The current status of environmental reporting by Indian companies

Bikram Chatterjee
School of Accountancy and Computer Science, Charles Sturt University,
Bathurst, Australia, and
Monir Zaman Mir
School of Business and Government, University of Canberra,
Canberra, Australia

Abstract
Purpose – The purpose of this paper is to explore the state of environmental reporting by Indian companies on their web sites and also in their annual reports.
Design/methodology/approach – The web sites of the companies in the sample were visited to examine the accessibility and extent of environmental information disclosure on their web sites. The annual reports for 2003-2004, as available on the companies' web sites were selected to investigate the extent of environmental information disclosure in these annual reports.
Findings – The paper finds that, although there are no regulations enforcing the disclosure of environmental information, most of the Indian companies have disclosed environmental information. These companies provided more environmental information on their web sites compared to the information provided in their annual reports.
Originality/value – This study contributes to the existing body of environmental reporting literature by focusing on the status of environmental reporting by companies of an emerging economy and also contributes to the existing body of environmental reporting literature by focusing on the accessibility of environmental information on web sites of respective companies.

Keywords Business environment, Reports, Emerging markets, India, Corporate governance
Paper type Research paper

Introduction

Consumers nowadays expect firms to meet high health and safety standards for workers, respect human rights, protect the interests of consumers and meet environmental standards, regardless of where they operate (Smith, 2002). Hence, it is expected that companies provide information about their environmental performance and policies, together with management systems in operation to support them (Fortes, 2002). It may appear that greater attention to environmental matters may lead to an increase in costs and hence lower profits (Fortes, 2002). On the contrary, environmental reporting choices may influence stakeholders' interpretation of firms' financial performance and enhance investor confidence, leading to a lower cost of capital and resulting in a rise in stock valuation multiples together with enhancement in stock liquidity and an increase in the interest of institutional investors (Cormier and Magnan, 2003). As business organizations compete in the global economy, they must do so within the constraints of a society demanding ever-increasing environmental accountability. This accountability consists of an increased public scrutiny of both the environmental performance of the firm and its public disclosure of that performance (Al-Tuwaijri et al., 2004).

Indian companies have faced strong international competition over the past few decades, especially after the opening of the Indian economy in the early 1990s, as international competitors tried to establish their footholds in India. These international firms are disclosing non-financial information including environmental information, leading to an enhanced expectation from Indian companies to act responsibly towards the environment and be accountable to the society in that regard. Hence, to improve corporate image concerning socially responsible behaviour, it is expected that an increasing number of Indian companies will report their environmental performance. However, most of the available literature in regard to environmental performance reporting has focused on the extent of environmental information reporting by companies in developed countries and little attention has been given to the state of environmental reporting of developing countries (Ahmed and Sulaiman, 2004; Thompson and Zakaria, 2004; Nafez and Kamal, 2000) including India, and the accessibility of such information.

Following this dearth of studies encompassing developing countries, the aim of our study is to explore the state of environmental reporting by Indian companies on their web sites and also in their annual reports. Our study contributes to the existing body of literature concerning environmental reporting by investigating the accessibility of environmental information on the web sites of a sample of companies, whereas the available literature has mainly focused on the extent of environmental information disclosure in annual reports (Patten and Trompeter, 2003; Thompson and Zakaria, 2004; Campbell, 2004). Only a few studies have concentrated on the extent of such disclosures on web sites of companies (Cormier and Magnan, 2004). The significance of investigating beyond annual reports to examine the extent of environmental disclosures by companies has been emphasised in previous studies (Ahmed and Sulaiman, 2004). The available studies concentrating on accessibility of information on the web is sparse (see for example Ashbaugh et al., 1999; Oyeler et al., 2003; Upton, 1998) and has been investigated by taking the number of clicks required to obtain certain information, such as financial information (Pirchegger and Wagenhofer, 1999). This paper focuses on these dimensions as well while exploring the accessibility of environmental information on company web sites. The paper is organized into seven sections. The next section presents prior environmental reporting research. This section is followed by discussion of the theoretical framework. Then, the regulations in India regarding environmental reporting are explained. This is followed by research method and information analysis. The results are then explained, followed by the “conclusions” section.

Literature review

Environmental reporting in annual reports

Previous literature investigating environmental information disclosure by companies has considered environmental attributes disclosed in annual reports. Harte and Owen (1991) analyzed the annual reports of 30 British companies to investigate the environmental reporting practices in their annual reports. The authors revealed that most of the environmental reporting by these companies was still at a general level and very close to disseminating their general commitment to green issues. Following this result, the authors suggested that the only way of improving environmental reporting is the introduction of specific, auditable information through the introduction of a form of compliance with external standards of reporting.

Ahmed and Sulaiman (2004) examined the extent and nature of voluntary environmental information items disclosed in annual reports for the year 2000 by Malaysian companies belonging to construction and industrial products industries. The authors concluded that the extent of environmental disclosure was very low. The authors opine that environmental information disclosed in these annual reports was scattered and not bound in a specific section. Legal requirements and compliance with ISO 14000 requirements were the main driving force behind disclosing environmental information. The recommendation of the authors following this result is similar to Harte and Owen (1991), that is, to make the disclosure of specific environmental information items mandatory for Malaysian companies. Similarly, Thompson and Zakaria (2004) examined the extent, nature and form of corporate social and environmental disclosures by Malaysian companies and observed that the corporate environmental reporting of these companies was poor in quality and low in quantity. The authors suggest that the reason behind such poor quality and quantity was the lack of pressure from various stakeholders and hence the authors suggest stakeholders to provide such pressures.

Deegan and Gordon (1996) examined the environmental disclosure practices of 197 Australian companies in their annual reports of 1991. The authors observed low voluntary environmental disclosure by these companies of only 186 words in total. These disclosures were self-admiring rather than negative disclosures. There was an increase in disclosure during 1988-1991 due to increases in environmental group membership.

The above-mentioned studies reported the status of environmental reporting by companies in various countries. In addition, there are studies that investigated the factors that influence environmental reporting by companies. These are outlined in the following sub-section.

Factors influencing environmental reporting

Cunningham and Gadenne (2003) inv estigated whether an enhancement in environmental regulations acts as a momentum for changes in annual report disclosure behaviour, through an examination of voluntary environmental disclosures by Australian corporations during the Australian National Pollutant Inventory implementation period. The authors concluded that there is a relation between the level of publicly disclosed pollution emissions of Australian companies and the quantity of voluntary environmental disclosure in the annual reports of these companies. The authors opined that environmental regulation acts as an impetus for companies to include information on certain environmental issues in the annual report.

Gamble et al. (1995) investigated the quality of environmental disclosures in 10,000 (a report submitted to the US Securities and Exchange Commission – SEC by listed companies) and annual reports for 234 companies, belonging to 12 industries for the years 1986-1991. The authors examined the content of environmental disclosures by using descriptive reporting codes. Those industries that could have a significant negative impact on the environment were selected for their study. The authors concluded that companies belonging to petroleum refining, hazardous waste management, steel works and blast furnaces industries provided the highest quality of disclosures. For 10,000 disclosures, the highest qualities of disclosures were found in the petroleum refining, hazardous waste management, steelworks and blast furnaces industries. The pattern of disclosure for 10,000s was identical to that in annual reports. Disclosures in both the annual reports and 10,000 increased during the sample period. There was a significant increase in disclosures from 1989. The reasons behind this increase were the Financial Accounting Standards Board's

issuance of Issues No. 89-13 (1989) and 90-8 (1990), together with environmental accidents such as the Valdez oil spill occurred in Prince William Sound, Alaska, USA, on 24 March 1989, and general public mandates.
While the above studies support the fact that imposing external environmental reporting standards on companies enhance the extent and quality of reporting, Larrinaga et al. (2002) suggested that regulation is not sufficient for the development of environmental accountability. The authors examined the issuance and implementation of a standard dealing with environmental disclosure that was put in force from 1998 for all Spanish companies. This standard requires the disclosure of environmental investments, expenses, provisions and contingent liabilities. The authors concluded that the implementation of this standard was deceiving. About 80 per cent of the companies examined, did not disclose any environmental information. The companies that disclosed some environmental information scored a mean of 1.8 items, out of a total of seven possible items. Although there was an increase in the number of companies disclosing environmental information between 1997 and 1999, in 1999 only 23 per cent of the 70 companies surveyed, disclosed such information. Following this result, the authors concluded that regulation is not sufficient for the development of environmental accountability. Institutional reform would require at least a discussion to develop a regulation and an effective enforcement of legislation.
Hughes et al. (2001) examined environmental disclosures of 51 US manufacturing firms for 1992 and 1993 with varied ratings of their environmental activities. The authors used content analysis to determine the extent of environmental disclosures within the president's letter, the management discussion and analysis (MD&A), and note sections. Environmental ratings of US corporations, as compiled by the Council on Economic Priorities, were used to examine whether disclosures varied between firms who had been rated good, mixed or poor in their environmental activities. The result was that disclosures between good, mixed and poor performers did not differ within the president's letter. However, differences in disclosures were noted between these three groups within the notes and MD&A sections. Poor performers provided most disclosures and most of these disclosures appeared within the MD&A and notes sections. This can be justified by the fact that poor environmental performers are subject to remediation as opposed to those who have not engaged in environmental degradation. Hence, poor performers must make more disclosures.
Similar to the previous study, Al-Tuwaijri et al. (2004) examined the relations among firms' environmental performance, environmental disclosure and economic performance. The study examined a sample of 198 firms listed in the IRPC's 1994 Environmental Profiles Directory. The authors concluded on the contrary, that there is a notably positive relation between good environmental performance and the extent of environmental information disclosure. Patten and Trompeter (2003) examined the relation between environmental disclosure and earnings management by taking the case of the response of the chemical industry to the December 1984 accident at Union Carbide's Bhopal plant in India. The accident enhanced concerns that subsequent investigations into this event could lead to an increase in safety-related regulations that would result in an increase in costs for chemical firms. The authors conducted an analysis of a sample of 40 US chemical firms and concluded that these firms exhibited significantly negative discretionary accruals for 1984. Companies with higher levels of pre-event environmental disclosures in their 10,000 reports had a propensity to take less negative discretionary accruals, compared to those companies that were lagging behind disclosure of environmental information before the event.

Gray et al. (2001) examined the relation between corporate characteristics and environmental disclosures of 100 UK companies drawn from the Centre for Social and Environmental Accounting Research. The authors observed that the volume of disclosure in each individual year from 1988 to 1995 inclusive, together with the whole eight-year period, is related to the turnover, capital employed, number of employees and profit, as larger and more profitable firms have disclosed more environmental information.
Similar to the above study, Cormier et al. (2005) examined the determinants of corporate environmental disclosure using multi-theoretical lenses that encompassed economic incentives, public pressures and institutional theory, taking a sample of 385 firm year observations (1992-1998). The authors concluded that risk, ownership, fixed assets, age, firm size as well as prior period's environmental disclosure quality, determined the degree of environmental disclosure by German firms in a given year. They suggested that environmental disclosure was multidimensional and is motivated by complementary forces.
Campbell (2004) analyzed the annual reports of ten UK-based companies in five sectors between 1974 and 2000 and recorded the extent of voluntary disclosure of each. The authors observed an increase in the volume of disclosure over the period but with a significant upturn in the late 1980s. The reason for this upturn was the structural vulnerability of the five sectors to environmental liability and/or criticism. The author argued that the differences in the perceived need for social legitimacy might be a reason of both longitudinal and cross-sectional variability in volumes of disclosure.
The literature mentioned above only examined the extent of environment reporting in annual reports by companies and factors influencing such reporting. In this era of globalization, the internet plays a major role in information dissemination as well (Gallhofer et al., 2006). The only available study examining internet-based environmental reporting has been conducted by Cormier and Magnan (2004). Cormier and Magnan (2004) examined the environmental disclosure of 214 non-financial firms represented on the Toronto Stock Exchange 300 Index. The authors observed that concentration of ownership; volatility and market return were the determinants of environmental disclosure in both print- and web-based medium. They also observed that public pressures and SEC regulation influenced environmental disclosure. The authors concluded that while firms have adopted the web as a basis for reporting, an extensive overlap existed between print- and web-based disclosures. This overlap suggests that firms do not exploit the full potential of the web.
Following the concern by Cormier and Magnan (2004) that internet has not added to environmental reporting compared to the print-based medium and a dearth of literature investigating the environmental reporting by developing countries, such as India, our study explores the state of environmental reporting by Indian companies in both mediums. The open access to the world wide web provides the impression that desired information is easily available on these web sites at the click of mouse button on our computer. Our study explores this perception by taking the case of reporting environmental information by a sample of Indian companies. The next section discusses the theoretical framework that has been adopted for the study.

Theoretical framework

This paper has applied the managing public impression aspect of legitimacy theory (Dowling and Pfeffer, 1975; Neu et al., 1998) in an attempt to explain the reasons behind the disclosure of environmental information in annual reports and web sites of Indian companies. Legitimacy theory posits that the organisation must appear to consider the rights of the public at large, not merely those of the investors. If the organisation does not appear to operate within the bounds of that behaviour which is considered appropriate by the society, then the society will act to remove the organisation's right to continue its operations (Deegan, 1997). Dowling and Pfeffer (1975) argued that organisations seek to establish congruence between social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are a part. They also argued that when an actual or potential disparity exists between the two value systems, this will lead to threats to organisational legitimacy and these threats will take the form of legal, economic and other sanctions. They stated that an empirical focus on organisational efforts to become legitimate can aid in explaining and analysing many organisational behaviours taken in regard to the environment. Neu et al. (1998) argued that organisational legitimacy is constructed and maintained through symbolic action, which forms a part of the organisation's public image. They suggested that that it is often easier to manage an organisation's image through communication.

Neu et al. (1998) argued that while the symbolic aspects of organisational actions have been central to legitimation, textually-mediated discourses have more recently been seen to fulfil a similar function. Contemporary society is increasingly organised by magazines, newspapers, annual reports and other official publications. They further stated that as it is not feasible for the external public to follow organisational activities on a daily basis, the external public come to rely on words and numbers as provided in annual reports and financial statements as proxies for these activities. Hence, organisations use the information provided in annual reports as a communication medium to establish legitimacy and as the mode of managing public impressions. Adams (2002) also had a similar opinion and argued that the reason for an increase in the number of companies producing environmental reports since the early 1990s is not regulation or public pressure. The principal motivation behind producing these reports is to improve corporate image with customers, state authorities, journalists and the press.

There has been a growth of public concern in India regarding environmental issues over the last few decades (Bhate, 2002). Bhate (2002) investigated the extent to which consumers of India, Greece and the UK were aware of environmental issues and the extent to which their awareness was reflected in buying activities. The result was that the Indian respondents were most involved with environmental issues, similar to the involvement of UK respondents. The respondents in India were dissatisfied with the non-availability of green alternatives while purchasing consumer goods. These respondents also opined that they purchase products with recycled packaging and are willing to change their retail outlet to another one in case of non-availability of green products in one of them. The author suggested that business organisations should endeavour to fulfil the existing or potential demand by making environment friendly products on a large-scale.

Following this theory as discussed above, it is expected that with the opening of the Indian economy in 1991 and the growth of awareness among Indians concerning environmental issues, Indian companies will disclose environmental information in such medium as web sites and annual reports, in order to improve their corporate image. The next section outlines the environmental reporting regulations in India.

The regulations in India regarding environmental reporting

India's first task after the parliamentary elections in 1998 was to prescribe a national agenda for governance that included a comprehensive national policy to balance economic development and environmental protection. The concern for the environment has been further stimulated by economic liberalisation and deregulation in India, attaching further significance to production, manufacturing and services. India's existing policy framework concerning environmental protection is outlined in three documents, that is, the National Conservation Strategy on Environment and Development of 1992, the Policy Statement for Abatement of Pollution of 1992, and the National Forest Policy of 1988. The National Conservation Strategy imparts the basis for the integration of environmental considerations in the policies and programs of different sectors. It stresses sustainable lifestyles and proper management and conservation of resources. The Pollution Abatement Policy emphasises the prevention of pollution at the source. It promotes the development and application of the best available technical solutions. The policy embodies an approach by which polluters are held financially accountable for the pollution they generate and accentuates the protection of heavily polluted areas and river regions. The forest policy emphasises the maintenance of the environment through the preservation and restoration of India's ecology. The policy seeks to significantly increase the forest acreage in the country (Prabhu, 1999). The governments of India are promoting more and more regulations to protect the environment and the community in general. In order to control emissions from production processes, air quality regulations lay down stringent equipment specifications that are required to be implemented by the polluting industries. To minimise the global environmental problems, India has made the production and abatement technology mandatory (Chakrabarti and Mitra, 2005). The regulatory framework governing corporate disclosure in India includes the Companies Act 1956, the Securities and Exchange Board of India (SEBI) (Amendment) Act 2002 and the Indian Accounting Standards (ASs). The Companies Act 1956 has been amended several times, and is now known as the Companies (Amendment)/(Second Amendment) Act 2002 (Chatterjee, 2005). There is no requirement under either the Indian Companies Act, the SEBI Act or Indian ASs to disclose environmental information. Hence, Indian companies are not bound by any regulations to provide their environmental performance information in their annual reports or in other medium.

Research method and information analysis

Research method

The research method involves an exploration of web sites of a sample of Indian companies. From this sample, companies belonging to the financial sector were totally excluded, as this sector has no impact on the environment (Fortes, 2002). The aim of our study is to explore the state of environmental reporting by Indian companies on their web sites and also in their annual reports. Therefore, in order to accomplish the aim, the web sites of the companies in the sample were visited to examine the accessibility and extent of environmental information disclosure. Secondly, annual reports for 2003-2004, as available on the companies' web sites were selected to investigate the extent of environmental information disclosure in these annual reports. Wilmhurst and Frost (2000, p. 16) define environmental disclosures as "those disclosures that relate to the impact company activities have on the physical or natural environment in which they operate". Fortes (2002) argued that environmental reporting encompasses those information items that communicate whether natural resources have been used responsibly. This paper adopts these definitions as the basis for analyzing information on company web sites and in annual reports to identify information relating to the environment.

The sample

The sample companies for our study comprise the top 45 Indian companies by market capitalisation as listed on www.indiainfoline.com as on 31 December, 2003. A list of the sample companies is provided in Table I. The use of "market capitalisation" as a representative of firm size has been extensively used in previous literature (Debreceny et al., 2002; Craven and Marston, 1999) and hence used as a basis of firm size in our study. It has been hypothesized that larger firms find disclosure of environmental information more advantageous to them than smaller firms, as they are more visible to external stakeholders than smaller firms and hence these firms are expected to bear the burden of the costs resulting from political or lobbying actions (Cormier and Magnan, 2003). Another reason behind selecting larger firms is that these firms possess the resources and expertise to meet the diverse requirements of various groups of external stakeholders. From the list of 45 companies, after leaving out the financial sector, a sample of 39 companies were left for analysis.

Information analysis

Disclosure of environmental information on web sites. Environmental information disclosure on web sites of respective companies has been examined in different categories. First, content analysis has been used to analyse the extent of environmental information disclosure. Secondly, an analysis has been done on the level at which environmental information has been disclosed, that is, whether at the home page level or under any specific category level.

Disclosure of environmental information in annual reports. Content analysis has been used to analyse the extent of environmental disclosures in annual reports of these companies. Previous studies in regard to environmental disclosures have analysed annual reports by using content analysis (Ahmed and Sulaiman, 2004; Cunningham and Gadenne, 2003; Harte and Owen, 1991).

Content analysis. Content analysis refers to a set of procedures for collecting and organising information in a standardised format (US General Accounting Office – GAO, 1982). Content analysis can provide the answer to the question "what?" (GAO, 1982, p. 1). As this paper examines the particulars of environmental information disclosed by companies, this method has been found to be suitable.

A significant step in content analysis is the selection of the recording unit for analysis. "Recording unit" refers to a specific segment of the context unit in the written material that is placed in a category. There are several choices in regard to determining the recording unit, such as a word, a group of words, a sentence, a paragraph, or an entire document (GAO, 1982). This paper uses "number of sentences" as a recording unit. This is because on a company's web page, there can be a mix of environmental information with other information. Similarly, there can be a mix of other information with environmental information on a specific page in a company's annual report. Therefore, a "paragraph" is not the right method, unless the whole document is about environmental information. On the other hand, the use of words has been discarded as "words" do not convey any meaning without sentences (Milne and Adler, 1999). Graphical diagrams, pictures and captions for pictures of activities in relation to the environment were excluded from the analysis, as their inclusion would involve a high level of subjectivity (Ahmed and Sulaiman, 2004).

Table I.

Name of the company	Sector
Oil & Natural Gas Corporation Ltd	Oil and gas
Indian Oil Corporation Ltd	Oil and gas
ITC Ltd	Diversified (FMCG, hotels, paperboards and packaging, agri-business)
Hindustan Lever Ltd	Diversified (home and personal care products, food and beverages)
Ranbaxy Laboratories Ltd	Pharmaceutical
Steel Authority of India Ltd	Manufacturing (iron and steel)
Bharat Heavy Electrical Ltd	Manufacturing (engineering and manufacturing)
Gas Authority of India Ltd	Gas
Wipro Ltd	Technology
Tata Engineering & Locomotive Company Ltd	Automobile manufacturer
Satyam Computer Services Ltd	Technology (IT services)
Hindustan Petroleum Corporation Ltd	Oil and gas
Infosys Technologies Ltd	Technology (consulting and IT services)
Bharat Petroleum Corporation Ltd	Oil and gas
National Aluminium Company Ltd	Manufacturing (aluminium)
Grasim Industries Ltd	Diversified (textiles, cement, chemicals, sponge iron)
TISCO	Manufacturing (iron and steel)
HCL Technologies Ltd	Technology
Bajaj Auto Ltd	Automobile manufacturer
Hindalco Industries Ltd	Manufacturing (aluminium and copper)
Hero Honda Motors Ltd	Automobile manufacturer
Mahanagar Telephone Nigam Ltd	Technology (telecom services)
Zee Telefilms Ltd	Media and entertainment
Dr Reddy's Laboratories Ltd	Pharmaceutical
Gujarat Ambuja Cements Ltd	Manufacturing (cement)
Mahindra & Mahindra Ltd	Automobile manufacturer
Indian Petrochemicals Corporation Ltd	Petrochemical
Nestle India Ltd	Diversified (childcare, cooking, pet care, wellness)
Videsh Sanchar Nigam Ltd	Technology (telecom services)
Associated Cement Companies Ltd	Manufacturing (cement)
GlaxoSmithkline Pharmaceuticals Ltd	Pharmaceutical
Hindustan Zinc Ltd	Manufacturing (zinc)
Bharat Electronics Ltd	Technology (electronics)
Container Corporation of India Ltd	Logistics services
Siemens Ltd	Technology
Shipping Corporation of India Ltd	Transport service (shipping)
Nicholas Piramal India Ltd	Pharmaceutical
Mangalore Refinery And Petrochemicals Ltd	No web site

Finally, categories need to be provided as they provide the structure for grouping recording units (GAO, 1982). A number of categories have been developed by taking previous literature (GAO, 1982; Ahmed and Sulaiman, 2004; Thompson and Cowton, 2004) as the basis to analyze the characteristics of information disclosed by these companies in their annual reports. These categories are as follows:

- Evidence (monetary and non-monetary).
- Monetary (provision for clean-up costs; contingent liability data; management forecasts of the impact of environmental expenditure on future results; prospective environmental expenditure; historical environmental expenditure; fully integrated environmental financial statements; statement of progress on environmental performance against quantified targets; others).
- Non-monetary (statement of assurance from management of compliance with external standards; summary of results of environmental audits; corporate environmental policy statement; external verifier's report on the environmental audit; environmental impact assessments and site level reports; a statement of intent with regard to environmental audits, specific accounting policies for

environmental issues; narrative environmental disclosures; management's responsibilities for monitoring environmental performance; others).

- News type (good news; bad news; and neutral).
- Location (directors' report and/or chairman's statement and/or MD&A; other section(s) of annual report only; both in director's report and other section(s)).

Results

Web-based dissemination of environmental information

Attributes disclosed on web sites. This section investigates the environmental information items disclosed by Indian companies on their web sites. One out of the 39 companies selected for investigation had no web site, leaving a usable sample size of 38. Of these 38 companies, 15 companies did not provide environmental information on their web sites. The disclosing 23 companies provided 468 sentences. However, the differences in disclosed sentences among companies were significant. The lowest number of sentence(s) disclosed was 1, with the highest being 129. The mean number of sentence(s) disclosed was 20. Table II summarises this finding. Table III provides a comparison between industry sectors regarding the disclosure of environmental information on their web sites. As shown in Table III, on an average the highest number of sentences encompassing environmental information has been disclosed by the "diversified" sector, followed by "technology".

Table II. Environmental information disclosure on web sites

Number of sentences disclosed	Number of companies
1-20	17
21-40	3
41-60	1
61-80	1
81-100	0
More than 100	1

Table III. Environmental information disclosure of companies on web sites – a sector wise analysis

Sector[a]	Number of companies in sample	Number of companies not disclosing	Number of sentences reported in total	Average number of sentences
Oil and gas	6	–	56	9
Diversified	3	–	168	56
Pharmaceutical	4	2	23	12
Manufacturing	14	3	198	18
Technology	8	7	23	23
Media and entertainment	1	1	0	0
Services	2	2	0	0
Total	38	15	468	

Notes: [a]"Diversified" sector includes companies operating in more than one area encompassing FMCG, hotels, paperboards and packaging, agribusiness, home and personal care products, food and beverages, childcare, cooking, pet care and wellness. "Technology" sector includes companies in telecom services or other information technology (IT) services. "Services" sector includes companies in transport services. The averages have been computed by only taking the number of disclosing companies into consideration

The least number of sentences has been disclosed by the “oil and gas” sector. This is beyond expectation, since the “oil and gas” sector was expected to provide more disclosures compared to other sectors as their operation affects the environment more adversely compared to other sectors, especially the technology sector.

Usability of web sites to retrieve environmental information. “Usability” is related to user friendliness. This includes the appearance of the web site, visual design, readability/comprehension/clarity, search facilities and ease of navigation (Yang et al., 2005). “Usability” has been measured in our study by taking the ease of navigation into consideration. Environmental information available on the home pages of companies is easier to retrieve rather than those that can be obtained by two or three clicks. The home page has been considered as level one, for the purposes of our paper. If another “click” was required to obtain environmental information this has been designated level two, and so on. As shown in Figure 1, most of the companies disclosing environmental information on their web sites disclosed these information items at level 2, which could be obtained by clicking on another information item at the home page level, which is easily accessible. Only three companies provided their environmental information items on their home page (level 1). The main headings under which these three companies provided environmental information were; “safety, health and environment”, “vision and mission” and “company profile”, respectively. One of the companies provided environmental information were; “safety, health and environment”, “vision and mission” and “company profile”, respectively. One of the companies provided environmental information under the category “community”. Again, by clicking on “environment”, various information items in relation to the environment, such as, “environmental achievements”, “environmental awareness programme”, “environmental management services”, “training programmes” and “greenery development” could be obtained. Another company disclosed the heading “environmental zone/concern” on its home page (level 1) and by clicking the link information on “global impact”, “health, safety and environment policy” and “environment friendly products” of this company could be obtained.

Figure 1. Ease of navigation of environmental information on web sites of Indian companies

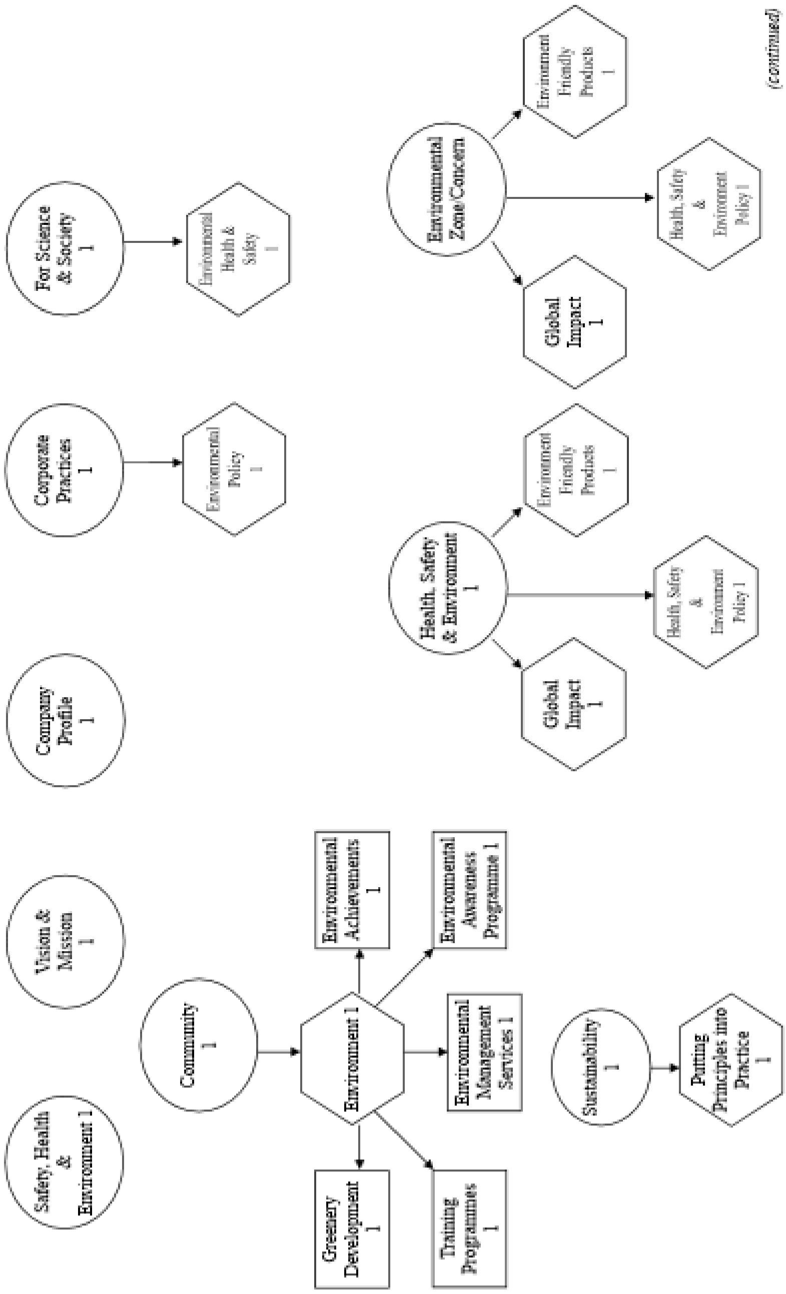
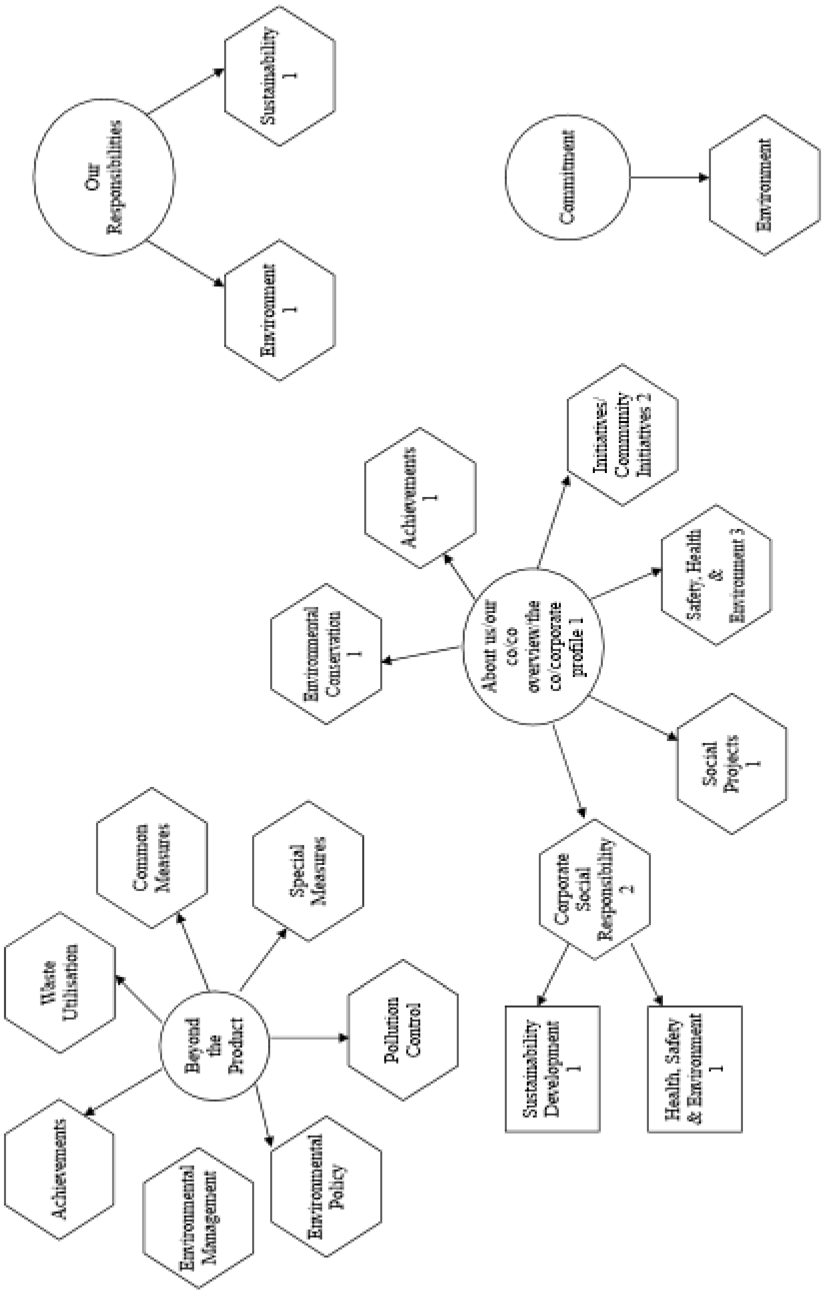


Figure 1.



Disclosure of environmental information items in 2003-2004 annual reports – a measure of extent

Status of environmental information disclosure – a sector wise analysis. Tables IV-VI provide the status of environmental information disclosure. The analyses of data in Table VI shows that on an average companies in the "oil and gas" sector provided the highest number of sentences concerning the environment, followed by "manufacturing" firms. This can be justified by the fact that there is a high chance that companies belonging to these two sectors interfere with the environment. This finding is consistent with that of Gamble et al. (1995). An interesting finding is that some technology firms have provided an average of nine sentences each. This was not expected since companies in this sector have less interference with the environment. However, most of the companies belonging to the "technology" sector did not provide any environmental information in their annual reports.

Table IV. Environmental information disclosure in annual reports for 2003-2004.

Number of sentences disclosed	Number of companies
1-20	14
21-40	4
41-60	1
61-80	0
81-100	0
More than 100	0

Table V. Status of environmental information disclosure of companies in annual reports

Particulars	Number	Percentage
Companies disclosing at least one environmental information	19	65.52
Non-disclosing companies	10	34.48
Total	29	100

Table VI. Status of environmental information disclosure in annual reports - a sector wise analysis

Sector	Number of companies in sample	Number of companies disclosing	Number of sentences reported in total	Average number of sentences
Oil and gas	4	4	65	16
Diversified	2	2	16	8
Pharmaceutical	4	2	24	12
Manufacturing	11	9	135	15
Technology	6	2	17	9
Media and entertainment	1	0	0	0
Services	1	0	0	0
Total	29	19	257	

Characteristics of environmental information disclosed. Tables VII-IX provide a summary of the characteristics of the environmental information disclosed by Indian companies. Of the 38 companies with web sites, annual report(s) could not be obtained from the web sites of nine companies, leaving a sample of 29 companies. Of these 29 companies, ten companies did not provide any environmental information in their 2003-2004 annual reports, leaving a sample of 19 companies. In total, these 19 companies provided 257 sentences with an average of 14 sentences. The lowest number of sentences disclosed was 2, and the maximum number of sentences disclosed was 41. Of these 19 companies who disclosed environmental information within their annual report, only four provided both monetary as well as non-monetary information in the same sentences, respectively, comprising in total four sentences. Three of these four sentences were in the area of historical environmental expenditure. None of the companies have disclosed sentence(s) that comprised only monetary information.

Table VII. Characteristics of environmental information disclosed in annual reports

	Disclosing companies	Disclosing companies as a percentage of total sample	Number of disclosed sentences	Number of disclosed sentences as a percentage of all disclosed sentences
Evidence				
Monetary only	0	0	0	0
Non-monetary only	15	78.95	253	98.44
Both	4	21.05	4	1.56
Total	19	100	257	100
News type				
Good only	1	5.26	42	16.34
Bad only	0	0	0	0
Neutral only	1	5.26	215	83.66
Both good and neutral	17	89.48		
Total	19	100	257	100
Location in report				
Director's report and/or/chairman's statement and/or management discussion and analysis (no. of sentences) only	12	63.16	102	39.69
Other section(s) of annual report only	5	26.32	155	60.31
Both in director's report and other section(s)	2	10.52		
Total	19	100	257	100

Table VIII. Nature of monetary information disclosed in annual reports

Nature of information	Number of companies	Disclosing companies as a percentage of companies disclosing monetary information (sentences)	Number of sentences disclosed (amount)	Number of disclosed sentences (includes monetary information) as a percentage of total number of sentences (monetary)
Provision for clean-up costs	0	0	0	0
Contingent liability data	0	0	0	0
Management forecasts of impact of environmental expenditure on future results	0	0	0	0
Prospective environmental expenditure	0	0	0	0
Historical environmental expenditure	3	75	3	75
Fully integrated environmental financial statements	0	0	0	0
Statement of progress on environmental performance against quantified targets	0	0	0	0
Others	1	25	1	25
Total	4	100	4	100

These four sentences have been classified under the monetary-information category, as they mainly contained monetary information.

None of the companies have disclosed “bad news”. This may be due to the fact that they had no such news to disclose. Another reason may be that they were reluctant to disclose their environmental “bad” news to the users of annual reports. Most of the companies have disclosed both good and neutral news concerning the environment. The number of sentences disclosed to reveal a “neutral” nature of news was significantly greater than the number of sentences disclosed to convey “good news”. Most of the “good news” comprised obtaining award(s) and/or compliance with external standard(s).
Most of the companies have disclosed environmental information under “Director’s report/chairman’s statement/management discussion and analysis”. Only five of 19 companies provided a separate section to disclose environmental information. One of these companies belongs to the pharmaceutical sector, two to the oil and gas sector and two to the manufacturing sector.

Table IX. Nature of non-monetary information disclosed in annual reports

Nature of information	Number of companies	Disclosing companies as a percentage of companies disclosing non-monetary information (sentences)	Number of sentences disclosed (amount)	Number of disclosed sentences (includes non-monetary information) as a percentage of total number of sentences (non-monetary)
Statement of assurance from management of compliance with external standards	9	47.37	17	6.72
Summary of results of environmental audits	5	26.32	8	3.16
Corporate environmental policy statement	11	57.89	18	7.11
External verifier’s report on the environmental audit	0	0	0	0
Environmental impact assessments and site level reports	0	0	0	0
A statement of intent with regard to environmental audits, specific accounting policies	0	0	0	0
Specific accounting policies for environmental issues	0	0	0	0
Narrative environmental disclosures	18	94.74	208	82.21
Management responsibilities for monitoring environmental performance	1	5.26	2	0.80
Others	0	0	0	0
			253	100

Most of the non-monetary information disclosed was “narrative” in nature, comprising 208 sentences. These sentences did not specifically discuss assurance from management of compliance with external standards, policy or environmental audits. Of 253 environmental information disclosure sentences, 17 of them were in regard to a statement of assurance from management concerning compliance with external standards, eight sentences discussed the results of environmental audits and 18 sentences discussed corporate environmental policy. These numbers were insignificant compared to the total number of environmental sentences that were included in the annual reports.

Environmental reporting on the web versus in annual reports

A comparison of the disclosure of environmental information of these companies between their web sites and disclosure in 2003-2004 annual reports suggests that a greater number of companies have disclosed environmental information on their web sites compared to within their annual reports. Also, the total number of sentences disclosed on web sites was significantly more than in annual reports. However, the difference in the number of sentences disclosed on web sites among the companies was higher than in annual reports. Tables II and IV summarise this finding.

A comparison between Tables II and IV reveal that one company has disclosed more than 100 sentences on its web site in relation to environmental information which has contributed to a high average number of disclosures for all companies. On the other hand, Table IV shows that the difference in regard to the extent of environmental information disclosure in annual reports for 2003-2004 between companies was minimal, with most of the companies disclosing between 1 and 20 sentences.

It is significant to note that with the exception of technology companies, a higher number of companies belonging to all other sectors have provided environmental information on their web sites compared to within their annual reports. A significant difference lies in regard to the average number of sentences disclosed on web sites compared to within annual reports of companies belonging to the "diversified" sector. On average, diversified sector companies have provided 56 sentences on their web sites, compared to only eight sentences in their annual reports. This may be due to the fact that these companies find disclosing information on the web cheaper compared to disclosing in annual reports, as annual reports involve printing costs (Oyeler et al., 2003). Another reason for such abundance of disclosure on the web compared to disclosure in annual reports is that, the web provides greater scope for disclosing a wide range of information (Davis et al., 2003; Paisey and Paisey, 2006).

Conclusions

The study reveals that although not mandatory, Indian companies were providing their environmental information both on their web sites as well as in their annual reports. The reason for such voluntary disclosure was most likely corporate image creation (Neu et al., 1998; Adams, 2002). Indian companies also provided more environmental information on their web sites compared to the information provided in their annual reports. This result is different from the findings of Cormier and Magnan (2004) where they found an extensive overlap of print disclosure and web disclosure of a sample of companies listed on the Toronto Stock Exchange.

Most of the companies have disclosed environmental information on their web sites at level 2, which was easily accessible. This suggests that these companies considered environmental information to be significant to the visitors of their web sites. It is also observed that a company belonging to the "diversified" sector has provided the highest number of environmental information disclosure sentences on web site. This finding contradicts the findings of Ahmed and Sulaiman (2004) that companies belonging to industrial sector disclosed more environmental information.

It is also observed that most of the sampled companies have provided the news of a positive and neutral nature and none of them disclosed any “bad” news. This is consistent with the expectation of Ahmed and Sulaiman (2004) as “bad” news may damage companies’ public reputation. Most of the environmental disclosure items have been disclosed under “Director’s report/management discussion and analysis”, which is due to the fact that management is trying to build a positive public reputation or image of their concern for the environment (Hooghiemstra, 2000; Adams, 2002; Neu et al., 1998).

Most of the environmental information disclosed in annual reports was narrative in nature without specifically discussing the policy of the company or statements of assurance from management of compliance with external standards. This needs to be improved as narrative comments do not reflect the contribution of the company towards the betterment of the environment.

The disclosure of environmental information by most of the companies at level 2 on their web sites and non-disclosure of “bad” news is consistent with the public impression aspect of legitimacy theory. Also most of these disclosures were under the category of “Director’s report/management discussion and analysis” which signifies that the management is trying to build a positive public reputation (Hooghiemstra, 2000; Adams, 2002; Neu et al., 1998). Our findings have international implications with the opening of the Indian market in the early 1990s. International investors searching for environmentally sustainable investments are expected to be motivated to invest in Indian companies following our result.

References

Adams, C. (2002), “Internal organisational factors influencing corporate social and ethical reporting: beyond current theorising”, Accounting, Auditing & Accountability Journal, Vol. 15 No. 2, pp. 223-50.

Ahmed, N.N.N. and Sulaiman, M. (2004), “Environmental disclosures in Malaysian annual reports: a legitimacy theory perspective”, International Journal of Commerce & Management, Vol. 14 No. 1, pp. 44-58.

Al-Tuwaijri, S.A., Christensen, T.E. and Hughes, K.E. (2004), “The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach”, Accounting, Organizations and Society, Vol. 29, pp. 447-71.

Ashbaugh, H., Johnstone, K.M. and Warfirld, T.D. (1999), “Corporate reporting on the internet”, Accounting Horizons, Vol. 13 No. 3, pp. 241-57.

Bhate, S. (2002), “One world, one environment, one vision: are we close to achieving this? An exploratory study of consumer environmental behaviour across three countries”, Journal of Consumer Behaviour, Vol. 2 No. 2, pp. 169-84.

Campbell, D. (2004), “A longitudinal and cross-sectional analysis of environmental disclosure in UK companies – a research note”, The British Accounting Review, Vol. 36, pp. 107-17.

Chakrabarti, S. and Mitra, N. (2005), “Economic and environmental impacts of pollution control regulation on small industries: a case of study”, Ecological Economics, Vol. 54, pp. 53-66.

Chatterjee, B. (2005), “Global convergence of financial reporting standards: implications for India”, Indian Accounting Review, Vol. 9 No. 1, pp. 29-54.

Cormier, D. and Magnan, M. (2003), “Does disclosure matter?”, Camagazine, May, pp. 43-5.

Cormier, D. and Magnan, M. (2004), “The impact of the web on information and communication modes: the case of corporate environmental disclosure”, International Journal of Technology Management, Vol. 27 No. 4, pp. 393-416.

Cormier, D., Magnan, M. and Velthoven, B.V. (2005), “Environmental disclosure quality in large German companies: economic incentives, public pressures or institutional conditions?”, European Accounting Review, Vol. 14 No. 1, pp. 3-39.

Craven, B.M. and Marston, C.L. (1999), “Financial reporting on the internet by leading UK companies”, The European Accounting Review, Vol. 8 No. 2, pp. 321-33.

Cunningham, S. and Gadenne, D. (2003), “Do corporations perceive mandatory publication of pollution information for key stakeholders as a legitimacy threat?”, Journal of Environmental Assessment Policy & Management, Vol. 5 No. 4, pp. 523-49.
Davis, C.E., Clements, C. and Keuer, W.P. (2003), “Web-based reporting: a vision for the future”, Strategic Finance, September, pp. 45-9.
Debreceny, R., Gray, G.L. and Rahman, A. (2002), “The determinants of internet financial reporting”, Journal of Accounting & Public Policy, Vol. 21, pp. 371-94.
Deegan, C. (1997), “The materiality of environmental information to users of annual report”, Accounting, Auditing & Accountability Journal, Vol. 10 No. 4, pp. 562-683.
Deegan, C. and Gordon, B. (1996), “A study of the environmental disclosure practices of Australian companies”, Accounting & Business Research, Vol. 26 No. 3, pp. 187-99.
Dowling, J. and Pfeffer, J. (1975), “Organisational legitimacy: social values and organisational behavior”, Pacific Sociological Review, Vol. 18 No. 1, pp. 122-36.
Fortes, H. (2002), “The need for environmental reporting by companies”, Greener Management International, Winter, pp. 77-92.
Gallhofer, S., Haslam, J., Monk, E. and Roberts, C. (2006), “The emancipatory potential of online reporting: the case of counter accounting”, Accounting, Auditing & Accountability Journal, Vol. 19 No. 5, pp. 681-718.
Gamble, G.O., Hsu, K., Kite, D. and Radtke, R.R. (1995), “Environmental disclosures in annual reports and 10Ks: an examination”, Accounting Horizons, Vol. 9 No. 3, pp. 34-54.
GAO (1982), Content Analysis: A Methodology for Analyzing Written Material, US General Accounting Office, Washington, DC.
Gray, R., Javad, M., Power, D. and Sinclair, C.D. (2001), “Social and environmental disclosure and corporate characteristics: a research note and extension”, Journal of Business Finance & Accounting, Vol. 28 Nos 3/4, pp. 327-56.
Harte, G. and Owen, D. (1991), “Environmental disclosure in the annual reports of British companies: a research note”, Accounting Auditing & Accountability Journal, Vol. 4 No. 3, pp. 51-61.
Hooghiemstra, R. (2000), “Corporate communication and impression management – new perspectives why companies engage in corporate social reporting”, Journal of Business Ethics, Vol. 27 Nos 1/2, pp. 55-68.
Hughes, S.B., Anderson, A. and Golden, S. (2001), “Corporate environmental disclosures: are they useful in determining environmental performance?”, Journal of Accounting & Public Policy, Vol. 20, pp. 217-40.
Larrinaga, C., Carrasco, F., Correa, C., Llena, F. and Mneva, J.M. (2002), “Accountability and accounting regulation: the case of the Spanish environmental disclosure standard”, The European Accounting Review, Vol. 11 No. 4, pp. 723-40.
Milne, M.J. and Adler, R.W. (1999), “Exploring the reliability of social and environmental disclosures content analysis”, Accounting, Auditing & Accountability Journal, Vol. 12 No. 2, pp. 237-56.
Nafez, A.B. and Kamal, N. (2000), “Empirical evidence on corporate social disclosure (CSD) practices in Jordan”, International Journal of Commerce & Management, Vol. 10 Nos 3/4, pp. 18-34.
Neu, D., Warsame, H. and Pedwell, K. (1998), “Managing public impressions: environmental disclosures in annual reports”, Accounting, Organizations and Society, Vol. 23 No. 3, pp. 265-82.
Oyeler, P., Laswad, F. and Fisher, R. (2003), “Determinants of internet financial reporting by New Zealand companies”, Journal of International Financial Management and Accounting, Vol. 14 No. 1, pp. 26-63.
Paisey, C. and Paisey, N.J. (2006), “And they all lived happily ever after: exploring the possibilities of mobilizing the internet to promote a more enabling accounting for occupational pension schemes”, Accounting, Auditing & Accountability Journal, Vol. 19 No. 5, pp. 719-58.

Patten, D. and Trompeter, G. (2003), “Trompeter Corporate responses to political costs: an examination of the relation between environmental disclosure and earnings management”, Journal of Accounting & Public Policy, Vol. 22, pp. 83-94.
Pirchegger, B. and Wagenhofer, A. (1999), “Financial information on the internet: a survey of the homepages of Austrian companies”, The European Accounting Review, Vol. 8 No. 2, pp. 383-95.
Prabhu, S. (1999), “Green growth”, Harvard International Review, Vol. 21 No. 1, pp. 68-71.
Smith, K. (2002), “ISO considers corporate social responsibility standards”, The Journal for Quality & Participation, Vol. 25 No. 3, p. 42.
Thompson, P. and Cowton, C.J. (2004), “Bringing the environment into bank lending: implications for environmental reporting”, The British Accounting Review, Vol. 36, pp. 197-218.
Thompson, P. and Zakaria, Z. (2004), “Corporate social responsibility reporting in Malaysia”, Journal of Corporate Citizenship, Vol. 13, pp. 125-36.
Upton, W.S. (1998), “The internet and financial information – is there a future here?”, Accounting and Technology, June, pp. 28-32.
Wilmhurst, T.D. and Frost, G.R. (2000), “Corporate environmental reporting: a test of legitimacy theory”, Accounting, Auditing & Accountability Journal, Vol. 13 No. 1, pp. 10-26.
Yang, Z., Cai, S., Zhou, Z. and Zhou, N. (2005), “Development and validation of an instrument to measure user perceived service quality of information presenting web portal”, Information & Management, Vol. 42, pp. 575-89.

Corresponding author
Bikram Chatterjee can be contacted at: bchatter@csu.edu.au