spent on alleviating the neighborhood pollution related problems?
		Are there any benefits gained by company and neighborhood from corporate efforts to remedy pollution related problems?
		Does the company maintain a record of natural vegetation and wildlife around factory over time
		Is there any reference to efforts made to maintain and preserve natural habitat?
9	Audit and Internal Control	Does the company have an all encompassing Internal control system that takes care of environmental activities as well?
		Does the company maintain an environmental management department?
		Does the company have an Environmental manager? (along with list of his/her duties)

(Total 40)

### 6.7.1 Pre-requisites of ideal disclosure index

The corporate voluntary disclosures practice is to present GRI ready statements but various studies indicate that it too becomes rhetoric, if not updated regularly based upon continuous interaction with the stakeholders. Therefore, important pre-requisites of disclosure are as follows:

- Simple and easy to understand rather than a compilation of technical jargons
- Disclosure of ‘material’ items. The materiality of an item denotes that the item should be purposeful and that any change or fluctuations in it is likely to have an impact on the judgment of the users.

- It should have the features of being relevant and sufficient, besides lending clarity of understanding
- It should be consistent throughout different reporting period and as far as possible across regions and nation
- It should be updated based upon feedback received from conducting regular interaction with major stakeholders
- It should be accurate against any material alterations.
- It should track both direct impacts on the environment as well as indirect

### **6.7.2 Benefits of proposed CEAI and Checklist**

The disclosure index along with checklist is purported to provide the following benefits exclusively for protection of environment:

- It endeavours to place environment in a centre place of an organization
- Every employee from strategic to operational level becomes a participant in the endeavour
- The values held by an organisation are evaluated. The values are a permanent fixture for an organisation promising more proactive actions in the future as well
- The involvement of stakeholders is fundamental to the formation of the index
- It is simple to understand
- It provides a mechanism of self appraisal for the corporate to examine whether employees take pride in the environmental actions of the organization or not
- It also provides an instrument of self appraisal to employees
- It balances both monetary as well as non monetary factors on which index is based

## **6.8 Summary**

Environmental Audits have been aimed at checking the environmental effects of organizations. The practice of Audit holds a strong promise in future where it becomes a vital part of EMS process, disclosure and forming the basis of dialogue with the stakeholders thereby serving accountability. Both the organisations as well as external stakeholders are increasingly realising the benefits of audit reports. Accountability requires that just like democracy the general public has a say in decision making for the

issues in which they are directly or indirectly influenced. It presupposes transparency or disclosures of information which is authenticated by Environmental Audit. Environmental audit programme, when properly implemented can lead to enhancement in industry's environmental performance. Need of the hour, is to motivate the industry to voluntarily set up internal environmental audit programme, instead of considering it a one-time burdensome activity. It will then become a routine activity which will not be viewed as a difficult exercise, at the same time yielding various benefits and contributing to nation's development. Environmental audits are vital not just for a clean environment but also because their use is the best way to correct environmental problems detected at their source and to minimize wastes and foresee conservation and maintenance measures needed to prevent major pollution problems.

An ensemble of variables was collected by reviewing literature on disclosure and disclosure indices followed worldwide. The research revealed that there is a greater inclination towards conformance to GRI index but it has also been found to be cumbersome and too technical. Studies in western countries where it has been quite in practice suggests its limited usability to common stakeholder. Therefore, an index was constructed that would suit Indian style of functioning. It would enable the corporate to ingrain corporate environmentalism in corporate culture. These variables would provide a direction for efforts, aid in removal of ambiguity, help in formulation of objectives for setting up of targets, measurement of results and its comparison with the set objectives.

## **6.9 References**

Cooper, S. M., & Owen, D. L. (2007). Corporate Social Reporting and Stakeholder Accountability: The Missing Link. *Accounting, Organizations and Society*, 32(7), 649-667.

Gray, R. (2000). Current Developments and Trends in Social and Environmental Auditing, Reporting and Attestation: A Review and Comment. *International Journal of Auditing*, 4(3), 247-268.

[http://www.apcer.pt/index.php?option=com\\_content&view=article&id=1152%3Aiso-publishes-the-new-management-system-auditing-standard-iso-19011&catid=80%3Anews-en&Itemid=520&lang=en](http://www.apcer.pt/index.php?option=com_content&view=article&id=1152%3Aiso-publishes-the-new-management-system-auditing-standard-iso-19011&catid=80%3Anews-en&Itemid=520&lang=en) (Accessed: 7 March 2014)

- Lehman, G. (1999). Disclosing New Worlds: A Role for Social and Environmental Accounting and Auditing. *Accounting, Organizations and Society*, 24(3), 217-241.
- Leung, R. Y. C. (1994). Environmental Auditing. *The Hong Kong Accountant*, 1/2, 50-61.
- Lorraine N.H.J., Collison D.J., & Power D.M. (2004), An Analysis of the Stock Market Impact of Environmental Performance Information. *Accounting Forum*, 28, 7-26
- Pramanik, A. K. (2003). Environmental Audit and Indian Scenario. In Pramanik, A. K. (eds) *Environmental Accounting and Reporting*. Deep & Deep Publications. New Delhi: 260-270
- Sinkin C., Wright C. J., Burnett R.D. (2008). Eco-efficiency and Firm Value. *Journal of Accounting and Public Policy*. 27, 67–176
- Soh, D. S., & Martinov-Bennie, N. (2015). Internal Auditors' Perceptions of their Role in Environmental, Social And Governance Assurance and Consulting. *Managerial Auditing Journal*, 30(1).
- Tucker, R. R. (1998). Pressures for Change in Environmental Auditing and in the Role of the Internal Auditor. *Journal of Managerial Issues*, 10(3), 340-354.
- Tucker, R. R., & Kasper, J. (1998). Pressures for Change in Environmental Auditing and in the Role of the Internal Auditor. *Journal of Managerial Issues*, 340-354.