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DEDICATION

This thesis is dedicated to my departed father – **MARTIN KAMALA NASIEMA** (aka Martin Payne) for his dedication to his craft and unmatched work ethic.

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DECLARATION

I, Peter Nasiema Kamala, declare that “**THE DECISION-USEFULNESS OF CORPORATE ENVIRONMENTAL REPORTS IN SOUTH AFRICA**” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of a complete list of references.

P. N. KAMALA

November 2014

ABOUT THE ACCOMPANYING CD: KAMPHD-CD

The enclosed CD contains eight folders of about 1500 pages of the data generated in the content analysis of the environmental reports via MS Excel software and quantitative analysis of responses of users and preparers via Statistical Package for Social Sciences (SPSS).

ABSTRACT

The broad aim of this research was to assess the decision-usefulness of environmental reports produced by South African companies that are listed on the Johannesburg Securities Exchange (JSE) to users of the reports. The study was motivated by a lack of research on the decision-usefulness of environmental reports in South Africa. The study was conducted in two phases. The first phase in form of a content analysis evaluated the decision-usefulness of the environmental reports of top 100 JSE-listed South African companies using a control list and a judgement scale.

The second phase in form of a questionnaire survey was aimed at determining, the information needs of users of environmental reports produced by South African companies (that are listed on the JSE), the extent to which they read and employ the reports for making decisions. In addition, this phase was meant to ascertain the degree of users' satisfaction with the decision-usefulness of the environmental reports as well as elicit their suggestions on ways of improving the reports. Furthermore, the second phase was aimed at determining the users' perception of the relative importance of environmental reports as well as ascertaining whether there was an expectation gap between the users and the preparers of the reports with regard to their decision-usefulness.

The results of the content analysis phase of the study indicate that the environmental reports of the sampled companies were decision-useful, however their decision-usefulness varied widely. Although decision-useful, the environmental reports of the sampled companies were not comparable. In addition, the environmental reports of companies from sectors with a significant impact on the environment, and those of large companies were more decision-useful than the reports of companies from sectors with an insignificant impact on the environment and those of smaller companies.

The results of the questionnaire survey phase of the study indicate that users prefer balanced environmental reports that disclose both negative and positive aspects that identify and describe key relevant issues, that are specific and contain accurate information, and that provide future oriented information. In addition, users prefer

environmental reports that identify and address key stakeholders and their concerns, demonstrate the integration of environmental issues into core business processes, and that compare quantitative impacts against best practice. Furthermore, the results also indicate that users do read environmental reports, mostly from companies' websites Portable Document Format (PDF) annual reports and that they mostly use the environmental reports for research, their own knowledge, and to hold companies accountable. However, users are not fully satisfied with the decision-usefulness of the environmental reports as they feel that there is a need to improve the reports in order to make them more decision-useful. The results also indicate that users perceive environmental reports to be more important than any other type of reports, most notably the financial reports. Comparing the responses of the users to those of preparers on various issues pertaining to the decision-usefulness of environmental reports, significant differences were found between the views of the two groups. These differences provide ample evidence that is consistent with the existence of an environmental reporting expectation gap in South Africa.

This study makes several original contributions to environmental reporting literature, most notable of which is that, it is the first study in the South African context to empirically evaluate the quality (decision-usefulness) of environmental reports in line with the accounting conceptual frameworks and the GRI guidelines combined. By so doing, the study introduces to the academic literature an extensive five dimensional qualitative characteristic framework for evaluating the quality (decision-usefulness) of environmental reports. In addition, the study uniquely employs the decision-usefulness theory to provide insights into the environmental reporting practices of South African companies that are listed on the JSE. In so doing, it re-contextualises the theory that is typically employed in explaining financial reporting, and demonstrates its applicability in explaining the decision-usefulness of the environmental reporting practices of South African companies that are listed on the JSE.

Key words

Decision-usefulness, environmental reports, environmental reporting, sustainability reporting, users, preparers, relevance, reliability, verifiability, comparability, understandability, timeliness, conceptual framework, non-financial reporting.

CHAPTER 1

INTRODUCTION AND PROBLEM STATEMENT

1.1 BACKGROUND

The main objective of accounting, regardless of whether it is financial, environmental or integrated reporting, is to provide information that is useful to users – those having a reasonable right to information concerning the reporting entity – for making decisions (FASB 2010: 01; GRI 2013: 17; IASB 2010: 43; ICAEW 1975: 17). Such information that is useful for making decisions is thus regarded as being decision-useful (GRI 2013: 17; Hooks & Van Staden 2004: 46). To be decision-useful, accounting information must be relevant and reliable (FASB 2008: 02; FASB 2010: 16; IASB 2008: 38; IASB 2010: 17). The decision-usefulness of accounting information can also be enhanced by making the information more comparable, understandable, timely and verifiable (FASB 2010: 19; IASB 2010: 19). Therefore the term decision-usefulness refers to the attributes (qualitative characteristics) of accounting information that make it useful to users for making decisions (FASB 2008: 02; FASB 2010: 16; IASB 2008: 38; IASB 2010: 17).

The recent collapses of companies, alongside a string of high profile companies' environmental disasters such as unabated oil spills, over-exploitation and depletion of non-renewable natural resources, noise pollution, contamination of air, water, land and food, over-fishing, deforestation, evidence of climate change and loss of bio-diversity have heightened the public sensitivity on environmental issues (Alrazi, De Villiers & Van Staden, 2011:3; Bond, 2013:694; Hibbit, 2004:34; KPMG, 2008a). The latter has led many stakeholders to question the relevance and reliability of accounting reporting practices as a basis making decisions about a company (IRC, 2011:01).

In the wake of the above disasters, stakeholders have criticised financial reports for failing to provide sufficient insight that provides a comprehensive picture of a company's performance, its ability to create and sustain value especially in the context of growing environmental challenges (IRC, 2011:01). As a result, companies have been pressurised

by stakeholders to not only adapt their strategies and their way of doing business, but also to adapt their way of reporting, to provide additional information meant to address the weaknesses of the financial reports (Deegan & Haque, 2009:14). Consequently, companies have responded to the pressure by increasing the number and volume of their environmental reports (Jira & Toffel, 2013:01; Marquis & Toffel, 2014:04; KPMG, 2008b:4). Not only has the scope of the environmental reports been increased but also the number of companies disclosing their environmental performance has increased significantly.

However, the increase in the quantity of environmental reports has occurred without a commensurate improvement in quality (IRC, 2011:01). As a result, the decision-usefulness of the environmental reports produced has been questioned (Delmas & Burbano 2011: 64; Kim & Lyon 2012: 311; Marquis & Toffel 2014: 01; Laud & Schepers 2009: 369). Specifically, most companies appear to have increased the quantity of their environmental reports without a meaningful stakeholder engagement exercise (Bromley & Powell 2012: 485). As a result, the stakeholders have not influenced the content presented in the reports as they have mostly been sidelined from the reporting process (Marquis & Toffel 2014: 19; CorporateRegister.com & ACCA 2004: 15). To cater for a diverse audience of stakeholders, most companies have simply produced generic and overloaded reports that do not address the unique needs of the stakeholders (Laud & Schepers 2009: 368; Owen 2003: 16). The foregoing have undermined the perceived relevance of the environmental reports.

Apart from relevance, the reliability of environmental reports has also been questioned (Laud & Schepers 2009: 365; McDonnell & King 2013: 01). Overwhelming criticism has suggested that the environmental reports produced tend to be biased and/or, self-laudatory with minimal negative information disclosure even when such information is known to exist (Delmas & Burbano 2011: 64; KPMG 2013: 76; Laud & Schepers 2009: 368). In addition, companies with the most obvious impact on the environment have tended to report more comprehensively on their environmental activities than those with lesser environmental impact in an attempt to legitimise their activities (KPMG 2011: 05; KPMG 2013: 07).

To improve the reliability of their environmental reports, an increasing number of companies have undertaken external verification of their environmental reports (Strandberg Consulting 2013: 05; KPMG 2013: 33). In addition, some companies have increasingly included third party commentaries in their environmental reports to enhance the integrity of those reports. However, the reliability of environmental reports has remained questionable due to the low levels of reasonable assurance of the reports, and a lack of well-established, standardised and institutionalised verifying methods, processes and procedures (GRI 2014: 05; KPMG 2013: 33). Where companies have opted for third-party commentary, such commentary has tended to be one-sided, typically portraying a company's report in a favourable manner, and lacks resentful voices (Business & Society, Morris & Chapman 2010: 21).

To promote comparability of sustainability reports (including environmental reports), the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines emerged as the *de facto* guideline for environmental reporting (Fonseca, 2010:05; GRI, 2000: 05). These guidelines which are widely recognised and used by companies across the world, guide organisations in the preparation of sustainability reports, regardless of their size, sector or location and offer an international reference for all those interested in the disclosure of environmental, social, economic performance and impacts of organisations (Fonseca, 2010:05; GRI & ACCA 2009: 06; OECD 2009: 241).

Despite the emergence of the GRI guidelines as guidelines of choice for most companies, the comparability of environmental reports has remained problematic (Fonseca, 2010:05). More specifically, GRI's ABC application level system of reporting—where a C level report required disclosure on 10 indicators, a B report required 20 and an A report required all 79 or an explanation for omission—though well-intended to distinguish beginners from advanced reporters, has allowed a variation in sustainability reports as companies can select favourable performance indicators uncommon to all reports and change the indicators from one year to another at will (Business & Society, Morris & Chapman, 2010:31; Fonseca, 2010:15). In addition, the Key Performance Indicators (KPIs) available to companies have hardly been clear, specific, measurable, accurate, reliable and are thus susceptible to inconsistent interpretation and application (Leavoy, 2010:01; SustainAbility, FBDS & UNEP 2008:16). Resultantly, environmental reports

have varied widely with regard to their scope, depth and content from high-quality and concise stand-alone reports, to an addition of a few pages in the annual reports, to short but glossy documents (KPMG, 2010:78; Kolk, 2005:38).

To cater for a growing number of stakeholder groups, companies have typically provided over-aggregated environmental information without supporting detail, in a manner that has impaired the users' ability to meaningfully assess and understand the performance of the companies (Deloitte, 2011:05). Among multi-national companies, reporting of environmental information has been disaggregated per country, product or line of business, in a manner that has undermined the understandability of the overall performance of a company (Mammatt, 2009:04). Besides, many companies have not taken advantage of their on-line capabilities to enrich the content of their environmental reports, in order to enhance understandability, but have instead opted for Portable Document Format, a replica of printed reports (CDC & PwC, 2010:05; Bolivar, 2009:194; Lodhia, 2006:83).

Likewise, most companies have not leveraged their on-line capabilities to produce more timely reports using HyperText Markup Language (HTML) format files, instead they have increasingly relied on PDF files whose up-loading takes a longer period of time (KPMG, 2011:22; Radley Yeldar & GRI, 2011:02). Where the HTML files are used, they have either duplicated prior years' information and have not always included dates that enable users to assess the currency (timeliness) of the reports. With most companies aligning their environmental reporting cycle to their annual reports, they have failed to take advantage of their on-line capabilities to report more frequently (FSC, SustainAbility & KPMG, 2010:03; Radley Yeldar & GRI, 2011:02).

Apart from the concerns discussed above, other concerns that have been raised pertaining to the current environmental reporting practices include:

- Irrelevance of environmental reports as a result of failure by most companies to exploit their on-line capabilities to tailor environmental reports to address the unique needs of different stakeholder groups (KPMG, 2011:22; Radley Yeldar & GRI 2011:02).

- Provision of dis-informative environmental reports with more scenic landscape photographs (green glossies) than the actual information required by stakeholders (Delmas & Burbano, 2011:64).
- Despite the emergence of assurance standards, the assurance statements in the environmental reports tend to vary significantly with regard to their title, range of objectives, scope of assignment, amount of description of the nature, timing and extent of procedures employed, as well as the wording of conclusions offered (Furmann, Ott, Looks & Gunther, 2013:02; Strandberg, 2013:12). In addition, most assurance statements do not include any recommendations for improvement, either from a content, accuracy or internal systems point of view, therefore they offer little insight into how the assurance process is useful to a company's environmental reports. These have undermined the reliability of the statements and the assured reports.
- Many stakeholders are dismissive of the assurance practices of companies as they have been sidelined from the assurance process (Furmann, *et al.*, 2013:02). Assurance engagements are determined by and undertaken for the companies' management, a tendency which has undermined the perceived independence of the assurance providers (ACCA, 2009:06; ACCA, 2009:08). In fact, many stakeholders have questioned the assurance processes, statements, practical competencies of the assurance providers and the overall institutional legitimacy of the non-financial assurance industry (Fonseca, 2010:19; ACCA, 2009:05; Elkington & Thorpe, 2009:01).
- Most performance measurement systems are inept and error prone, as they rely on manual or simple spreadsheet software that cannot guarantee accuracy of the reports produced (Ernst & Young, & Greenbiz, 2013:30; Haywood, Brent, Trotter & Wise, 2010:342; Marx & Van Dyk, 2009:01). Worse still, some companies include cautionary statements about the nature of the information contained in environmental reports, which further undermine the credibility of the reports (IRC, 2011:01).
- An apparent disconnection between the environmental reporting practice and the actual environmental performance (Leavoy, 2010:01). This has created an impression that most of environmental reporting is done for the sake of it, without a credible commitment to an improvement in environmental performance, as companies are not required to substantiate their claims made in the reports (Marquis & Toffel, 2014:01;

SustainAbility *et al.*, 2008:15). As a result, companies have retained their international certification, or even won environmental reporting awards and rankings despite a dismal sustainability performance (3 BL media, 2011:01). Besides, environmental reports have typically appeared to be disconnected from financial reports as the messages contained in companies' environmental reports have at times conflicted with those contained in the financial reports, a scenario that undermines the credibility of both sets of reports, alike (Mascha & Miller, 2014:02).

- The management of environmental issues appears to be disconnected from core business strategy and activities (KPMG, 2013:28; IRC, 2011:01). As a result, environmental reports are also disconnected from financial reports, generally provide a backward-looking review of performance, and almost always failed to make the link between environmental issues and companies' core strategies (IRC, 2011:01). Accordingly, environmental issues are perceived as peripheral activities, which neither merit inclusion into companies' Enterprise Resource Planning systems nor require daily management and monitoring (SAPLIB, 2009:01). As a result, environmental reports have failed to address the issues that cause a lingering trust deficit between the general public and the intentions and practices of companies (IRC, 2011:01).
- Despite the widespread uptake of the Internet as a medium of environmental reporting, and the resulting proliferation of environmental information reported, no efforts have been made to standardise the on-line reporting practice (Laud & Schepers, 2009:369). Besides, only a few companies employ Extensible Business Reporting Language (XBRL) for reporting (a software that makes inter-company comparability almost immediate) (GRI, 2012:14; Ernst & Young, 2007:22). As a result, the environmental reporting practice varies significantly such that it impairs the comparability of the environmental reports of different companies (KPMG, CFCGIA, GRI & UNEP, 2013:15). Similarly, the comparability of most companies' annual environmental reports to those of their prior years' are impaired by the fact information is not always presented in a consistent format, and that some environmental indicators are immeasurable, incomplete and ambiguous (Boiral, 2010:01).
- Apart from the GRI reporting guidelines, several other environmental reporting guidelines/frameworks have emerged that are not harmonised to GRI or to each other

(KPMG, CFCGIA, GRI & UNEP, 2013:15). Given that different companies are at liberty to select different guidelines, and considering that the requirements of these guidelines at times overlap, conflict and even compete, on key issues such as the reporting format, the comparability of environmental reports has been impaired.

- Most companies have proliferated their environmental reports in different formats and types, using a varying range of media such as paper and electronic which not only lead to multiplication of data and but also it diminished the comparability of the reports to the readers (Business & Society, Morris & Chapman, 2010:31; Laud & Schepers, 2009:369).
- By purporting to cater for diverse stakeholder groups, many companies simply expanded their reports by dumping of verbose, unprioritised and unintelligible information with a limited attempt to explain their industry specific jargon or technical indicators (Business & Society, Morris & Chapman, 2010:14).

Environmental reporting is aimed at providing information that is useful to a wide range of users for making decisions (GRI, 2013:17). However, the concerns raised above cast serious doubts on the ability of the current environmental reporting practices to meet users' needs. Consequently, debate is rife as to whether the environmental information provided by companies is useful to users and whether the users actually employ the information for making decisions (European Commission, 2011b:92; 93; Hwang, Khoo & Wong, 2013:178; Said, Ahmad & Senik, 2013:440).

In many countries, most researchers have argued that companies do not provide environmental information to aid users in making decisions, but rather as a means to legitimise their operations in society and subsequently reap the rewards of such legitimacy (De Villiers & Van Staden, 2009; De Villiers & Van Staden, 2006:763; De Villiers & Lubbe, 2001:81; Deegan, 2002:302; Jollands, Akroyd & Sawabe, 2012:06; O'Donovan, 2002:346). This argument is supported by the finding that most companies seem to provide environmental information without enquiring what the users require (De Villiers & Van Staden, 2008:1). In addition, firms experiencing an environmental crisis often disclose more general and unimportant environmental information (green-wash) to create the impression of being environmentally sensitive (Delmas & Burbano, 2011:64; De Villiers & Van Staden, 2009:31). Other researchers have maintained that under the

voluntary environmental reporting regimes, environmental information disclosed is inadequate even when relevant (Antonites & De Villiers, 2003:10; Danastas & Gadenne, 2004:02; Laud & Schepers, 2009:366; Solomon & Solomon, 2006:573).

Similarly, some researchers have found environmental information to be simply irrelevant and unreliable (Campbell & Slack, 2008:5; Hunt & Grinnell, 2004:102; Delmas & Burbano, 2011: 64). In addition, some have lamented that users distrust or are sceptical of environmental information (IRC, 2011:01; Macalister, 2007:01). Likewise, some companies have decried a lack of request for their environmental information or feedback where such information is published, which indicates a lack of demand for environmental information (European Commission, 2011b:91).

On the contrary, some researchers have contended that users do use environmental information as evidenced by stock market reaction to disclosure of environmental performance information (Came, 2011:01; Flammer, 2012:01; Moneva & Cuellar, 2009:441). Similarly, some researchers have opined that users do not only use environmental information, but also they influence the environmental reporting practices to suit their needs (Islam & Deegan, 2010:13; Deegan & Islam, 2009:1; Deegan 2002:282; Deegan & Blomquist, 2006:370).

Other researchers have documented mixed findings whereby users perceive environmental information to be material, and yet they rank it below financial information (Deegan & Rankin, 1997:580; Myburgh, 2001:211; Stainbank & Peebles, 2006:75). Conversely, some researchers have found that users rank environmental information higher than certain types of information such as social information and employee information (Epstein & Freedman, 1994:106; Stainbank & Peebles, 2006:75). Yet other researchers have compared attitudes and expectations of preparers to those of users and found considerable disparities, which indicate an environmental reporting expectation gap (Deegan & Rankin, 1999:341; Haque, Deegan & Inglis, 2013:22; Myburgh, 2001:211; Mitchell & Quin's, 2005:17).

Various researchers have investigated the usefulness of annual reports to specific user groups, most notably the analysts, who are perceived to be sophisticated, most informed

and articulate user group of annual reports (Bartlett & Chandler, 1997:254; Beattie & Pratt, 2002:01; Campbell & Slack, 2008:05; Johansson, 2007:30; Deegan & Rankin, 1999:326; Rowbottom & Lymer, 2007:1). The researchers have found that analysts do not perceive environmental reports to be useful, as only financial statements are important to this user group. Other researchers have argued that environmental information is useful to some user groups and not to others (Deegan & Rankin, 1997:580; European Commission, 2011b:91). Deegan and Rankin, (1997:580) for example found that environmental information was of importance to non-institutional investors but of little importance to investment analysts. Likewise the European Commission (2011b:91) found that environmental reports were useful to the civil society, media and consumers but not to investors, analysts and employees.

Some researchers have lamented that users were asking for better environmental information than they were receiving (Haque *et al.*, 2013:21; Thomson & Cowton, 2004:214; Danastas & Gadenne, 2004:85). Haque *et al.* (2013:21) found an expectation gap between the climate-change related corporate governance information reported by companies and the information sought by stakeholders. Similarly, Danastas and Gadenne (2004:85) found that non-governmental organisations (NGOs) in Australia used corporate environmental reports, however, they perceived the reports to be insufficient even when relevant. The researchers speculated that the provision of inadequate environmental information may indicate a lack of commitment to accountability and transparency.

Consistent with the international trends, studies conducted on environmental reporting in South Africa have revealed a growing interest in corporate environmental reports among users (De Villiers & Vorster, 1995:57; De Villiers, 1998a:159; De Vries & De Villiers, 1997:3; De Villiers & Van Staden, 2010b:442; Mitchell & Quinn's, 2005:26). More specifically, the studies have indicated that users want more environmental information than was being provided. In addition, the studies have revealed that users are in favour of inclusion of environmental information in the annual reports. The studies have further found that environmental reports provided were perceived to be insufficient, unsystematic and incomparable among the reporting companies. Similarly, Mitchell and Quinn (2005:17), and Myburgh (2001:211), have found that there is an expectation gap between users and preparers on the environmental information that should be disclosed by South

African companies listed on the JSE.

Unlike in the developed countries such as the United States, United Kingdom and Australia, there is a paucity of research which investigates the decision-usefulness of environmental reports in South Africa. Moreover, the research conducted on decision-usefulness of environmental reports is outdated in the contemporary dynamic reporting arena and therefore there is a need for more recent research (De Villiers & Van Staden, 2010b:442; De Villiers & Vorster, 1995:57; De Villiers, 1998a:159; De Vries & De Villiers, 1997:03; Mitchell & Quinn, 2005:17).

1.2 PROBLEM STATEMENT

The research problem investigated by this thesis is that the increase in the volume and number of environmental reports produced by South African companies that are listed on the JSE appears to have occurred without a commensurate improvement in quality (KPMG, 2013:39). As a result, the decision-usefulness of the environmental reports produced is doubtful (IRC, 2011:01). Notwithstanding the commendable effort by the JSE-listed companies to increase the quantity of environmental reports produced, they appear to be disconnected from the financial reports, generally provide backward looking review of performance, and almost always fail to make a link between environmental issues and the company's core strategy (IRC, 2011:01; KPMG, 2013: 23). Accordingly the reports have failed to address the lingering distrust among stakeholders of the intentions and practices of companies.

Given that limited environmental reporting research has been conducted in South Africa on users' environmental information needs, the extent to which they read environmental reports, whether they employ the reports to inform their decisions, their level of satisfaction with the reports and perception of relative importance of the reports, little is known about their perception of decision-usefulness of the reports. Considering that the main objective of accounting, and environmental reporting is not an exception, is to provide information that is useful to users for making decisions (FASB, 2010:01; GRI, 2013:17; IASB, 2010:43), it is imperative that users' perceptions on decision-usefulness of environmental reporting be investigated if the above overarching objective is to be

met.

1.3 ASSUMPTIONS

This thesis assumes that the Integrated Annual reports (IARs), Stand-alone Sustainability Reports (SSRs), and company websites are the only media used by South African JSE-listed companies to disseminate environmental reports. The thesis also assumes that the relevance, reliability (verifiability), comparability, understandability and timeliness can be measured if an appropriate control list and judgement scale is used. The thesis further assumes that the users themselves are in the best position to determine the type of information that will influence their decision-making (decision-useful), and that the information they say they want is the information they need. The needs and wants are assumed to be in the context of users' decision making as it is in this context that information is necessary to help reduce the inevitable uncertainty that surrounds every action. The thesis further assumes that users are heterogeneous, and thus does not distinguish the perceptions of different user groups. The thesis also assumes that the questionnaire surveys, if properly used, will reveal the actual preferences of the users.

1.4 RESEARCH QUESTION AND SUB-QUESTIONS

1.4.1 Research question

In this study, the following is the main question that will be answered: Do the users of South African companies' environmental reports perceive those reports to be decision-useful?

This study only focusses on the JSE-listed companies as these are the only companies that are mandatorily required to produce integrated reports in order to comply with the JSE listing requirements.

1.4.2 Research sub-questions

From the above main question, the following sub-questions will be answered in this study:

1. Are the current environmental reporting practices of South African companies producing decision-useful environmental reports?
2. What are the information needs of users of environmental reports produced by South African companies?
3. To what extent do users read the environmental reports produced by South African companies? Do the users employ those reports when making decisions?
4. To what extent are users satisfied with the decision-usefulness of the environmental reports produced by South African companies? What are users' suggestions for improving the environmental reports?
5. How do users rank environmental information relative to other types of information such as financial and social responsibility information?
6. Is there is an expectation gap between users and preparers of environmental reports with regard to the decisions-usefulness of the reports?

1.5 OBJECTIVES OF THE STUDY

The broad aim of this study is to assess and determine the decision-usefulness of environmental reports prepared by JSE-listed South African companies to users. The study is motivated by a lack of recent research on the decision-usefulness of environmental reports in South Africa. Moreover, some time has lapsed since this problem was last investigated in South Africa (De Villiers & Vorster, 1995:57; De Villiers, 1998a:159; De Vries & De Villiers, 1997:3; De Villiers & Van Staden, 2010b:442; Mitchell & Quinn, 2005:17). The environmental reporting arena has also changed considerably since a similar research was last conducted. Towards achieving the above broad aim, the following specific objectives were pursued:

- To evaluate the decision-usefulness of the environmental reports produced by South African companies
- to determine the information needs of users of environmental reports produced by South African companies
- to determine the extent to which users read the environmental reports and whether

they employ the reports when making decisions

- to determine the degree of satisfaction of users with regard to the decision-usefulness of the environmental reports and suggest ways of improving those reports
- to investigate how users rank environmental information relative to other types of information such as financial and social responsibility information
- to ascertain whether there is an expectation gap between preparers of environmental reports and users of those reports with regard to the decisions-usefulness of the reports

1.6 IMPORTANCE OF THE STUDY

This research which investigates users' perceptions on decision-usefulness of environmental reports is important for various reasons:

Firstly, it will provide valuable insights to preparers of environmental reports wishing to enhance the decision-usefulness of their reports to users as they will be made aware of users' needs, the extent to which they read the reports, how they employ the reports, the attributes of the reports that satisfy their needs and how they rank environmental reports relative to other types of reports. In addition, preparers will be made aware of reading techniques employed by users when reading environmental reports, and the preferred medium from which they read the reports. With this awareness, preparers will be able to prepare reports that are perceived to be decision-useful by users. Decision-useful reports can benefit South African companies to better appreciate the link between financial and non-financial performance, streamline their processes, reduce costs and improve their efficiency through driving innovation and process optimisation by fostering alignment, synergy and capacities of employees. These should increase their productivity and result in new market offerings, a higher sustainable economic return and increased firm value. Therefore reporting of decision-useful environmental reports could actually improve the financial performance of South African companies, and enable them to demonstrate their long-term sustainable financial value.

Secondly, given the recent spate of corporate scandals, string of environmental disasters and the resulting climate of stakeholders' distrust of South African companies, a holistic

approach to transparency is required. The latter can only be achieved if companies prepare both decision-useful financial reports as well as non-financial reports. This study informs the companies on the attributes of environmental information perceived by users to be decision-useful, and thus aides them in achieving holistic transparency with which they can regain trust and credibility in the eyes of the stakeholders and ultimately attract consumers that value businesses with sound environmental practices. By regaining stakeholder' trust, South African companies could benefit from a lower cost of capital, brand loyalty, boosted brand image and reputation. The latter could further enable the companies to differentiate themselves from the competition thus create a competitive advantage in attracting and retaining capital and labour, as well as increasing market share or even enable the companies to negotiate better contract terms.

Thirdly, given that many South African companies have already undertaken bold initiatives to improve their environmental performance, manage their environmental costs, respond to stakeholder demands for environmental information, prepare for future environmental regulatory requirements, this study informs them on how to effectively communicate these initiatives to users. By reporting decision-useful environmental information to users, South African companies will not only improve their internal awareness of environmental issues that face them, they will themselves be empowered to reach better decisions as such information is equally useful for internal management. By preparing decision-useful environmental information, the companies will be able to better measure, interpret and understand their environmental performance and areas that need improvement. In fact, decision-useful environmental information can induce a change in the behaviour of companies in addressing environmental issues as companies tend to improve their performance in the areas that they disclose as it highlights areas of weaknesses, that can be focused on to bring about the desired improvement. This should improve the environmental performance of South African companies thus mitigate their environmental impact on the ecosystem.

Fourth, preparing decision-useful environmental reports will also enable managers of South African companies to be in a better position to benchmark and assess their companies' performance against the norms, codes, performance standards and the ever changing regulations, and take corrective or anticipatory decisions deemed necessary.

This should enable them to be in a better position to respond to their competitors' initiatives and cushion their companies against possible legal actions that could arise from their companies' environmental activities. In addition, given that the preparation of environmental reports takes a significant amount of managers' time and effort as well as company resources, it is only worthwhile if the resulting environmental reports are perceived to be decision-useful.

Fifth, this study encourages South African companies to prepare decision-useful environmental reports, as such reports can help inform and shape their corporate responsibility strategies by enabling them to demonstrate their commitment to sustainability development. Given the intensive efforts of producing decision-useful environmental reports, such reports can guide the implementation of environmental programmes and ensure their continuity. In addition, decision-useful reports can enable companies to identify and address business risks and opportunities. Understanding risks, anticipating and mitigating with those risks appropriately saves companies time and money. Furthermore, preparation of decision-useful environmental reports ensures transparent communication and engagement with stakeholders in respect to the company's environmental performance and provides the users with vital information required to make informed choices.

Sixth, this research encourages the expansion of the reporting model beyond financial reporting model to provide holistic information required for corporate transparency and accountability, through development of metrics for measuring decision-usefulness of environmental reports. It does so by developing new ways of documenting disclosure practices, identifying assumptions of disclosure quality and exploring possible measurement proxies of the qualitative characteristics of environmental reports. This study will inform the users of the need to pay attention to the quality of environmental reports, and of the attributes of environmental reports that can enhance their decision-usefulness. This should encourage stakeholders to compel companies to find better ways of producing decision-useful information that address the ever changing and varied concerns of stakeholders. Alternatively, the stakeholders will refrain from using information that is deemed not to be decision-useful as such information may result in erroneous decisions, which have increasingly become irreversible.

Seventh, conventional accounting systems, alongside international accounting standards, fail to directly and systematically address environmental stakeholder' concerns, as they typically focus on maximisation of financial gains but ignore the environmental costs of those gains. Considering that stakeholders are increasingly concerned with the way companies are responding to environmental issues, and that conventional accounting systems have failed to promote the needs of non-financial stakeholders, a research that speaks to the neglected needs of non-financial stakeholders is thus essential. This study empowers users of environmental reports as it lends a voice to these users to indicate their environmental information needs and preferences. Besides, the findings of this study serve to redress the imbalance between preparers and users in lobbying regulators to enforce preparation of decision-useful information. In fact, the regulators may draw directly from this study's findings, the input required for formulating measures for improving the decision-usefulness of environmental reports produced by South African companies.

Eighth, the findings of this study will be of significance to the government and accounting standard setters/reporting guideline developers, given that these authoritative bodies undertake the task of formulating new legislation and accounting standards/guidelines respectively, and amending the existing ones. The findings provide invaluable insights on specific attributes perceived by users to enhance decision-usefulness of environmental reports, which could be used to inform future endeavours by these regulatory bodies when guiding South African companies' environmental reporting practices. The findings of this study will also be of significance to accounting academics who may adapt the framework developed in the content analysis phase of this study to evaluate the decision-usefulness of other non-financial reports, with a view to improve the quality of these reports.

1.7 SCOPE OF THE STUDY

As already indicated, the broad aim of this study is to assess and determine the decision-usefulness of environmental reports prepared by South African JSE-listed companies to users of those reports. Accordingly the study is conducted in two phases – content analysis phase and a questionnaire survey phase – which are critical in defining the scope

of the study.

1.7.1 Scope of the content analysis phase of this study

The content analysis phase of the study will only analyse and assess the decision-usefulness of environmental reports of the top 100 JSE-listed operating South African companies. In particular, the study will analyse and assess the relevance, reliability (verifiability), comparability, understandability, timeliness and overall decision-usefulness of environmental reports of the top 100 JSE-listed operating South African companies. Accordingly the environmental reports of non-operating companies, unlisted companies, or companies that fall below the top 100 will be excluded from this study.

Only the environmental reports contained in the IARs, SSRs and companies' websites will be analysed based on the items contained in five checklists and two judgement scales. Thus any environmental disclosures on other media such as advertisement, promotional material, press releases, and packaging of company products are ignored. In addition, only the environmental reports produced in the year ended 31st December 2013 will be analysed.

1.7.2 Scope of the questionnaire survey phase of the study

The questionnaire survey phase of the study will only focus on the environmental information needs of users, the extent to which the users read environmental reports, whether they employ the reports when making decisions, their degree of satisfaction with the decision-usefulness of the reports, and their suggestions for improving the latter. In addition, the study will only focus on how users rank environmental information relative to other types of information, and whether there is an expectation gap between users and preparers of environmental reports with regard to the decisions-usefulness of the reports. Only the perceptions of three user groups will be elicited, namely; ethical investment funds, environmental NGOs and environmental accounting researchers. In addition, only the perceptions of preparers from top 100 JSE-listed companies will be elicited. The views of the respondents will only be elicited during the period between 1st July 2013 and 31st December 2013.

1.8 RESEARCH METHODOLOGY

As already indicated, the research methodology will be divided into two phases. The first phase aimed at evaluating the decision-usefulness of the current environmental reporting practices by South African companies will be in form of a content analysis study. The second phase aimed at eliciting the users' and preparers' perceptions on decision-usefulness of environmental reports will be in form of a questionnaire survey.

1.8.1 Content analysis phase of the study

Content analysis; “a technique for making inferences by objectively and systematically identifying specified characteristics of messages” (Holsti, 1969:142); will be employed to achieve the first research objective which is to evaluate the decision-usefulness of the environmental reports produced by South African companies. Given the scarcity of theory on environmental reporting practices in South Africa, the current study will explore, interpret, describe and explain the nature and type of information provided in environmental reports. Therefore, the proposed research will contribute to theory-building, rather than test the existing theory (Leedy & Ormrod, 2001:101), and is thus in the realm of qualitative research.

The first research objective requires that the presence of certain words and concepts within the texts of the environmental reports be investigated. This type of research lends itself well to a content analysis (Krippendorff, 1980:61). Besides, the methodology is justified as a common practice as it has been widely used in similar prior research (Borkowski, Welsh & Wentzel, 2010; CPA Australia & GRI, 2013; KPMG, 2008b; Cowan, 2007; Jose & Lee, 2006; De Villiers & Van Staden, 2006; O'Donovan, 2002). Content analysis methodology was also selected due to its various advantages (Krippendorff, 1980:21); firstly, it is an unobtrusive technique therefore the subject company is unaware of the study and thus acts naturally. Secondly, the problems of non-response bias associated with questionnaires are avoided. Thirdly, the researcher can accept data in a variety of forms such as annual reports, websites and corporate responsibility reports.

1.8.1.1 The research population and sample

The population of the proposed research will comprise the top 100 operating companies listed on the JSE (See Appendix I). The sample will consist of 66 top 100 JSE-listed operating companies based on market capitalisation as quoted on the Sharenet website – a reliable website that provides on-line information on companies listed on the JSE – on 1st January 2013 (See Appendix J). The top 100 JSE-listed operating companies have been selected due to their large sizes and obvious impact on the ecologies of the areas that they operate from (Jose & Lee, 2006:311). In addition, information relating to these companies is more readily available as compared to other forms of businesses.

1.8.1.2 Data collection

In principle, the data collection exercise will entail scanning of IARs, SSRs and websites of companies to determine the presence of pre-listed items contained in the five control lists and two judgement scales applied to determine the quality of the item disclosed (refer to Appendix A; B; C; D and E). To measure relevance, reliability (verifiability), timeliness and understandability of an item pre-listed in four control lists (See Appendix A; B; C; D), a company's IAR, SSR and website will be scanned to determine the presence of the pre-listed. If the item is absent, a score of zero points will be assigned. If present, the nature of disclosure of the item will then be assessed and a score of one point assigned if it is narrative, two points if it is quantitative but non-monetary, and three points if it is monetary in nature. One extra point will be awarded if the disclosure is futuristic or specific.

To measure comparability, a unique control list (containing GRI environmental performance indicators) and a judgement scale will be employed (See Appendix E). If a performance indicator pre-listed in the control list is absent in the IAR, SSR and a website of a company, a score of 0 points will be assigned. If present, the performance indicator will be assigned scores according to how it is disclosed. If narrative, it will be assigned one point, however if quantitative, it will be assigned two points. A performance indicator will be awarded three points if disclosed relative to the prior periods, but four points if disclosed relative to targets. A performance indicator will be assigned five points if disclosed relative to that of other companies or industry averages.

1.8.1.3 Data analysis

A total score for each company will then be computed for each of the five qualitative characteristics, namely, relevance, reliability (verifiability), comparability, timeliness and understandability. The total score will then be expressed as a percentage of a maximum possible score that a company can get, to arrive at sub-quality index for each of the five qualitative characteristics. The sub-quality indices will then be used to rank the sampled companies in a descending fashion (from highest scorer to the lowest scorer).

To determine the overall decision-usefulness score for each company, an arithmetic mean of the five sub-quality indices will be computed. The arithmetic mean also in a percentage form will provide the overall disclosure quality index for each company, which will be used to rank companies in a descending fashion (from highest scorer to the lowest scorer).

1.8.1.4 Validity and reliability

To ensure reliability of the content analysis instruments, measures will be undertaken to achieve stability and reproducibility of the analysis. To achieve stability, the content analysis of the environmental reports will be conducted twice at different dates, in a two-week interval. The control lists filled in each round will be compared to determine any discrepancies in the results. Any differences observed between both rounds will be noted and promptly rectified. To achieve reproducibility, two coders will be used in the pilot phase of the study and measures undertaken to minimise the discrepancies between the two coders by providing training, clear instruction, clear coding rules as well as using inter-coder comparison and reconciliation.

1.8.2 Survey

The second, third, fourth, fifth and sixth research objectives aim at determining the perceptions of users and preparers regarding the decision-usefulness of environmental reports produced by South African companies. This type of research lends itself well to a questionnaire survey. Besides, the methodology is justified as a common practice widely used in similar prior research (De Villiers & Van Staden, 2010a; De Villiers & Van

Staden, 2010b; Miller, 2012:01; Mitchell & Quinn, 2005:22; Wong, 2012:266). The questionnaire survey methodology was also selected due to its various advantages (Ambe, 2007:131); firstly, it is a quick, inexpensive and convenient way of obtaining information from a large number of widely dispersed respondents, than using the personal interviews method. Secondly, respondents can complete the questionnaire anonymously, thus ensuring confidentiality. Thirdly, it facilitates comparison and analysis of views from a wide range of respondents, particularly if closed-ended questions are used (Johnson & Christensen, 2010:170). Fourthly, unlike the personal interviews, it allows the respondents to answer the questions at their own convenience without the undue influence of the researchers' presence, which tends to introduce bias (Al-Mubarak, 1997:180).

1.8.2.1 Research population and sample

The population of users as defined in the accounting conceptual frameworks could foreseeably consist of the entire South African population (GRI, 2008; IASB, 2008; FASB, 2010; Mitchell & Quinn, 2005:22). This study will only focus on the user groups actively involved in 1) ethical investments (ethical investment funds and their representatives), 2) environmental protection (environmental NGOs and their representatives), and 3) environmental reporting research (environmental reporting researchers who have published journal articles on annual reporting in South Africa). Given the lack of a comprehensive public listing of all ethical investment funds, environmental NGOs and environmental reporting researchers in South Africa, a compilation of a population frame list will be done with aid of the Internet. Consistent with the prior studies, a census of the identified users will be conducted given that the population of users is expected to be relatively small (Tilt, 1994; Danatas & Gadenne, 2006:08).

The population of preparers of environmental reports will comprise representatives of the top 100 operating JSE-listed companies. This will include finance directors, accountants, executives, managers and consultants. Again, a census of the preparers will be conducted, as done in prior studies, given that the population is expected to be relatively small (Tilt, 1994; Danatas & Gadenne, 2006: 08).

1.8.2.2 Questionnaire design and data collection

Two similar questionnaires will be designed; the first one will elicit the views of users regarding the decision-usefulness of environmental reports prepared by South African companies (see Appendix G). Likewise, the second questionnaire will elicit the perceptions of the preparers on the same (see Appendix H). The respondents will be sent an e-mail, with a request to click on a Uniform Resource Locator (URL) link provided in the e-mail message and to complete the web-based survey anonymously. This implies that only respondents who have an e-mail address will be included in this survey.

1.8.2.3 Data analysis

The data from the returned questionnaires will be analysed using Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics such as percentages, means, and standard deviations as well as inferential statistics such as T-Tests, Binomial Tests, Chi-square Tests, will be used to analyse the data collected from the questionnaires. The views of users and preparers will then be compared to determine whether there are significant differences that could suggest the existence of an expectation gap. Question 14 in both questionnaires is open-ended. Accordingly a qualitative data analysis method, in the form of Creswell's data analysis spiral will be employed to analyse the users and preparers responses to this question. Again the views of users and preparers will then be compared to determine whether there are significant differences that suggest the existence of an expectation gap.

1.8.2.4 Reliability and validity

The reliability of the research instrument will be tested in a pilot test of the questionnaires meant to ascertain whether the questions are clear, unambiguous and understandable. This should ensure consistency in the results obtained. During the pilot test, the questionnaires will be completed and critically evaluated by ten selected academics with vast experience in questionnaire design. Any shortcomings in the questions will be promptly rectified. To further test for reliability, Cronbach's Alpha, a coefficient that is commonly used to measure the internal consistency of a questionnaire will be computed to test the internal reliability of the two questionnaires (Trochim & Donnelly, 2008:130).

As suggested by Rowley (2002), construct validity of the questionnaires will be achieved by reducing subjectivity of questions in a questionnaire through linking the questions posed to the original research questions or research objectives. In addition, a pilot test of the questionnaires will be conducted in which the questionnaires were completed and critically evaluated by ten selected academics with vast experience in questionnaire design. The input of the 10 academics will also be employed to ensure content validity. To ensure external validity, measures such as the use of a census will be undertaken to achieve an acceptable response rate and minimise non-response bias.

1.9 LIST OF DEFINITIONS USED

Prior literature provides definitions for various accounting terms deemed relevant for this study. For the purpose of this study, the following definitions will be used, while some will be provided within the context of the thesis.

1.9.1 Environmental reporting

Environmental reporting is defined as “the process of communicating...environmental effects of organisations’ economic actions to particular interest groups within society and to society at large” (Gray, Owen & Maunders, 1987:9). Environmental reports are the outcome of environmental reporting that are communicated to the users. For the purpose of this study, the terms environmental reporting refers both to the process of communicating and the outcome that is communicated.

1.9.2 Sustainability reporting

Sustainability reporting is defined as the “process of communicating social and environmental effects of a company's activities to particular interest groups within society and to society at large” (Gray, Owen, & Maunders, 1987:ix). It involves extending the accountability of a company beyond the traditional role of providing a financial account to the shareholders.

1.9.3 Social reporting

Social reporting is defined as “the process of communicating the social ... effects of a company's activities to particular interest groups within society and to society at large” (Gray *et al.*, 1987:ix). It entails reporting on issues such as workplace health and safety, employee retention, labour rights, human rights, community engagement, product responsibility and company philanthropy (GRI, 2000:01).

1.9.4 Users

The Institute of Chartered Accountants in England and Wales (ICAEW) (1975:17) defines users as those “having a reasonable right to information concerning the reporting entity. A reasonable right to information arises where the activities of an entity affect or may affect the interest of a user group”. The users include; equity investors, creditors, employees, analysts/advisers, business contact groups, government and the general public. For the purpose of this research, users refer to ethical investment funds, environmental NGOs and environmental reporting researchers or academics in South Africa. The terms user, stakeholder and reader will be used interchangeably.

1.9.5 Preparers

The term preparers refers to companies’ directors, managers, accountants, and company officials who are directly and or indirectly involved in the preparation of environmental reports (Mitchell & Quinn, 2005:18). For the purpose of this study, the term preparers refers to those who are involved in the preparation of environmental reports of top 100 companies listed on the (JSE).

1.9.6 Decision-usefulness

As alluded to in the first paragraph, environmental information, like any other accounting information, is decision-useful if it assists users to make decisions (GRI, 2013:17; Hooks & Van Staden, 2004:46). To be decision-useful, environmental information must be relevant and reliable (FASB, 2008:02; FASB, 2010:16; IASB, 2008:38; IASB, 2010:17). Decision-usefulness of environmental information is enhanced when such information is comparable, understandable, timely and verifiable (FASB, 2010:19; IASB, 2010:19).

1.9.7 Expectation gap

An expectation gap is the difference between the expected levels of disclosure by users of the accounting reports and the actual levels of disclosure provided by preparers of those reports (Haque *et al.*, 2013:02; Mitchell & Quinn, 2005:18). For the purpose of this study, an expectation gap will be deemed to exist if the perceptions of users on various aspects of decision-usefulness of environmental reports significantly differ from those of users.

1.10 LIST OF ABBREVIATIONS AND ACRONYMS USED

Below is a list of abbreviations and acronyms used in this thesis.

TABLE 1.1: LIST OF ABBREVIATIONS AND ACRONYMS USED

AA1000AS	AccountAbility 1000 Assurance Standard
AAA	American Accounting Association
ACCA	Association of Chartered Certified Accountants
AICPA	American Institute of Certified Public Accountants
APB	Accounting Practices Board
API	American Petroleum Institute
ARA	Australasian Reporting Awards
ASOBAT	A Statement of Basic Accounting Theory
BAR	Behavioural Accounting Research
BiE	Business in the Environment
CAATs	Computer Assisted Audit Techniques
CBFSR	Canadian Business For Social Responsibility
CBSR	Canadian Business for Social Responsibility
CDC	Craib Design and Communications
CEMS REC	College of Economic and Management Sciences Research Ethics

	Committee
CEO	Chief Executive Officer
CERES	Coalition for Environmentally Responsible Economies
CFCGIA	Centre For Corporate Governance In Africa
CICA	Canadian Institute of Chartered Accountants
CIMA	Chartered Institute of Management Accountants
CRC	Corporate Responsibility Coalition
CRS	Congressional Research Service
CSD	Corporate Social Disclosure
CSED	Corporate Social and Environmental Disclosures
CSR	Corporate Social Responsibility
CPA	Certified Practising Accountants
DCCA	Danish Commerce and Companies Agency
DTT	Deloitte Touché Tohmatsu
EEA	European Environment Agency
EIRS	Ethical Investment Research Services
EIU	Economist Intelligence Unit
EMI	Environmental Mainstreaming Initiative
EMS	Environmental Management System
ENS	Environment News Service
EPA	Environmental Protection Authorities
E-PRTR	European Pollutant Release and Transfer Register
FASB	Financial Accounting Standards Board
FBDS	Fundação Brasileira para o Desenvolvimento Sustentável
FEE	Fédération des Experts Comptables Européens

FSC	Futtera Sustainability Communication
GEMI	Global Environmental Management Initiative
GHG	Greenhouse Gas
GMA	Grocery Manufacturers Association
GRI	Global Reporting Initiative
HBS	Harvard Business School
HTML	Hyper Text Markup Language
IARs	Integrated Annual Reports
IASB	International Accounting Standards Board
ICAEW	Institute of Chartered Accountants in England and Wales
IFAC	International Federation of Accountants
IMA	Institute of Management Accountants
IODSA	Institute of Directors in Southern Africa
IPIECA	International Petroleum Industry Environmental Conservation Association
IRC	Integrated Reporting Committee
IRRC	Investor Responsibility Research Center
ISAE	International Standard on Assurance Engagements
JAS-ANZ	Joint Accreditation System - Australia and New Zealand
JSE	Johannesburg Securities Exchange
KPI	Key Performance Indicators
KPMG	Klijnveld Peat Marwick Goerdeler
MBA	Masters in Business Administration
MPRA	Munich Personal Repec Archive
NAOD	National Audit Office of Denmark

NGOs	Non-Governmental Organisations
NHDES	New Hampshire Department of Environmental Services
OECD	Organisation for Economic Co-operation and Development
OGPPG	Oregon Green Permits Program Guide
PDF	Portable Document Format
PERI	Public Environmental Reporting Initiative
PwC	PricewaterhouseCoopers
RMG	Risk Metrics Group
SAICA	South African Institute of Chartered Accountants
SAPLIB	Systems, Applications & Products Library
SATTA	Statement on Accounting Theory and Theory Acceptance
SEE	Social, Ethical and Environmental
SPR	Security Price Research
SPSS	Statistical Package for Social Sciences
SRI	Socially Responsible Investment
SSRs	Stand-alone Sustainability Reports
TEC	The Environment Council
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environmental Programme
UNGC	United Nations Global Compact
UNPRI	United Nations Principles for Responsible Investment
URL	Uniform Resource Locator
USA	United States of America
WBCSD	World Business Council for Sustainable Development

WFE	World Federation of Exchanges
WRI	World Resources Institute
XBRL	eXtensible Business Reporting Language

1.11 DEMARCATION OF CHAPTERS

CHAPTER 1: INTRODUCTION

This chapter introduces the research topic, provides the background of the research and outlines the research problem. In addition, the chapter provides the objectives and scope of the research as well as the research methodology employed to solve the problem.

CHAPTER 2: THE EVOLUTION OF ENVIRONMENTAL REPORTING

This chapter provides a historical context to the environmental reporting practice by tracing its origin and developments.

CHAPTER 3: THEORETICAL FOUNDATION OF ENVIRONMENTAL REPORTING

This chapter examines various theoretical perspectives employed in the extant literature in an attempt to describe, explain, and evaluate the environmental reporting practices and to prescribe how the reporting should be practiced. In addition, the chapter provides a detailed examination of the decision-usefulness theory, which is the theory adopted in this study.

CHAPTER 4: PRIOR RESEARCH ON DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

This chapter reviews the prior research on decision-usefulness of environmental reports. By so doing, the chapter identifies the gaps in the literature and outlines the research questions that have remained unanswered in the prior research.

CHAPTER 5: RESEARCH DESIGN AND METHODOLOGY

This chapter presents the two research methods employed in this study to address the research objectives. The chapter discusses the content analysis and questionnaire survey methods employed to collect and analyse the data required to address the objectives.

CHAPTER 6: RESEARCH RESULTS OF CONTENT ANALYSIS

This chapter presents, analyses and discusses the results of content analysis of environmental reports of the sampled top 100 listed companies.

CHAPTER 7: RESEARCH RESULTS OF QUESTIONNAIRE SURVEY

This chapter presents, analyses and discusses the results of the questionnaire survey administered to the sampled users and preparers of environmental reports of listed companies.

CHAPTER 8: SUMMARY AND CONCLUSIONS

The summary and conclusions of the study, together with original contributions, limitations and suggestions for future studies are presented in Chapter 8.

The next chapter provides the historical context to the environmental reporting practice by tracing its origin and developments from 1960 to 2014.

CHAPTER 2

THE EVOLUTION OF ENVIRONMENTAL REPORTING

2.1 INTRODUCTION

The accounting reporting practice cannot be properly understood unless the historical context in which it emerged is recognised (Hibbit, 2004:28). Understanding the historical context of accounting also assists in predicting the trajectory of its future (Funnell, 1995:03; IMA, 2008:02). Given the increase in the number of sustainability and environmental reports produced by companies over time, it is necessary to establish whether such an increase has been accompanied by an enhancement of the decision-usefulness of the reports to the intended audience (Owen, 2003:06). This chapter provides a historical context to the environmental reporting practice as a component of sustainability reporting by tracing its origin and developments in order to determine whether such developments had resulted in decision-useful reports.

The rest of the chapter is structured as follows: Section 2.2 provides the link between environmental, social and sustainability reporting. Section 2.3 discusses the qualitative characteristics of decision-useful reports. This is followed by a discussion on the environmental and social reporting developments and shortcomings of the period between 1960 and 1989 in section 2.4. Section 2.5 examines the significant developments in and shortcomings of environmental and social reporting during the 1990s. The second last section discusses the reporting developments in and shortcomings of the years between 2000 and 2013. Finally, section 2.7 provides the summary and conclusions to the chapter.

2.2 THE LINK BETWEEN ENVIRONMENTAL, SOCIAL AND SUSTAINABILITY REPORTING

Although this research focuses on environmental reporting, companies are increasingly expected to demonstrate responsibility for their impact on the environment and on society at large (D'Amato, Henderson & Florence, 2009:02). Consequently the environmental

reports have become inseparable from and interdependent on social reports hence a common practice of convergence of the two in one report known as a sustainability report has emerged (Emtairah, 2002:12). It follows therefore that in order to appreciate the developments in environmental reporting, it is inevitable to examine the developments in social reporting in particular and sustainability reporting in general.

Given the connected nature of environmental and social reports, it is not surprising that the terms environmental, social and sustainability reports have been used interchangeably in prior literature despite having different meanings (Ioannou & Serafeim 2011:02). To avoid confusion, it is necessary to distinguish these terms. This was done in section 1.9 of Chapter 1, where the definition of each term was provided.

2.3 QUALITATIVE CHARACTERISTICS OF DECISION-USEFUL REPORTS

It is widely acknowledged by the major accounting conceptual frameworks that the primary purpose of corporate reporting, be it financial or non-financial, is to provide information that is useful for decision-making (FASB, 2010:01; GRI, 2013:17; IASB, 2008:12). Information that is useful in decision-making is also useful in assessing how management has fulfilled its stewardship responsibility (FASB, 2010:11). The frameworks also identify the qualitative characteristics that useful information possess (FASB, 2010:16; GRI, 2013:18; IASB, 2008:12). These include, but are not limited to: relevance, faithful representation, reliability, understandability, comparability, timeliness and verifiability.

The revised joint accounting conceptual framework further distinguishes between two types of qualitative characteristics of useful information namely; fundamental qualitative characteristics (relevance and faithful representation) and enhancing qualitative characteristics (comparability, timeliness, verifiability and understandability) (FASB, 2010:16). These qualitative characteristics are expounded below.

2.3.1 Fundamental qualitative characteristics

For information to be useful, it must be both relevant and faithfully represented (FASB,

2010:19). Neither a faithful representation of an irrelevant phenomenon, nor an unfaithful representation of a relevant phenomenon, helps users to make good decisions. The revised framework also advises that a company must first identify the phenomenon that has the potential to be useful to users of accounting information, and then identify the type of information about that phenomenon that would be most relevant, and whether it is available and can be faithfully represented.

2.3.1.1 Relevance

Relevance refers to the capacity of information to influence a decision by helping users to form predictions about the outcome of past, present and future events, or confirm and correct prior expectations (FASB, 2010:17). For accounting information to influence a decision, it must enable users to make new predictions, confirm or correct prior predictions (FASB, 2010:25). Such information must also suit the diverse expectations and decision-making needs of the intended users by addressing their concerns (GRI, 2000:16). This requires that the stakeholders be engaged meaningfully in the reporting process through dialogue to determine what is or is not important to them.

2.3.1.2 Faithful representation

The revised joint conceptual framework replaces reliability with faithful representation (FASB 2010:26). Faithful representation requires an agreement between the information presented and the actual phenomenon it purports to represent (IASB, 2008:37). To faithfully represent, accounting information would have three characteristics namely; completeness, neutrality and freedom from error (FASB, 2010:17). Completeness refers to avoidance of partiality, selectivity or omission in reporting (FASB, 2010:18). Neutrality means that the information presented is objective or unbiased and that it does not unduly influence the user (FASB, 2010:18). Freedom from error requires factual depiction of a phenomenon and avoidance of errors or omissions (FASB, 2010:18). However, it does not require provision of perfectly accurate information in all respects.

For the purposes of this research and in accordance with the GRI guidelines, reliability is retained as a fundamental qualitative characteristic (GRI, 2013:18). According to GRI, (2013:18), to ensure reliability of information, a company should gather, record, compile,

analyse and disclose information and processes used in preparation of the report in a way that they can subject it to examination and that establishes the quality and materiality of the information. In addition, stakeholders should have confidence that a report can be checked to establish the veracity of its contents and the extent to which it has appropriately applied reporting principles.

2.3.2 Enhancing qualitative characteristics

Comparability, timeliness, verifiability and understandability are the qualitative characteristics that enhance the usefulness of information that is relevant and faithfully represented (FASB, 2010:19). Where a phenomenon can be depicted in two ways that are equally relevant and faithfully represented, the enhancing qualitative characteristics may help to determine the most appropriate way to depict a phenomenon (FASB, 2010:19). The revised joint conceptual framework advocates for the maximisation of enhancing qualitative characteristics to the extent possible (FASB, 2010:21). It however reiterates that the enhancing qualitative characteristics, either individually or as a group, cannot make information useful if that information is irrelevant or not faithfully represented.

2.3.2.1 Comparability

“Comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items” (FASB, 2010:19). Comparability requires consistency in the recognition, measurement, and presentation of information in both form and content of reporting over time within a reporting entity or in a single period across entities (FASB, 2010:19). Accordingly, information should not be presented for a single year only, but rather it should be juxtaposed with similar information for the prior years to enable the user to compare the performance and assess trends (GRI, 2013:18). In addition, it requires that similar situations be presented in a similar manner, while contrasting situations should be presented differently across companies by adopting industry norms for performance indicators (FASB, 2010:20; GRI, 2000:17).

2.3.2.2 Timeliness

This qualitative characteristic requires that information be provided within the time when it is needed or before it loses its capacity to influence decisions (GRI, 2013:18; IASB, 2008:40). This requires that the reports be published at fixed intervals or following a regular cycle although reporting on the Internet allows relevant information to be updated more frequently (GRI, 2000:18). The sooner the information is received, the more useful it is in influencing decisions (FASB, 2010:20). Timeliness requires that the reporting period used be clearly indicated along with reasons for selection of a reporting period if less frequent than annually (GRI, 2000:18).

2.3.2.3 Verifiability

Verifiability requires that reported data and information should be independently attestable from an objective standpoint (FASB, 2010:20; IASB, 2008:39). This requires the disclosure of the underlying assumptions, methods of compiling information as well as other factors and circumstances that support the information. Verifiability is necessary to assure users that the reported information faithfully represents the phenomena it purports to represent (FASB, 2010:20).

2.3.2.4 Understandability

Understandability refers to the quality of information that enables users who have reasonable education to comprehend its meaning and thus avoid misinterpretation of information (GRI, 2013:18; IASB, 2008:52). Understandability in reporting requires enhancement of readability of a report through avoiding technical and scientific terms, provision of explanatory notes of the terms if used, use of simple unambiguous words, use of a logical report structure, straightforward sentences and styles, use of suitable graphics and pictures in addition to text, and provision of a glossary (Deloitte Touché Tohmatsu, 2002:05). It also requires classifying, characterising, and presenting information clearly and concisely (FASB, 2010:21).

2.4 SUSTAINABILITY REPORTING DEVELOPMENTS BETWEEN 1960 AND 1989

2.4.1 Sustainability reporting between 1960 and 1969

Although companies and business enterprises had obligations towards the society from way back in the past, modern sustainability reporting is thought to have emerged from the realm of financial reporting in the 1960s to be an independent reporting practice (Kok, 2008:05). The economic prosperity, mass consumption and exponential population growth of the 1960s culminated in a plethora of catastrophic environmental disasters (Wyatt & Woodard, 2010:01). Consequently environmentalists raised concerns about the environmental costs of the mass consumption that were neither reported nor acknowledged in the financial reports (KPMG, 2010:06; Antal, Dierkes, MacMillan & Marz, 2002:03). This marked the emergence of a new stakeholder group that was not primarily interested in the financial performance of companies but rather in their environmental performance (Kok, 2008:03).

As the environmental disasters continued unabated, they sparked debates among academics who unanimously acknowledged that companies had responsibility to the society extending beyond legal and economic obligations (Mahmoud, 2009:28). Subsequently the need for environmental reporting emerged and spread into mainstream thinking along with the development of most of its key concepts and definitions (Antal *et al.*, 2002:09; Kok, 2008:05; Mahmoud, 2009:27).

As the environmental movement gained momentum, it undermined the general public's trust in companies and made them critical and vigilant over the negative externalities of the companies (Hibbit, 2004:31). This culminated in mass demonstrations to pressurise companies to show responsibility to societal concerns (Mahmoud, 2009:25). By contrast, most companies viewed the environmental concerns as ambiguous ideas of voluntary nature that had unjustifiable costs (Vrabic, 2010:06). Accordingly they launched a series of deceptive 'greened' advertisements containing outrageous assertions meant to manipulate the perception of the already hostile audience (Vrabic, 2010:16). Although such advertisements were highly dis-informative, they marked the initial acknowledgement by companies that they were not only expected to be accountable to

the shareholders but also to other stakeholders and the general public (Hibbit, 2004:32; Marlin & Marlin, 2003:01).

2.4.2 Sustainability reporting between 1970 and 1979

The energy crisis of the 1970s which resulted in gasoline shortages and rising fuel costs further enraged the general public as it increasingly questioned the role of governments and companies, and their order of priorities in the wake of depletion of non-renewable resources (Kok, 2008:06). Consequently, sustainability reporting experiments started in the United States with a focus on environmental issues (Kolk, 2005:35; KPMG, 2010:06). To advance environmental reporting and performance, the Council on Economic Priorities (CEP) in the country and others began to rate companies publicly on their environmental performance and reporting (Katsoulakos, Koutsodimou, Matraga & Williams, 2004:08). Concomitantly, the American accountancy journals started to publish articles suggesting how to measure and report on environmental pollution (Marlin & Marlin, 2003:01). A series of surveys conducted by Ernst and Young in the United States revealed a dramatic increase in the percentage of multi-national companies (Fortune 500 companies) that reported on their sustainability performance with an overriding emphasis on environmental issues in their annual reports (Kolk, 2005:35). The surveys conducted between 1972 and 1978 (see Table 2.1 below) revealed a general increase in reporting trend from 48% in 1971 to 90% in 1978 (Roser, 1979:22).

TABLE 2.1: ENVIRONMENTAL REPORTING BY THE FORTUNE 500 AMERICAN COMPANIES

Year	1971	1972	1973	1974	1975	1976	1977	1978
Percentages	48%	57%	60%	69%	85%	91%	89%	90%

Source: Roser (1979:22)

By contrast, it is social reporting that emerged as the predominant form of sustainability reporting in Europe (Kolk, 2005:35). The rapid uptake of social reporting was attributed to the debate on the status of labour and its position in the enterprise at a time when societal expectations of accountability from companies were rising (Owen, 2003:02). The more perceptive companies speedily grasped the public relations benefits of producing at

least a rudimentary social report aimed at portraying a favourable image of a company's responsiveness to key societal, mostly employee related, concerns (Owen, 2003:02). Hence the reporting initiatives of the time inevitably focused on reporting to employees (employee reporting) and reporting about employment (employment reporting) (Gray, Kouhy & Lavers, 1995:56).

Another reason for the increase in social reporting was that human resource reporting had become a mandatory requirement in some countries such as France (*Bilan Social*) (Hibbitt, 2004:79). By early 1977, French enterprises with three hundred or more employees were required by law to produce social reports (*Bilan Social*) with numerical data needed to assess the work and employment situation within the enterprise (Antal & Sobczak, 2004:26). To enhance the relevance, accuracy, timeliness, comparability, transparency and completeness of the reports, the law stipulated that enterprises had to report annually on a comprehensive list of quantitative indicators, record activities and evaluate changes over the past year and the two preceding years. The reports were then to be submitted to a committee of workers and management for approval before distribution to the trade union delegates and shareholders. Only after the approval were the reports to be submitted to the labour inspectorate (Urminsky, 2004:08).

Elsewhere in Europe, social reporting was mainly voluntary and occurred most frequently in countries such as Germany (*sozialbilanz*) and the Netherlands (Kolk, 2005:35). The European companies' experimentation with social reporting in the 1970's was certainly innovative, especially among the larger German companies operating in the chemical and oil industries (Owen, 2003:02). These companies attempted to present their performance and results as they affected the total societal environment. Most notable amongst these companies was Deutsche Shell which employed goal-oriented reporting that had specific, reliable, relevant and comparable quantitative indicators to describe the attainment of a wide range of social objectives (Steiner, 1979:04). Arguably, the company's approach to integrate social data into the traditional financial reporting meant to provide a more holistic picture of its performance, has been unwittingly reinvented in the new wave of integrated reporting initiatives of the recent years (Owen, 2003:03).

The 1970s also marked the emergence of assurance on sustainability reports with

pioneering initiatives of companies such as Social Audit Limited, a United Kingdom based independent research and lobbying company that conducted audits on social and environmental performance of major companies and published its findings in a journal (Katsoulakos *et al.*, 2004:08). Through performing such audits, the company innovated auditing techniques that did not only improve the credibility of the reports produced but also provided ideas and tools to the modern sustainability reporting assurance providers that continue to serve as a yardstick against which the success of similar initiatives of the recent years can be gauged (Owen, 2003:03).

2.4.2.1 The shortcomings of the sustainability reporting practices of the 1970s

Despite the increment in the percentage of companies that produced sustainability reports in the United States, reporting was still at an experimental phase as guidelines were yet to be developed. Inevitably, there were many inconsistencies in the reporting practice, especially with regard to the quantification of monetary and non-monetary issues (MPRA, 2007:08). Resultantly, a company's sustainability report was incomparable to those of its prior years and to those of peer companies. Furthermore, the amount of environmental information published was rather limited, frequently less than a quarter of a page (Kolk, 2005:35). The reporting practice was also unsystematic as it lacked a strategy, organisational structural support, a reliable management system, a stakeholder engagement mechanism, reliable quantitative performance indicators and an independent assurance process (Epstein & Roy, 2001:17). As a result, the sustainability reports were biased, irrelevant, unverifiable, incomparable and unreliable as they had been published for public relations purposes and thus did not reflect the actual sustainability performance (Marlin & Marlin, 2003:01).

Likewise, the European social reporting practice of the 1970s produced public relations driven reports that were irrelevant, unreliable, biased and dis-informative as they were meant to portray companies' images favourably without regard to their actual social performance (Marlin & Marlin, 2003:01; Owen, 2003:03). The general climate of voluntarism had resulted in a lack of standardisation of what the format, terminology and content of a social report should be (MPRA, 2007:11). Consequently social reporting was neither practiced consistently nor able to claim universality with regard to recognition or

definition of key concepts (Gray *et al.*, 1995:47). Resultantly, the social reports produced were incomparable as they varied significantly in style and subjects from one company to another, and from one period to another (MPRA, 2007:11). In France where social reporting was mandatory, such problems were avoided as a uniform structure of the reports was prescribed (Antal & Sobczak, 2004:26).

Nevertheless, the French approach was criticised for being too detailed with a narrow focus on employee matters thus stifled experimentation and innovation that could provide a complete picture of a company's impact on the society (Antal & Sobczak, 2004:26; Owen, 2003:03). The reports also were incomprehensible as they lacked qualitative information to provide context and had obsolete indicators that were hardly updated (Urminsky, 2004:08). As a result, the reports were unclear and irrelevant.

Elsewhere in Europe, companies produced social reports without quantitative performance indicators given the immeasurable nature of some social issues that were neither monetary nor quantitative (Antal *et al.*, 2002 :09). This led to production of vague social reports that were neither comparable nor understandable. In some cases, companies were deliberately reluctant to quantify and divulge negative sensitive information such as cases of child labour (Mahmoud, 2009:25). Such companies provided incomplete information that impaired the reliability of their reports.

2.4.3 Environmental reporting between 1980 and 1989

The dawning of the 1980's ended the widespread experimentation and debate concerning social and environmental reporting in the western world (Owen, 2003:03; Kolk, 2005:35). As a result of a recession, inflation and unemployment in most countries, priorities had shifted from social and environmental issues, to more urgent economic issues. Similarly, the collapse of the former socialist economies and the advancement of neo-liberal economic policies in the previously socialist governments, along with the globalisation of business strategies, led to an ideological climate in which the very topic of social responsibility was shunned and at times even met with hostility (Antal *et al.*, 2002:05).

In the late 1980s, environmental reporting re-emerged following several high profile companies' environmental disasters that rekindled the general public's distrust of companies and heightened its scrutiny for companies' environmental transgressions (IMA, 2008:05). The disasters which included, but not limited to, the Union Carbide's Bhopal accident in 1984; the 1989 Chernobyl nuclear meltdown; and the Exxon-Valdez oil spill in 1989, were widely reported in the media (Hibbit, 2004:34). Accordingly they significantly damaged companies' reputation, increased their operating costs or in worst case scenario destroyed companies entirely (CIMA, 2008:05). Resultantly, the environmental agenda was elevated to the board level of most companies (Hibbit, 2004:35).

In response to the public pressure that followed the disasters, the United States government enacted the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 which required annual mandatory disclosure of emissions of certain toxic chemicals, and the submission of raw data and summarised information into the Toxics Release Inventory, a publicly-accessible computerised data bank (CRS, 2010: 03). It further required certain businesses to report releases of extremely hazardous chemicals to state and local authorities, and to disclose to those same authorities the quantities and types of toxic chemicals stored on site (CRS, 2010:01). To ensure that companies adhered to the reporting requirements, the Act imposed civil, criminal, and administrative penalties on companies for non-disclosure violations and entitled the citizens with a right of action to pursue the enforcement against a violating company (CRS, 2010:05). The citizens were also entitled to specific information about any particular facility on prescribed forms (CRS, 2010:03). The Act improved the reporting rates as well as the relevance, reliability, timeliness, comparability and clarity of the environmental information (Saka & Burritt, 2004).

In an attempt to demonstrate their renewed commitment to their environmental responsibility and win back the lost public trust, companies began to report on their environmental performance by producing stand-alone environmental reports and including environmental information in their annual reports (EIRS, 2007:02; Kolk, 2005:35). As the rates of environmental reporting rose in the late 1980s, so did the stakeholders expectations of such reports (Kucbel-Saumier, 2007:01). The increasingly

sophisticated stakeholders who consisted of professionals could no longer accept vague statements about a company's environmental performance but rather expected numeric data to reinforce claims made in the environmental reports, and enable them to compare the numbers against data from past years and data from peer companies (Kucbel-Saumier, 2007:01).

This led to a realisation that guidance was needed to assist companies in reporting as most grappled with the challenges of reporting (Kucbel-Saumier, 2007:02). To provide guidance, some proactive stakeholders most notably, the Coalition for Environmentally Responsible Economies (CERES), took initiative and developed the Valdez Principles, a ten-point environmental code of conduct meant to guide companies to establish sound environmental reporting practices (Kucbel-Saumier, 2007:12).

2.4.3.1 The shortcomings of the environmental reporting practices of the 1980s

Although the environmental reporting initiatives in the 1980s were certainly laudable, most of the reports produced were a mere public relations tool, employed by companies from sectors with a tainted public image such as the chemical, oil and gas sectors, to deflect criticism for dismal performance while working behind the scenes to undermine any legislation that required such reporting (Skillius & Wennberg, 1998:31). As such, the reports did not reflect a commitment by companies to take responsibility for their impacts on the environment (Owen, 2003:04). Most of the reports were dis-informative with more scenic landscape photographs (green glossies), than actual quantitative or qualitative information on the environmental performance of companies (Skillius & Wennberg, 1998:31). Not only were such reports irrelevant and unreliable, they angered the very audiences that they intended to communicate to, as a result, some stakeholders took the initiative to develop guidelines meant to improve the reporting practice (MacLean & Gottfrid, 2000:246).

By contrast, some environmental reports were overloaded with data that made them unreadable, incomprehensible and irrelevant (MacLean & Gottfrid, 2000:246). The wide disparity in the quality of reports from green glossies to overloaded reports rendered them incomparable from one company to another. Similarly, given the infancy of the

environmental reporting practice in the 1980s, the performance metrics, content, format and structure employed in reports varied widely from one company to another and from one period to another as they were still evolving (MacLean & Gottfrid, 2000:247). Despite the introduction of the EPCRA in the United States, the Toxic Release Inventory programme did not identify or recommend any specific estimation methods and gave companies complete flexibility when selecting a method to use (Saka & Burritt, 2004:26). The above variations and inconsistencies rendered the reports incomparable (MacLean & Gottfrid, 2000:246).

Despite the emerging developments in environmental reporting in the 1980s, no international accounting standard had been introduced that required companies to report on their environmental performance in the annual reports (Hibbit, 2004:38). Accordingly, there was no harmonised system for comparability between country-by-country reports for multinational companies that operated in various jurisdictions (Saka & Burritt, 2004:16). Typically, the accounting profession had reacted to the reporting developments initiated by other organisations in an ad hoc manner and therefore did not fundamentally challenge the existing financial reporting framework to accommodate the emerging environmental issues, but rather used it as a basis for expansion into the environmental reporting arena (Hibbit, 2004:35; MacLean & Gottfrid, 2000:246). By so doing, the profession shied away from a more holistic form of integrated reporting (Hibbit, 2004:35).

Given that the reporting was still evolving, it generally was unsystematic without a strategy, an effective Environmental Management System (EMS), an effective stakeholder engagement mechanism, and an independent assurance statement as assurance standards were yet to be developed and neither was verification required (MacLean & Gottfrid, 2000:248). These contributed to the irrelevance, unreliability, and unverifiability of most environmental reports (MacLean & Gottfrid, 2000:246).

2.5 THE ENVIRONMENTAL REPORTING DEVELOPMENTS BETWEEN 1990 AND 1999

2.5.1 Overview

During the 1990s decade, environmental reporting grew at an unprecedented pace (CorporateRegister.com & ACCA, 2004:08). Not only did the number of companies producing environmental reports increase dramatically (see Table 2.2 below), but also the depth and breadth of the reports produced increased significantly (CorporateRegister.com & ACCA, 2004:08:48). Although the reporting rates varied from one country to another, one time frame to another, and from one sector to another, the main trend in most of the countries was clear, an increasing number of companies were publishing environmental reports (Emtairah, 2002:08; KPMG, 1999:14). A notable exception to this general reporting pattern was witnessed in the United States where the rate of environmental reporting declined during the decade (Kolk, 2005:36).

TABLE 2.2: TOP NATIONAL COMPANIES PUBLISHING A STAND-ALONE ENVIRONMENTAL REPORT

Year	1993	1996	1999
Percentage of top national companies that published an environmental report	13%	15%	24%

Source: KPMG (1999:14)

Although environmental reporting had initially occurred most frequently in sectors with a high environmental impact such as mining and, oil and gas, it had gradually spread to other sectors with a lesser impact such as the banking and insurance sector (KPMG, 1999:04). Nevertheless, the reporting practice was more prevalent among the sensitive sectors with a higher impact on the environment (Owen, 2003:01; Pramanik, Shil & Das, 2008:150). The reporting practice was also more prevalent among the European countries such as Germany, Sweden and the United Kingdom than among the developing countries such as South Africa (CorporateRegister.com & ACCA, 2004:08; Douglas, Doris, Johnson, 2004:389).

2.5.2 Motivation for voluntary environmental reporting

A majority of companies that produced environmental reports in the 1990s did so to mitigate their growing environmental risks (Owen, 2003:9; KPMG, 1999:07; Skillius & Wennberg, 1998:09). Given the looming environmental legislation, proactive stakeholder actions, emerging risk assessment policies by banks and creditors, an increasing number of companies recognised the need for a proactive approach to environmental risk management and reported to demonstrate this to their increasingly environmentally conscious stakeholder groups (CorporateRegister.com & ACCA, 2004:15; Skillius & Wennberg, 1998:09). An increasing number of companies also reported as a response to the reporting initiatives of their peers (KPMG, 1999:07; Morrow & Rondinelli, 2002:162).

2.5.3 Drivers of environmental reporting

2.5.3.1 Legislation

An increasing number of companies had reported on their environmental performance in compliance to new legislation introduced in countries such as Denmark, the Netherlands, Norway, Sweden, Canada, Australia and the United States, as well as to regional laws such as those imposed by the European Union (Kolk, 2005:36). Among the first countries to legislate on environmental reporting was Denmark whose Green Accounts scheme obliged companies with significant environmental impact to publish quantified statements in laypersons language on the raw materials, energy and water consumed in production and the pollutants emitted (CorporateRegister.com & ACCA, 2004:50). The accounts improved the reporting rates, timeliness, understandability, and the accuracy of the reports (NAOD, 2002:08).

2.5.3.2 Supra-national bodies

Apart from governments, an increasing number of supra-national organisations participated in developing environmental reporting guidelines (Hibbit, 2004:49). Key among these was the United Nations which through its United Nations Environmental Programme (UNEP) developed a technical report that identified 50 reporting ingredients that would make the environmental reports relevant to the stakeholders if reported on

(Törnroos, 2005:17). To enhance comparability, the UNEP technical report advised industry associations to develop templates for presentation of environmental statistics in order to facilitate external benchmarking (OGPPG, 2000:03). The report further indicated that the credibility of their environmental reports could be enhanced if they employed third party verifiers (OGPPG, 2000:04). The report also advised companies to clarify their approach and quantify their performance using well-defined performance indicators (OGPPG, 2000:03). To enhance verifiability and transparency, the report described a set of minimum conditions for verification and advised companies to disclose their assumptions as well as methods employed when reporting (OGPPG, 2000:04).

In the European context, sustainability reporting practice was driven by the initiatives of the European Union which through its administrative arm, the European Commission, developed the widely endorsed Eco-Management and Audit Scheme (EMAS), an environmental management scheme that required companies to adopt a systematic approach to reporting (Morrow, 2002:170). The scheme also required companies to comply with all the legislation applicable to them, implement sound environmental policies, procedures, and structured environmental management systems with quantifiable targets meant to continuously improve their environmental performance (European Commission, 2008:01).

It further required companies to publish an environmental statement triennially and subject it to an independent external verification (European Commission, 2008:02). With regard to the latter, it required companies to provide a written audit report that contained the scope of the audit, the extent of compliance with the environmental policy, and an evaluation on the effectiveness and reliability of a company's environmental monitoring and control systems (Mathews & Reynolds, 2000:06). Its wide-spread adoption enhanced the reliability of the environmental reports in Europe, more so in Germany (European Commission, 2008:01; Mathews & Reynolds, 2000:14).

2.5.3.3 Business associations and the stakeholders

Dozens of guidelines were developed by business organisations and the civil society to improve the reporting rates and quality of reporting (Emtairah, 2002:10). Notable among

these was the Public Environmental Reporting Initiative (PERI) guidelines and the World Business Council for Sustainable Development (WBCSD) Eco-efficiency indicators (KPMG, 1999:29). Although the guidelines raised the reporting rates, with their profusion, there was little consensus and consistency in the environmental reporting practice (Emtairah, 2002:11). It is in response to this shortcoming that the Global Reporting Initiative (GRI) guidelines were launched to promote rigour, comparability, timelessness, verifiability and reliability in environmental reporting (GRI, 2000:05).

Along with the guidelines, a number of environmental reporting award and ranking schemes were launched in the 1990s in countries such as the United Kingdom, Denmark, Norway and the Netherlands to reward innovation and promote the best reporting practices (Hibbit, 2004:45; Emtairah 2002:16). The judgment criteria of most of the schemes was centered on relevance, reliability, timeliness, understandability, comparability and verifiability as perceived by a panel of judges (Hibbit, 2004:44; Owen, 2003:22; Skillius & Wennberg, 1998:55). The schemes, which were seen as an indicator of the best reporting practice, attracted a widespread media attention which enhanced the images of the companies that won the awards (Emtairah, 2002:30). Resultantly, they had a significant effect by improving the decision-usefulness of the environmental reports as well as the reporting rates (Skillius & Wennberg, 1998:32).

2.5.3.4 The accountancy bodies

Surprisingly, the accountancy professional bodies did not drive the environmental reporting practice except for the Association of Chartered Certified Accountants (ACCA) which had set up an environmental reporting award scheme in Europe (Hibbit, 2004:44). Instead, they engaged themselves in protracted debates on issues of recognition, classification and quantification of environmentally induced costs, risks and liabilities (Emtairah, 2002:12). More often than not, they made contradictory recommendations which remained unresolved and thus left the decisions related to environmental reporting to discretion of the companies (Hibbit, 2004:44). As a result, none of the accountancy professional bodies were involved in setting standards to guide environmental reporting practice despite the high profile of environmental issues in the 1990s and the rapid uptake of the practice (Adams, 2008:01; Pramanik *et al.*, 2008:150).

2.5.3.5 The King Report on corporate governance

In the South African context, sustainability reporting was driven by the King I Report, a code of conduct whose purpose was to promote the highest standards of corporate governance in South Africa (IODSA, 1994). The code advocated for an integrated approach to good governance in the interests of a wide range of stakeholders by having regard to the fundamental principles of good financial, social, ethical and environmental practice (IODSA, 2002:08). The report formalised the need for companies to recognise that they could no longer act independently from the societies and the environment in which they operate (IODSA, 1994).

To enhance the reliability of reporting, the King I Report advised directors to ensure that the necessary skills are in place for them to discharge their responsibility for internal controls, to deploy an effective internal audit function and to use technology to enhance sustainability reporting and transparency (IODSA, 2002:10). It further recommended that it was the board's duty to present an objective, balanced and understandable assessment of the company's position when reporting to stakeholders (IODSA, 1994). The report also recommended that the quality of information presented should be based on principles of openness and substance over form, and that sustainability reports should be timely, clear and succinct and include all the relevant information that may be useful to the stakeholders. Although the King I Report drove the sustainability reporting rates, it did not enhance the usefulness of the reports as it was largely irrelevant to most of the businesses (Wyngaard & Hendricks, 2010:02).

2.5.4 Quantification of data, external verification of reports, organisational structures and systems

2.5.4.1 The use of metrics and performance indicators

To enhance the clarity and accuracy of their reports, an increasing number of companies quantified their data, presented it in a comparable manner to the past years, provided set targets to enable the readers to independently assess the progress made in relation to the targets and adhered to sector-specific codes of conduct (KPMG, 1999:04; Owen, 2003:07; Saka & Burritt, 2004:06; Tornroos, 2005:16).

2.5.4.2 External verification of the environmental reports

To enhance the credibility of their reports, an increasing number of companies undertook independent assurance on the reports using major accountancy and environmental consultancy firms (see Table 2.3 below) (Emtairah, 2002:14; Owen, 2003:06; Saka & Burritt, 2004:27; Skillius & Wennberg, 1997:217; Tornroos, 2005:02). Although initially the verification practice had been more focused on systems compliance, as the decade progressed, the practice addressed more complex issues such as completeness of reporting and acceptability of performance, while providing recommendations for improvement in systems, performance and disclosure practice (Owen, 2003:08). It is with regard to the latter that the major accountancy firms emerged as the assurance provider of choice given their thorough understanding of management systems and traditional auditing principles (KPMG, 1999:28; Owen, 2003:06). To further enhance the reliability of the reports, the firms employed multi-disciplinary verification teams that comprised of both audit and environmental expertise which resulted in a number of jointly signed verification statements (signed by an Accountant and an environmental expert) (KPMG, 1999:24).

TABLE 2.3: PERCENTAGE OF THE TOP NATIONAL COMPANIES SEEKING EXTERNAL VERIFICATION

Year	1993	1996	1999
Percentage of the top national companies that published an environmental report	13%	15%	24%
Percentage of top national companies with externally verified report out of those that published an environmental report	-	15%	18%

Source: KPMG (1999:14,22)

2.5.4.3 Organisational structures, processes and management systems

To enhance the reliability and verifiability of their reports, an increasing number of companies provided well-documented organisation structures of the personnel responsible for managing various aspects of environmental performance, the board

involvement in environmental issues, as well as a foreword in the environmental reports from senior personnel such as a Chief Executive Officer (CEO), broadly outlining the environmental management strategy that was being pursued (Hibbit, 2004:35; KPMG, 1999:18). Coming from the top, such forewords increased the predictability of a company's future behaviour thus enhancing the relevance and reliability of the reports (DTT, 2002:20).

Similarly, an increasing number of companies disclosed their internal environmental audit procedures and their progress towards internationally recognised certification standards for their EMS (Owen, 2003:08). To this end, a growing number of companies had obtained certification such as the ISO 14001 and the EMAS which further bolstered the credibility of their reports as it indicated that their reporting process was systematic, based on sound policies, well-defined objectives and targets, and employed a sound EMS that not only complied with laws and regulations, but also that was regularly audited (CorporateRegister.com & ACCA, 2004:48; Emtairah, 2002:40).

To achieve an effective EMS, an increasing number of companies had started to converge their administrative and EMS by combining the framework and methodology of the financial controllers with the knowledge and expertise of environmental staff (KPMG, 1999:05). The rapid uptake of the ISO 14001 certification in particular had enhanced the comparability of the environmental impacts of companies as this certification had standardised the procedures for gathering, interpreting and communicating environmentally relevant information by replacing various national EMS thus bridging the diversity of EMS in and between companies (Morrow, 2002:161; GEMI, 2000:01).

2.5.5 Frequency and medium of reporting

To enhance the accessibility of the reports to a growing mass of stakeholders, the Internet emerged as an alternative medium of choice for environmental reporting (Emtairah, 2002:12; KPMG, 1999:14). The adoption of the web-based reporting was a systematic process, first as a supplement to the hard copies and eventually as a replacement to the hard copies (Scott & Jackson, 2002:195). More specifically, the medium of environmental reporting evolved dramatically from an exclusive use of hard copy format

in the early nineties, to the use of on-line formats such as Portable Document Format (PDF) as in the mid-1990s, and the Hyper Text Markup Language (HTML) format in the late nineties (ACCA & CorporateRegister.com, 2001:02).

For most companies, the PDF was the on-line format of choice as it produced a replica of the hard copy report (ACCA & CorporateRegister.com, 2001:09). However, it is the adoption of the HTML format that revolutionised on-line reporting by enabling companies to provide more detailed and relevant information tailored to specific needs of different user groups (ACCA & CorporateRegister.com, 2001:12). With regard to the latter, the HTML format enabled the users themselves to tailor the reports according to their unique needs, an attribute that was particularly useful to the professional stakeholder groups such as financial analysts and environmental activist groups (Scott & Jackson, 2002:196). In addition, it made the reports more user-friendly and readable as it availed them in a multiple of languages, with enhanced interactivity and navigation, this increased the feedback rate from the users thus enabling companies to improve the usefulness of the subsequent reports (Scott & Jackson, 2002:197). The format also enhanced the timeliness of the reports produced as up-loading a HTML file took a shorter time than updating a hard copy or a PDF file (ACCA & CorporateRegister.com, 2001:12). Therefore environmental information became more current and relevant as it was updated on the websites as soon as it became available (Scott & Jackson, 2002:196).

2.5.6 Developments in the structure of the environmental reports

With regard to structure of their environmental reports, most companies subscribed to the structures recommended by the various reporting guidelines that had been developed by the end of the decade (Brown, Jong & Lessidrenska, 2007:19; Owen, 2003:13). Generally, the guidelines tended to be in the form of checklists for the relevant content of environmental reports, and required qualitative, quantitative, monetary and physical data (Skillius & Wennberg, 1998:29). Though varied, most guidelines addressed the following areas: organisational profile; environmental policy statement; environmental management; legislative compliance; emissions; resource efficiency; life cycle perspective of product impacts; environmental liabilities and costs; and stakeholder relations (Emtairah, 2002:40). The adoption of the guidelines enhanced the comparability

of environmental reports of different companies especially where companies from the same sector adopted the same guidelines (Brown *et al.*, 2007:12).

Given the comprehensiveness of the guidelines and the high profile of the organisations that had developed them, their adoption by a growing number of companies also enhanced the relevance and reliability of the environmental reports (Brown *et al.*, 2007:12). Furthermore, most of the guidelines recommended a logical flow of topics in the structure of the reports to enhance the readability of the reports (Tornroos, 2005:35).

2.5.7 Topics in the environmental reports and their convergence with other reports

In a bid to provide relevant information to a growing list of stakeholders with differing and often competing information needs, companies started to adopt a stakeholder inclusiveness approach by widening the scope of their environmental reports to cover social and legislative compliance issues (KPMG, 1999:19). Subsequently, the taxonomy of the reports changed from environmental reports to corporate responsibility reports or sustainability reports (Emtairah, 2002:12).

To further provide a complete all-rounded picture of their performance, a few progressive companies started experimenting by converging their environmental, social and financial performance reports within the confines of one report (Owen, 2003:13). Resultantly, phrases such as triple-bottom-line reporting, and reporting on people, profit and planet, emerged to refer to the need for companies to measure their success not only by their financial performance, but also by their social and environmental performance (Emtairah, 2002:12; KPMG, 1999:05). To reinforce the emerging trend, some countries such as Denmark, the Netherlands, Norway, Sweden, Australia and Canada introduced legislation that required companies to disclose relevant, verified and standardised sustainability performance information in their annual reports and to elaborate on how such performance had impacted on their financial performance (KPMG, 1999:08). These initiatives improved the reliability, comparability, relevance and understandability of the reports by establishing a causal link between the sustainability performance and the financial performance (CorporateRegister.com & ACCA, 2004:15; Epstein & Roy, 2001:587; Saka & Burritt, 2004:27).

2.5.8 The shortcomings of the environmental reporting practices of the 1990s

2.5.8.1 Weaknesses in the EMSs

Despite the laudable improvement in the environmental reporting rates and the general quality of the reports produced, the reporting practice was still at an infancy stage and therefore grappled with a plethora of problems (Owen, 2003:09). To start with, the EMSs of most companies were weak and only covered companies partially given that implementing and maintaining them was a costly exercise affordable only by the large companies (Hibiki & Akimura, 2004:18; NHDES, 2002:03; *Skillius & Wennberg*, 1998:21). Accordingly, most companies lacked a stakeholder engagement mechanism, a reliable performance measurement system, consistent and understandable performance indicators, well-documented processes, internal control procedures and organisation structures (Skillius & Wennberg, 1998:32).

Despite the efforts by companies to establish and document their EMSs' internal processes, performance measurement systems and methodology, performance indicators, control procedures and organisation structures, the costs of developing and maintaining such a system were prohibitive to small-sized companies (Hibiki & Akimura, 2004:18). Therefore, a majority of the companies outside the top 100 (second tier) could not afford an elaborate well-documented EMS. A lack of proper documentation of the EMSs impaired the verifiability of the claims made in their reports (EEA, 1998:130). This partly explains the low levels of external verification of environmental reports in the 1990s (KPMG, 1999:25). Even more discouraging was the low quality of verification which was attributed to a lack of an internationally accepted standard for verification of environmental reports (Burrowes, Sparkes & Adams, 2001:16; CorporateRegister.com & ACCA, 2004:54; IRRC, 1996:18; KPMG, 1999:25). For this reason, good attestation seemed to be beyond the competence of the auditors (IRRC, 1996:21). For most companies that verified their report, the verification process was fundamentally flawed due to a lack of independence of the verifiers as they were often appointed by the companies' management and performed consultancy work in addition to external verification work (Owen, 2003:09).

Furthermore, the verification statements varied significantly in terms of their scope,

methodology and conclusions, a fact that undermined the readers' reliance on the statements (IRRC, 1996:21; KPMG, 1999:26). Worse still was the fact that some of the verification statements contained caveats to protect auditors from potential liability arising thereafter, or even had opinions, recommendations and critical remarks that appeared to be outside the scope of the verification assignment agreed upon (KPMG, 1999:25). Resultantly, the reliability of the assurance process was undermined as the readers had to apply their own judgement to interpret the reports and the verification statements (IRRC, 1996:16; Skillius & Wennberg, 1998:42).

Not surprisingly, only a few companies had obtained international certification such as ISO 14001 for their EMS (KPMG, 1999:19). Those that did had self-certified their reports by claiming compliance with the ISO 14001 (NHDES, 2002:02). Besides, some certification did not require external reporting (NHDES, 2002:17). The lack of international certification of the EMSs undermined the reliability of the environmental reports (CorporateRegister.com & ACCA, 2004:54).

2.5.8.2 Lack of stakeholder engagement

Despite a commendable effort by many companies to engage their stakeholders, the engagement process for most was largely confined to managing stakeholder expectations and balancing competing interests, while leaving the discretion of what to report and how to report to companies' management (Owen, 2003:16). Put simply, most companies did not engage their stakeholders directly in the environmental reporting process and neither did they consult them when setting key performance indicators (CorporateRegister.com & ACCA, 2004:15; Yosie & Herbst, 1998:01). Accordingly, the stakeholders did not influence the content presented in the reports as they were mostly sidelined from the reporting process (Owen, 2003:12). To cater for a diverse audience of stakeholders, most companies produced generic and overloaded reports that were unreadable, unclear and largely irrelevant as they did not address the unique needs of the stakeholders (Owen, 2003:16). In protest to the irrelevance of the environmental reports produced by certain companies, some NGO's went ahead and published their own versions of environmental reports for those companies (ACCA, 2004:15).

2.5.8.3 Inadequate performance measurement methodologies and performance indicators

Although many companies had attempted to measure their environmental performance, consistent performance measurement methodologies and performance indicators were yet to be developed and neither had a consistent basis for selecting performance indicators emerged (CorporateRegister.com & ACCA, 2004:53; Gee, 2001:31; Skillius & Wennberg, 1998:19). In many cases, what was measurable theoretically was often immeasurable practically given that rigorous measurement instruments were yet to be developed (Skillius & Wennberg, 1998:22). Besides, most of the environmental performance indicators themselves were neither standardised nor normalised as they were still evolving (Gee, 2001:31; Skillius & Wennberg, 1998:39). More often than not, the indicators were presented in the reports in their scientific form that did not accurately and completely describe complex realities of an actual environmental impact of a company's actions (Gee, 2001:22; Skillius & Wennberg, 1998:20). The foregoing issues rendered the reports incomprehensible, unreliable, unverifiable and incomparable.

2.5.8.4 Proliferation of environmental reporting guidelines

Notwithstanding the efforts made by several reputable organisations to develop reporting guidelines, the resulting proliferation of the guidelines was counter-productive as there was little consensus about and consistency in what environmental reporting should include and how or when it should be presented (CorporateRegister.com & ACCA, 2004:15; Emtairah, 2002:11). Besides there was no clear definitive reporting standard to guide the emerging voluntary reporting practice (Brown *et al.*, 2007:13). This created a diversity in the reporting practice as companies were at liberty to report as they wished and select the performance indicators that favoured them (Brown *et al.*, 2007:27; Hibbit, 2004:46; MPRA, 2007:17). The resulting variation in the structure of the reports, methodology of reporting and content of the reports further rendered them incomparable (Skillius & Wennberg, 1998:65).

2.5.8.5 Fragmentary and ad hoc environmental reporting

Whereas the introduction of mandatory reporting requirements in some of the jurisdictions was commendable, the requirements almost entirely focused on site or local

level reporting with little regard for company-wide reporting (Hibbit, 2004:59). Consequently, the reporting practice tended to be on a fragmentary and ad hoc basis, limited only to some divisions of companies thus not extended company-wide (Adams, Hill & Roberts, 1998:02; Hardy, 2008:200; Brown *et al.*, 2007:12). As such, the practice failed to provide a proper context within which stakeholders could assess the overall environmental impacts of a company and its efforts to ameliorate those impacts (Brown *et al.*, 2007:23). To exacerbate the situation, most companies presented values and intentions without providing supporting details (MPRA, 2007:17). As a result, most of the reports tended to be incomplete and unreliable.

2.5.8.6 Public-relations driven environmental reporting

Elsewhere, voluntary reporting regimes had produced inaccurate, selective, descriptive, biased, self-laudatory, unverifiable and public-relations driven reporting (FEE, 1996:19). In most cases, the reports lacked depth, rigour or quantification, and had virtually a universal reluctance to disclose negative or sensitive information even when such information was known to exist (Hibbit, 2004:59; Environmental Agency, 2004:06). Surprisingly, some of the companies went ahead to win environmental reporting awards as the judgement criteria of most award schemes were flawed with a primary focus on the presence of certain elements within text (KPMG, 1999:09; Skillius & Wennberg, 1998:66). As a result, the disclosure of unreliable information became a common practice during the decade.

2.5.8.7 Failure to realise the full potential of the Internet

Although the rapid uptake of the Internet as a medium of environmental reporting was certainly innovative, the full potential of on-line reporting was not realised for various reasons (Scott & Jackson, 2002:198) : to start with, only a small percentage of companies' stakeholders had access to the Internet (Noci & Citterio, 2003:06). Those that did seemed oblivious to the availability of such information as it had neither been well-marketed nor publicised (Scott & Jackson, 2002:196). Furthermore, accessing reports on the Internet was costly and user-unfriendly to the stakeholders as they had to spend a lengthy period of time either downloading a PDF file or navigating the HTML based companies' websites to access hidden reports (Scott & Jackson, 2002:200). With regard to the latter,

each report was presented in several pages, and each page was a separate file, therefore accessing and printing the entire report was a time consuming process as most pages did not have a link from the home page (ACCA & CorporateRegister.com, 2001:10).

For the users who accessed the reports on the Internet, they found those reports to be highly irrelevant as they were mostly not tailored to address the unique needs of any group of stakeholders, neither did they encourage an interactive dialogue (Noci & Citterio, 2003:06). In most cases, the Internet, especially the PDF files did not enrich the content of the reports to make them more appealing to the readers as most on-line reports were an exact replica of the hard copies (Scott & Jackson, 2002:197).

Despite the widespread uptake of the Internet as an alternative medium of reporting, no efforts were made to standardise the on-line reporting practice (Brown *et al.*, 2007:12). As a result, the practice varied significantly and impaired the comparability of the environmental reports of different companies (United Nations, 1998:18). Similarly, the comparability of most companies' annual environmental reports to those of prior years' was impaired by the fact that most overwrote their prior years' reports with their subsequent ones and therefore corresponding information for prior years was hardly provided (ACCA & CorporateRegister.com, 2001:30). Where prior years' information was provided, it was not consistent in format with the information provided in the subsequent years (Noci & Citterio, 2003:06). Besides, most on-line reports did not include dates, therefore the users could not assess the timeliness of the reports (Scott & Jackson, 2002:201).

2.6 THE SUSTAINABILITY REPORTING DEVELOPMENTS BETWEEN 2000 AND 2013

2.6.1 Overview

The plethora of collapses of companies over the years between 2000 and 2013 led many stakeholders to question the relevance and reliability of annual financial reports as a basis for making decisions about a company (IRC, 2011:01). Many questioned the sufficiency of financial information in providing a comprehensive picture of a company's

performance in the wake of growing environmental, social and economic challenges. As a result, companies responded by increasing reporting on sustainability issues (EIU, 2010:03; KPMG, 2013:22; Strandberg, 2013:02). Not only did the number of reporting companies increase, but also the depth and width of the reports increased dramatically (Environmental Agency, 2009:05; KPMG, 2008:13; Larsson, 2009:02; PwC, 2008:02) (see Table 2.4 below). Although sustainability reporting remained varied for different sectors, reporting practices were no longer restricted to sensitive sectors in Western countries, but had rapidly spread to non-sensitive sectors and to other parts of the world including the developing countries, an indication of an universal acceptance of the reporting practice (KPMG, 2013:16; Spada, 2008:03). To reflect the widespread extension of environmental reports to include social, economic and governance issues, the terms sustainability reports are employed in the next section as opposed to environmental reports (Ernst & Young, 2010:08).

TABLE 2.4: PERCENTAGE OF FORTUNE 500 AND TOP NATIONAL COMPANIES THAT PUBLISHED SUSTAINABILITY REPORTS

Year	1993	1996	1999	2002	2005	2008	2011	2013
Percentage of the Fortune 500 companies that published a sustainability report	-	-	35%	45%	64%	79%	95%	93%
Percentage of the top national companies that published a sustainability report	13%	15%	24%	28%	41%	45%	64%	71%

Sources: KPMG (2013:22); KPMG (2011:07); KPMG (2008:13); (2005:38).

2.6.2 Motivation for voluntary sustainability reporting

Unlike the 1990s when motivation for voluntary reporting was centred on risk mitigation, most companies that reported in the years between 2000 and 2010 did so to obtain and maintain a competitive advantage or for other strategic reasons (EIU, 2010:06; GMA & Deloitte, 2007:18; KPMG, 2008:20; Wensen, Wijnand, Johanna & Jutta, 2011:73). In this regard, an increasing number of companies cited a business case for sustainability reporting (Kolk, 2005:38; Kraus, 2010:02). Accordingly, a growing number of companies

produced sustainability reports to enhance their brands, to learn and innovate green products, to derive economic benefits such as an improved market share and cost savings, to motivate employees and strengthen supplier relationships (EIU, 2010:06; GMA & Deloitte, 2007:19; KPMG, 2008:20; Kraus, 2010:03).

2.6.3 Drivers of sustainability reporting

2.6.3.1 Legislation

To reinforce sustainability reporting practice and improve the quality of the sustainability reports produced, various governments issued new or revised legislation that required companies to measure and report their impact on the environment and the society (Ernst & Young, 2007:06; KPMG, 2013:24; PwC, 2007a:04). The revision of the legislation entailed amendments from rigid and overlapping rules to simplified, streamlined, innovative and smart regulation that required seamless integration of mandatory and voluntary reporting approaches in appreciation that the two were complementary and not mutually exclusive (CRC, 2011:05; EIU, 2010:06). Accordingly, an increasing number of governments formally endorsed and even referenced the GRI guidelines in their legislation (OECD, 2009:241). In addition, they developed new legislation that individually focused on specific topical themes such as climate change but collectively covered a wide range of issues (GRI & ACCA, 2009:23; ICAEW & Environmental Agency, 2009:12).

To ensure that the sustainability information included in the reports was balanced, complete, clear, comparable, relevant, and timely, most of the reporting legislation prescribed minimum standardised information to be disclosed in the reports along with a common set of key performance indicators for the companies to report against (Cowan, 2007:174; Environmental Agency, 2010:11; KPMG, 2010:08; Overland, 2007:19). In addition, companies were required to use standardised formats and methodology of reporting, to report periodically on a monthly, quarterly, annually or biannual basis, and to provide past, current and future oriented information on their sustainability performance (RMG, 2009:68). Furthermore, the mandatory reporting requirements in a country such as Denmark were universally applicable as it had adopted a comply-or-explain approach (DCCA, 2010:01). To enhance reliability of sustainability reports, many

of the reporting legislation had monitoring checks with punitive consequences for inaccuracies in the reports (RMG, 2009:60). As a result of the introduction or revision of reporting legislation in various countries, the quality and the rate of sustainability reporting improved significantly (Ramdhony, Padachi & Giroffle, 2010:08).

2.6.3.2 Securities Exchanges

Sustainability reporting in the years between 2000 and 2010 was also driven by securities exchanges which issued pre-listing requirements that demanded a better transparency and quality of disclosure of sustainability issues (Krechowicz & Fernando, 2009:20; WFE, 2010:52). Notable among the exchanges was Shengzhen and Shanghai Stock Exchanges in China, Sao Paulo Stock Exchange in Brazil and the JSE in South Africa (HBS, 2010:243; Maguire, 2011:06). The exchanges either developed their own reporting guidelines or subscribed to internationally recognised guidelines such as the GRI principles that required balanced, relevant, reliable, timely, clear, verifiable and comparable sustainability reports (Environmental Leader, 2009:01).

To further encourage the sustainability reporting practice, various securities exchanges established sustainability indices that ranked companies according to the quality of their sustainability reports, as well as the extent of their disclosure (KPMG, 2010:14; Maguire, 2011:06). A few innovative exchanges went further and created specialised markets for trading of sustainability instruments such as carbon credits and accordingly required that decision-useful sustainability information be availed to the parties involved in such transactions (ENS, 2005:01; KPMG, 2010:14). These initiatives improved the sustainability reporting rates and enhanced the quality of the reports produced.

2.6.3.3 Supra-national bodies

At the international level, the United Nations developed the United Nations Principles for Responsible Investment (UNPRI), a set of voluntary best practice principles to assist investors in integrating sustainability issues into investment decisions (OECD, 2009:239; UNPRI, 2007:02). The principles provided a framework for integrating sustainability issues in reporting and required the beneficiary companies to adopt GRI guidelines in order to qualify for the investor's capital (UNPRI, 2007:04). Another notable international

body that drove sustainability reporting in the years between 2000 and 2010 was the Organisation for Economic Co-operation and Development (OECD) which revised its Guidelines for multinational enterprises to encourage timely, regular, reliable and relevant disclosure on sustainability issues (KPMG, 2010:20).

In the European context, the European Union issued a modernisation directive that required European companies to include sustainability information in their annual and consolidated reports if such information was necessary for the understanding of a company's development, performance or position (ICAEW & Environmental Agency, 2009:08). The directive explicitly stated that comparability of companies' annual reports was the main criterion, and therefore reporting should be done in a way that allows drawing parallels or noting differences between various companies (Germanwatch, 2008:08).

The European Union also established the Electronic European Pollutant Release and Transfer Register (E-PRTR), a publicly accessible database that describes the releases and/or transfers of substances to the environment, which enhanced the transparency, consistency and comparability of environmental information (Environment Agency, 2011:01). To enhance the reliability and verifiability of the environmental reports produced in Europe, the European Union's administrative arm, the European Commission, revised the EMAS to strengthen the scheme, by requiring companies to thoroughly document their environmental performance on prescribed key performance indicators, and facilitate a seamless integration with the ISO14001 (European Commission, 2011a:01; KPMG, 2010:23).

Other notable international bodies that enhanced the quality and the reporting rates of companies on environmental issues included the International Organisation for Standardisation (ISO), the World Resources Institute (WRI) in collaboration with the World Business Council for Sustainable Development (WBCSD) (KPMG, 2010:16). The former (ISO) promoted their series of international environmental management standards, most notably the ISO14001, a standard that gained wide acceptance in the years between 2000 and 2010 by requiring a thorough documentation of an EMS to facilitate verification and certification by a third party (GMA & Deloitte, 2007:18). The latter two

(WRI & WBCSD) jointly developed and promoted the adoption of the internationally accepted Greenhouse Gas (GHG) protocol, the most widely used international accounting tool for understanding, quantifying and managing greenhouse gas emissions (Greenhouse Gas Protocol, 2011:01). The wide adoption of these standards enhanced the credibility, accuracy and comparability of the environmental disclosures (GRI & ACCA, 2009:06).

2.6.3.4 National business and industry associations

At the national level, an increasing number of business and industry associations continued to shape environmental reporting among their constituent members by issuing sector-specific guidelines or reporting requirements tailored to their unique characteristics (ResponsibleGold.org 2011:01; Schiavi, 2005:04). Among the most notable associations were the National Association of Pension Funds and Association of British Insurers which issued guidelines that encouraged their members to ensure consistency, comparability, relevance and reliability, and an integration of environmental information within annual reports, when producing environmental reports (ICAEW & Environmental Agency, 2009:ix).

2.6.3.5 Awards/Ranking schemes

To reward the best reporting practice and provide guidance on the same, new sustainability reporting awards and ranking schemes emerged which scored the sustainability reports of companies on the basis of user-friendliness, completeness, reliability, credibility, readability, verifiability and comparability among other criteria (ARA, 2011:01; Carbon Disclosure Project, 2010:05; GMA & Deloitte, 2007:49). Most notable among the awards schemes was the innovative GRI Readers Choice award which was designed to empower the users to influence the sustainability reporting practice (GRI, KPMG & SustainAbility, 2008:02). In a clear departure from the past where professional judges had selected the best reports, the users themselves were involved in the selection of the best sustainability reports according to the attributes that they perceived as important to them (GRI, KPMG & SustainAbility, 2008:04).

Unlike in the 1990s when the reporting awards and ranking schemes were only found in the European countries, by the year 2010 most schemes had been rolled out globally to

Africa, North America and the Asia-Pacific region (ACCA & CERES, 2010:03; ACCA, 2010:01). Similarly, the reporting awards schemes had been expanded into various categories such as best integrated report, best online report, best use of new media, most relevant report, most credible report, most open and best stakeholder engagement to mention but a few (Corporate Register.com, 2010:08). The taxonomy of the schemes had also shifted from environmental reporting awards or ranking to sustainability reporting awards or ranking to reflect the changes in reporting practices that had gradually embraced social and governance issues (ACCA, 2010:03). Given the benefits of enhanced image that accrued to the winning companies, most companies competed to be perceived as having the best reporting practices and thus improved the quality of their reports (Emtairah, 2002:17).

2.6.3.6 Accountancy bodies

Unlike in the 1990s, the accountancy professional bodies played a more significant role in shaping sustainability reporting in the years between 2000 and 2010 (ACCA & AccountAbility, 2004:38). Most notable among the bodies was the International Federation of Accountants (IFAC) which developed the widely accepted International Standard on Assurance Engagements (ISAE) 3000 other than audits or reviews of historical financial information (IFAC, 2005:293). ISAE 3000 required the verifier to check and form an opinion on the balance, accuracy, completeness, reliability, comparability, comprehensibility, timeliness and relevance of sustainability information provided (IFAC, 2005:301,305). The companies that met these criteria received a verification certificate that enhanced the credibility of their reports (IFAC, 2005:308).

The major trans-national accountancy firms also continued to provide leadership in the provision of assurance on sustainability reports through development and application of the verification methodologies necessary to enhance the credibility of sustainability reporting initiatives (ACCA, 2009:08; ACCA, 2002:09; ACCA & AccountAbility, 2004:74). In addition, they conducted surveys meant to improve the usefulness of the sustainability reports (KPMG, 2008:03). In addition, other national and regional accountancy bodies, apart from the ACCA, also establish their own sustainability reporting award schemes that enhanced the quality of sustainability reporting by

establishing consistent reporting benchmarks against which a company's sustainability report could be compared (ACCA, 2002:08).

2.6.3.7 The King Reports on corporate governance

In the South African context, sustainability reporting during the years between 2000 and 2010 was driven by the King II Report, a recommended code of conduct that advocated for triple-bottom-line reporting (IODSA, 2002:20). As an updated version of the King I Report, the King II Report advocated for annual reporting on social, economic and environmental performance, and adopted a comply-or-explain approach (IODSA, 2002:35). It further recommended that reporting should be done by selecting options with the least impact on the environment which was perhaps a deliberate call for an on-line reporting practice (IODSA, 2002:35). The report which became a pre-listing requirement for the public companies that sought to list on the JSE, explicitly recommended that GRI's principles such as relevance, reliability, clarity, comparability, timeliness and verifiability should govern a company's public disclosure of sustainability information (IODSA, 2002:36).

In determining what is relevant for disclosure, the report recommended that company directors should take into account the environment in which the company operates (IODSA, 2002:35). It further recommended that information should address material matters of significant interest and concern to all stakeholders. The report further highlighted some issues that it considered as relevant in the South African context (IODSA, 2002:36).

With regard to reliability, the report highlighted that it was the board's duty to present a comprehensive and balanced assessment of a company's position when reporting to stakeholders so that they can obtain a full, fair and honest account of its performance (IODSA, 2002:40). And that the board should regularly review processes and procedures to ensure the effectiveness of the company's internal systems of control, so that its decision-making capability and the accuracy of its reporting are maintained at a high level at all times (IODSA, 2002:48). It also highlighted that reports disseminated via internet should ensure that the security and integrity of the information is intact (IODSA,

2002:39).

To enhance clarity, the report recommended that it was a board's duty to present an understandable assessment of the company's position when reporting to its stakeholders (IODSA, 2002:40). It further highlighted that the quality of the information provided in the reports must be based on the principles of openness and substance over form. The report also recommended that companies should make every effort to ensure that information is distributed via a broad range of communication channels, including the Internet to ensure it reaches all stakeholders simultaneously (IODSA, 2002:39).

To enhance consistency and comparability of sustainability reports, the King II Report recommended the use of the GRI framework to guide sustainability reporting, as it was the most internationally accepted reporting framework (IODSA, 2002:35). To further enhance comparability, the report recommended that criteria and guidelines for materiality should be developed by each company for consistency, having regard to international models and guidelines, as well as national statutory definitions (IODSA, 2002:35).

To enhance verifiability, the report recommended that the board should make use of generally recognised internal control models and frameworks in order to maintain a sound system of internal control to provide a reasonable assurance regarding the achievement of organisational objectives (IODSA, 2002:23). The system should incorporate mechanisms to deliver a documented system of internal control and risk management (IODSA, 2002:31). The report also recommended a detailed disclosure in the annual report of submission of non-financial aspects to external validation (IODSA, 2002:39).

The King II report did not only improve the decision-usefulness of sustainability reports in South Africa but also it positioned the country among the pioneers of modern day reporting (KPMG, 2010:11; Moloji, 2008:50). Consequently, South Africa emerged as one of a few developing economies and the only African country with significant sustainability reporting activities (CorporateRegister.com, 2010:06).

At the end of the decade, the King II Report was replaced by the King III Report which explicitly required that statutory financial information and sustainability information be integrated in one annual report (IODSA, 2009:11). In this regard, the report required more than just an add-on of sustainability reports, but rather that sustainability initiatives be integrated with other aspects of the business process, managed throughout the year, and reported on in an embedded fashion with financial information in the annual reports (PwC, 2009bc:02). Like the King II report, the King III report endorsed the GRI G3 principles of sustainability reporting (IODSA, 2009:52; SAICA, 2009:32).

Unlike the King II Report, the King III Report recommended that the general oversight and reporting of sustainability should be delegated to the audit committee which should review the disclosure of sustainability issues to ensure that the information provided is reliable, and does not contradict the financial information (IODSA, 2009:49). The audit committee should also oversee the provision of internal and external assurance over sustainability issues (IODSA, 2009:33). With regard to the former, it should assess the effectiveness of internal audit together with the internal report on the adequacy of internal controls on at least an annual basis and provide the board with a written assessment of the effectiveness of the system of internal control, performance and risk management (IODSA, 2009:45). With regard to the latter, it should establish a formal process of assurance of the integrated report and advise the board on engagement of an external assurance provider to provide assurance over material elements of the integrated report (IODSA, 2009:33). The report which adopted an apply-or-explain approach was applicable to all types of businesses and was expected to change the landscape of sustainability reporting significantly (IODSA, 2009:06).

2.6.4 Quantification of data, external verification, organisational structures and systems

2.6.4.1 The use of metrics and performance indicators

By the year 2010, the quality of sustainability reports had improved significantly (CDC & PwC, 2010:04:27; Ernst & Young, 2007:02; KPMG, 2008:57). Not only did the companies increasingly quantify their data, they also contextualised it in a comparable manner to the past years and provided specific, measurable and comparable targets to enable the readers to independently assess the progress made towards those targets

(Environmental Agency, 2009:04; Handford, 2010:01; PwC, 2008:02). In addition, many companies had developed a sustainability strategy with clearly stated objectives and had started to use standardised and reliable metric performance indicators to measure their progress towards the set objectives (AICPA, CICA & CIMA 2010:01; EIU 2010:03).

To enhance the credibility of their sustainability reports and facilitate inter-company comparison, a majority of companies had adopted the internationally recognised GRI performance indicators, which were considered as relevant, specific, effective, reliable and meaningful metrics (EIU, 2010:03; KPMG, 2008:04; Ernst & Young, 2007:16). This ensured consistency in the recognition, measurement, and presentation of information in both the form and content over time. In addition, the companies increasingly employed ratio indicators to facilitate benchmarking against their competitors, industry averages and the best practice (Ernst & Young, 2007:16). To facilitate comparability of companies' performance across time, companies reported consistently on the values and ratios, and juxtaposed the material items of their most recent reports with similar items for prior periods to show the emerging trends (FSC, SustainAbility & KPMG, 2010:14; HBS, 2010:243).

To further enhance the comparability and relevance of the information provided to the stakeholders, the GRI had also developed sector specific and even country specific indicators to cater for the unique needs of the stakeholders of some sectors such as the finance and insurance sectors (Ernst & Young, 2010:11; GRI, 2008:08). As a result, the reports became more focused, concise, with less prolix and increasingly included GRI Index tables to substantiate the assertions made (IODSA, 2007:02; Marx & Van Dyk, 2009:01).

The GRI guidelines themselves had evolved over time through a process of simplification from G1, G2, to G3 version to provide a comprehensive list of performance indicators meant to capture all significant aspects of environmental and social impact of a company thus ensure completeness of the resulting reports (GRI, 2008:5; Brown *et al.*, 2007:43). The widely accepted G3 version was applicable to organisations of any size, type, sector or geographic region and enabled the benchmarking of sustainability performance amongst organisations through the use of common indicators meant to enhance relevance,

rigor and comparability of sustainability reports (GRI, 2008:08; Ernst & Young, 2010:11). In addition, it provided definitions for key terms in the indicator, compilation methodologies, intended scope of the indicator, and other technical references that enhance the verifiability of the sustainability reports (GRI, 2008:08).

2.6.4.2 External verification and third-party commentary

TABLE 2.5: PERCENTAGE OF COMPANIES WITH AN ASSURANCE STATEMENT IN THEIR REPORTS

Year	1993	1996	1999	2002	2005	2008	2011	2013
Percentage of top national companies that published an environmental report /sustainability report	13%	15%	24%	28%	41%	45%	64%	71%
Percentage of the top national companies with externally verified reports out of those that published an environmental/sustainability report	-	15%	18%	27%	33%	39%	38%	38%
Percentage of the Fortune 500 companies that published an environmental/sustainability report	-	-	35%	45%	64%	79%	95%	93%
Percentage of the Fortune 500 companies with externally verified reports out of those that published an environmental/sustainability report	-	-	19%	29%	30%	40%	46%	59%

Sources: KPMG (2013:22; 33); KPMG (2011:07; 28); (2008:05; 13, 14, 58); KPMG (2005:38); (1999:14, 22, 30).

Indeed an increasing number of companies undertook external verification to increase the reliability of their reports (see Table 2.5 above) (ACCA, 2009:05; KPMG, 2008:59). Such verification processes entailed a gap analysis to determine whether the requirements of major reporting frameworks such as the GRI framework had been met and were increasingly conducted within the confines of internationally recognised verification standards such as the ISAE 3000 and the AA1000 (ACCA, 2009:07; EIU, 2010:04; KPMG, 2008:67; AccountAbility, 2008:20). Accordingly, such standards enhanced the relevance, completeness, reliability, neutrality, inclusivity, responsiveness and understandability of the audited information (ACCA, 2009:08; AccountAbility, 2008:20).

In addition, the quality of the assurance process and comparability of the assurance statements was enhanced as the assurance providers employed consistent, systematic, evidence-based rigorous tests that enabled them to draw objective and standardised conclusions (IFAC, 2011:04; IFAC, 2011:28; AccountAbility, 2008:20).

Major accountancy firms emerged as the assurance providers of choice, followed by certification bodies and technical expert firms (ACCA, 2009:08; KPMG, 2008:67; Perego, 2009:413; PwC, 2007a:11). The preference for the major accountancy firms improved the credibility of the sustainability reports given their well-known brands in the provision of assurance services (Environmental Leader, 2011:01; PwC, 2007a:12). Furthermore, the accountancy firms advised their clients on how to improve their sustainability information systems, given their well-established expertise in auditing of information systems and internal controls (Kolk & Perego, 2010:04; Perego, 2009:413; PwC, 2007a:13).

By contrast, some companies opted to include the views or commentary of external parties in their reports to enhance their credibility (KPMG, 2008:57). The commentary, mainly from influential stakeholder groups, reputable subject matter experts, and academics was meant to demonstrate that the stakeholders had been engaged in the reporting process (CBSR & CDC, 2008:34). It was also meant to reassure users that the reports had addressed all the relevant or material issues, and that they were objective, complete and transparent (CorporateRegister.com, 2008:05). Besides, commentary from some readers also offered suggestions on how to improve the readability and the general

quality of the reports produced (CBSR & CDC, 2008:25). The commentary bolstered the credibility of the sustainability reports especially when combined with a formal assurance statement (KPMG, 2008:05).

2.6.4.3 Organisational structures, processes and management systems

To further enhance the credibility of the reports produced, an increasing number of companies had put organisational structures, processes and controls in place to enable them to present accurate information on its environmental impacts and demonstrate commitment to sustainability issues (Environmental Agency, 2010:06; KPMG, 2008:04; PwC & CDC, 2010:18). These included having dedicated executives whose compensation was directly linked with corporate sustainability performance, a sustainability strategy and policy linked to the overall business strategy, adherence to internationally recognised codes of conduct, having a social and an EMS (CBSR & CDC, 2008:20; EIU, 2010:18).

With regard to the latter, an increasing number of companies had sought international certification for their EMS such as the ISO 14001, an independent demonstration that the management system of the organisation conformed to specified requirements, and was capable of consistently achieving its stated policy and objectives, and had been effectively implemented (EMI, 2007:05; JAS-ANZ, 2009:05; KPMG, 2008:31). In addition, an increasing number of companies had extended the internal auditing coverage to systems and procedures for measuring, recording, and reporting sustainability data to ensure that the systems were adequate and in compliance with the international practice, and that the data was accurate and complete (PwC, 2011:14).

To demonstrate their commitment to sustainability performance, an increasing number of companies disclosed how oversight for sustainability issues was managed at the board and senior executive levels including the membership and principal functions of sustainability committees and personnel or departments responsible for corporate responsibility (EIU, 2010:04; Tonello, 2010:03). Evident from the disclosure, was a departure from the past, where corporate responsibility was in the domain of communications or public relations department, towards specialised corporate

responsibility departments. In addition, the chief corporate responsibility officer in many companies reported directly to the board, an indication that sustainability issues were no longer peripheral activities but rather were increasingly integrated into the core business activities and managed strategically (Accenture & UNGC, 2011:04; KPMG, 2008:47). Therefore the resulting reports were likely to be a reflection of the actual performance and not merely a public relations tool (FSC *et al.*, 2010:17).

Indeed an increasing number of companies received top management support with regard to sustainability reporting as demonstrated by the increase in the inclusion of statements from senior executives such as the Chief Executive Officer (CEO) in the sustainability reports (CDC & PwC, 2009a:23; FSC *et al.*, 2010:03). The statements which clearly outlined the vision, mission, strategic sustainability plans and objectives in pursuit increased the predictability of companies' future actions and enhanced the relevance of the reports to the stakeholders by demonstrating that the top management was addressing the key concerns of the stakeholders (CDC & PwC, 2010:16; CorporateRegister.com, 2007:06). Coming from top executives, the statements also affirmed the companies' commitment to an improved environmental performance, and improved the credibility of the report (DTT, 2002:20).

An increasing number of statements also summarised the key elements of the reports such as current and future sustainability challenges, successes and failures, performance against benchmarks, and the integration of sustainability performance with the financial performance along with the implications of this on future business strategy (CDC & PwC, 2009:22; GRI & KPMG, 2007:06; SustainAbility *et al.*, 2008:20). These were meant to improve the understandability of the reports by setting a tone for the rest of the report as well as demonstrate transparency and accountability in order to enhance the credibility of the reports to the readers (DTT, 2002:20).

2.6.5 Frequency and medium of reporting

To ensure that the sustainability reports reached the readers before they lost their value to influence their decisions, an increasing number of companies had integrated their sustainability reporting cycle into their mainstream annual reporting cycle (FSC *et al.*,

2010:03). Given that most stakeholders were interested in receiving sustainability information more frequently, some companies moved from reporting annually to quarterly on-line reporting (CSR Europe, 2010:12). The use of on-line reporting had also shortened the reporting cycle by providing companies with direct feedback from the stakeholders in a timely manner thus enabling them to make relevant adjustments to the reports and to report promptly (CERES & ACCA, 2010:13; Herzig, 2010:11). Indeed many companies offered their web visitors an opportunity to stay informed on the latest reports content on the site by receiving regular updates or update alerts via e-mail, Short Message Service (SMS) or subscribing to a Rich Site Summary (RSS) feed (CSR Europe, 2010:12; Herzig 2010:12; Radley Yeldar & GRI, 2011:03).

Indeed the proliferation of information technology during the decade had made on-line publishing, arguably the quickest, easiest and most cost-effective method to keep numerous, worldwide and even anonymous stakeholders informed about a company's sustainability performance (Mlarvizhi & Yadav, 2008:03). Resultantly, an increasing number of companies embraced the Internet as a medium of choice for reporting on their sustainability issues to the masses (CERES & ACCA, 2010:16).

To enhance the relevance of their reports, companies had employed web technologies such as interactive surveys, discussion forums, web chats, wikis, blogs and social media such as Twitter and Facebook to engage the stakeholders on an ongoing basis so as to identify their issues of concern and address them in their reports (CSR Europe, 2010:15; McKinsey Quarterly, 2009:03; McKinsey Quarterly, 2010:02; Radley Yeldar & GRI, 2011:05). In addition, the web technologies enabled companies to document the amount and sequence of use of data by different types of users thus facilitating the provision of relevant information in the reports through better targeting of the audience (HBS, 2010:viii; KPMG Huazhen, 2008:24).

Some companies also employed the flexibility of the web technologies to allow users to tailor the content of the online report to their specific information needs and preferences by enabling them to generate their own report according to their topics of interest (CERES & ACCA, 2010:16). The customisable formats were particularly useful for the professional user groups as they provided them with sustainability performance

information, raw data and analytical tools to enable them to analyse data themselves thus further enhancing the reliability of the reports (CSR Europe, 2010:23). Similarly, some companies enabled the readers to participate in the writing process by enabling them to add their views to the reports and sharing the unedited content with their friends via the social media (Baue & Murningham, 2010:15).

To enhance the clarity, understandability and readability of the sustainability reports, an increasing number of companies enriched their on-line sustainability reports with visually attractive and easily digestible multimedia content, such as videos, pod casts, slide shows, animations, dynamic graphs and charts (CSR Europe, 2010:15; Radley Yeldar & GRI, 2011:03). The rich media content also enhanced the usability and user experience of the websites by providing alternative ways of accessing the information such as reading, watching, listening, and touching (via Braille) (CSR Europe, 2010:07). In addition, multimedia content was employed to convey the messages in a more engaging, personalised form than simple texts (CSR Europe, 2010:15). These enabled companies to present complex issues and provide a vast amount of data in a user-friendly format (CSR Europe, 2010:16).

To further enhance readability, companies employed a number of formats by adopting combinations of hard copy sustainability reports, interactive online reports and PDF files in a manner that varied with the type of stakeholder groups targeted (KPMG Huazhen, 2008:04). Increasingly, companies employed clear and concise hard copies of the reports often supported by more comprehensive online versions to cater for the stakeholders that sought additional detailed information (KPMG Huazhen, 2008:24). Besides, they increasingly employed user-friendly web toolkits to ease the user navigation and enable the users to create PDF files, email, give feedback, create charts, enlarge existing charts, download tables in Excel, quick search information using a list of popular searches, obtain detailed view of data using infinite drill-down capability (CSR Europe, 2010:15; HBS, 2010:174). Moreover, companies increasingly availed their reports in multiple languages to reach their diverse audience (CERES & ACCA, 2010:16).

To enhance the verifiability of their sustainability reports, an increasing number of companies employed on-line technologies with embedded auditing capabilities that

facilitated and accelerated a continuous monitoring and assurance process (Blundell, 2007:11; Kuhn & Sutton, 2010:91). The technologies also left a seamless audit trail and supported thorough documentation of systems, processes and controls, as well as tracked the related changes (Blundell 2007:40; Kuhn & Sutton, 2010:107). In addition, on-line reporting facilitated the use of automated and standardised Computer Assisted Audit Techniques (CAAT) that tested entire data populations with ease thus effectively reducing the detection and audit risk (Blundell, 2007:25; Stephenson, 2003:01). The CAATs also resulted in consistent working-paper documentation leading to accurate assertions about the effectiveness of the internal controls (Blundell, 2007:89; 95; Stephenson, 2003:03; Chironna & Zwikker, 2010:08).

Other on-line developments included the creation and wide acceptance of a global registry and electronic information exchanges for sustainability reports (Corporate Register.com, 2009:36). Most notable among these was CorporateRegister.com, an on-line database that provided users with free accounts that enabled them to search non-financial reports using specific parameters such as sector, year and country (Corporate Register.com, 2010:30). This enhanced the accesibility of relevant and regularly updated information to the users and enabled them to cross compare the reports of several companies simultaneously (Corporate Register.com, 2009:06).

2.6.6 Developments in the structure of the sustainability reports

To enhance the readability, completeness and comparability of the sustainability reports, a majority of companies adopted the reporting structure recommended by the GRI framework (CERES & ACCA, 2010:14; Corporate Register.com, 2009:05; DTT, 2007:5; GRI, 2008:05; GRI, 2000:23; KPMG, 2008:04). The framework encouraged companies to consistently structure the sections of their reports as follows (GRI, 2000:07): Chief Executive Officers' statement; profile of reporting organisation; executive summary and key indicators; vision and strategy; policies, organisation, and management systems; and performance. This was meant to enable the report users to track performance over time and compare different companies' reports at the same time (GRI, 2000:23). The structure was also meant to ensure logical sequence of chapters to guide a reader through complex matters in a manner that facilitated reading and understanding (DTT, 2002:42; GRI,

2000:07).

2.6.7 Convergence and integration of environmental reports with other reports

2.6.7.1 Convergence of environmental, social and financial reports

In order to provide relevant and complete information to a growing number of stakeholder groups, an increasing number of companies converged their social, environmental and ethical reports into one sustainability report (CERES & ACCA, 2010:03; Corporate Register.com, 2010:05). Accordingly, the sustainability reports covered a wide range of topics including, general environmental issues, climate-change issues, supply chain management, corporate governance issues, social and socio-economic issues (Tonello, 2010:06). The topics reported on varied widely from one country to another according to their perceived relevance (Kolk, 2005:39). A majority of companies referred to the GRI guidelines and principles when selecting the content to report on (KPMG, 2008:40). Given that the framework prescribed a comprehensive list of standardised quantitative performance indicators, its selection as a point of reference enhanced the comparability, credibility and completeness of the resulting reports (Brink & Woerd, 2003:09; GRI, 2000:07). As compared to environmental issues, coverage of social, governance and socio-economic issues was far more superficial and sketchy due to a lack of performance indicators (KPMG, 2005:09).

A few progressive companies had gone a step further and converged these reports with the financial reports in the annual reports in a bid to provide a more holistic picture of their performance (CERES & ACCA, 2010:03; EIU, 2010:16). Interestingly, it is the companies in developing countries such as South Africa and Brazil that led their counterparts in most of the developed countries in this emerging reporting pattern (KPMG, 2008:16).

2.6.7.2 Integration of environmental, social and financial reports

To further enhance the stakeholders trust and confidence, a few perceptive companies started to prepare fully integrated reports by the year 2010 (CERES & ACCA, 2010:03). Such reports were meant to demonstrate how a company's sustainability strategy was

integrated into its business strategy, thus provide a complete picture of its performance, risks and opportunities by placing the financial performance within the context of sustainability performance (Ernst & Young, 2010:02; HBS, 2010:V). The integrated reports were expected to provide clarity about the causal link between the sustainability performance and financial performance of a company, which would enable the stakeholders to better understand and predict the impact of its actions on the society (HBS, 2010:37; IODSA, 2009:12). The integrated reports were also expected to provide the users with a one-stop shop for all the information required thus increase the accessibility of relevant information by reducing the time required to search for information (Corporate Register.com, 2010:05). Given that integrated reporting required deeper engagement with the stakeholders, it was expected that emerging reports will be attuned and therefore relevant to the stakeholders information needs (HBS, 2010:37; IRC, 2011:02).

To implement integrated reporting, companies required robust information management systems in order to capture, measure, analyse and disseminate accurate sustainability data on a more timely and more frequent basis (HBS, 2010:09; IRC, 2011:21; KPMG, 2010:09). This in turn improved the integrity and reliability of the data, and the timeliness of the resulting reports (HBS, 2010:140; IRC, 2011:17; KPMG, 2010:08). The integration also subjected the sustainability data to the same internal controls and rigorous auditing procedures as those subjected to the financial information, which would further enhance the reliability and rigor of the sustainability information to the same level as the financial information (HBS, 2010:141; IRC, 2011:17; KPMG, 2010:08). The integrated reports also required a universal level of standardisation of key environmental and social performance metrics which should further enhance the consistency, conciseness and comparability of the reports across time, and to those of other companies in similar industries (Corporate Register.com, 2010:05; HBS, 2010:142; KPMG, 2010:08).

2.6.8 Stakeholder engagement

With passage of time, top companies did not only seem to grasp the importance of communication with their stakeholders, they also seemed to have understood that it had to evolve in pace with their strategies, involve and reflect the needs of the stakeholders

(KPMG, 2008:16). Accordingly, stakeholder engagement became the norm as an increasing number of reporting companies started to meaningfully engage their stakeholders, by using systematic techniques such as stakeholder mapping to identify and prioritise their target audiences and their respective information needs and expectations (ACCA & TEC, 2005:05; CCSR & CDC, 2008:04). These enhanced the relevance of the reports as the companies increasingly relied on the stakeholders themselves to raise their relevant concerns which were then addressed in the reports (CSR Europe, 2010:05).

To demonstrate to the stakeholders that their key concerns had been addressed, a growing number of companies explicitly singled out their key stakeholders and structured their reports accordingly, with separate sections tailored for different stakeholders (ACCA & TEC, 2005:05; CDC & PwC, 2009:27). To achieve this, they employed online polls to ask the users to indicate their preferred reporting format, media, language and so on, to enable the companies to adjust their subsequent reports to the common preferences of the stakeholders (CSR Europe, 2010:12).

Increasingly, companies actively consulted and involved their stakeholders when selecting key performance indicators and the content to report on (KPMG, 2008:40). Accordingly they employed a variety of instruments which included opinion polls, staff surveys, community forums, advisory panels, feedback forms and on-line techniques such as interactive surveys, web chats, wikis, blogs and social media to reach new audiences in new ways (CSR Europe, 2010:18; KPMG, 2008:34; SustainAbility *et al.*, 2008:25). The latter techniques also simplified the feedback process and made it quicker for users to submit feedback in an uncensored and real-time manner. This did not only increase the feedback rate but also it enabled the companies to update information and news feeds faster and more frequently thus further improving the timeliness of the reports (CSR Europe, 2010:18).

To enhance the reliability of the reports, an increasing number of companies included and responded to stakeholder voices thus creating a balanced and engaging content that instigated further stakeholder dialogue and enquiry (SustainAbility *et al.*, 2008:03). The companies increasingly invited the users to become part of the reporting process by including their independent and unedited comments in order for their reports to provide

genuine stakeholders' voices meant to enhance the credibility of those reports (CSR Europe, 2010:18). Some companies' reports also provided detailed information on the opinion polls and surveys of their stakeholders' perception, as well as case studies (ACCA & TEC, 2005:05; CSR Europe, 2010:19; KPMG, 2008:34).

To further enhance reliability, companies increasingly included in the CEO's statements, a declaration from the CEO of a commitment to addressing the key concerns raised by the stakeholders and invited their feedback (ACCA & TEC, 2005:11; CDC & PwC, 2010:22). Similarly, an increasing number of companies demonstrated an alignment of stakeholders' concerns with their business priorities (ACCA & TEC, 2005:05). Some companies also demonstrated how they had incorporated stakeholder feedback into their reporting process and employed the feedback to test the clarity of their reports (SustainAbility *et al.*, 2008:23). Other companies employed case studies to demonstrate a connection to the reality faced by the stakeholders and the outcome of specific dialogue initiatives (ACCA & TEC, 2005:05). Some innovative companies also started to quantify their engagement initiatives using a consistent metric for measuring the effectiveness of their stakeholder engagement processes (ACCA & TEC, 2005:06).

To enhance the review and verifiability of the effectiveness of the stakeholder engagement process, an increasing number of companies, described in detail their methodology and process for assessing material issues raised in stakeholders' feedback (CBSR & CDC, 2008:22; CDC & PwC, 2009:27). This included the documentation of the materiality matrix used with summaries of new issues raised and key changes from the previous years (AccountAbility, 2006:21). In addition they documented evidence that controls, action plans and reviews, quantified targets, and milestones were in place, including the structures and procedures of conducting the stakeholder engagement process and use of metrics to track the engagement impacts and outcomes (ACCA & TEC, 2005:06; CBSR & CDC, 2008:22). Furthermore, they documented the evidence that stakeholder viewpoints were employed to inform business practices and decisions (AccountAbility, 2006:16).

Whereas the improvement in the quality of sustainability reports among the leading edge reporters was certainly commendable, the same cannot be said about the quality of

sustainability reports of most companies in general (SustainAbility *et al.*, 2008:05). The next section discusses the main shortcomings of the sustainability reporting practices of the years between 2000 and 2010.

2.6.9 The shortcomings of the sustainability reporting practices of the years between 2000 and 2010

2.6.9.1 Lack of a meaningful stakeholder dialogue

Although a majority of companies published a section on stakeholders and defined their approach to stakeholder engagement, still too few entered into a meaningful dialogue with their stakeholders to define the issues that should be reported or even asked for specific feedback (Bromley & Powell, 2012:485; Business & Society, Morris & Chapman, 2010:06). Accordingly, the stakeholder dialogue was limited, typically unilateral, and almost always employed the lesser effective channels of communication such as round tables, questionnaires, and unrepresentative stakeholders' panels (ACCA, 2009:06; KPMG, 2008:34; Marquis & Toffel, 2014:19). As a result, most of the reports did not reflect the needs of their targeted audience, lacked credible and/or resentful stakeholder voices, as most companies seemed to have pre-determined the relevant issues to report on without involving the stakeholders (Business & Society, Morris & Chapman, 2010:21; Ernst & Young, 2007:10; SustainAbility *et al.*, 2008:19).

2.6.9.2 Information-overload or over-aggregation of information

By purporting to cater for diverse stakeholder groups, companies simply expanded their reports through the dumping of verbose, unprioritised and unintelligible information with a limited attempt to explain their industry specific jargon or technical indicators (Business & Society, Morris & Chapman, 2010:14; Laud & Schepers, 2009:368; SustainAbility *et al.*, 2008:16). This widespread non-strategic approach to sustainability reporting proliferated the reports in different formats and types, using a varying range of media such as paper and electronic which not only lead to multiplication of data and information-overload, but also it diminished the relevance, readability and comparability of the reports to the readers (Business & Society, Morris & Chapman, 2010:31; CSR Europe, 2009:7; KPMG, CFCGIA, GRI & UNEP, 2013:15; Laud & Schepers, 2009:368; SustainAbility *et al.*, 2008:17).

In theory, the voluntary reporting guidelines and mandatory reporting requirements in most countries were meant to be complementary, however, this was hardly the case in reality as the two were neither integrated nor synchronised (Fonseca, 2010:14). As such, their requirements tended to duplicate the reporting efforts of companies thus resulting in information overload that limited the clarity of the reports (Fonseca, 2010:15). To exacerbate the situation, the mandatory reporting requirements themselves were fragmented with different arms of governments requiring different sets of information as they were widely dispersed throughout the national legislation without integration (UNEP & GRI, 2005:03). These resulted in overlapping, competing and even conflicting reporting requirements (Menselsohn, Hjartarson & Pearce, 2010:04). Among multi-national companies, sustainability reporting was disaggregated per country, product or line of business, therefore the overall performance of a company could not be understood (Mammatt, 2009:04).

By contrast, the companies that attempted to narrow the scope of their sustainability reports in order to avoid information-overload risked alienating some of the stakeholders (KPMG, 2008:16). Typically, they provided over-aggregated information without supporting detail which impaired the readers' ability to meaningfully assess and understand the performance of the companies, and merely raised questions regarding a company's commitment to sustainability reporting (Deloitte, 2011:05). Therefore, the balancing act of getting the right information, to the right stakeholders, at the right time and in the right form posed a challenge to many of the companies that produced sustainability reports (KPMG, 2008:16).

2.6.9.3 Incomparability of the sustainability reports

Notwithstanding the emergence of the GRI guidelines as the *de facto* standard in sustainability reporting, the comparability of sustainability reports remained problematic (Fonseca, 2010:05). More specifically, GRI's ABC application level system of reporting – where a C level report required disclosure on 10 indicators, a B report required 20 and an A report required all 79 or an explanation for omission – though well-intended to distinguish beginners from advanced reporters, allowed a variation in sustainability reports as companies could select favourable performance indicators uncommon to all

reports and change the indicators from one year to another at will (Business & Society, Morris & Chapman, 2010:31; Fonseca, 2010:15; Henriques, 2007:89; Norman & MacDonald, 2003:13). Accordingly, there was a lack of a systematic and comprehensive approach to the selection of key performance indicators which impaired the comparability of the sustainability reports (Business & Society, Morris & Chapman, 2010:03).

The indicators themselves were hardly clear, specific, measurable, accurate, and reliable thus were susceptible to inconsistent interpretation and application (Leavoy, 2010:01; SustainAbility *et al.*, 2008:16). The inconsistency allowed cynical companies to appear to be committed to sustainability reporting whereas hardly disclosing their true sustainability impacts (Norman & MacDonald, 2003:13). Resultantly, the sustainability reports varied widely with regard to their scope, depth and content from high-quality and concise stand-alone reports, to an addition of a few pages in the annual reports, to short but glossy documents (KPMG, 2010:78; Kolk, 2005:38).

2.6.9.4 Inadequacy of reporting guidelines

Given that most guidelines including the GRI's ones covered only a section of disclosures, there was a proliferation of multiple metric reporting frameworks with little coherence and convergence that inevitably recommended dissimilar terminology, reporting structures, approaches as well as methods to measure, normalise and report on specific performance indicators (Fonseca, 2010:07). This dissimilated the reporting practice especially when companies employed metrics from several frameworks in their reports (PwC & CDP, 2007:11). Besides, the metrics employed were also still evolving and had hardly matured or stabilised (Deloitte, 2009:02; IPIECA & API, 2005:11). Therefore, they further inhibited the comparison of a company's performance across time as they varied in definition from one period to another (IPIECA & API, 2005:07).

Most guidelines also lacked embedded benchmarks that would enable the reader to gauge the progress made towards the set targets (Leavoy, 2010:01). As a result, they did not require companies to provide the context within which their sustainability performance was reported nor the assumptions underpinning the assertions made (Business & Society, Morris & Chapman, 2010:14; SustainAbility *et al.*, 2008:14; Tornroos, 2005:105).

Accordingly, most companies reported in a context free fashion without positioning themselves against a benchmark or even comparing themselves with their peers. This inhibited the understandability of their sustainability reports (Business & Society, Morris & Chapman, 2010:14).

2.6.9.5 Poor quality of assurance statements and processes

Although the need for reliability of sustainability reports had accelerated the development of relevant assurance frameworks, the adoption of assurance standards did not enhance the quality of the assurance statements as they varied significantly with regard to their title, range of objectives, scope of assignment, amount of description of the nature, timing and extent of procedures employed, as well as the wording of conclusions offered, given the diversity of the assurance providers (ACCA, 2009:10; Fonseca, 2010:19; Furmann, Ott, Looks & Gunther, 2013:02; Strandberg, 2013:12). The variation undermined the readers' understandability of the assurance process as well as the meaning of the conclusions reached (Deegan, Cooper & Shelly, 2006:329). Besides, many assurance statements did not include, or refer to, any recommendations for improvement, either from a content, accuracy or internal systems point of view, therefore they offered little insight into how the assurance process was useful to a company's reporting and performance (Business & Society, Morris & Chapman, 2010:28; ACCA, 2009:19).

Furthermore, only a few companies had undertaken assurance of their reports (AICPA *et al.*, 2010:14; Business & Society, Morris & Chapman, 2010:27). Even fewer had undertaken a reasonable assurance given that it required a detailed examination of evidence used to support the assertions made in the reports and thus was costly (ACCA, 2009:05; Ernst & Young, 2007:23). Instead, companies opted for the less costly, limited form of assurance that did not require a detailed examination of evidence (ACCA, 2009:09). This limited the stakeholders' reliability on the reports, especially given that they were sidelined from the assurance process, as the assurance engagement was determined by and undertaken for the companies' management, a tendency which undermined the perceived independence of the assurance providers (ACCA, 2009:06; ACCA, 2009:08). Accordingly, the resulting assurance statements did not enhance the reliability of the sustainability reports but instead led to a credibility gap as most

stakeholders appeared dismissive of the assurance process, statements, practical competencies of the assurance providers and the overall institutional legitimacy of the sustainability assurance industry (ACCA, 2009:05; Fonseca, 2010:19; Elkington & Thorpe, 2009:01). Where companies had opted for third-party commentary, such commentary tended to be one-sided, typically portraying a company's report in a favourable manner that lacked credibility (Business & Society, Morris & Chapman, 2010:21).

As a result of the above weaknesses in the assurance process, and the general climate of voluntarism in sustainability reporting, the reports produced by most companies tended to be declarative and biased with a primary focus on good news even when bad news was known to exist (SustainAbility *et al.*, 2008:14). In addition, most of the performance measurement systems were inept and error prone, as they relied on manual or simple spreadsheet software that could not guarantee the accuracy of the reports produced (Ernst & Young, & Greenbiz, 2013:30; Haywood, Brent, Trotter & Wise, 2010:342; Marx & Van Dyk, 2009:01; SAPLIB, 2009:01). Worse still, some companies undermined the credibility of their reports by providing cautionary statements about the nature of the information contained in those reports (Kolk, 2005:40). Resultantly, many stakeholders perceived the sustainability reporting practice as lacking in commitment to transparency and accountability, and thus dismissed it as irrelevant in the context of their own decision-making needs (IRC, 2011:01).

2.6.9.6 Lack of commitment to sustainability reporting

The reliability of sustainability reports was also impaired by the apparent disconnect between the sustainability reporting practice and the actual sustainability performance (Leavoy, 2010:01). This created an impression that most had reported for the sake of it, without a credible commitment to an improvement in their sustainability performance, given that most of the reporting guidelines did not require companies to prove the claims made in the reports (SustainAbility *et al.*, 2008:15). As a result, companies could retain their international certification, or even win sustainability reporting awards and rankings despite a dismal sustainability performance (3 BL media, 2011:01).

A lack of commitment to sustainability reporting was also evidenced by the low reporting rates among the companies outside the top 100, the infrequency of reporting, as well as the limited convergence of social, economic and environmental reports into annual reports among all types of companies (AICPA *et al.*, 2010:14; CDC & PwC, 2009:22). Typically, social and environmental information was presented in a competing or reciprocal manner that mirrored the influence of interested parties (Brown *et al.*, 2007:25). Furthermore, the social and governance issues included in the sustainability reports were hardly rigorously quantified as the metrics of measuring these issues were not as well-developed as measures of environmental performance, thus were presented in a vague manner that hindered accuracy, comparability and understandability (Norman & MacDonald, 2003:09; SustainAbility *et al.*, 2008:19).

For most, their sustainability reports appeared disconnected from their financial reports, generally provided a backward-looking review of performance, and almost always failed to make the link between sustainability issues and companies' core strategies (IRC, 2011:01). In spite of the widespread debate on the need for integrated reporting to enable the users to assess the performance of companies in an all rounded and complete manner, only a few companies integrated their sustainability reports with their financial reports (KPMG, 2008:16). Accordingly, sustainability issues were perceived as peripheral activities, that neither merited inclusion into companies' Enterprise Resource Planning systems nor required daily management and monitoring (SAPLIB, 2009:01). As a result, sustainability reports did not provide a holistic picture of companies' performance as they failed to address the issues that had caused a lingering trust deficit between the general public and the intentions and practices of companies (IRC 2011:01).

2.6.9.7 Failure to optimise on the on-line capabilities

Much as the progresses made in on-line reporting were indisputably laudable, most companies did not fully exploit their on-line capabilities as most reports had limited interactivity and did not employ the latest available technology such as the Extensible Business Reporting Language (XBRL) and Web 2.0 technologies (Ernst & Young, 2007:22; GRI, 2012:14). Instead, many companies simply uploaded the duplicate of their printed report as a PDF file and missed the opportunity to provide more attractive and

timely information (Business & Society, Morris & Chapman, 2010:39; Radley Yeldar & GRI, 2011:02). Besides, downloading large PDF files was time-consuming and rendered the computers unusable during the download time and did not allow prompt feedback (CSR Europe, 2009:10).

With regard to the HTML format, the on-line reporting practice varied significantly as no standard had been developed to assist the companies to present their sustainability information in a comparable manner (Tornroos, 2005:115). In addition, the search for the electronic reports was a frustrating experience for most readers as the reports lacked visibility on the home page (Business & Society, Morris & Chapman, 2010:45). In the developing countries such as South Africa, perhaps due to a low level of computer literacy, sustainability reporting on the Internet had not yet reached the stage where users could download information and mould it into different forms for useful decision-making (Morolo 2007:ix; Nevondo, 2005:2).

2.7 CHAPTER SUMMARY AND CONCLUSION

This chapter traced the environmental, social and sustainability reporting practices from the 1960s to 2010 to determine whether the reporting developments had enhanced the relevance, reliability, clarity, comparability, timeliness and verifiability of the reports.

The environmental movement of the 1960s drove the general public to pressurise companies to demonstrate their environmental responsibility. As a response, companies launched dis-informative greened advertisements meant to manipulate the general public.

In response to the energy crisis of the 1970s, the larger American companies increasingly reported on their environmental performance in their annual reports. However, the reports were irrelevant, unreliable, incomparable, inadequate, biased and unverifiable.

By contrast, the European companies focused on employee-related social reporting. Whereas the French law required companies to produce comprehensive and comparable employee reports, social reporting in most European countries was voluntary. The most innovative reporting experimentation was practiced by the large German companies,

especially Deutsche Shell, which employed specific, reliable, relevant and comparable quantitative indicators and innovated integrated reporting.

Despite the laudable developments in social reporting in Europe, most reports were public relations driven and therefore were irrelevant, unreliable, biased and dis-informative. Except in France where a uniform report structure was prescribed, most European reports were incomparable as they lacked a uniform format, terminology and content structure. However, the French practice failed to provide a holistic impact of companies on the society as it narrowly focused on employee issues and provided unnecessary details. Elsewhere in Europe, social reports were vague and incomprehensible as they lacked quantitative performance indicators. In addition, many companies produced incomplete and inaccurate reports to avoid the legal consequences of disclosing sensitive information, a situation made possible due to a lack of independent verification.

The recession of the early eighties ended the widespread experimentation and debate concerning social reporting. In the late eighties, a series of high profile companies' environmental disasters led to re-emergence of non-financial reporting with a primary focus on environmental issues. In response to the resulting public pressure, some governments such as that of the United States introduced regulations that required mandatory disclosure of some environmental information in the annual reports. As the rates of environmental reporting rose, so did the societal expectations. Dissatisfied with the quality of reporting, some stakeholders developed the Valdez Principles to enhance the timeliness, relevance, reliability and verifiability of environmental reports.

Despite the reporting developments in the eighties, most of the reports were unverified, deceptive, dis-informative, irrelevant, unreliable, and incomplete as they contained more scenic photographs than actual information. In addition, the reports were incomparable and incomprehensible as quantitative environmental performance indicators were yet to be developed, neither had definitive reporting guidelines emerged. The reporting approach was also generally unsystematic as it lacked a strategy, an effective EMS, an effective stakeholder engagement mechanism, and an independent assurance statement, given assurance standards were yet to be developed.

Driven by the compliance motive, the uptake of environmental reporting accelerated at an unprecedented rate in the 1990s in most of the developed countries except in the United States. To improve the usefulness of the reports, a plethora of reporting guidelines, awards and ranking schemes, standards and internationally accredited certification had emerged with an objective of enhancing the relevance, reliability, clarity, comparability and timeliness, of the reports.

To enhance the clarity, accuracy and comparability of the sustainability reports produced, an increasing number of companies did not only quantify their data, they also provided targets and data from preceding years to facilitate comparison. In addition, an increasing number of companies undertook independent verification to enhance the credibility of their reports and improve their EMSs. In addition, an increasing number of companies obtained internationally recognised certification such as the ISO 14001 and the EMAS for their EMSs to enhance the reliability and verifiability of their reports.

The advent of the Internet eased the accessibility of the reports to the stakeholders. The HTML format of on-line reporting enabled companies to provide more detailed, timely, interactive, user-friendly and relevant information tailored to specific needs of different user groups.

Most companies subscribed to reporting guidelines developed by high-profile organisations which recommended standardised report structures and required a comprehensive disclosure of information as well as a logical flow of topics. These enhanced the comparability, relevance, reliability and readability of the environmental reports.

An increasing number of companies widened their environmental reports to cover social issues in order to provide relevant information to a growing list of stakeholder groups. A few companies converged their environmental, social, socio-economic and financial performance reports in one annual report to provide a complete all-rounded picture of their performance. This enhanced the reliability and understandability of the reports by enabling users to assess the impact of sustainability performance on financial performance of a company. To reinforce the emerging trend, some countries enacted laws

that prescribed disclosure of certain standardised sustainability performance information in the annual reports which further enhanced the completeness and comparability of the reports.

Notwithstanding the above developments, environmental reporting practices in the 1990s had numerous shortcomings. These included: a) a lack of a meaningful stakeholder engagement mechanism that resulted to generic, overloaded, unreadable, unclear and mostly irrelevant reports; b) unreliable, incomplete and inaccurate reporting due to an extensive use of manual and error-prone methodologies as well as a tendency to report in a selective, fragmentary, biased, self-laudatory and unverifiable manner; c) low levels of external verification and a poor quality of the verification processes; d) incomparability of the reports due to proliferation of non-uniform reporting guidelines; and e) failure by most companies to fully exploit their on-line resources.

The years between 2000 and 2010 witnessed a dramatic increment in the number of companies that produced sustainability reports. The increment that was mainly driven by competitive motives had spread to all sectors and to the developing countries. The growth in the reporting practice during the period was partly driven by smart legislation by governments which also endorsed GRI guidelines, securities exchanges, supra-national bodies, and business and industry associations reporting awards and ranking schemes.

Unlike in the 1990s, the accountancy professional bodies played a more significant role by developing assurance standards. In addition, major accountancy firms spearheaded the provision of assurance on sustainability reports, and conducted surveys meant to enhance the usefulness of the sustainability reports. In the South African context, the improvement in the quantity and quality of sustainability reports was driven by the King II Report which explicitly advocated for triple-bottom-line reporting. The report was updated into the King III Report, which recommended integrated sustainability reporting.

The years between 2000 and 2010 witnessed a significant improvement in the usefulness of sustainability reports as an increasing number of companies quantified their data, contextualised it in a comparable manner to the past years and provided metric performance indicators against targets. To facilitate inter-company comparison, a

majority of companies adopted the GRI performance indicators. In addition, companies increasingly benchmarked their performance against that of their competitors, industry averages and the best practice, and provided trends of their performance. The adoption of the GRI sector and country-specific indicators also enhanced the relevance of the reports and made the reports more concise, effective and readable. An increasing number of companies also reported on a comprehensive list of indicators and provided an elaborate description of reporting systems meant to enhance completeness and verifiability of the resulting reports. Accordingly, there was a dramatic increase in the number of companies that undertook external verification to enhance the credibility of their reports.

To further enhance the credibility of their reports, some companies included third-party commentary in the reports. In addition, a growing number of companies adopted a systematic approach to reporting that entailed developing a sustainability strategy and policy, putting in place an organisational structure with well-documented processes and controls. Furthermore, many companies adhered to internationally recognised codes of conduct and had an effective and internationally accredited EMS. To further demonstrate their commitment to sustainability reporting, and enhance the relevance, reliability, and understandability of their reports, an increasing number of companies included CEO statements in their sustainability reports that outlined their sustainability plans.

To improve the timeliness of their sustainability reports, many companies aligned their sustainability reporting cycle to their financial reporting cycle. With the aid of the Internet, some went further and reported on a quarterly basis as opposed to an annual basis. The wide adoption of the Internet for sustainability reporting enhanced the relevance of the reports as it availed new stakeholder engagement tools. The use of advanced computer software also improved the accuracy, consistency, and credibility of the data as well as enriched the on-line content which enhanced the understandability of the reports. Not only did the reports become more verifiable, they also became more comparable at an instant speed and low cost.

To enhance the relevance of their reports, an increasing number of companies started to meaningfully engage their stakeholders, when selecting the content to report on and their key performance indicators. Furthermore, using stakeholders' feedback, companies

increasingly adjusted their subsequent reports to the preferences indicated by the stakeholders to enhance the usefulness of their reports.

Despite the general improvement in the quality of sustainability reports in the years between 2000 and 2010, the reporting shortcomings of the 1990s continued during this period. These included: 1) superficial stakeholder engagement initiatives that ultimately resulted in irrelevant reports; 2) unreliable reports due to the use of inaccurate and questionable performance indicators, biased reporting, and low levels of external verification of the reports; 3) incomparable reports due to a lack of standardised specific and measurable performance indicators and benchmarks; 4) incomprehensible reports due to either information-overload or over-aggregation of data without supporting detail; and 5) failure by most companies to exploit the full potential of the Internet capabilities.

Whereas the above developments in the sustainability reporting practice have certainly enhanced the usefulness of the sustainability reports produced by many companies, evidently, there are numerous serious concerns regarding the relevance, reliability, comparability, timeliness, clarity and verifiability of the reports produced by most companies. Therefore the final conclusion regarding the decision-usefulness of the sustainability reports produced still seems evasive.

Having reviewed the historical development of environmental and sustainability reporting practice in this chapter, the next chapter will present the theoretical foundation underpinning this research. Chapter 3 proceeds with a general overview of various approaches to formulation of accounting theories as well as a discussion of some of the theories that have commonly been used by researchers in the area of social and environmental reporting. This discussion will be followed by a detailed examination of the decision-usefulness theory as well as justification for the selection of this theory.

CHAPTER 3

THEORETICAL FOUNDATION OF ENVIRONMENTAL REPORTING

3.1 INTRODUCTION

Environmental reporting, as previously defined, is the “process of communicating ... environmental effects of organisations’ economic actions to particular interest groups within society and to the society at large” (Gray *et al.*, 1987:9). Whereas, accounting is the “process of...communicating economic information to permit informed judgements and decisions by users of the information” (AAA, 1966:01). Therefore, environmental reporting falls within the ambit of accounting (De Villiers, 1996:08). Accordingly, it is appropriate to examine accounting theory in order to understand and evaluate the suitability of the current environmental reporting practices in informing judgements and decisions of users, and to prescribe how such reporting practices should be done (Deegan, 2006:04). The theory is also examined because no discipline can develop without a strong theoretical base (Porwal, 2001:07). Therefore as a relatively newly emerging practice, environmental reporting should be founded on sound accounting theory.

Although several definitions of accounting theory have been provided (Deegan, 2006:04), the most commonly cited definition is that provided by Hendriksen (1970:01) when he defines an accounting theory as “a coherent set of hypothetical, conceptual and pragmatic principles forming the general framework of reference for a field of inquiry”. He later reiterates that an accounting theory is “a set of broad principles that, firstly provide a general frame of reference by which accounting practice can be evaluated and secondly guide the development of new practices and procedures” (Hendriksen, 1982:01).

Admittedly, there is no single accounting theory that has met Hendriksen's definitions with a universal approval (AAA, 1977:02; Porwal, 2001:26). Instead, like in any other social science, there are a multitude of different theories employed in accounting that sometimes corroborate each other but at other times compete with each other (De Villiers,

1996:11). It is therefore not surprising that several theoretical perspectives have been employed in the prior literature on environmental reporting, given that it is a sub-discipline of accounting (Cowan, 2007:60).

The purpose of this chapter is to examine various theoretical perspectives employed in the existing literature in an attempt to describe, explain, and evaluate the current environmental reporting practices and to prescribe how the reporting should be practiced. This chapter proceeds with a brief overview of the various theoretical perspectives employed in social and environmental reporting research in section 3.2. The justification for the theoretical perspective adopted in this study will be provided in section 3.3. This will be followed by a detailed examination of the decision-usefulness theory in section 3.4. The paradigms of the decision-usefulness theory will be discussed in section 3.5. This will be followed by a detailed discussion of the approach adopted in this study in section 3.6. Thereafter, the general criticisms of the decision-usefulness theory are discussed in section 3.7, followed by the summary and conclusion of the chapter in section 3.8.

3.2 OVERVIEW OF RELEVANT THEORIES

3.2.1 Inductive theories and Deductive theories

Attempts to formulate generally accepted accounting theories have not succeeded so far because of different assumptions, intended functions and methodologies employed in formulating the theories (Porwal, 2001:26). With regard to the methodologies, some accounting theories have been formulated using an inductive approach, on the basis of past observations, whereby theories are not viewed in isolation but are rather tested to determine the extent to which actual practices conform to the theories. Simply put, on the basis of observations and measurements, generalised conclusions are drawn. According to Belkaoui (1992:61), this involves four stages:

- i. recording observations
- ii. analysing and classifying observations to detect recurring relationships
- iii. deriving generalisations and principles of accounting from recurring relationships

iv. testing generalisations

The theories developed this way are deemed to be empirical or scientific, of which some are further developed to make predictions about likely occurrences, and sometimes offer explanations about why certain events occur (Deegan, 2006:04). Such theories have however been criticised for justifying the existing practice and for being unable to suggest improvements or new techniques (De Villiers, 1996:17).

By contrast, other accounting theories are developed unscientifically, not based on observation or empirical evidence, but rather developed through a deductive process (Porwal, 2001:28). The deductive process follows the following sequence (Belkaoui, 1992:60):

- i. Value-based objectives are specified
- ii. from the objectives, accounting premises are selected
- iii. from the premises, accounting principles are derived
- iv. based on accounting principles, techniques of accounting are formulated

These theories which are usually based on the norms or value judgements held by those proposing them, are regarded as normative, as they are not concerned with how accounting is practiced, but rather how it ought to be practiced (Deegan, 2006:11). Such theories therefore are prescriptive as they set out goal assumptions of what accounting principles should be based on (Deegan, 2006:04). Notwithstanding the variety of theories employed in accounting, selecting an appropriate accounting theory should not be a daunting task as different theories are formulated to perform different functions (Deegan, 2006:02). Therefore, the theories should be selected in accordance with their suitability for the intended function.

3.2.2 The theoretical perspectives employed in environmental reporting research

As a result of a considerable disagreement amongst accounting researchers regarding the theoretical underpinning of environmental reporting, a variety of theoretical perspectives have been employed in the early literature on environmental reporting (Cowan, 2007:60;

De Villiers, 1998b:01). In order to facilitate a meaningful discussion of the theoretical perspectives, some researchers have proposed a variety of categorisation criteria that could be employed (Gray, Kouhy & Lavers, 1995:50; Parker, 2005:01). One useful categorisation criteria that is commonly cited is provided by Gray *et al.* (1995:50) who classify the theoretical perspectives into three categories namely; decision-usefulness theories, economics-based theories such as the agency theory and political economy theories such as the legitimacy theory and the stakeholder theory.

Another commonly cited categorisation criteria of the theories employed in environmental reporting research is provided by Parker (2005:842), who places the theoretical perspectives into two main categories namely; augmentation theories and heartland theories. The heartland theories are considered to be deeply philosophical and less practical, and thus have not been extensively employed in the prior research on environmental reporting (Alin, Victor, & Dumitru, 2011:124). By contrast, the augmentation theories which consist of decision-usefulness theory, agency theory, accountability theory, stakeholder theory and legitimacy theory are considered to be practical and have been extensively used in environmental reporting research (Alin *et al.*, 2011:124). These theories overlap with those classified by Gray *et al.* (1995:50), and are expounded below.

Accounting conceptual frameworks assert that the primary objective of accounting is to provide information that is useful for decision-making (FASB, 2010:01; GRI, 2000:16; IASB, 2008:12). Based on the primary objective, accounting researchers have proposed a theory, namely; the decision-usefulness theory (Inanga & Schneider, 2005:246). The decision-usefulness theory therefore is premised on the view that the primary purpose of accounting and environmental reporting is to provide information to permit informed judgements and decisions by users of the information (AAA, 1966:01). The theory assumes that users do evaluate and choose to use environmental information according to its perceived usefulness (Rikhardson & Holm, 2005:05). It further assumes that for accounting information to be useful, it must be relevant and faithfully represent the phenomena it purports to represent (FASB, 2010:16). In addition, the theory makes the assumption that certain characteristics of information such as understandability, timeliness, comparability and verifiability can enhance its decision-usefulness (FASB,

2010:19). As a normative theory, the decision-usefulness theory prescribes the type of accounting information and manner of disclosure that is useful to the users when making decisions (Deegan, 2006:05).

By contrast, the agency theory is based on the agency relationship which exists where a principal (shareholder) delegates some decision making authority to an agent (manager) (Denis, Denis, & Sarin, 1999:1072; ICAEW, 2005:06). The principal (shareholder) and the agent (manager) enter into a formal contract that creates a fiduciary relationship that legally entitles the shareholders (principals) to information held by managers (agents) (Wilson, 2003:05). In this relationship, the agent will have more or better information than the principal (information asymmetry) and will act in his or her own interest which could be to the detriment of the principal's interest (Denis *et al.*, 1999:1072).

The agency theory thus posits that as a result of information asymmetries and self-interest, principals lack reasons to trust their agents (ICAEW, 2005:04). Therefore, the principals will seek to resolve the trust concerns by putting in place mechanisms such as requiring that environmental reports be audited to reinforce trust and reduce opportunistic behaviour by managers. For this reason, the theory has been extensively employed in accounting literature to explain and predict the shareholders demand' for the appointment of external and internal auditors, and in determining their respective roles in protecting the shareholders' interests (Adams, 1994:08). The theory has also been used to explain why managers, acting in their self-interest, will select particular accounting methods and prescribe the accounting information to be disclosed to the shareholders (Porwal, 2001:52).

Based on the view that an alternative purpose of accounting is for managers to account to all stakeholders for the management of resources under their control, accountability theory posits that managers have an ethical responsibility to provide an account, or a reckoning of their actions to all stakeholders and not just the shareholders (De Villiers, 1996:12; Gray, 1994:28; Gray *et al.*, 1996:38; Ijiri, 1975:32; Islam, 2009:45). According to the theory, managers have two responsibilities, namely; responsibility to take actions, and responsibility to account for those actions (Kisenyi, 1999:06). The theory extends the right to information held by managers to all stakeholders based on the assumption that a

social contract exists between a company and the society in which it operates, which entitles the stakeholders to a moral right to information (Gray, 1994:28; Kisenyi, 1999:07).

Based on an expressed or implied social contract, a company, like any other social institution, operates in society where its survival and growth depend on the delivery of some desirable ends to society in general, as well as the distribution of economic, social and political benefits to the society from which it derives its powers (Shocker & Sethi, 1973:67). It follows therefore that the social contract stipulates the responsibilities and the right to information and hence defines the nature of the relationship between company managers and the rest of society (Mathew, 1993:26) – a relationship in which the managers owe a duty of accountability to the society at large. It is based on this relationship that the accountability theory sets out arguments for disclosure of accounting information by companies to all stakeholders and not just the shareholders (Gray 1994:28).

Also based on the assumption that a social contract exists between a company and the society, the stakeholder theory posits that a company's continued existence requires the support of the stakeholders and that their approval must be sought, and the activities of the company adjusted to gain that approval (Hibbitt, 2004:206; Ullman, 1985:540). The theory is divided into two branches namely the ethical (normative) branch and the managerial (positive) branch (Deegan, 2002:294).

The ethical branch, being a normative branch, prescribes how the company management should address stakeholder concerns and interest, and therefore is not based on what actually takes place in practice (Hibbitt, 2004:206). Simply put, this branch argues that a company should be managed for the benefit of all stakeholders regardless of their powers and also prescribes that all stakeholders should be treated fairly and equally (Deegan, 2002:294). A company therefore has a moral obligation to uphold the rights of all stakeholders simply because they exist (Hibbitt, 2004:207). This includes the right to be informed about a company's environmental performance. As a prescriptive branch, the ethical branch does not predict managerial behaviour (Deegan, 2002:294).

By contrast, the managerial branch reiterates the need to manage and supply environmental information to powerful stakeholder groups because of their ability to control resources that are necessary for a company's survival (Ullman, 1985:540). The more important the resource controlled by the stakeholders for the future survival of a company, the more effort will be exerted in managing the relationship with the stakeholders and the greater the expectation that these stakeholders' demands will be addressed (Deegan, 2002:294). Thus this branch is used to directly predict management behaviour. According to this branch, the relative power of a stakeholder group will determine the level and quality of environmental information that it receives from a company, and therefore influence the disclosure policies of the company (Wallen & Wasserfaller, 2008:21). Therefore, environmental reporting is seen as one of the means to manage or manipulate powerful stakeholders in order to gain their support and approval or to distract their opposition and disapproval (Gray *et al.*, 1996:45).

Likewise, the legitimacy theory also assumes that a social contract exists between a company and the society within which it operates (Patten, 1991:297). The theory posits that a company must appear to consider the rights of the public at large, and not merely those of its investors (Deegan & Ranking, 1996:567). If the company does not appear to operate within the bounds of behaviour which is considered appropriate by society, then the society may act to remove the company's rights to continued operations (De Villiers & Antonites, 2003:01). Therefore, a company cannot continue to thrive if its aims and operations are perceived to be in conflict with those of the society within which it operates. This implies that companies with a poor environmental performance record may find it difficult to obtain the necessary resources and support to continue their operations within a society that values a clean environment (Deegan & Ranking, 1996:567).

To ensure its survival, a company will adopt particular strategies, including reporting strategies, in a bid to assure the society that the company is complying with the society's values and norms (Deegan, 2006:294). Lindblom (1994:01) identifies four reporting strategies that a company could employ in environmental reporting to legitimise itself. These are as follows:

- i. Reporting to educate and inform its relevant audience about actual changes in the

- company's performance and activities
- ii. reporting to change perceptions of its audience but not change its actual behaviour
- iii. reporting to manipulate perceptions of its audience by deflecting attention from issues of concern to other issues
- iv. reporting to change external expectations where they are deemed unrealistic or unfair

3.3 JUSTIFICATION OF THE THEORY ADOPTED FOR THIS RESEARCH

As a result of many approaches to the study of environmental reporting, research in this area is neither structured nor representative of any particular theory (Deegan, 2002:288; Porwal, 2001:26). As such, environmental reporting research has yet to experience a theoretical closure and remains open to different theories (ACCA, 2007:29; Hibbitt, 2004:144). However, where several different accounting theories belonging to different world views are adopted, complications can arise due to the conflicting nature of the assumptions underlying different theories (Deegan, 2002:294; Hibbitt, 2004:111). Hence some form of closure is a practical necessity within individual pieces of research (Hibbitt, 2004:144).

Different theories are suitable for different functions (Deegan, 2006:02). Some theories are suitable for describing accounting practices in general, whereas others are appropriate in prescribing particular accounting practices (Deegan, 2006:04; Islam, 2009:45). Some theories are suitable in predicting likely occurrences, whereas others are appropriate in explaining the occurrences after they have occurred (Hibbitt, 2004:112; Porwal, 2001:07). Accordingly, in selecting a particular theory to inform a study, a researcher has to evaluate its suitability for the intended purpose (Deegan, 2006:18). Simply put, a theory should be critically evaluated or questioned in order to determine its suitability for an intended function before it is accepted (Deegan, 2006:02). This should be done by examining whether the arguments supporting a theory are logical and plausible in terms of the assumptions made. Therefore, a theory and its associated hypothesis should only be accepted if the logic of its supporting arguments, underlying assumptions and supporting evidence provided are accepted (Deegan, 2006:18). Furthermore, the researcher has to consider the fact that accounting as a discipline, is not a natural science, but rather an

abstract phenomenon, the existence of which is solely dependent on human construction (Hibbitt, 2004:112). As such, accounting theories are developed as a result of value judgement. Therefore the acceptance of one theory, in preference over others, will in part depend on one's own value judgement (Deegan, 2006:15; Porwal, 2001:10).

Undeniably, the use of agency theory has benefited research on environmental reporting by enabling methodological pluralism, however, the theory's assumptions are highly contestable in the context of environmental reporting (Gray *et al.*, 1995:51). To begin with, its economic assumptions of free markets which have resulted in information asymmetries and externalities, contradict the principal concerns of environmental reporting (Parker, 2005:846). Most importantly, the theory's overriding assumption that all actions are motivated by self-interest is considered to be not only empirically implausible but also highly offensive (Gray *et al.*, 1995:51). Also, considering that the theory is concerned only with the fiduciary relationship and information needs of the shareholders, it ignores the other stakeholders (De Villiers, 1996:12; Hibbitt, 2004:191). Besides, the agency theory being a positive theory is not primarily concerned with what environmental reporting should be, thus it fails to suggest improvement to the reporting practice (Deegan, 2006:08). For these reasons, the theory is unsuitable to inform this study.

Although the stakeholder theory and legitimacy theory have been perceived as the more insightful theoretical perspectives that have informed the more penetrating analyses of environmental reporting studies in recent years (Gray *et al.*, 1995:52), these theories are focussed on explaining why companies/management make environmental disclosures (De Villiers & Van Staden, 2010a:07). Accordingly, these theories adopt a company's management perspective and are concerned with the motivating factors behind a company's environmental disclosure decisions (Cowan, 2007:60). Considering that this research focuses on the users' perception of the decision-usefulness of environmental information and not why companies or management disclose this information, the stakeholder and legitimacy theories are not useful to this study (De Villiers & Van Staden, 2010a:07). Furthermore, because this study is primarily interested in the perceptions of the powerless users of environmental reports, the management branch of stakeholder theory is inappropriate as it takes the perspective of powerful users (Wallen &

Wasserfaller, 2008:21). The legitimacy theory is also rejected as it accepts that the use of environmental reports to manipulate the public is one of the strategies that a company could employ to legitimise itself (Lindblom, 1994:01).

Likewise, the accountability theory is rejected as it adopts a company's management perspective by setting out arguments for disclosure of environmental information by companies to all stakeholders and not just the shareholders (De Villiers, 1996:12). The theory is also rejected as research evidence has indicated that the non-financial stakeholders' needs have moved from the accountability paradigm to the decision-usefulness paradigm, in which their needs for decision-making are eminent (Cronje, 2010:231). Besides, it has been argued that the decision-usefulness theory has encapsulated the accountability theory as information that is decision-useful is also able to discharge accountability (Gouws, 1997:66; Schoonraad, 2004:65).

Suitably, the decision-usefulness theory was selected to inform this study as it is congruent with the primary objective of accounting which is to provide information useful for decision-making (FASB, 2010:01; GRI, 2000:16; IASB, 2008:12; Inanga & Schneider, 2005:246:12) (See Table 3.1). The theory also renders itself well to the qualitative research methodologies that are employed in this research, namely content analysis and questionnaire survey (Deegan, 2006:12; Deegan & Gordon, 1996; Deegan & Rankin, 1996; Ernst & Young, 2007; Guthrie & Parker, 1990). Furthermore, the theory is normative and thus focuses on how environmental reporting should be, and not how it is (Deegan, 2006:12; Gray *et al.*, 1987:66). It therefore does not support the status quo but rather is proactive in nature and provides a basis upon which the current practice may be evaluated or from which future improvements of environmental reports and reporting systems may be deduced (Deegan, 2006:08).

TABLE 3.1: THEORETICAL PERSPECTIVES EMPLOYED IN PRIOR LITERATURE ON ENVIRONMENTAL REPORTING

Criteria for determining the suitability of a theory	Decision-usefulness theory	Agency Theory	Accountability theory	Stakeholder theory	Legitimacy theory
Broad overview and use in prior research on environmental reporting	Widely used in environmental reporting research. It suggests that all stakeholders require environmental reports to inform their decisions	Widely used in financial reporting research but its assumption of self-interest appear questionable when applied to environmental reporting. It suggests that shareholders require the reports to verify if managers' actions are in their interest	Not widely used in environmental reporting research as it provides little insight in explaining why managers produce environmental reports. It suggests that managers produce the reports to discharge accountability to non-financial stakeholders	Widely used in environmental reporting research. Considered insightful in explaining why managers elect to produce environmental reports. The ethical branch suggests that companies produce environmental reports for all stakeholders as they should be treated equally. The managerial branch suggests that managers produce the reports to manage stakeholders	Widely used in environmental reporting research as it is considered to be insightful in explaining why managers produce environmental reports. It suggests that managers produce the reports to legitimise their company's activities

**TABLE 3.1: THEORETICAL PERSPECTIVES EMPLOYED IN PRIOR LITERATURE ON ENVIRONMENTAL REPORTING
(CONT...)**

Criteria for determining the suitability of a theory	Decision-usefulness theory	Agency Theory	Accountability theory	Stakeholder theory	Legitimacy theory
Research methods used	Typically content analysis, surveys, interviews, experimental studies, correlation and regression analysis	Typically correlation and regression analysis, surveys	Typically review, surveys, interviews, case studies	Typically content analysis, surveys, interviews, case studies	Typically content analysis, surveys, interviews, case studies
Prior empirical test	Not developed for empirical testing as it is premised on a view of how environmental reporting should be done	Widely empirically tested in financial reporting but not in environmental reporting	Not developed for empirical testing as it is premised on a view of how environmental reporting should be done	The managerial approach has been widely empirically tested in environmental reporting. The ethical approach is not developed to be empirically tested	Widely empirically tested in environmental reporting

TABLE 3.1: THEORETICAL PERSPECTIVES EMPLOYED IN PRIOR LITERATURE ON ENVIRONMENTAL REPORTING
(CONT...)

Criteria for determining the suitability of a theory	Decision-usefulness theory	Agency Theory	Accountability theory	Stakeholder theory	Legitimacy theory
Perspective from which the theory is applied	Can take the perspective of all stakeholders	Takes the perspective of shareholders only	Takes the perspective of other stakeholders only and not the shareholders	Takes the perspective of managers and companies	Takes the perspective of managers and companies
Relevance to the objectives of this study	<u>Relevant</u> Explains why all the stakeholders require environmental reports	<u>Not relevant</u> Explains why shareholders require verified environmental reports not why all stakeholders require the reports	<u>Not relevant</u> Explains why managers produce environmental reports, not why the stakeholders require the reports	<u>Not relevant</u> Explains why managers produce environmental reports, not why the stakeholders require the reports	<u>Not relevant</u> Explains why managers produce environmental reports, not why the stakeholders require the reports

Source: adapted from Islam (2009:48)

Besides, this theory has been employed in the prior research to determine the users' perceptions of decision-usefulness of environmental and social reports (Danatas & Gadenne, 2006; Deegan & Gordon, 1996; Deegan & Rankin, 1997; Deegan & Rankin, 1996; Dierkes & Antal, 1985; Ernst & Young, 2007; Guthrie & Parker, 1990; Mitchell & Hill, 2010; Rikhardsson & Holm, 2005; Tilt, 1994). Although most of the prior research was conducted in the developed countries, theoretically, there is no reason why this theory should be more appropriate in one national context and not in another (Islam, 2009:75). This study extends the applicability of the theory to a developing country's context. Additional justification for the selection of this theory is included in section 3.6, which discusses the approach adopted in this study.

3.4 THE DECISION-USEFULNESS THEORY

According to Deegan (2006:12), the decision-usefulness theory ascribes a particular type of information for particular classes of users on the basis of assumed decision-making needs. The theory is based on the premise that the primary purpose of accounting information is to satisfy the information needs or wants of users situated in the substantial environment of any focal organisation (Bebbington, Gray, & Laughlin, 2001:418). The needs and wants are assumed to be in the context of users' decision making as it is in this context that information is necessary to help reduce the inevitable uncertainty that surrounds every action (Laughlin & Gray, 1988:333). However, the information needs or wants are not assumed to be of a certain type as they are only determined after they have been discovered through research conducted on the stakeholders (Bebbington *et al.*, 2001:418). The theory has been well documented but its formulation has not been primarily based on scientific research, instead it has emerged through a consultative process over time (Coetsee, 2010:10). A historical trail of the theory's existence has been created with passage of time and is discussed in the next section to enhance its appreciation (Buys, 2010:111; Coetsee, 2010:10; Koornhof, 1998:34; Zeff 1999:89).

3.4.1 A brief history of decision-usefulness theory

A decade after the Wall Street Stock market crash of 1929, accounting researchers such as Sanders, Hatfield and Moore (1938) began to recognise the users of accounting information and their information needs. Their research and that of others that followed had an implicit assumption that the purpose of accounting is to provide information, particularly for the providers of equity, to

assist in decision-making (May, 1943; Staubus, 1961; Chambers, 1966). Notwithstanding the efforts of earlier researchers, it is Chambers (1966, 1957, 1955) who is generally credited with formulating the decision-usefulness theory based on the needs of the users (Henderson & Scherer, 1986:05). With passage of time, the theory was further advanced by the issuance of monographs, authoritative committee reports and conceptual frameworks by accounting bodies (Buys, 2010:111; Coetsee, 2010:10; Koornhof, 1998:34; Zeff, 1999:89).

3.4.1.1 A Statement of Basic Accounting Theory (ASOBAT)

Among the most notable accounting bodies that promoted the decision-usefulness theory was the American Accounting Association (AAA), which through its committee of accounting academics published a monograph entitled *A Statement of Basic Accounting Theory* (ASOBAT) (AAA, 1966). In this monograph, the AAA committee defined accounting as “the process of identifying, measuring, and communicating economic information to permit informed judgements and decisions by users of information” (AAA, 1966:01). It also emphasised futurity by suggesting that accounting information for external users should reflect their needs by reporting measurements and formulations thought to be relevant in the making of forecasts (AAA, 1966:23–24).

The AAA committee further identified and elaborated on four basic criteria that could be used to evaluate the decision-usefulness of accounting information as relevance, verifiability, freedom from bias and quantifiability (AAA, 1966:27–36). However, it reiterated that relevance and verifiability should be the primary criteria when choosing between accounting alternatives (AAA, 1966:30). The committee also added additional objectives of accounting among which one took a social welfare orientation by stating that the purpose of accounting is also to provide information to facilitate social functions and controls (AAA, 1966:04). It concluded that the purpose of accounting is to facilitate the operations of organised society for the welfare of all (AAA, 1966:05).

3.4.1.2 The Trueblood Committee Report

The decision-usefulness theory was further reinforced by the Trueblood Committee established by the AICPA when it asserted in its report that the objective of financial statements, and by implication accounting reports, is to provide information useful to investors and creditors for making economic decisions (AICPA, 1973:20). Although the committee devoted primary attention

to investors and creditors, it explicitly acknowledged the existence of a variety of users, including employees, by asserting that “while users differ, economic decisions are similar” (AICPA, 1973:18). It also suggested that financial statements, and by implication, accounting reports should serve those users who have limited authority, ability, or resources to obtain information, and who rely on accounting reports as their principal source of information about a company's economic activities (AICPA, 1973:17).

In a radical departure from the previous schools of thought, the Trueblood Committee Report stated that the societal goals of an enterprise were as equally important as the economic goals (AICPA, 1973:54). It further stated that the objective of accounting reports is to disclose those activities of the enterprise affecting the society that can be determined, described or measured and that are important to the role of the enterprise in its social environment (AICPA, 1973:55). By citing pollution as an example of enterprise activities that required sacrifices from those who do not benefit from the enterprise, the report stated that enterprises should provide decision-useful information to all the stakeholders, and not just the investors or creditors (AICPA, 1973:54). Like the ASOBAT, the report also identified the qualitative characteristics of accounting information that would make it useful to the stakeholders (AICPA, 1973:57–60). These included relevance and materiality, form and substance, reliability, freedom from bias, comparability, consistency and understandability. The report became the blueprint for the conceptual framework of the FASB, which had been newly established at the time (Coetsee, 2010:09; Zeff, 1999:101).

3.4.1.3 The Corporate Report

Elsewhere, in the United Kingdom, the Corporate Report asserted that corporate reports should seek to satisfy, as far as possible, the information needs of users (ICAEW, 1975:15). The report which defined users as those having a reasonable right to information concerning the reporting entity further elaborated that such rights arise from the public accountability of the entity whether or not supported by legally enforceable powers to demand information (ICAEW, 1975:17). Thus, based on this report, a reasonable right to information exists, provided the activities of a company impinge or may impinge on the interest of a user (ICAEW, 1975:17). Accordingly, the Report advocated for a more socially responsible accounting by calling for the provision of additional social information in form of value added statements, employee reports and a statement of monetary exchanges with government (Koornhof, 1998:35).

The report further explicitly identified the following as the users of accounting reports: employees, government and the general public (taxpayers, ratepayers, consumers, political parties, and environmental lobby groups) (ICAEW, 1975:17). The report concluded that the fundamental objective of corporate reports is to communicate useful information about the economic performance of an entity to those having a reasonable right to such information (ICAEW, 1975:31). Like the Trueblood report, the Corporate Report also identified the characteristics of decision-useful accounting information as: relevance, understandability, reliability, completeness, objectivity, timeliness and comparability (ICAEW, 1975:28).

3.4.1.4 The Stamp Report of 1980

In the Canadian context, the Canadian Institute of Chartered Accountants (CICA) commissioned a research that culminated in the publication of the Stamp Report in 1980 (CICA, 1980:01; Koornhof, 1998:36). Like the earlier reports (the ASOBAT, the Trueblood and the Corporate Report), the Stamp Report reaffirmed the primacy of the decision-usefulness objective by stating that, the objective of corporate financial reporting is “ to provide adequate information about the real economic position and performance of an enterprise to all potential users who need such information to make decisions” (CICA, 1980:04). Accordingly, the research set out to identify the various different types of user groups to whom a public company is accountable to (CICA, 1980:07). These groups included the shareholders, financial analysts, creditors, government departments, labour unions, consumers, academics, accounting bodies, regulatory agencies, industry groups, journalists and the society at large (CICA, 1980:44). Furthermore, the study examined the kinds of decisions that the various user groups were likely to make as a result of reading financial reports, and the kind of information that they sought in order to make their decisions (CICA, 1980:07).

With regard to the kinds of decisions that the various user groups were likely to make and the kind of information that they sought, the Stamp Report indicated that some users needed information to enable them to assess the performance of a company in comparison to its past performance and its peers (CICA, 1980:50). Whereas other users needed information to assess the quality of a company's management, estimate future prospects of a company, and assess the financial strength, solvency, liquidity and risk (CICA, 1980:50), some users needed information to make resource allocation decisions, valuation decisions, and assess the adaptability of a company (CICA,

1980:51). Yet, other users needed information to determine a company's compliance with law and regulation, as well as assess the contribution of a company to the society (CICA, 1980:51).

The Stamp Report also set criteria for assessing the utility of published company reports to the users as relevance, comparability, timeliness, clarity, completeness, objectivity, verifiability, precision, isomorphism, freedom from bias, rationality, non-arbitrariness and uniformity (CICA, 1980:55). It demonstrated that selecting one qualitative characteristic of accounting information may require a compromise in another (CICA, 1980:53). With regard to the latter, the report illustrated that an increase in relevance may require a decrease in objectivity. Similarly, an improvement in comparability may require a decline in verifiability. An increase in clarity may be at the expense of completeness. Nevertheless, the report observed that some qualitative characteristics such as relevance were more important than the others, and that different user groups will assign varying degrees of importance to the various criteria (CICA, 1980:54; 57).

3.4.1.5 The Conceptual Frameworks

The above reports resulted in the adoption of the decision-usefulness objective by both the FASB and the IASB conceptual frameworks, as well as the conceptual frameworks of other national accountancy bodies in various countries (Coetse, 2010:09; FASB, 1978; 05; IASB, 1989:par. 12). In accepting the decision-usefulness objective, the FASB (1978:05), explicitly stated that “financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions”. Similarly, the IASB (1989:par. 12) accepted the decision-usefulness objective when it stated that “the objective of financial statements is to provide information about the financial position, performance and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions”. The Accounting Practices Board (APB) of South Africa fully adopted the IASB's conceptual framework, and decision-usefulness objective when it issued its conceptual framework, AC 000 (SAICA, 1990 par. 12).

In recognition of the desirability of a single universally accepted accounting theory, to which all the accounting rules, principles and practices should conform to, the FASB and IASB, have embarked on a joint conceptual framework meant to improve and converge their conceptual frameworks (FASB, 2010). Like its predecessors, the joint framework reiterates the decision-

usefulness objective by stating that “the objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity” (FASB, 2010:par OB2). The framework clearly prioritises investors, lenders and other creditors as the primary users to whom accounting information should be decision-useful to (FASB, 2010:par. OB10).

Like the Stamp Report, the joint conceptual framework observes that some qualitative characteristics of decision-useful information are more important than the others (FASB, 2010:par QC4). In this regard, it reiterates that relevance and faithful representation are fundamental qualitative characteristics that decision-useful information must have (FASB, 2010:par QC5). It further adds that understandability, timeliness, comparability, and verifiability are the additional qualitative characteristics that enhance the decision-usefulness of information that is relevant and faithfully represented (FASB, 2010:par QC19). Therefore, the enhancing qualitative characteristics either individually or collectively, cannot make information useful if the information is irrelevant or not faithfully represented (FASB, 2010:par QC33).

3.4.2 Non-financial users of accounting information

Although the jointly developed accounting conceptual framework prioritises the financial stakeholders, it acknowledges the existence of other users of accounting information by asserting that “other parties, such as regulators and members of the public... also may find general purpose financial reports useful” (FASB, 2010:par OB10). Similarly, by the IASB framework (IASB, 1989:par 09) stating that accounting information should be useful to a wide range of users, it does not prioritise or identify the primary users of accounting information, instead it includes the employees, customers, governments and their agencies, and general public as users. By adopting the IASB conceptual framework, the South African conceptual framework also accepts the above mentioned non-financial stakeholders as users of accounting information (SAICA, 1990:par 09). Furthermore, the King III Report also recognises other non-financial stakeholders by explicitly stating that companies should adopt a stakeholder inclusive approach, based on which, the shareholder does not have a predetermined place of precedence over other stakeholders (IODSA, 2009:12).

As discussed earlier, various authoritative committee reports also recognised other stakeholders, other than the financial stakeholders as users of accounting information (AICPA, 1973:54; ICAEW, 1975:17; CICA, 1980:44). The *Statement on Accounting Theory and Theory Acceptance* (SATTA) by the AAA (1977:02) adds that the entire community and even future generations may be regarded as stakeholders. The existence of non-financial stakeholders who use accounting information has also been supported by overwhelming empirical evidence (Bailey, 1990:193; Batt, 2000:01; Jones, 1990:272; Coopers & Lybrand, 1993:03; Danatas & Gadenne, 2006:01; Deegan & Blomquist, 2001:03; Deegan & Gordon, 1996:195; Deegan & Rankin, 1999:326; Deegan & Rankin, 1997:573; GRI 2008:09; Kam 1990:50; O'Rourke, 2003:227; Tilt 1997:01; Tilt, 1994:50). In fact, the empirical evidence has indicated that corporate social reporting, the realm in which environmental reporting falls, is not motivated predominantly by a concern with the needs, wants and whims of financial stakeholders (Booth, Moores & McNamara, 1987:31; Mathews, 1987:161; Owen *et al.*, 1987:169).

3.4.3 Justification for provision of accounting reports to non-financial stakeholders

According to Mathews (1993:26), “society (as a collection of individuals) provides corporations with their legal standing and attributes and the authority to own and use natural resources and to hire employees. Organisations draw on community resources and outputs both goods and services and waste products to the general environment. The organisation has no inherent rights to these benefits, and in order to allow their existence, the society would expect benefits to exceed the costs to society”. Therefore, an implicit social contract exists between companies and individual members of society in which it operates (Shocker & Sethi, 1973:67). It is the social contract that entitles the society to accounting information, as it needs such information to assess whether a company's benefits outweighs its costs to the society (Gray, 1992:402). Depending on whether the company's benefits outweighs its costs to the society or not, the society will decide whether to renew or revoke the social contract (Deegan, 2006; 277), hence the information that is provided has to be decision-useful.

3.4.4 Shift in societal expectations

For many decades, the society has relied on financial performance as the sole gauge of the benefits expected from a company (Abbott & Monsen, 1979:511; Friedman, 1962:133; Patten, 1991:298). However, recent decades have witnessed changes to societal values, as the society no

longer confines its expectations to a good financial performance (Heard & Bolce, 1981:248; Tinker & Niemark, 1987:84). Over and above a good financial performance, the society now expects a company to respond to various social issues that are considered to be consequences of a company's activities (Tinker & Niemark, 1987:85). With regard to the latter, the society expects a company “to make outlays to repair or prevent damage to the physical environment, to ensure health and safety of consumers, employees, and those who reside in the communities where products are manufactured and wastes dumped, and to be responsible for the consequences of technological employment and plant closings” (Tinker & Niemark, 1987:84).

3.4.5 Justification for the extension of decision-usefulness objective to non-financial decisions and non-financial stakeholders

In consideration of the above-mentioned shift in expectations, the decision-usefulness objective, which has in the past almost entirely focused on financial reporting for financial stakeholders, cannot remain static (Koornhof, 1998:37). It has to evolve and change over time to reflect the new societal expectations (Glautier & Underdown, 1986:03; UNCTAD, 1999:01). This requires that accounting information and its objectives be flexible so as to adapt to the changing demands of its users (Koornhof, 1998:37). Simply put, the accounting profession has to accept that non-financial stakeholders too are entitled to accounting information to inform their decisions (De Villiers, 1998b:02) – only then will the decision-usefulness objective remain valid.

According to Dierkes and Antal (1985:30), the ultimate test for the usefulness of environmental information is its impact on decision making. It is doubtful that the non-financial stakeholders need environmental information from companies in order to make direct financial decisions (De Villiers, 1998b:02). Environmental lobby groups for instance may need such information to decide whether to launch a campaign against an “ungreen” company, institute a legal action or even intervene in cases of gross environmental violation (De Villiers, 1998b:02; GRI, 2008:08). Alternatively, such groups could need environmental information to decide whether to partner with a company (GRI, 2008:09). Similarly, the ever growing environmentally conscious employees may need environmental information when deciding the company to which they will supply their labour (Charter, Peattie, Ottman & Polonsky, 2002:07; Deegan & Rankin, 1999:314; Greening & Turban, 2011:456).

The growing number of green consumers may need environmental information to decide whether to boycott a company's products or not (Charter *et al.*, 2002:11; Deegan & Rankin, 1999:314; Strandberg Consulting, 2009:08). Likewise, the media may need environmental information to determine whether to name and shame a “ungreen” company or not (Charter *et al.*, 2002:07; Peiyuan, 2005:01). The government may need information to decide whether to withdraw an operating licence or not, or even whether to enact new legislation or not (Charter *et al.*, 2002:11; Peiyuan, 2005:03). Equally, regulatory agencies may need environmental reports to decide whether to institute a regulatory intervention (Peiyuan, 2005:16). The members of the local community may also need accounting information to assess whether their personal and or group rights and privileges have been reasonably well protected, and to decide whether to complain if they are dissatisfied (Charter *et al.*, 2002:11; Strandberg, 2008:03). They may also need environmental information to decide whether they will support the continued operation of a company within their local neighbourhood (Deegan & Rankin, 1999:314). The foregoing demonstrates that the non-financial stakeholders also make decisions, and therefore they also need decision-useful environmental information (De Villiers, 1998b:02).

Another argument that supports the extension of the decision-usefulness objective to non-financial stakeholders is articulated by Cronje (2010:224), who argues that the usefulness of information disclosed in the annual reports would be improved if it could benefit all users. He elaborates that statutory disclosures primarily possess attributes of the accountability paradigm whereas the discretionary disclosures generally possess attributes of the decision-usefulness paradigm (Cronje, 2010:231). In most countries, environmental reports are discretionary in nature (KPMG, 2010:08). Therefore, according to Cronje (2010:231), the environmental reports do possess the attributes of decision-usefulness paradigm and should be produced to inform the decisions of all users.

3.4.6 Application of decision-usefulness objective to non-financial decisions

Although the accounting conceptual frameworks have attempted to acknowledge the growing number of stakeholder groups, their continued emphasis on financial decision-making is inconsistent with the needs of the non-financial stakeholders (De Villiers, 1998b:02). The only way therefore to restore the consistency without rejecting the decision-usefulness objective entirely would be to expand the objective to all decisions, be they financial or non-financial (De Villiers, 1998b:02). Considering that economic measures are in any case not always useful for the

purpose of environmental decision-making (Sagoff, 1990:26), it is the contention of this research that the purpose of environmental reporting is to provide information that is useful to a wide range of users in making decisions.

3.5 PARADIGMS OF DECISION-USEFULNESS THEORY

According to Kuhn (1962:162), a paradigm is an approach to knowledge advancement that adopts particular theoretical assumptions, research goals and research methods. It assumes, defines and interrelates the exemplars, theories, methods, and instruments that advance knowledge in a particular discipline (Belkaoui, 1992:161). Simply put, a paradigm dictates the kind of research that should be conducted, how such research should be conducted and delimits the kinds of theories that are permitted (Kuhn, 1970: viii). Given the varying world views in accounting research, a paradigm is important because it serves to define what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answers obtained (Ritzer, 1975:15). Accordingly, this section discusses the two paradigms that have been proposed to advance decision-usefulness accounting research – the decision-models paradigm and the decision-makers paradigm (AAA, 1977:10–21; Bebbington *et al.*, 2001:418; Belkaoui, 2004:343; Laughlin & Gray, 1988:334; Wolk *et al.*, 2001:189).

3.5.1 Decision-models paradigm

The decision-models paradigm maintains that accountants (preparers) know what the decision-makers really need and that it is these needs that should guide the content of the accounting reports (Bebbington *et al.*, 2001:418; Laughlin & Gray, 1988:334). This paradigm is a top-down approach, where the company accountant decides upfront the decisions that users need to take and the information needed to inform these decisions (Wolk *et al.*, 2001:41). In recognition of the practical and economic (cost/benefit) constraints involved in trying to provide all of the information that all decision-makers might want, the paradigm adopts a one-size-fits-all approach by assuming that the various classes of stakeholders have identical information needs (Deegan, 2006:13; Sterling, 1972:198). Accordingly, it does not require the decision-makers to be asked to indicate the information that they want, but rather, it focuses on the types of information needed for making particular decisions as perceived by the preparers (Kam, 1990:48). In this regard, its proponents argue that the concern for assessing the information wants of users is of lesser

importance than the concern of ascertaining the users' needs (Bebbington *et al.*, 2001:422).

The premise that underlies this paradigm is that the users are not always adequately qualified to determine their own needs, thus the information reported is based largely on accountants normative determination of the users' needs (Wolk & Tearney, 1997:39). The proponents of this approach develop appropriate models that are based on a set of normative assumptions about the goals, decisions and information needs of the users (Schoonraad, 2004:50). The models have well specified information requirements that form their input data (Belkaoui & Jones, 1996:610). It is this input data that is then prescribed for disclosure as it is deemed to be the accounting information that meets the users' needs (Kam, 1990:48).

Considering that accounting reporting aims at communicating information to users to enable them to make decisions, a lack of consideration of their views on what information they need is unacceptable and unforgivable (Alexander, Britton & Jorissen, 2007:147; Devine, 1960). Accordingly, this paradigm is rejected as it counters the objective of this research which is to elicit the views of the users regarding the decision-usefulness of environmental reports. The decision-model paradigm is also rejected as its assumption that all users have identical information needs negates the need to provide tailored information to suit specific user groups' needs (Deegan, 2006:13; Sterling, 1972:198). Hence this paradigm does not inform this study.

3.5.2 Decision-makers paradigm

In stark contrast to the decision-model paradigm, the decision-makers paradigm maintains that the decision-makers themselves know best what information they want and that accounting should provide the wanted information (AAA, 1977:10–21; Bebbington *et al.*, 2001:418; Laughlin & Gray, 1988:334). The main contention of the paradigm is that if information is desired, it must be provided (Belkaoui & Jones, 1996:614; Wolk *et al.*, 2001:44). The paradigm is therefore seen as a bottom-up approach that incorporates the views of the users that are ignored by the decision-model paradigm (Schoonraad 2004:50). Research that adopts this paradigm endeavours to discover the accounting information that decision-makers want in order to prescribe it (Bebbington *et al.*, 2001:418; Deegan, 2006:12). The proponents of this paradigm employ two approaches to discover the information that the decision-makers want namely; Security Price Research (SPR) approach and Behavioural Accounting Research approach (BAR) (Laughlin &

Gray, 1988:335). The former entails drawing insights from the information effects on share price behaviour on the capital market on which a company's shares are traded (Bebbington *et al.*, 2001:422). The latter, on the other hand, entails directly asking the users to indicate the information that they want (Bebbington *et al.*, 2001:418).

3.5.2.1 Security Price Research (SPR) approach

The SPR approach (aggregate market behaviour approach), largely based on the works of Gonedes (1972:17) and Gonedes and Dopuch (1974:105–106), explores the aggregate information wants of participants of the stock markets on which a company's shares are traded (Bebbington *et al.*, 2001:422; Laughlin & Gray, 1988:335). According to the approach, a stock market reaction, evidenced by a movement in the share price as a result of release of public information indicates that the information released is decision-useful and able to satisfy the information wants of the users (Deegan 2006:12; Laughlin & Gray, 1988:338). On the basis of a stock market's reaction, subsequent prescriptions can be made of the type of accounting information that should be reported to the users (Deegan, 2006:13).

The SPR approach which has been extensively employed to investigate the stock market reaction to disclosure of environmental information (Bettenhausen, Byrd & Cooperman, 2010; Blacconiere & Patten, 1994; Freedman & Jaggi, 1986; Freedman & Patten, 2004; Htun, 2008; Jacobs, Singhal & Subramanian, 2008; Lorraine, Collison, & Power 2004; Nagayama & Takeda 2006; Nuzula & Kato, 2011; Ullmann, 1985), makes several assumptions regarding a stock market's reaction to the disclosure of the information. Firstly, the approach assumes that the price changes that occur as a result of release of environmental information indicate that the information released is decision-useful (Deegan, 2006:12; Laughlin & Gray, 1988:338). This is based on a further assumption that environmental disclosures have informational content, the value of which, can be measured according to a stock market's reaction to the release of the information (Gonedes, 1972:12; Laughlin & Gray, 1988:338).

Secondly, the approach assumes that the participants of the stock markets are the only decision-makers, and that environmental information is only decision-useful if it evokes a market reaction from the stock market participants (Deegan, 2006:13). Such a reaction is assumed to be an indication that the investors are utilising the information when deciding whether to buy or sell a

company's shares, therefore it must be decision-useful (Deegan & Rankin, 1997:565). Thirdly, the approach also assumes that a good environmental performance and disclosure thereof is rewarded by the financial participants, whereas a bad performance and disclosure thereof is punished (Blacconiere & Patten, 1994:357). Fourthly, the approach further assumes capital markets react efficiently (efficient market hypothesis) and in unbiased manner to publicly available information, therefore they can be used to evaluate the decision-usefulness of published information (Bebbington *et al.*, 2001:422; Deegan & Unerman, 2006:210; Laughlin & Gray, 1988:338). Lastly, the approach assumes that human nature is rational, and that the stock markets are perfect (meaning they have perfect competition and perfect information) (Deegan, 2006:10).

Notwithstanding the extensive research that has employed the SPR approach, this approach is rejected in this study for the following reasons:

- Research that evaluates accounting information on the basis of whether it evokes a market reaction ignores the possibility that there could be better information than the information released (Deegan, 2006:13).
- Market reaction studies on environmental disclosure can be invalid and unreliable as other disclosures such as those on profitability and earnings do also evoke market reaction of share prices (Moneva & Ceullar, 2009:02). In fact many other contextual factors such as changes in management structure, and the political climate also do affect share prices (Somoye, Akintoye & Oseni, 2009:178). Therefore it may not be possible to isolate the market reaction to environmental disclosure, from a reaction to other disclosures or changes in contextual factors (Htun, 2008:13).
- Based on the SPR approach, the preparers cannot predict the decision-usefulness of environmental information as the decision-usefulness or desirability of the same is only assessable after the information has been disclosed and its effect on movement of share prices observed (Laughlin & Gray, 1988:338).
- Research evidence has countered some of the assumptions of the SPR approach by indicating that environmental reporting is not predominantly motivated by the wants of stock market participants, rather it is motivated by the wants of the other stakeholders (Booth *et al.*, 1987:31; Mathews, 1987:161; Owen *et al.*, 1987:169; Parker, 2005:846). Ironically, the SPR approach ignores the needs of non-financial stakeholders as they are not market participants (Parker, 2005:846). Similarly, the neo-classical economics assumptions such as efficient

market hypothesis, rational human behaviour (self-interest), perfect competition and perfect information have been criticised for countering the principal concerns of environmental reporting, which is motivated by market failure and desire to change the current practice (Gray *et al.*, 1995:51). Accordingly, these assumptions are not only seen as empirically implausible, but also as highly offensive (Gray *et al.*, 1995:52).

- The SPR approach is not suitable for this study as it investigates aggregate information wants of all market participants, whereas this study, in recognition that the perception of decision-usefulness is individualistic, investigates the environmental information wants for individuals (Chan & Milne, 1999:265; Yekinni, 2008:20). Lastly, although some studies have revealed that social and environmental information does influence financial behaviour (Epstein, 1991:01; Perks, Rawlinson & Ingram, 1992:43), other studies have contradicted this finding (Cooper, 1988:179; Owen, 1992:139). Therefore the results of the studies that employ the SPR approach tend to be inconsistent and/ or inconclusive (Owolabi, 2009:154; Parker, 2005:846; Rikhardsson & Holm, 2005:06). The approach is therefore under-theorised as it begs too many important questions (Gray *et al.*, 1995:51). For these reasons, this approach is deemed unsuitable for this study.

3.5.2.2 Behavioural Accounting Research (BAR) approach

The BAR approach, largely based on the works of Bruns (1968:469–480), emphasises the relevance to decision making of the information being communicated and the individual or group behaviour caused by the communication of the information (Belkaoui, 2004:368). The approach which recognises that accounting is not natural science, investigates how accounting as a human science influences human behaviour (Belkaoui 2004:335). Therefore, accounting information is assumed to be action oriented as its purpose is to influence action (behaviour) directly through the informational content of the message conveyed (Belkaoui 2004:368).

Unlike the SPR approach which explores the aggregate information wants of participants of the stock markets, the BAR approach investigates the information wants of individual users, or user groups directly from the users themselves (Laughlin & Gray 1988:335). In stark contrast to the decision-models approach, the BAR approach assumes that the users themselves are in the best position to determine the type of information that will influence their decision-making actions or behaviour (Bebbington *et al.*, 2001:418; AAA 1977:10–21). Accordingly, the approach maintains

that the only way to discover information wants of users is to go and ask them directly to indicate the information that they want (Bebbington *et al.*, 2001:419). The observations made from the users' responses are then employed to provide insights that inform the prescription of what the content of accounting reports should be (Deegan 2006:12).

3.6 A DETAILED DISCUSSION OF THE BAR APPROACH

According to this approach, if information is wanted by the users, then it must be provided (Belkaoui & Jones 1996:614; Wolk *et al.*, 2001:44). To discover the information wants of users, the BAR approach typically employs questionnaire based surveys that request users to indicate the type of accounting information that they want (Deegan 2006:12). Such surveys enable researchers to assess the users' perceptions on the adequacy, usefulness, materiality and decision effects of the information provided, among other aspects (Alexander *et al.*, 2007:119). Alternatively, users can be asked to rank various types of accounting information in order of perceived importance (decision-usefulness) (Gray *et al.*, 1995:50; Deegan & Rankin 1997:577). The resulting intelligence from the questionnaire surveys and ranking studies is then used to prescribe the information that should be reported to the users (Deegan 2006:12). Accordingly, the approach seeks to improve the decision-usefulness of accounting information by relying on users' input (Bebbington *et al.*, 2001:419).

3.6.1 Prior research that has employed the BAR approach

Some researchers have extended the BAR approach and employed it in their capacity as users, to gauge the decision-usefulness of the environmental reports produced (Ernst & Young 2007; Ernst & Young, & Greenbiz 2013; KPMG 2013; KPMG 2011). Using the qualitative characteristics of decision-useful information contained in the conceptual frameworks, the researchers have employed content analysis to determine whether the environmental reports produced by the sampled companies are relevant, reliable, comparable, understandable, timely and verifiable.

By contrast, other researchers have based their research on the view that content analysis studies do not interrogate the users' perceptions (Campbell & Slack 2008:10; Day 1986:295). Accordingly, they have employed questionnaire surveys to determine whether investors and other financial stakeholders do require environmental information when making investment decisions,

and the type of information they require (Campbell & Slack 2008:10; Deegan & Rankin 1997; Epstein & Freedman 1994; European Commission 2011b; Said *et al.*, 2013). Yet, other researchers have based their research on the view that non-financial stakeholders do have decisions to make, and that their information needs are largely ignored (Deegan & Rankin 1997:566). Accordingly, they have employed questionnaire surveys to determine whether the non-financial stakeholders do employ environmental reports when making decisions and the type of information that is required (Danastas & Gadenne 2006; European Commission 2011b; Hwang *et al.*, 2013:178).

In an attempt to improve the decision-usefulness of environmental reports, some researchers have employed the BAR approach using questionnaire surveys to determine the degree of satisfaction of users regarding the quality of the environmental reports read (Barker 1998:12; Ho & Wong 2004:62; GRI *et al.*, 2008:04). Some have taken this further by asking the users to propose improvements that would enhance the decision-usefulness of the reports (Craig & Bailey 1987:54; GRI *et al.*, 2008:11).

Undoubtedly, most environmental reporting studies that have adopted the BAR approach have been in the form of ranking studies in which different user groups are asked to rank various accounting information in order of perceived importance in making decisions (Gray *et al.*, 1995:50). By so doing, the studies have compared the relative importance of environmental information to that of other types of information such as social, social-economic, governance, ethical and financial information (Belkaoui 1984; Benjamin & Stanga 1977; Chenall & Juchau 1977; Day 1986; Rowbottom & Lymer 2007; Stainbank 2006).

Yet other environmental reporting studies, having determined that environmental reporting was deficient and unable to satisfy the users' needs, have employed the BAR approach to investigate whether there is an expectation gap between users and preparers regarding the decision-usefulness of the reports (Deegan & Rankin 1999; Macfarquar & Tooley 2009; Mitchell & Quinn 2005). Specifically, these studies have compared the users' and preparers' perceptions to establish whether there is a disparity in perceptions between the two groups regarding the relative importance of various items contained in the environmental reports (Deegan & Rankin 1999; Macfarquar & Tooley 2009; Mitchell & Quinn 2005).

3.6.2 Rationale for the selection of the BAR approach

In view of the similarity between the above studies, that have successfully employed the BAR approach, and this study, the BAR approach has been adopted to inform this research. The approach is also adopted because its central assumption that users themselves are in the best position to determine the information that will influence them when making decisions seems logical and lends a voice to non-financial stakeholder groups that have for long been ignored by accounting research (Arrington 1990; Cooper & Shearer 1984; Grey *et al.*, 1987; Mathews 1985; Owen 1992). Besides, the approach has been selected as it renders itself well to the content analysis and questionnaire survey methodologies that are employed in this study (Arnold & Clinton 2008:20; Bebbington *et al.*, 2001:419; Deegan 2006:12; Hibbitt 2004:306).

3.6.3 Criticisms of the BAR approach

The BAR approach proponents position that if information is desired, then it must be provided, has been criticised for ignoring the practical and economic (cost/benefit) constraints involved in providing all the information that may be desired by the numerous and diverse user groups (Schoonraad 2004:50). In this regard, some critics have questioned whether the information that the users might want is actually what they need (Laughlin & Gray 1988:338). Given the diversity of the user groups of environmental information, the diverse decisions that they need to make, their different and often competing wants of environmental information, meeting all their wants is not only seen as a costly exercise, but also as a redundant one (Schoonraad 2004:50). Regarding this criticism, the researcher contends that the proliferation of information technology has lowered the cost of providing information and availed new tools that can enable a company to provide multiple sets of information, tailored to the specific needs of each user group (ACCA & CorporateRegister.com 2001:12; CERES & ACCA 2010:16; Scott & Jackson 2002:196). Therefore the above-mentioned cost/benefit criticism is invalid in the modern business arena.

Also criticised is the assumption that the users themselves are in the best position to determine the information that they want (Schoonraad 2004:49). Specifically, the critics argue that considering the diversity of user groups of environmental reports, the users are not only not always adequately qualified to determine their own needs, but also that their needs may be difficult to define (FEE 2000:10). This criticism is set aside by the researcher because users of environmental reports do not require advanced knowledge of the rules of accounting reporting in order to suggest the

information that they want as these reports are explained freely, using ratios, graphs, common words, narratives, average laypersons language and in a multilingual manner (Cronje 2010:229). Furthermore, the users that are included in this study are knowledgeable and educated representatives of the various stakeholder groups. Furthermore, as suggested by Cronje (2010:232), the respondents will be facilitated in articulating their environmental information wants.

Other critics of the BAR approach have lamented that asking the decision-makers to indicate their preferred environmental information may not always reveal their true preferences, as there is a discrepancy between the information that decision-makers say they want, and the actual information that they want (Rikhardson & Holm 2005:02). Indeed, some decision-makers have down-played the value of environmental information in questionnaire surveys, but have nevertheless employed the information when making decisions as revealed in survey-based decision experiments (Rikhardson & Holm 2005:03). Accordingly some critics have advocated for the use of survey-based decision experiments, as opposed to questionnaire surveys, as they are seen as objective and systematic (Rikhardson & Holm 2005:08; Yekinni 2008:16). Given that the use of experiments to study human behaviour is considered as unethical as it necessitates the use of control groups which may require imposition of some constraints on the human subjects (Black 1999:68), it is the contention of the researcher that experiments are unsuitable for this study. Therefore the research assumes that the questionnaire surveys, if properly used, will reveal the actual preferences of the users.

Having emerged recently, the BAR approach has also been criticised for being under-theorised, mis-specified, and leaving many important questions unanswered (Bebbington *et al.*, 2001:422; Gray *et al.*, 1995:51; Porwal 2001:37). Critics claim that the BAR approach research is disjointed as it consists of different studies that address different types of information, with limited linkages between them, an indication of inability of researchers to build on each other's insights (Deegan 2006:12). Furthermore, the BAR approach studies are unable to predict the desirability of certain types of accounting information to the users, as they focus on users judgement and decision-making needs, but ignore the mental process that produces the judgement and decisions (Bebbington *et al.*, 2001:422; Laughlin & Gray 1988:338; Winter 1986:431).

In response to these criticisms, it is the contention of the researcher that the BAR approach, as

rightly pointed out by the critics, is at an early stage of development and therefore more research is required to advance the approach (Bebbington *et al.*, 2001:422). As a qualitative research, this study advances the BAR approach and contributes to the building of the theory behind the approach, by providing answers to some of the questions that were previously unanswered and providing some missing linkages that build on prior researchers' insights. It is also the contention of the researcher that human behaviour is unpredictable, hence to expect a theory of human behaviour to have perfect predictive ability would be naïve as no theory can fully explain or predict human behaviour (Deegan 2006:22). Besides, the informational wants of users are destined to change over time thus making the maturity of the BAR approach evasive (Alexander *et al.*, 2007:119; Bebbington *et al.*, 2001:422; Deegan 2006:294; Koornhof 1998:37; Porwal 2001:51). In addition, failure of a particular study to successfully employ the BAR approach may not itself provide a concrete basis for rejecting the approach as such a failure may be due to flaws in the methodology employed in the particular study (Deegan 2006:23). For these reasons, the BAR approach, may not always provide consistent and conclusive results at all times.

With respect to the criticism that the BAR approach ignores the mental process that produces judgements and decisions, the researcher contends that other theories in behavioural science, most especially in the field of psychology, are better placed to address such processes (Belkaoui 2004:373). Accordingly, the complexities of the mental process are beyond the scope of decision-usefulness theory as applied to this study.

3.7 GENERAL CRITICISMS OF THE DECISION-USEFULNESS THEORY

Notwithstanding the general acceptance of the decision-usefulness objective as the primary objective for accounting by all accounting conceptual frameworks, the decision-usefulness theory as a whole has been widely criticised (Abu-Baker & Karim 1997; Buys 2010; Staubus 2000). One such criticism relates to the normative nature of the theory that neither clarifies a logical accounting foundation nor describes the current accounting practices (Deegan 2006:23; Staubus 2000:337). Simply put, the theory is conceived as a poor description of the current accounting practice as it does not logically explain the selection of particular accounting techniques (Abu-Baker & Karim 1997:416). The critics argue that such a selection is not made to provide the stakeholders with decision-useful information, but rather on the basis of its economic consequences to managers and stakeholders (Deegan 2006:11). Accordingly, the theory ignores

the agency relationship that legally exists between shareholders and managers, but that does not exist between the other stakeholders and the managers (Hibbitt 2004:124). Therefore, it fails to explain management's reluctance to disclose more than is perceived as good for the enterprise or the reluctance by managers to provide information to non-financial stakeholders, who they see as not having contributed to the cost of producing the reports (Abu-Baker & Karim 1997:416).

The critics further argue that the theory fails to recognise the varying stakeholder powers and the tactics employed by companies to legitimise their activities, which include reporting to manipulate the users (Gray *et al.*, 1995:53; Lindblom 1994:02). In fact, the critics argue that this theory is subjective as it is based on personal opinion on how accounting reporting should be practiced (Alexander *et al.*, 2007:119; Deegan 2006:12).

In relation to these criticisms, it is the contention of the researcher that decision-usefulness theory is a normative theory, divorced, as it rightfully should, from practical application in the real world, as it focuses on how accounting should be and not on how it is. Accordingly, like any other normative theory, it cannot be validated by empirical observation to determine whether it reflects the actual accounting practice as it is not intended for this purpose (Deegan 2006:12; Islam 2009:48). Besides, studying the extant practice concentrates on the status quo, which is reactionary in attitude and thus does not provide a basis on which the current practice can be evaluated and future improvements made (Gray *et al.*, 1987:66). Therefore a normative approach, embraced by the decision-usefulness theory, is required to bring about radical changes to the current practice, which has for a long time ignored the decision-making needs of non-financial stakeholders (Deegan 2006:12).

With regard to the criticism related to the agency relationship, it is the contention of the researcher that a social contract exists between managers and the other stakeholders which entitles those stakeholders to environmental reports (Deegan & Rankin 1997:567; Gray *et al.*, 1988:09; Mathew 1993:26). Accordingly, the managers should not be reluctant to provide information to the non-financial stakeholders as these stakeholders also incur costs in the form of externalities such as air pollution and noise pollution, which entitles them to environmental information (Cespa & Cestone 2007:04; Kisenyi 1999:08). Therefore all stakeholders whether they are shareholders or not, should be treated equally and provided with decision-useful information (De Villiers 1996:18). Besides, the researcher concurs with Gray *et al.*, 's (1995:52) assertion that the notion of self-

interest of managers when reporting on environmental issues is not only empirically implausible, but it is also highly offensive.

Another criticism of the decision-usefulness theory is that it ignores the accountability objective of environmental reports (Kisenyi 1999:04). Simply put, it fails to address the issue of rights to information by all stakeholders as only certain recipients of accounting information are assumed to have rights to information, namely, those who make decisions directly on the basis of information reported (Abu-Baker & Karim 1997:416). Accordingly, the theory ignores the importance of environmental reports as a means of accountability in a democratic society in which all stakeholders have an equal right to information (Kisenyi 1999:05). Thus, it totally ignores the stakeholders that do not use environmental reports but nonetheless are affected by the actions of those who do use them (Abu-Baker & Karim 1998:416). In so doing, the theory disregards the accountability needs of the non-financial stakeholders.

With regard to the above-mentioned criticism, it is the contention of the researcher that the decision-usefulness objective has encapsulated, rather than replaced, the accountability objective (FASB 2010:12; Schoonraad 2004:65). Thus the theory does not conflict with the accountability theory as information that is useful in making decisions is also useful in assessing whether a company has discharged accountability to stakeholders (FASB 2010:12; IASB 2008:29). Accordingly, information that is irrelevant, unreliable, incomparable, unclear, untimely and unverifiable is unlikely to discharge accountability (IBDO Kendalls & Orion 2002:01; TBCS 1991:01). Besides, the decision-usefulness theory has raised the visibility of non-financial issues such as environmental concerns which has improved accountability by giving a voice to non-financial stakeholders who are typically underprivileged in accounting research (Grey *et al.*, 1995:51). In sum, bearing the above discussion in mind, and factoring in the objectives of this research, the decision-usefulness theory is deemed to be the most appropriate theory for this study.

3.8 CHAPTER SUMMARY AND CONCLUSION

This chapter provided an overview of the theoretical perspectives that have been commonly used in the voluntary environmental disclosure research, and introduced the theoretical perspective utilised in this research – the decision-usefulness theory.

Accounting theory is important in order to understand and evaluate the environmental reporting practice, and to prescribe what it should be. No single accounting theory has been universally accepted. Instead numerous theories, both positive and normative have been employed in environmental reporting research. These include the decision-usefulness theory, agency theory, accountability theory, stakeholder theory and legitimacy theory. Considering that different theories are suitable for performing different functions, an appropriate theory should be selected by critically evaluating its suitability for the intended function, its underlying logic, assumptions and research evidence that support it. The selection will also be partly influenced by a researcher's value judgement.

For this study, the agency theory was rejected due to its assumptions that contradict the key concerns of environmental reporting and disregard for non-shareholder stakeholders. Although considered insightful, the stakeholder theory and legitimacy theory were rejected as they focus mainly on justifying why companies disclose environmental information, from a company's perspective, and not on, as is the main aim of this research, determining the users' perception of decision-usefulness of environmental reports. For the same reason, and partly due to the fact that the information needs of non-financial stakeholders have evolved from accountability needs to decision-making needs, the accountability theory was also rejected. This theory was also rejected based on the argument that decision-usefulness theory has encapsulated the accountability theory.

Appropriately, the decision-usefulness theory was selected to inform this study as it is in line with the primary objective of this research which is to determine the decision-usefulness of environmental information to the users of environmental reports. The theory, which is based on the premise that the primary purpose of accounting information is to satisfy the decision-making information needs or wants of users, posits that environmental reports are prepared because different stakeholders require information to support their decisions. Therefore it ascribes particular types of information to particular classes of users on the basis of their assumed decision-making needs.

The decision-usefulness theory was also selected as it renders itself well to the content analysis and questionnaire survey methodologies adopted in this study and because of its normative nature that questions the status quo and prescribes how environmental reporting should be practiced. The theory was also selected because its assumption that users know the information that they want

and that the information wanted by users should be provided appears logical. Furthermore, prior evidence seems to support the notion that non-financial stakeholders also need environmental reports to inform their decisions.

Although the accounting conceptual frameworks and other authoritative pronouncements almost always prioritise the financial stakeholders, the pronouncements acknowledge the existence of other users such as employees, customers, governments, environmental lobby groups, as well as the general public. Similarly, empirical evidence has also identified non-financial stakeholders as users of accounting information. Given that the society no longer relies only on financial performance to gauge the performance of a company, but rather on financial, social and environmental performance as well, the decision-usefulness objective can no longer focus only on financial reporting to financial stakeholders. It has to evolve and change over time to reflect the new societal values. This requires an acceptance that non-financial stakeholders too require accounting information to make decisions.

However, non-financial stakeholders do not need environmental information from companies to make financial decisions, instead they need it to make non-financial decisions such as whether to supply their labour or not, whether to launch a campaign or a complaint against a company or not, whether to boycott a company's products or not among other decisions. Therefore the only way to ensure validity of the decision-usefulness objective in the changed business arena is by expanding it to all decisions. Therefore, this thesis contends that the purpose of environmental reporting is to provide information that is useful to a wide range of users in making decisions.

Decision-usefulness studies have been conducted in two paradigms, namely; the decision-models paradigm and the decision-makers paradigm. The studies that adopt the decision-models paradigm assume that the accountants (the preparers) know best what the decision-makers really need, and that the information needs are identical for all users. This approach is rejected as it ignores the users input and the diversity in information needs among different users. By contrast, the decision-makers paradigm assumes that the decision-makers themselves know best the type of information that they want and that such information should be provided. Research that adopts this paradigm endeavours to discover the accounting information that decision-makers want in order to prescribe it. To discover the information that the decision-makers want, this paradigm employs two approaches namely; the SPR approach and the BAR approach.

The SPR approach draws insights from the information effects on share price behaviour on the capital market. The approach assumes that if the security market responds to information through price changes that occur around the time of the release of particular information, then that information must be decision-useful and therefore is wanted. Therefore, according to this approach, accounting information is only decision-useful if it evokes a market reaction on share prices.

Given that the SPR approach ignores the possibility that there could be better information than that which evokes a market reaction, it is rejected for the purposes of this research. The approach is also rejected as it can result in invalid, inconsistent, inconclusive and unreliable conclusions as other types of disclosures too do evoke market reaction. Hence it is not possible to isolate the market reaction caused by environmental information from that caused by other types of disclosures. The approach is also rejected as it cannot predict the decision-usefulness of information before such information is disclosed. Furthermore, the approach only caters for the aggregate needs of financial participants, whereas the perception of decision-usefulness of environmental reports is individualistic and mostly motivated by the needs of non-financial participants. Besides, its economic assumptions in the context of environmental reporting are not only seen as empirically implausible, but also as highly offensive.

By contrast, the BAR approach assumes that the user, and not the preparer is in the best position to determine the information that will influence their decision-making actions or behaviour. Therefore the only way to discover information wants of users is to ask them to directly disclose the type of information that they want. Insights from such disclosures are then employed to inform the choice of the content of accounting reports. To discover the information wants of users, the BAR approach typically employs questionnaire based surveys or ranking studies where users are asked to rank various types of accounting information in order of perceived importance. The resulting intelligence is then used to prescribe the information that should be reported to the users.

In view of the objectives of this research, and bearing in mind that prior research with similar objectives had successfully employed the BAR approach, this approach was adopted for this research. The approach was also adopted because its central assumption that users themselves are in the best position to determine the information that will influence their decision-making actions or behaviour seems logical and provides a voice to all stakeholders, and not just the financial

stakeholders. Besides, the approach renders itself well to the content analysis and questionnaire survey methodologies that are employed in this study.

Despite the many favourable aspects of the BAR approach, it has been criticised for ignoring the constraints involved in providing all the information wanted by diverse decision-makers. In the wake of advancement in information technology, this criticism is dismissed. Secondly, the assumption that the users themselves are in the best position to determine the information that they want has also been criticised. This criticism is however dismissed as environmental information is explained freely and the users can be facilitated. Therefore they do not require advanced accounting knowledge to be able to suggest the information that they want. Also, the critics' suggestion that survey experiments should be used to determine the true preferences of users was dismissed due to the unethical nature of experiments if conducted on human beings. Instead, this study employs closed-ended questionnaires and selects educated and knowledgeable respondents to avoid the criticism about subjectivity of users. In response to the criticism that the BAR approach research is under-theorised and disjointed, this research will help bridge the gap in literature and contribute in building the theory behind the BAR approach by providing some missing linkages that build on prior researchers' insights.

With regard to the criticism that the BAR approach research ignores the mental processes that produce judgement and decisions, the researcher contends that other theories in behavioural science, in the field of psychology are better placed to address such processes. Accordingly, the complexities of the mental processes are beyond the scope of decision-usefulness theory and the BAR approach in particular, as applied to this study.

The criticism of decision-usefulness theory has not been limited to the specific approaches, but has also been extended to the theory in general. Given its normative nature, the theory has been conceived by some critics as a poor description of the current accounting practice. This criticism is dismissed because a normative theory should be divorced from practical application, given its focus on how accounting should be and not on how it is. Besides, a normative approach is required to change the status quo and provide a basis on which the current practice can be evaluated and future improvements made. The criticism that decision-usefulness theory ignores the agency relationship and reluctance by managers to disclose information not in their interest is dismissed on the basis that a social contract exists between companies and other stakeholders.

Therefore the managers should not be reluctant to provide information to all the stakeholders as they are all equally entitled to information.

Regarding the criticism that the decision-usefulness objective ignores the accountability objective of environmental reporting, it is the contention of the researcher that the decision-usefulness objective has encapsulated, rather than replaced the accountability objective. Therefore information which is decision-useful will also discharge accountability.

In conclusion, although the decision-usefulness theory was selected to inform this study, the theory, like any other theory in social sciences, is an abstraction of reality. Considering that the choice of one theory in preference to another is based on particular value judgements of a researcher, it would be naïve to expect that this theory, or any other theory on human behaviour, will assess perfectly the types of information that the users actually need. This is because the perceptions of one researcher regarding information needs will most probably vary from another researcher's views about information needs. Nevertheless, this theory provides a framework which can assist a researcher to make sense of the current reporting practices, evaluate those reporting practices and enable a researcher to suggest improvements to the reporting practice – to what it should be.

The following chapter will present a review of the prior literature relevant to this research. Chapter 4 proceeds with a review of content analysis studies conducted to determine the decision-usefulness of the environmental reporting practices. This will be followed by a review of studies conducted to determine the informational needs of users of environmental reports as well as those conducted to determine the extent to which users read the reports and whether they employ the reports when making decisions. Next, a review of the studies conducted to determine the degree of satisfaction of users with regard to the decision-usefulness of the environmental reports will follow, including those studies that elicit suggestions from users on how the reporting practice could be improved. The section that follows will then review the ranking studies conducted to compare the relative importance of environmental information to that of other types of information. This will be followed by a review of studies conducted to determine whether there is an expectation gap between preparers and users of environmental reports with regard to the decision-usefulness of the reports.

CHAPTER 4

PRIOR RESEARCH ON THE DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

4.1 INTRODUCTION

The central aim of this chapter is to provide an overview of the prior research conducted on decision-usefulness of environmental reports. In so doing, this chapter identifies some significant gaps in the literature on the decision-usefulness of environmental reports within the context of both the developed and developing countries.

This chapter proceeds with a review of the key content analysis studies conducted to evaluate the decision-usefulness of environmental reports in section 4.2. The prior studies on users' perception of their information needs, the extent to which they read and employ environmental/sustainability reports in decision-making, their level of satisfaction with the quality of the reports, and the perceived relative importance of the reports when compared to other reports are reviewed in section 4.3. This is followed by the key studies conducted to determine whether there is an expectation gap between preparers and users with regard to the decision-usefulness of environmental/sustainability reports in section 4.4. Section 4.5 then provides the research questions that have remained unanswered in the prior literature. The summary and conclusion are provided in section 4.6.

4.2 CONTENT ANALYSIS STUDIES THAT EVALUATE THE DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

Using content analysis methodology, researchers have, in their capacity as users of environmental/sustainability reports, analysed and evaluated the decision-usefulness of the reports produced by companies in various countries. This section reviews their studies, conveniently grouped into two; those conducted in the 1990s and those conducted after 2000. These have further been classified according to whether they were conducted in a single country or multiple countries.

4.2.1 Content analysis studies conducted in the 1990s

4.2.1.1 Single country studies

In a study designed to evaluate the environmental information contained in the annual reports of 30 companies in the UK, Harte and Owen (1991:51) found that little information was divulged in the reports, as most contained information on the general philosophy of environmental issues rather than a detailed account of the environmental impact of companies. Instead of providing audited comparative information with details about compliance with legal requirements, most reports focused only on positive disclosures, omitting the negative ones (Harte & Owen, 1991:51). Accordingly, most reports had increased coverage of environmental issues in the unaudited sections of the annual report. Resultantly, the environmental information disclosed in annual reports was unreliable and unverifiable, as it did not reflect a serious and genuine commitment to tackle green issues, instead it was merely a public relations exercise (Harte & Owen, 1991:51). The limited sample of 30 annual reports analysed renders the generalisability of its findings to all companies in the UK weak. Besides, the study covered a short period of one year, ending June 1990.

Subsequently, in a similar study, Niskala and Pretes (1995) analysed the changes in environmental information contained in the annual reports published in 1992 and 1997, of 75 of the largest Finnish companies from environmentally sensitive industries. Consistent with Harte and Owen (1991) findings, they found a significant increase in the amount of qualitative information provided, but the quantitative information remained static, and relatively less (Niskala & Pretes, 1995:457). Again, most disclosures were general in nature and primarily remained focused on positive information with a limited disclosure of negative information. However, the study only focussed on 75 of the largest corporations from the most environmentally sensitive industries, and ignored smaller companies and companies from lesser environmentally sensitive industries. Furthermore, it only evaluated the environmental content of the annual reports of two years, 1992 and 1997. Thus, the generalisability of its findings to all Finnish firms and to other years is doubtful.

In a related study designed to overcome the generalisability problem, Gamble, Hsu, Kite and Radtke (1995) investigated the quality of environmental disclosures in 10-K reports and annual reports for 234 companies from 12 environmentally sensitive industries from 1986 to 1991.

Gamble *et al.*, (1995:293) found a significant increase in environmental disclosures, especially in the 10-K reports. They also noted that companies from the most sensitive industries provided the highest quality of disclosures. Notwithstanding the increase in disclosures, their overall quality remained disappointingly low (Gamble *et al.*, 1995:293). However, most reports analysed in this study were produced in the 1980s, a period when environmental reporting was still at an embryonic stage. In addition, the study only focused on the environmentally sensitive sectors and did not specify the aspects of report quality that it examined.

In Australia, Deegan and Gordon (1996) reviewed the environmental disclosures of 197 companies from 50 different industries, in the annual reports produced in 1991. Consistent with other studies (Harte & Owen 1991; Niskala & Pretes, 1995), Deegan and Gordon (1996:187) found that the disclosures made were generally limited to qualitative disclosures with a majority of companies reporting positive, self-laudatory information, with little or no negative information. Unlike Gamble *et al.*, (1995), they found that companies from environmentally sensitive industries provided more positive environmental disclosures than their counterparts in the lesser sensitive industries, and that the lack of objectivity seemed to increase with the degree of environmental sensitivity of an industry (Deegan & Gordon, 1996:187). Deegan and Gordon (1996:187) further noted that the environmental disclosures in Australia were typically low with an average of 186 words for the sampled companies. They concluded that, voluntary environmental disclosures in the annual reports in Australia, did not provide reliable informative information, and predicted that in an unregulated environment, the Australian companies will not be objective in their environmental reporting (Deegan & Gordon, 1996:187). However, this study focused on the annual reports of only the year 1991.

In all the above cited studies, it is possible, though not probable, that all the companies studied had only positive environmental information to disclose. With this in mind, Deegan and Rankin (1996), examined the annual reports of 20 Australian companies, known *ex ante* to have negative information to disclose, given that these companies had been successfully prosecuted for violation of environmental laws. Deegan and Rankin (1996:52) found a significant increase in reporting of favourable environmental information in the year in which the companies were proved guilty.

To further confirm their findings, Deegan and Rankin (1996:52) also analysed the environmental disclosures in annual reports of a matched sample of 20 companies not prosecuted. They found

that those prosecuted provided a significantly greater amount of positive disclosures than their counterparts not prosecuted (Deegan & Rankin, 1996:52). Still, both the prosecuted and non-prosecuted companies provided significantly greater amounts of positive environmental information than negative information (Deegan & Rankin, 1996:52), which concurs with the findings of other researchers (see Harte & Owen, 1991; Deegan & Gordon, 1996; Niskala & Pretes, 1995). Disappointingly, only two of the prosecuted companies reported on the existence of a proven environmental offence (Deegan & Rankin, 1996:52). Ironically, some of the companies that had not disclosed their prosecutions, provided details of the environmental awards they had received for particular sites of their business (Deegan & Rankin, 1996:52). However, this study analysed a limited sample of annual reports (40), thus its findings are not generalisable to all Australian companies.

4.2.1.2 Studies conducted in multiple countries

One shortcoming of the above-mentioned studies is that they were limited to the context of a single country, despite the fact that environmental reporting was by then a global phenomenon. In a clear departure from the single country studies, Guthrie and Parker (1990) compared the social disclosures (environmental, energy, human resources, products, and community involvement) of 50 of the largest companies in the USA, the UK and Australia, contained in the annual reports published in 1983. The mean corporate social disclosures in Australia (0.7 pages) were found to be relatively low when compared to the USA (1.26 pages), and the UK (0.89 pages) (Guthrie & Parker, 1990:59).

Furthermore, Guthrie and Parker (1990:59) found that the highest level of negative environmental disclosures were reported by companies from the USA (22%), followed by the companies from the UK (2%), and then the Australian (1%). As expected, most of the negative news was found in the audited sections of the annual reports whereas the positive news was mostly reported in the voluntary sections of the annual reports (Guthrie & Parker, 1990:59). However, this study examined social disclosures of one year only (1983), as such it does not offer insights on the reporting trends. Besides, annual reports on which the study was based are dated and remotely reflect the current environmental reporting practices.

One common observation that can be made from all the afore-mentioned studies is that they all

focused on annual reports. Given the emergence of alternative media of disclosure of environmental information such as stand-alone sustainability and environmental reports, it is probable that a different picture could have emerged, had the above cited studies taken into account the environmental disclosures reported via the alternative media. In a series of studies designed to provide an unprecedented insight into the national, global and industrial environmental reporting trends, KPMG (1999, 1996, 1993) analysed on a triennial basis, the contents of environmental reports, health safety and environmental reports, as well as the annual reports of the top 100 national companies in several countries. The latter study (KPMG, 1999), was expanded to include the largest 250 multinational companies. KPMG (1999, 1996, 1993) found a dramatic increase in the number and volume of the annual environmental reports published, with a few companies publishing the reports bi-annually, to enhance the timeliness of their reports.

To enhance the relevance of their environmental reports, companies increasingly invited stakeholders to participate in their reporting initiatives to better their understanding of the stakeholders' concerns (KPMG, 1999, 1996, 1993). Similarly, companies increasingly adopted an inclusiveness approach by widening the scope of their reports to cover social issues in order to increase the relevance of their reports to a wider audience (KPMG, 1999:19). Moreover, a few companies combined their environmental, social and financial reports to provide a complete all-rounded picture of their performance (KPMG, 1999:11). Such a combination required them to converge their administrative and environmental registration systems, by combining financial expertise with their environmental expertise, in a manner that also enhanced the reliability of their reports (KPMG, 1999:05).

Increasingly, most companies were quantifying their environmental disclosures, and had reported on their progress on prior years' targets, and prior years' reports in a manner that enhanced comparability and clarity of their reports (1999, 1996, 1993). To further enhance the reliability of their reports, companies increasingly reported their negative information, certified their EMS or had plans to do so, and had progressively adhered to their sector-specific codes of conduct (KPMG, 1999:19). Most importantly, an increasing percentage of companies undertook independent assurance of their environmental reports using large reputable advisory and consulting firms (KPMG, 1999, 1996, 1993).

Notwithstanding the afore-mentioned developments, KPMG (1999, 1996, 1993) also found several weaknesses that undermined the decision-usefulness of the reports produced. In particular, the assurance levels remained relatively low over the research period (15% in 1996 and 18% in 1999) (KPMG, 1999:22). Worse still, the verification statements were of poor quality and varied significantly in their scope of assurance, the criteria employed and levels of assurance provided (KPMG, 1999:26). As such they could not be relied upon by readers to guarantee the reliability of the reported data and information. In addition, verification statements often contained caveats to protect the verifiers against potential liability, and had opinions or recommendations that appeared to be outside the scope of the terms of engagement of the assurer (KPMG, 1999:25). The reliability of the reports was further undermined by the low quantification of contentious disclosures such as costs, accidents and incidents when compared to the positive disclosures (KPMG, 1999, 1996, 1993). In addition, the comparability of the reports was impaired by significant variation in the levels of environmental disclosure and assurance rates across different sectors and countries (KPMG, 1999, 1996, 1993).

Though informative, the KPMG, (1999, 1996, 1993) studies did not employ any theory to conceptualise the environmental reporting practices observed. Therefore, they could not comprehensively and persuasively describe, evaluate, or even prescribe suitable environmental reporting practices, as they lacked depth. In addition, they were conducted by a leading advisory firm with vested interests in environmental consultancy and verification, and thus they can be perceived as a mere marketing tool because they lacked academic impartiality. Furthermore, they covered a wide-range of issues with a primary emphasis on trends in the quantity of environmental disclosures, as opposed to entirely focusing on the decision-usefulness of such disclosures.

One common aspect in all the above-mentioned studies is that they were conducted during the 1990s, more than 12 years ago. Accordingly, these studies are outdated and were conducted before the emergence of most reporting guidelines and assurance standards. This means that the reports analysed remotely reflect contemporary reports, and this could render the above findings invalid at present.

4.2.2 Content analysis studies conducted after 2000

4.2.2.1 Studies conducted in a single country

In a Japanese study, Institute for Global Environmental Strategies (IGES) (2002) analysed the comparability of environmental reports of 11 Japanese companies from three industry sectors (automobile, beer brewery and chemicals), published in 2000 and 2001. IGES (2002) found differences in the comparability of environmental disclosures of companies in the three industry sectors studied. Specifically, the environmental disclosures of the automobile sector were found to be incomparable as they varied widely in content, and were inconsistent from one company to another (IGES, 2002:06). This was because companies from the sector employed dissimilar units of KPIs and hardly maintained numerical data for their entire production process. In addition, they did not track changes of their numerical data across time, and had unstandardised flow charts of waste processing and material flow, which rendered the charts incomparable (IGES, 2002:08). Besides, there were differences in production processes, terminologies used, and the companies in the sector did not always identify all their business sites and affiliates covered by the environmental disclosures (IGES, 2002:09).

Similarly, the environmental reports of companies from the chemical sector were found to be incomparable as these companies handled a wide range of chemicals and manufactured dissimilar types of products (IGES, 2002:13). In addition, most companies in the sector did not disclose critical numerical KPIs, and when they did, the data was too aggregated and dissimilar to be meaningfully comparable (IGES, 2002:14). Furthermore, most companies in the sector did not clarify the extent of coverage of factories and sites in their reports and neither did they use charts to disclose their environmental impact per unit produced (IGES, 2002:13). Where charts were provided, they lacked vital information to enable interpretation. Nevertheless, the most chemical sector companies tracked their emissions across time, and had a few comparable company-wide disclosures (IGES, 2002:16). In general however, most of their parameters were incomparable.

In stark contrast to the two sectors discussed above, the reports of companies from the beer brewery sector were comparable (IGES, 2002:10). This is because all the companies had virtually identical material flow charts with data on environmental impact for various parameters, except on the degradation of the quality of water (IGES, 2002:11). In addition, they used similar performance indicators (IGES, 2002:11). Notwithstanding the above findings, IGES (2002)

observed a general improvement in the comparability of the reports prepared which they attributed to reporting guidelines that had been introduced in 2001. A major draw-back of this study was the *ad hoc* and limited nature of the sample size of eleven companies, from three sectors it employed. Accordingly, the findings of the study cannot be generalised to all Japanese companies in all sectors. Besides, the study did not evaluate the other aspects of decision-useful environmental information such as relevance, reliability, verifiability, timeliness and clarity.

To avoid the generalisability problem such as the one noted in the above studies, Nik Ahmad and Sulaiman (2002) analysed the amount and type of environmental disclosures for the year 2000, in the annual reports of the largest and listed top 200 companies from eight industries in Malaysia. Consistent with prior studies (Deegan & Gordon, 1996; Deegan & Rankin, 1996; Harte & Owen, 1991; Niskala & Pretes, 1995), Nik Ahmad and Sulaiman (2002:13) found that the environmental disclosures in the annual reports were qualitative, general, public-relations driven and mostly self-laudatory in nature.

Nik Ahmad and Sulaiman (2002:13) also found that the environmental disclosures varied widely, with no uniformity in the format and presentation, and that they were limited in volume, *ad hoc* in nature and scattered all over the report, in a manner that undermined their comparability. A key limitation of this study was its focus on the annual reports of a single year (2000). Furthermore, the study is dated as it was conducted more than 10 years ago. Accordingly, the applicability of its findings at present is doubtful.

One common aspect in all the above-cited studies is their universal focus on annual reports. In recognition that only a few studies had investigated the use of the Internet for environmental reporting, Chatterjee and Mir (2008), explored the status of environmental reporting on websites by Indian companies. Using a sample of the largest 39 Indian companies, Chatterjee and Mir (2008) initially examined the accessibility and the extent of environmental information disclosures on the companies' websites. They then investigated the extent of environmental information disclosure in the annual reports of the same companies for 2003 to 2004, as availed on the companies' websites.

Chatterjee and Mir (2008:01) found that most companies had provided more environmental information on their websites than in their annual reports, but the information provided on the

websites was incomplete and incomparable. In concurrence with Nik Ahmad and Sulaiman's (2002) findings, most disclosures in the annual reports analysed by Chatterjee and Mir (2008:25) were narrative in nature, incomparable, unreliable and unclear. In agreement with the findings of other studies (Deegan & Gordon, 1996; Deegan & Rankin, 1996; Harte & Owen, 1991; Niskala & Pretes, 1995), none of the companies in Chatterjee and Mir's (2008:26) study divulged any negative information and only a few companies discussed compliance with external standards, or the results of their environmental audits. Nonetheless, Chatterjee and Mir (2008:20) found that the information disclosed by most companies was easily accessible, just two clicks away from the home page (at level 2). Chatterjee and Mir (2008:20; 26) concluded that the environmental disclosures in the annual reports were mainly for public relations purposes, hence confined to the unaudited sections of the annual reports. However, their findings were not generalisable to all companies in India due to the limited sample size they employed.

In another Internet based study conducted in Australia, Lodhia (2006) employed media richness theory to investigate the use of the websites for environmental information communication by 14 mining companies (eight multinationals and six national) in Australia. Lodhia (2006) analysed the websites of the companies for two time periods, July and November 2003. Unlike the findings of Nik Ahmad and Sulaiman (2002), all the companies investigated in Lodhia's (2006:81) study had a separate section for environmental issues on their websites. For the eight multinational companies included in the study, the environmental information communicated was on their global operations (aggregated), thus specific information on Australia was not always accessible (Lodhia, 2006:81). The Lodhia (2006:82) further found that the information disclosed was hardly updated, hence undermining the timeliness of the information. Similarly, the use of animated and multimedia tools was rather limited (Lodhia, 2006:82). By contrast, most companies used internal hyperlinks and menus quite extensively to distinguish between summarised and detailed information, as well as to integrate different types of information, in order to make it more accessible to different stakeholders (Lodhia, 2006:83). Almost all companies employed the PDF format which was hardly interactive, whereas only a few companies provided a sustainability report portal, even fewer reported in more than one language (Lodhia, 2006:83).

Furthermore the information was not tailored for the needs of different stakeholders, neither did the websites have software to trace and manage the stakeholders' usage of the web (Lodhia, 2006:84). Although almost all companies provided search facilities via search engines, menu-

based contents and sitemaps to ease the accessibility of desired information, analytical tools were not utilised by any of the companies and this denied the users an option to manipulate the environmental information to suit their needs (Lodhia, 2006:85).

Despite the provision of automatic feedback forms by some companies, most sought feedback on the website or corporate issues rather than specifically on the environmental issues (Lodhia, 2006:86). In addition, the use of electronic surveys on environmental issues was not evident on the websites. Nevertheless, two way communication was made possible via email provisions made available by most companies, but the emails were not necessarily in the context of environmental information (Lodhia, 2006:86). Moreover, none of the companies utilised discussion forums, bulletin boards or chat rooms for stakeholder engagement even though the website technology was well suited for this role (Lodhia, 2006:86). In general, companies did not utilise the full potential of their websites (Lodhia, 2006:84). However, Lodhia's (2006) study is fairly dated, given that it is based on data obtained in 2003. Furthermore, the *ad hoc* limited sample size of 14 companies it used limits the generalisability of the findings.

The above Internet studies were all conducted in Australasia, over a limited period of time, and employed a limited sample. In a clear departure from these studies, Trucost and Environmental Agency (2009, 2006, 2004), conducted a series of content analysis studies in the UK in 2004, 2006 and 2009 based mostly on an electronic word search. To this end, Trucost and Environmental Agency (2009, 2006, 2004) identified references made to specific pre-defined environmental topics in the annual reports and accounts of all the listed companies in the Financial Times Stock Exchange (FTSE) all share index.

Consistent with those of KPMG (1999, 1996, 1993), the findings of Trucost and Environmental Agency (2009, 2006, 2004) revealed a dramatic increase in the percentage of companies reporting on quantitative KPIs on relevant core issues, however, these were not in accordance with government guidelines. Still, Trucost and Environmental Agency (2009, 2006, 2004) observed a dramatic improvement in the robustness, depth, and rigour of environmental disclosures of most companies. In stark contrast to the findings of other studies (Guthrie & Parker, 1990; Harte & Owen, 1991), the findings of Trucost and Environmental Agency (2004, 2006, 2009) revealed that reporting was increasingly done in the audited sections of the annual reports or in the sections reviewed for consistency with the audited financial reports, an indication of improvement on

verifiability of the environmental information divulged. The verifiability of environmental information was also improved by the dramatic increase in discussion of EMS by the companies (Trucost & Environmental Agency, 2009, 2006, 2004), which further supports the findings of KPMG (1999, 1996, 1993).

Notwithstanding the above-mentioned improvements, like the KPMG (1999, 1996, 1993) findings, Trucost and Environmental Agency's (2009, 2006, 2004) findings revealed that the quantification of negative aspects remained rather dismal. Furthermore, the disclosure levels and quality of disclosures varied significantly, even within sectors, which undermined their comparability (Trucost & Environmental Agency, 2009, 2006, 2004). Although the Trucost and Environmental Agency's (2009, 2006, 2004) series of studies were insightful given their longitudinal approach, they were mainly focused on environmental disclosures in annual reports for the benefit of the shareholders. Thus they hardly mentioned any other stakeholder groups and largely ignored other forms of environmental reports other than the annual reports. Besides, the Trucost and Environmental Agency's (2009, 2006, 2004) studies were not enriched with any theoretical perspective.

In a related study conducted in Spain, Bolivar (2009) analysed the extent to which companies from environmentally sensitive sectors (utility and resource industry) legitimised their activities by reporting on their environmental performance via the Internet. Using a scoring system, Bolivar (2009) evaluated the environmental disclosures contained in a variety of on-line reports (corporate management reports, stand-alone environmental reports, sustainability reports and financial statements) of nine listed companies, for the year 2003.

Bolivar (2009:189) found that the utility sector companies' reports were of higher quality than those of resource industry, as most companies from the sector (utility) reported their environmental information on their websites and identified the targeted stakeholder groups as well as the key attributes of each group. In addition, their environmental reports had a content index table to locate each environmental element, which facilitated user navigation (Bolivar, 2009:191). Furthermore unlike the resource companies, the utilities companies disclosed their codes of conduct, against which their actual environmental behaviour and impact could be evaluated, an aspect likely to enhance the credibility of the reports (Bolivar, 2009:191). Similarly, the utilities companies' reports were more understandable to a wider audience as most (75%) reported in other

languages other than Spanish, whereas only a minority (40%) of the resources companies did the same (Bolivar, 2009:194). Besides, unlike resources companies, the utilities companies provided an e-mail address for stakeholder feedback, to enhance the relevance of the reports produced (Bolivar, 2009:194).

Despite the above-mentioned positive developments, Bolivar (2009) observed several weaknesses in the environmental reports of both sectors. Most notable of the weaknesses was the finding that none of the sampled companies (utilities or resource) divulged their main environmental performance failures (Bolivar, 2009:194), which is consistent with the findings of most studies (Deegan and Gordon, 1996; Deegan & Rankin, 1996; Guthrie & Parker, 1990; Harte & Owen, 1991; Niskala & Pretes, 1995). In addition, the inter-sectoral comparability was impaired as the utilities companies only disclosed their environmental expenses in the profit and loss account whereas the resource companies only disclosed their environmental revenues (Bolivar, 2009:191).

Furthermore, Bolivar (2009:194) found that most companies from both sectors used dissimilar terms to refer to their environmental disclosures, which also undermined the comparability of the environmental reports. Nevertheless, in concurrence with Lodhia's (2006) findings, but in contrast to Nik Ahmad and Sulaiman's (2002) findings, Bolivar (2009:194) found that all companies from both sectors had a specific section in the notes to financial statements to disclose their financial environmental information, and had adopted the GRI guidelines, to ease the comparability of their environmental information.

Another common weakness in both sectors that was observed by Bolivar (2009:194) and that concurred with Lodhia's (2006) findings, was that none of the companies offered a link between non-financial environmental disclosures and financial disclosures or used eXtensible Business Reporting Language (XBRL) formats. Instead, most companies preferred the PDF and HTML formats to process their environmental disclosures (Bolivar 2009:194). This undermined the reliability and accessibility of the information, given that reports on the two formats were hardly interactive, or customisable. However, Bolivar's (2009) study was limited to only nine of the largest Spanish companies, from two sectors and was conducted over a period of one year only. Accordingly its findings may not be generalisable to all Spanish companies, particularly those from other sectors.

In a more recent study conducted over a period of three years, Alin, Victor and Dumitru (2011) analysed the quality of the environmental disclosures contained in annual reports, financial statements, websites and administrators' reports of 46 listed companies, from 22 sectors in Romania. Like most of the earlier studies (Deegan and Gordon, 1996; Deegan & Rankin, 1996; Guthrie & Parker, 1990; Harte & Owen, 1991; Niskala & Pretes, 1995), Alin *et al.*, (2011:123) found that the environmental information reported by Romanian companies was incomplete and unreliable. Not only was the level of disclosure very low, but also the disclosures were confined to generic information without supporting details, and at times did not reflect companies' policies (Alin *et al.*, 2011:127). Furthermore, the information deemed most relevant in the Romanian context was hardly disclosed (Alin *et al.*, 2011:126). In fact, Alin *et al.*, (2011:126) noted a deliberate effort by the Romanian companies to neglect or conceal the relevant information.

In support of the findings of other studies (Deegan and Gordon, 1996; Deegan & Rankin, 1996; Guthrie & Parker, 1990; Harte & Owen, 1991; Niskala & Pretes, 1995), Alin *et al.*, (2011:126) found that very few companies divulged any negative information even when such information had been reported by the press. Worse still, like Lodhia (2006), Alin *et al.*, (2011:125) found that some companies provided the same information over several accounting periods, an aspect likely to undermine the timeliness of the information. Alin *et al.*, (2011:127) concluded that environmental reporting in Romania could be explained by the legitimacy theory, and recommended the introduction of reporting standards to improve the quality of environmental reports. However, the small sample employed in their study limited the generalisation of its findings.

All the above-cited studies were conducted in other continents, and thus may not reflect the environmental reporting practices in South Africa. In response to the dearth of content analysis studies that evaluate the quality of environmental disclosures in South Africa, Mammatt, Marx and Van Dyk (2010) analysed the sustainability information in the annual reports of 60 JSE SRI listed companies and top five state-owned entities, published in 2009 in print, electronic or on companies' websites. Mammatt *et al.*, (2010:01) found that, although most companies reported on their stakeholder engagement initiatives, this however ranged from comprehensive reporting on stakeholder communication and the results thereof, to merely listing the names of stakeholders. They also found that the challenges faced by the companies were generally candidly well reported in the foreword statement by the top management, and that the statement was also used to

demonstrate a strong commitment to sustainability issues, an aspect likely to enhance the credibility of the reports (Mammatt *et al.*, 2010:01).

To further enhance the credibility of their reports, many companies had incorporated sustainability statements in their mission, vision and objective statements to demonstrate the importance of sustainability issues to their business (Mammatt *et al.*, 2010:01). Likewise, many companies had established board committees to take responsibility for and oversee sustainability activities on the board's behalf. This together with the fact that most companies complied with the GRI principles and disclosed adequately their adherence to these principles enhanced the reliability of the reports (Mammatt *et al.*, 2010:01). However, only a third of the companies had an external assurance statement, and even fewer (13) were assured by a reputable audit firm (Mammatt *et al.*, 2010:01). Specifically, four had used boutique sustainability consultants, whereas three companies had assured the reports themselves. Worse still, only one of the state owned enterprises had an external assurance statement, and none but one company had obtained an external assurance on the sustainability information published on their website (Mammatt *et al.*, 2010:01). Accordingly, the reliability and verifiability of sustainability reports was questionable (Mammatt *et al.*, 2010:01), which supports the findings of prior studies (see KPMG, 1993, 1996, 1999).

Mammatt *et al.*, (2010:01) further noted that the general clarity of the sustainability reports was good and that the reports were effective as a communication tool, as most were concise with less prolix. In particular, a number of companies had provided summarised sustainability reports in printed form as well as more comprehensive reports on their websites or in electronic disk formats. However, some companies continued to report large volumes of unreadable data, whereas others reported little information that merely raised questions regarding their commitment to sustainability, transparency and honesty (Mammatt *et al.*, 2010:01). Consistent with the findings of earlier studies (KPMG, 1999, 1996, 1993), Mammatt *et al.*, (2010:01) observed that the format of reporting among the companies remained varied, with some reporting their sustainability performance in separate sustainability reports, whereas others reported in a section of the annual report in an integrated format. Similarly, the sustainability reporting practices of the state-owned enterprises varied widely from good to sub-standard reporting (Mammatt *et al.*, 2010:01). The variation in the reporting practices undermined the comparability of the sustainability reports.

Although informative, Mammatt *et al.*'s., (2010) study employed a limited sample size that

undermined the generalisability of its findings to all South African companies, particularly the smaller ones. Furthermore, the study was conducted before the King III report took effect, and was not informed and enriched by any particular theory. Therefore the findings of this study may not be valid at present, given the far reaching effects of the King III Report on the sustainability reporting practices of South African companies.

4.2.2.2 Studies conducted in multiple countries

In cognisance that environmental reporting had gone global with the emergence of multinationals operating in various countries, some researchers undertook content analysis studies to analyse the decision-usefulness of environmental (sustainability) reports produced by multi-nationals in multiple countries as opposed to just a single country (Ernst & Young, 2007; Jose & Lee, 2006; KPMG, 2013; KPMG, 2011; KPMG, 2008; KPMG, 2005). In one such study, Jose and Lee, (2006) analysed the content of environmental reports published in 2002 on the websites of the 140 largest companies in the world (Fortune's Global 200 companies).

Jose and Lee (2006:312; 315; 317) found that although about 60% of the companies had environmental policies, only 29% provided specifics of their EMS, and even fewer (24%) had externally certified EMS, which undermined the verifiability of their disclosures. In contrast to Mammatt *et al's.*, (2010) findings, only 27% of the companies' reports had a foreword statement from top management, or had a top level executive (reporting either to the CEO or the board) in charge of environmental affairs (Jose & Lee, 2006:314; 318). Likewise, only 30% of the companies had housed their environmental function in a separate department (Jose & Lee, 2006:314). The foregoing suggests that environmental issues were not taken seriously by the companies, a situation likely to undermine the credibility of the reports.

Jose and Lee (2006:316) also found that although most companies disclosed their progress towards achievement of environmental goals and compliance with regulations, only a few companies (21%) explained variances between actual performance and targets, and even fewer (16%) disclosed the corrective actions undertaken to address their variances. Consistent with the findings of other studies (Chatterjee & Mir, 2008; KPMG, 1999, 1996, 1993; Mammatt *et al.*, 2010), Jose and Lee (2006:317) further found that only 37% of the companies had internal controls and internal environmental audits, and even fewer had independent external audits (24%)

for their environmental reports. For those that did, they did not provide details of their audits or even provide an audit statement (Jose & Lee, 2006:317). Accordingly, the verifiability and reliability of the reports of most companies was questionable.

In concurrence with other studies (Lodhia, 2006; Alin *et al.*, 2011), Jose and Lee (2006:318) found that there was little information on stakeholder involvement in the environmental reporting process, which suggests limited relevance of the reports. Also, the timeliness of the reports remained problematic as only 32% of the companies had reported annually whereas the remainder of the companies reported less frequently (Jose & Lee, 2006:317). Like in most similar studies (KPMG, 1999, 1996, 1993; Mammatt *et al.*, 2010), the disclosures varied widely among companies in a way that impaired their comparability (Jose & Lee, 2006:319). Besides, most reports were incomplete and unclear as only a third of the companies disclosed how their various offices and sites in different countries had adopted and adapted the environmental practices of their headquarters (Jose & Lee, 2006:315). An obvious limitation of Jose and Lee's (2006) study is that it only focused on environmental disclosures published on companies' websites and reports for one year (2002). Thus, the study ignored the other environmental reporting media employed by the companies and did not provide reporting trends of the companies included in the study.

In a continuation to the triennial series of studies of the prior decade, KPMG (2013; 2011; 2008; 2005; 2002), analysed the sustainability disclosures in the sustainability reports, websites and annual reports to obtain an insight into national and global reporting trends of two sets of companies – the top 250 multinational companies (G250), and the largest 100 national companies. Consistent with earlier studies (KPMG, 1999, 1996, 1993), the findings of KPMG (2013; 2011; 2008; 2005; 2002), revealed a dramatic increase in the frequency of reporting, and percentage of companies with a clear reporting strategy, that identified and prioritised the targeted audience, which led to a decline in over-generalised, lengthy and irrelevant reports. To cater for a wider audience, companies increasingly widened the scope of the topics but employed a search functionality on their websites to enable readers to customise the reports to their unique needs, and consulted with their stakeholders when selecting the appropriate content and KPIs to report on (KPMG, 2013; 2011; 2008; 2005; 2002).

Unlike earlier studies (KPMG, 1999, 1996, 1993), most companies in the KPMG (2013; 2011; 2008; 2005; 2002) studies employed the GRI guidelines to determine the content of their reports.

This, together with sector-specific supplements also enhanced the comparability and verifiability of the reports, particularly the G3 version of the GRI guidelines, which laid a greater emphasis on the reporting process and required an elaboration of methods employed in calculating the KPI (KPMG, 2008:38; KPMG, 2011:20). To further enhance reliability of the reports, most adopted a systematic approach to sustainability issues that included a strategy, an EMS, a stakeholder engagement mechanism, publication of sustainability reports and the assurance of the same (KPMG, 2008:02; KPMG 2011:04).

In concurrence with the findings of the earlier studies (KPMG, 1999, 1996, 1993), many companies in the KPMG (2013; 2011; 2008; 2005; 2002) studies had started to quantify the value of their commitment to sustainability issues and had adopted strategies with well-defined and quantified objectives, as well as KPIs. Indeed a growing number of companies had started reporting on progress against their objectives, with a few quantifying the financial opportunities availed to them as a result of their sustainability initiatives (KPMG, 2008:04; KPMG, 2011:02). In a further consistence with the earlier studies (KPMG, 1999, 1996, 1993), KPMG (2013; 2011; 2008; 2005; 2002) studies revealed that a growing percentage of companies had developed and implemented internal systems, controls, compliance mechanisms, processes and data collection methodologies to enhance the verifiability of their information and minimise restatements of the reports. Similarly, an increasing percentage of companies had certified their EMS to enhance their credibility (KPMG, 2013; 2011; 2008; 2005; 2002). Increasingly, many companies had delegated the over-sight of sustainability initiatives to higher level personnel in charge of separate specialised corporate responsibility departments (KPMG, 2008:47), which concurs with the findings of Mammatt *et al.*, (2010).

In contrast to the findings of earlier studies (KPMG, 1999, 1996, 1993), KPMG (2013; 2011; 2008; 2005; 2002) studies found that a growing percentage of companies included third party commentary in their reports and undertook external assurance to enhance the reliability of their reports. Not only did the companies increase the breadth and the scope of their assurance assignments, they also increased the rigour of assurance from a negative assurance to a positive one and employed reputable accountancy firms, known for their expertise in internal controls to strengthen the reporting systems (KPMG, 2011:28; KPMG, 2008:57). The rigour, consistency and quality of assurance approaches also improved dramatically as a result of the use of verification standards such as ISAE3000 and AA1000AS (KPMG, 2008:67). A few progressive companies had

begun to combine both assurance and third-party commentary to further enhance the credibility of their reports (KPMG, 2011:30; KPMG, 2008:57).

Also in contrast with the earlier studies (KPMG, 1999, 1996, 1993), KPMG (2013; 2011; 2008; 2005; 2002) studies revealed that a majority of companies had increasingly leveraged multiple media channels such as the Internet, print stand-alone sustainability reports as well as annual reports to effectively disseminate their sustainability information to their target audiences as well as to enhance the clarity and understandability of the information. Similarly, a growing percentage of companies also had started to integrate their sustainability KPIs into their annual reports to enhance the understandability of the impact of sustainability performance on their financial performance (KPMG, 2011:22; KPMG, 2008:29).

Increasingly, companies had incorporated special-purpose sustainability websites into their communications to enhance the accessibility of their reports to various audiences and enable readers to view data through different perspectives (KPMG, 2011:22; KPMG, 2008:41). In addition, a small but growing number of companies had developed mobile applications to provide the stakeholders with greater access to their reports. Even more interesting was the emerging use of web technologies to actively encourage readers to examine and segment sustainability reports to suit their unique needs (KPMG, 2011:22). Furthermore, an increasing percentage of companies had referred to their own codes of conduct which made the stakeholders aware of what to expect from the companies when reading the reports, an aspect which positioned them to better understand the performance of the companies (KPMG, 2008:43; KPMG, 2005:18).

Notwithstanding these developments, most companies did not engage their key stakeholders systematically or meaningfully as they employed ineffective ways of engaging and communicating to the stakeholders (KPMG, 2008:34; KPMG, 2005:20). Besides, the engagement was mostly used to discuss broad company policies on sustainability issues rather than specific items in the reports (KPMG, 2005:21). In addition, only a few companies identified their stakeholders, incorporated stakeholder feedback in their reports or responded to stakeholder concerns in the public domain (KPMG, 2008:02). These, together with the fact that many reports were issued without any environmental information, and did not indicate the use of AccountAbility's AA1000AS in deciding materiality and when selecting issues to report on, undermined the relevance of the sustainability reports (KPMG, 2008:32; KPMG, 2005:20).

Despite having a sustainability strategy in place, fewer companies had an actual management and measurement system in place, which created room for “green wash” (KPMG, 2011:05; KPMG, 2008:32). In addition, the effort to integrate sustainability issues in the annual reports remained dismally low and of poor quality as the KPIs used lacked depth (KPMG, 2011:05; KPMG, 2008:19). Thus most of the integration effort was a mere combination of environmental, financial and social reports without real integration, which undermined the credibility of the reports as sustainability issues appeared not to be truly integrated into the business strategy (KPMG, 2011:23).

The reliability of the reports was further undermined by use of poor quality data that warranted significant restatement of prior reports due to errors or omission, and a preponderance of disclosing only positive information, which undermined the balance of the reports (KPMG, 2013:18; 34; KPMG, 2011:26). Besides, reasonable assurance was only undertaken by a minority of the companies and on selected items (KPMG, 2013:33; KPMG, 2011:28). Even for those that opted for limited assurance, the assurance did not always cover the entire report, but rather focused on selected indicators, and varied widely in manner that resulted to divergent assurance statements (KPMG, 2013:34; KPMG, 2008:66; KPMG, 2005:30). Furthermore, only a small percentage of companies combined third-party commentaries with the assurance (KPMG, 2013:69; KPMG, 2011:30). Besides the third party commentary lacked dissenting voices (KPMG, 2013:69).

The widely adopted GRI guidelines allowed companies to report at several different levels of detail which caused variation in the reports and undermined their comparability (KPMG, 2011:20; KPMG, 2008:38). Similarly, companies employed varying multiple media for reporting purposes which resulted in inconsistency in the format and accessibility of the sustainability reports across companies and industries (KPMG, 2011:24). As in earlier studies (KPMG, 1999, 1996, 1993), the comparability of the reports in the KPMG, (2011, 2008, 2005, 2002) was also undermined by the variation in sustainability reporting rates, the use of largely unregulated and varying metrics, the use of different terminologies and guidelines. In addition, most companies only used portions of the GRI guidelines and ignored some portions particularly on principles, completeness and inclusiveness (KPMG, 2008:38). Furthermore, very few companies communicated their reports in an accessible, comprehensive and professional manner using XBRL or other ways of transferring data in real-time to the stakeholders (KPMG, 2008:19). This meant that the full potential of the on-

line capability was not tapped into, a finding that is consistent with that of Lodhia (2006:84).

However KPMG's (2013; 2011; 2008; 2005; 2002) studies covered a wide-range of sustainability issues, with an emphasis on the trends in the volume of sustainability information disclosed in different countries. As such they did not entirely focus on the quality or decision-usefulness of such disclosures. Indeed the studies lacked depth as they were not informed by any theory when conceptualising the sustainability reporting practices observed. Hence they failed to comprehensively and persuasively describe, evaluate, or even prescribe suitable sustainability reporting practices. Besides, these studies lacked an academic impartiality, as they were used by the researcher as a marketing tool for sustainability consultancy and assurance services.

In a similar series of annual studies conducted between 2007 and 2010, Craib Design and Communications (CDC), partnered with Canadian Business for Social Responsibility (CBSR) and PricewaterhouseCoopers (PwC) (CBSR & CDC, 2008; CDC, 2007; CDC & PwC, 2010, 2009) to evaluate the effectiveness of communication of sustainability information in 75 reports published by companies from the USA (25), Canada (25), and outside North America (Europe, Japan and Australia) (25). Consistent with the other studies (KPMG, 2013, 2011, 2008, 2005, 2002), the CDC (2007); CBSR and CDC (2008); CDC and PwC (2009, 2010) studies revealed a dramatic improvement in the quality of the reports produced with an overwhelming majority having a dedicated section on environmental issues. However, the North American companies generally trailed their counterparts from outside North America (CBSR & CDC, 2008:04; CDC & PwC, 2010:04; CDC & PwC, 2009:04).

To enhance the relevance and understandability of their reports, companies increasingly published a separate report scope that identified their stakeholders, explained the reporting parameters, such as the information contained or excluded from the reports, defined their key areas of performance, and provided the date of the preceding report and the reporting cycle (CBSR & CDC, 2008:12; CDC & PwC, 2010:14; CDC & PwC, 2009:17). The latter was also meant to enable the readers to gauge the timeliness of the reports. In addition, they increasingly employed the GRI G3 guidelines to identify the key issues to be addressed in their reports and adopted the logical reporting structure advocated for by the GRI guidelines to improve the readability of their reports (CBSR & CDC, 2008:32; CDC & PwC, 2010:15; CDC & PwC, 2009:15).

Furthermore, they progressively engaged their stakeholders, in many ways to determine and respond to their needs by providing an on-line survey for feedback on their sustainability reports, and publicly responding to the feedback via reporting (CBSR & CDC, 2008:22; CDC & PwC, 2010:20; CDC & PwC, 2010:27). Moreover, in concurrence with the findings of Mammatt *et al.*, (2010), but in contrast with those of Jose and Lee (2006), companies increasingly published forewords from senior executives to convince the stakeholders that their concerns were heard, understood and in the process of being addressed (CBSR & CDC, 2008:15; CDC & PwC, 2010:16; CDC & PwC, 2010:23).

In tandem with the findings of KPMG (2013; 2011; 2008; 2005; 2002), an increasing percentage of companies undertook third-party assurance, which was mostly conducted by accounting firms (CBSR & CDC, 2008:24; CDC & PwC, 2010:22; CDC & PwC, 2009:29). Similarly, an increasing number of companies incorporated expert commentary, stakeholder reviews, testimonials and case studies in their sustainability reports (CBSR & CDC, 2008:34; CDC & PwC, 2010:30; CDC & PwC, 2009:41). These, together with the growing use of internal audits enhanced the reliability and verifiability of the reports. To further enhance the reliability of their reports, companies increasingly quantified their performance using comparable internationally recognised KPI metrics mostly based on the GRI guidelines (CBSR & CDC, 2008:32; CDC & PwC, 2010; 15; CDC & PwC, 2009:15).

Likewise, an increasing number of companies had set specific, measurable, achievable, realistic and time-bound targets, and had started to explain the progress made towards achieving those targets, reasons for shortfalls, and how their performance was measured and monitored (CBSR & CDC, 2008:40; CDC & PwC, 2010:36; CDC & PwC, 2009:49). In addition, companies increasingly disclosed the governance structures, policies and procedures of dealing with sustainability issues, and identified the external charters or standards that they adhered to, to demonstrate the extent to which sustainability issues were entrenched within their organisations (CBSR & CDC, 2008:20; CDC & PwC, 2009:25; CDC & PwC, 2010:18).

Furthermore, an increasing percentage of the reports provided quantitative data supported by graphs, KPI summary tables and specific commentary to give objective and understandable information to the readers (CBSR & CDC, 2008:42; CDC & PwC, 2010:38; CDC & PwC, 2010:51). Similarly, an increasing percentage of the reports also had a GRI content index table to

provide users with a quick overview of the report content and to enhance accessibility of information (CBSR & CDC, 2008:42; CDC & PwC, 2010:38; CDC & PwC, 2009:51). The use of the GRI guidelines and provision of GRI metrics on KPI summary tables also enhanced the consistency and comparability of the sustainability reports.

Many companies also employed performance scorecards and other devices to guide the readers through the density of numbers and to highlight the most material information (CBSR & CDC, 2008:04; CDC & PwC, 2010:48; CDC & PwC, 2009:05). In addition, most companies provided schematic diagrams, organisational charts, activities maps and photographs to clarify text, capture readers' attention and arouse their curiosity (CBSR & CDC, 2008:36; CDC & PwC, 2010:32; CDC & PwC, 2009:05). To accommodate the varying needs of users, companies increasingly experimented on various reporting formats, with some publishing a summary of their full report to provide readers with a snapshot of their sustainability strategy, performance and objectives (CBSR & CDC, 2008:45; CDC & PwC, 2010:36; CDC & PwC, 2009:61). Yet others provided a fact sheet, with a one or two-page summary of a company's quarterly performance, which enhanced the accessibility, readability, and timeliness of the reports for the readers (CBSR & CDC, 2008:43; CDC & PwC, 2010:36; CDC & PwC, 2009:06).

Consistent with the findings of KPMG (2013; 2011; 2008; 2005; 2002), many companies had a dedicated sustainability report web-site that offered substantially more information than the printed reports (CBSR & CDC, 2008:48; CDC & PwC, 2010:05; CDC & PwC, 2009:26). This ultimately led to a decline in the volume of printed reports as more information was migrated to the web-sites. In line with the findings of Chatterjee and Mir (2008), most companies' websites had a link to sustainability reports on their corporate homepage or sustainability tab in their main navigation menu to enhance the accessibility of their sustainability reports (CBSR & CDC, 2008:48; CDC & PwC, 2009:04; CDC & PwC, 2010:05).

In contrast to the findings of other studies (KPMG, 2013; 2011; 2008; 2005; 2002; Lodhia, 2006:84), the researchers (CBSR & CDC, 2008; CDC 2007; CDC & PwC, 2010, 2009) found that many companies took a full advantage of their web tools capabilities on their websites. In particular, they employed interactive features like maps, blogs, fun and thought-provoking games, live links, videos (CBSR & CDC, 2008:51; CDC & PwC, 2010:05; CDC & PwC, 2009:57). These reports also contained features such as visual navigation and pop-ups that could create interactive

documents that are easy to distribute, comment on and print (CBSR & CDC, 2008:48; CDC & PwC, 2010:42; CDC & PwC, 2009:61).

To further engage and entice their potential readers, most companies published an image on their front cover with a design and message meant to reflect their priorities and to set the tone for their entire reports (CBSR & CDC, 2008:10; CDC & PwC, 2010:48; CDC & PwC, 2009:13). In addition, most companies employed the same design and theme for both their sustainability reports and annual reports to emphasise the link between their sustainability issues, and their core business function. Furthermore, most companies published their organisational profile to enable their readers to understand the breadth of their activities, geographical foot print, operating structure and performance, as well as corporate goals (CBSR & CDC, 2008:14; CDC & PwC, 2010:12; CDC & PwC, 2009:19).

Notwithstanding the above-mentioned positive developments, the CDC (2007); CBSR and CDC (2008); CDC and PwC (2009, 2010) studies also found various reporting inadequacies that undermined the decision-usefulness of the reports. Firstly, in line with the findings of other studies (KPMG, 2002, 2005, 2008, 2011), only a minority of companies explained the process used to determine the significant issues reported on, the breadth and depth of such issues, an aspect likely to undermine the relevance of the information reported (CBSR & CDC, 2008:05; CDC & PwC, 2010:10; CDC & PwC, 2009:05). Secondly, as found in most studies (Chatterjee & Mir, 2008; KPMG, 2013; 2011; 2008; 2005; 2002; Jose & Lee, 2006; Mammatt *et al.*, 2010), only a small percentage of reports had an assurance statement, testimonials and case studies – this undermined the credibility of the sustainability reports (CBSR & CDC, 2008:24; CDC & PwC, 2010:22; CDC & PwC, 2009:29).

Thirdly, most companies, particularly the North American companies lumped large quantities of performance data in the last few pages of their reports without commentary, and this, undermined their readability (CBSR & CDC, 2008:04; CDC & PwC, 2010:38; CDC & PwC, 2009:05). By contrast, some companies typically expressed their goals in terms that defied measurement or failed to report progress against established goals (CBSR & CDC, 2008:40; CDC & PwC, 2010:36; CDC & PwC, 2009:49). Fourthly, many small companies did not provide an organisation profile, hence they failed to provide context for their sustainability strategies and accomplishments (CDC & PwC, 2010:12).

To exacerbate the situation, the reports skipped from one topic to the other without a sense of continuity or structure, further undermining their readability (CDC & PwC, 2009:06). Fifthly, many reports were untimely, particularly in North America where companies did not produce a sustainability report every year, nor provide their prior years' reports (CDC & PwC, 2009:04). The latter also undermined the comparability of the reports, which was exacerbated by diversity in approach in treatment of issues, reporting media used and terminology employed by different companies (CBSR & CDC, 2008:04; CDC & PwC, 2009:04). This finding concurred with those of other studies (Bolivar 2009; Chatterjee & Mir, 2008; KPMG, 2013; 2011; 2008; 2005; 2002; Mammatt *et al.*, 2010).

Although informative, the CDC (2007); CBSR and CDC (2008); CDC and PwC (2009, 2010) studies lacked depth as they were not enriched by any theory. In addition, they lacked academic impartiality, given that the researchers had a vested interest in sustainability assurance or consultancy services. Therefore these studies can be perceived as a marketing tool for the services.

In a study that is particularly relevant to this research, Ernst and Young (2007) assessed the quality of 100 sustainability reports selected from those published by the top 500 European companies. In tandem with the findings of other studies (CBSR & CDC, 2008; CDC, 2007; CDC & PwC, 2010, 2009; KPMG, 2013; 2011; 2008; 2005; 2002), Ernst and Young (2007:08) found that most reports presented an overview of relevant stakeholders, but did not disclose the criteria for selecting those stakeholders. Typically, most companies discussed the stakeholder dialogue in a general sense and did not break down such a dialogue by stakeholder groups (Ernst & Young, 2007:09). As a result, it was unclear how the dialogue had actually been integrated into the management system, and implied that everyone was a stakeholder, a situation likely to produce over-generalised reports that do not address specific stakeholder concerns.

In addition, stakeholder criticisms and particularly actions taken in response to the criticisms were only reported on by a minority of companies (Ernst & Young, 2007:10). These, together with the fact that most companies did not always use their sustainability reports to address important sustainability news, particularly when such news attracted negative media attention, undermined the relevance of the reports (Ernst & Young, 2007:12).

Contrary to the findings of most studies (Jose & Lee, 2006; KPMG, 2013; 2011; 2008; 2005;

2002; CCSR & CDC, 2008; CDC, 2007; CDC & PwC, 2010, 2009; Chatterjee & Mir, 2008; Mammatt *et al.*, 2010), 69% of the reports in Ernst and Young's (2007:22) study included an assurance statement to enhance the reliability of their reports. However, only 11% of the assurance statements provided a reasonable assurance (Ernst & Young, 2007:23). In addition, despite the major differences in the scope of the assurance procedures performed in different companies, the procedures yielded similar conclusions (Ernst & Young, 2007:24).

In further contrast with the findings of the other studies (KPMG, 2013; 2011; 2008; 2005; 2002; Mammatt *et al.*, 2010), but in line with those of Jose and Lee (2006), Ernst and Young (2007:25; 26) found that most companies did not provide a clear description of the governance structure and the related planning and control for sustainability issues, and did not disclose the relationship between their companies' sustainability performance and executive compensation. Furthermore, in agreement with other studies (KPMG, 2002, 2005, 2008, 2011; Bolivar, 2009), only one company used the XBRL, an electronic communication language known to reduce the risk of manual error entries (Ernst & Young, 2007:23). All these together with the fact that most disclosures tended to be positive and thus did not provide a balanced view of the companies' performance, undermined the reliability of the sustainability reports as they appeared to be glossy public relations documents (Ernst & Young, 2007:03; 23).

In congruence with the findings of other studies (KPMG, 2013; 2011; 2008; 2005; 2002; CCSR & CDC, 2008; CDC 2007; CDC & PwC, 2010, 2009), Ernst and Young (2007) found that most companies endeavoured to enhance the comparability of their reports. To this end, 85% of the companies outlined their sustainability vision, strategy and targets to enable their readers to analyse the progress made to achieve the targets over time (Ernst & Young, 2007:15). In particular, 88% of the companies had translated their sustainability targets into measurable KPIs that could be compared over time (Ernst & Young, 2007:16). To further facilitate the comparability of the KPIs with the prior years, 67% of companies supported their KPIs with diagrams and words, a situation likely to also enhance the understandability of their performance (Ernst & Young, 2007:16).

To enhance the inter-company comparability, a majority of the reports (56%) referred to general benchmark results (Ernst & Young, 2007:17). In addition, 89% of all the reports analysed were prepared using guidelines, with about 81% having used GRI guidelines. Despite these efforts,

only a limited number of companies included the results of sector-specific benchmarks, or supplemented the GRI guidelines with sector-specific guidelines (Ernst & Young, 2007:04). Furthermore, there was a diversity in KPIs, definitions and measuring methods which undermined the comparability of the reports (Ernst & Young, 2007:16), a finding which concurred with the findings of other similar studies (Bolivar 2009; Chatterjee & Mir, 2008; KPMG, 2013; 2011; 2008; 2005; 2002; Mammatt *et al.*, 2010; Trucost and Environmental Agency, 2010, 2006, 2004).

To enhance the readability of the reports, 89% of the reports were well-structured, with 94% having sufficiently explained tables and diagrams in an attempt to enhance their clarity (Ernst & Young, 2007:21), a finding which concurred with the findings of other studies (CBSR & CDC, 2008; CDC 2007; CDC & PwC, 2010, 2009). However, the core message in most reports remained fragmented and difficult to extrapolate from the text, as the reports were not summarised. Specifically, most reports (72%) had more than 50 pages, with one having as many as 267 pages, an aspect that undermined the readability of the report (Ernst & Young, 2007:20).

Although insightful, the Ernst and Young's (2007) study was limited to the top 500 European companies, thus its findings might not be generalisable to the other parts of the world particularly in Africa. Like the other studies conducted by the audit advisory firms, the study also lacked depth as it was not enriched by any theory, and academic impartiality as Ernst and Young used the study as a marketing tool for consultancy and verification services.

4.2.3 Identified gaps in the prior literature of content analysis studies

From the literature review in this section, the following research gaps have been identified:

- Most studies focused on the nature and frequency of environmental disclosures in the developed countries. Relatively few studies have been done on the environmental reporting practices in the developing countries in general and African countries in particular.
- Most of the prior studies had almost exclusively focused on the environmental disclosures in the statutory annual reports. Only a few studies focused on environmental disclosures in alternative media. Accordingly, most studies did not provide an all-round view of the environmental reporting practices.
- Most studies cited did not employ any theory to describe, evaluate, or even prescribe

decision-useful environmental reporting practices. As a result, many lack richness and depth, as well as academic impartiality. Indeed some of these studies were conducted by organisations as a marketing tool for environmental consultancy and assurance services.

- Many of the studies were undertaken for a period of one year or less, and used limited and unrepresentative samples, typically of large listed companies from environmentally sensitive industries. As such their findings were not generalisable to all companies.
- Some studies were conducted more than ten years ago, before the emergence of major reporting guidelines or assurance standards. Given the changes that have taken place in environmental reporting, their findings are not valid at present.
- Other studies covered wide-ranging sustainability issues with a particular emphasis on the trends in the quantity of information disclosed, in different countries, as opposed to entirely focusing on the quality or decision-usefulness of the information.
- Most studies did not utilise coding instruments or detailed checklists, to reduce the ambiguity involved in identifying and coding the environmental disclosures. This may have contributed to the contradictory and even inconclusive results.

Given the gaps identified above, the studies reviewed in this section failed to fill the void in relation to the decision-usefulness of environmental reports. This has led to the need for this study which attempts to fill the gaps by adding to the existing body of knowledge some evidence or lack of, on the decision-usefulness of environmental reports produced by companies operating in South Africa.

One key limitation of the content analysis studies is that they do not interrogate the users to determine their needs, the extent to which they read the environmental reports and employ them in decision-making, their level of satisfaction with the reports, as well as their ranking of environmental information relative to other types of information. As such the studies may not reveal the users' perceptions on the decision-usefulness of environmental reports. Surveys may answer these questions. The next section reviews those surveys that elicited the users' perceptions on the decision-usefulness of environmental (sustainability) reports.

4.3 USERS' PERCEPTION OF DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

Although environmental reporting is aimed at informing or influencing the decisions of users, very little is known about the users' views, experiences and information needs as only a few prior studies have focused on users (Momin, 2009:02). This section reviews the studies that investigated the users' views on their information needs, the extent to which they read and employ environmental reports in decision-making, their level of satisfaction with the quality of the reports, and the relative importance that they place on environmental reports as compared to other types of reports.

4.3.1 Studies that elicited the views of pressure groups

In a landmark questionnaire survey of the Corporate Social Disclosure (CSD) preferences of 59 representatives of community pressure groups (mostly environmental groups), Tilt (1994:63) found that the pressure groups needed CSD that is sufficient, credible, useful and understandable. Having analysed the pressure groups' views, she proposed a model report that could meet their needs. She proposed that the report be contained in the annual report, be supplemented with other policy statements, and that a copy of the report be kept in an outside agency for perusal by any interested parties. She also proposed that the report should be audited by an independent third party and that it should contain both descriptive and quantified data (Tilt, 1994:64).

Tilt (1994:55) further found that pressure groups were users of CSD, as 82% of the respondents had read some kind of CSD, 71% had received some CSD, whereas 52% actively sought such information. In addition, a majority of the groups (54%) took indirect actions against companies that did not disclose their CSD to influence their reporting practices, whereas a further 39% took a more direct action. The indirect actions included writing of letters, negative publicity campaigns and lobbying government to introduce standards (Tilt, 1994:58). The direct actions were in form of letters addressed to company management, but not outright confrontation as one would have expected (Tilt, 1994:59). The pressure groups also used the reports to decide how to support companies with good CSD reporting practices by purchasing a company's products, working with or co-operating with those companies (Tilt, 1994:58).

Furthermore, Tilt (1994:59) found that the pressure groups were generally dissatisfied with the CSD as they generally perceived it to be insufficient and of low credibility, even though some forms of disclosure media were perceived to be easier to understand than others (Tilt, 1994:61). It is for this reason that the pressure groups called for legislation or standards that require minimum levels of disclosure and the use of external audits to enforce such legislation and standards (Tilt, 1994:63).

However, Tilt's (1994) study did not ask the users about their use of CSD on the websites, or separate environmental reports, neither did it ask them to rank the relative importance of CSD compared to other types of information. In addition, the study only surveyed the views of pressure groups, who because of vested interests answer questions in a particular way to support their pre-existing prejudices (Deegan & Rankin, 1997:571). Besides, the study was conducted more than 18 years ago in Australia, hence its findings may not be valid in the current dynamic reporting arena, particularly in a developing country like South Africa.

In a replica study meant to validate Tilt's (1994) earlier findings, Danatas and Gadenne (2004) surveyed the views of 59 representatives of social and environmental groups in Australia, to ascertain if the groups were users of CSD and whether they perceived such disclosures to be sufficient, understandable, credible and relevant. In contrast to Tilt's (1994) findings, Danatas and Gadenne (2004:13) found that the groups' preferred stand-alone environmental reports and web-site reports in addition to annual reports, which they attributed to the emerging overriding emphasis on accessibility to information. In tandem with Tilt's (1994) findings, Danatas and Gadenne (2004:09) found that most respondents (86.4%) had read some type of CSD, and that 74.6% had actively sought this information as only 54.2% received it voluntarily from companies. They further found that the most sought after CSD was environmental (62.7%), followed by resource conservation (49.1%), then community involvement (42.3%), followed by disclosures on products (27.2%) and human resources (11.9%) – this provided some sort of ranking of the groups' preferences of different types of CSD (Danatas & Gadenne, 2004:09).

Like Tilt's (1994) findings, Danatas and Gadenne (2004:02; 11) also found that the pressure groups were dissatisfied with the CSD, as they perceived the disclosures to be of low credibility, given the “green-wash” tendency across a variety of media that stressed positive information but omitted negative information. Similarly, the pressure groups perceived the CSD disclosures to be

insufficient as a greater percentage of the groups actively sought CSD information than they received voluntarily from the companies (Danatas & Gadenne, 2004:13). By contrast, the pressure groups perceived the CSD to be relevant to their needs even when insufficient. However, the results on the groups' perception on the understandability of the CSD were inconclusive (Danatas & Gadenne, 2004:11).

Though insightful, Danatas and Gadenne's (2004) study did not investigate whether the pressure groups employed the CSD to make decisions, and the kinds of decisions that may have been informed by the disclosures. In addition, the study's findings may not be valid at present as it was conducted more than six years ago. Furthermore, the study only surveyed the views of pressure groups, which as stated earlier have vested interests in answering questions in a particular way to support their pre-existing prejudices.

In a similar study, O'Dwyer, Unerman and Hession (2004) analysed the CSD needs of 28 Irish NGOs using a questionnaire survey. Consistent with Tilt's (1994) findings, O'Dwyer *et al.*, (2004:01) found a strong demand among the NGOs for more extensive levels of disclosure that are mandatory, externally verified and reported in either annual reports or separate stand-alone reports. They also found that the NGOs used the reports to gain knowledge about a company's commitment to responsible business practices, check a company's compliance to laws and regulations, as well as, to investigate whether a company was reporting its actual social and environmental impacts (O'Dwyer *et al.*, 2004:09).

In agreement with the findings of Tilt (1994), O'Dwyer *et al.*, (2004:11) found that the CSD were used to inform decisions on whether to pressurise a company to improve its social or environmental performance. In addition, they found a widespread dissatisfaction with the CSD practices which were perceived to be lacking in stakeholder engagement, feedback mechanism, sufficiency and credibility (O'Dwyer *et al.*, 2004:09). Accordingly, the CSD practices were perceived as not decision-useful to the NGOs.

However, O'Dwyer *et al.*'s., (2004) study only sampled 28 NGOs, of which, only 13 were environmental. Accordingly, the findings of the study cannot be generalised to all the NGOs in Ireland. In addition, the study did not ask the users to indicate the extent to which they read the CSD, nor did it ask them to rank various types of disclosures in accordance with perceived

importance. The study also did not focus on environmental issues as it also covered social issues as well. Besides the study was conducted more than six years ago, which could render its findings invalid at present.

All the three studies cited above on pressure groups were conducted in the developed countries, and hence their findings may not represent the perceptions of users in a developing country. In view of scarcity of research on users' needs in developing countries, Taib (2005) investigated the perception of 50 NGOs with regard to Corporate Social and Environmental Disclosures (CSED) in Malaysia using a questionnaire and interview survey. Consistent with the prior studies (Tilt 1994; O'Dwyer *et al.*, 2004), Taib (2005) found a strong NGO demand for legislation and standards that require minimal levels of disclosures. She further found that the annual reports were the most preferred medium for seeking CSED.

In agreement with the prior studies (Tilt, 1994; O'Dwyer *et al.*, 2004), Taib (2005) also found that the NGOs were users of CSED, and employed indirect approaches such as lobbying activities, promotional and education programs against the companies that did not provide the disclosures. However, their influence was weaker than that of their counterparts in the developed countries due to various constraints. With regards to the users' satisfaction with the understandability, credibility and sufficiency of the CSED, her findings were inconclusive given the limited size of the sample employed in the study. Another limitation of her study is that it is outdated given that it was conducted more than seven years ago. Besides, her study did not ask the respondents to rank the various types of information read in accordance with perceived importance. Moreover, the study was conducted in Asia, hence its findings may not be applicable in the South African context.

4.3.2 Studies that elicited the views of analysts

Thus far, all the studies in this section only explored the views of pressure groups. Considering that different stakeholders have different perceptions on environmental (sustainability) related disclosures, it is important that the studies on the views of other stakeholders be also examined. This section reviews the studies that elicited the views of analysts who according to Day (1986:295) are perhaps the most informed and articulate user group of environmental (sustainability) related disclosures, and whose reports influence many investment decisions.

In a questionnaire survey study conducted to investigate the attitudes of 85 British investment analysts on environment issues, Business in the Environment (BiE) (1994:107) found that the issues ranked very lowly in the analysts' priorities when they undertook their investment analysis. BiE (1994:107) further found that analysts' assessments were made on rational, financial criteria and that moral or emotive issues such as environmental issues were not seen as part of an analysts' remit, unless such issues had a traceable financial consequence. For this reason, most analysts perceived environmental information not to be relevant to them, and did not use it. The main limitation of the BiE study is that it was conducted more than 17 years ago, hence though its findings were valid then, they are doubtful at present given the many changes that have taken place in the environmental reporting practice.

In a similar subsequent study conducted in the UK, Campbell and Slack (2008), explored the perceptions of 19 sell-side analysts on the usefulness and materiality of narrative disclosures in the annual reports using interviews. Campbell and Slack (2008:17) found that the analysts preferred a more timely release of the final annual reports to avoid the time lag between the release of preliminary accounts and final annual reports, which rendered the latter useless as most of the required information would have been obtained from preliminary accounts. In addition, the analysts preferred narrative disclosures on the future outlook, management or targets which were critical and yet missing from the reports (Campbell & Slack, 2008:20). Furthermore, they preferred disclosures with directly value-relevant numerical data, presented in a concise manner (Campbell & Slack, 2008:27).

Consistent with the BiE (1994) findings, Campbell and Slack (2008:05) found that analysts unanimously perceived the narrative reports not to be immediately useful in their primary tasks of constructing forecast models, which required value-relevant numerical data that can influence a financial forecast. Thus, social and environmental reports, which were typically narrative, were perceived to be irrelevant, lengthy, useless or worse as they were deemed incapable of influencing a financial forecast (Campbell & Slack, 2008:28). Accordingly, such reports were rarely sought or read by analysts, and were dismissed out-rightly. In short, social and environmental disclosures were perceived as the least relevant, least material part of the annual reports and were thus the least read part (Campbell & Slack, 2008:23).

The main limitation of Campbell and Slack's (2008) study is that it employed a limited sample of

19 sell-side analysts, therefore limited generalisation of its findings can be made to all sell-side analysts in the UK. In addition, the study was conducted more than four years ago when most social and environmental disclosures were narrative, and before the widespread emergence of ethical investors. Furthermore, the study is based on the analysts in a developed country, the UK. Therefore the findings may not be applicable to a developing country such as South Africa.

4.3.3 Studies that elicited the views of investors

Although analysts play an important role in preparing research reports whose findings influence many investment decisions, they do not themselves make those investment decisions. It is the investors (shareholders) who make such decisions, and they may decide whether or not to rely on the analysts' reports. Accordingly, it is necessary that the studies that investigated the perceptions of investors (shareholders) be reviewed.

In one such study conducted in the UK, Solomon and Solomon (2006) interviewed 21 buy-side institutional investors to determine the extent to which Social, Ethical and Environmental (SEE) disclosures were integrated into institutional investment decisions and whether the disclosures were decision-useful. Solomon and Solomon (2006:574) found that investors preferred standardised SEE disclosures that are concise, to avoid information overload but detailed enough to provide adequate information. Contrary to the findings of other studies (BiE 1994; Campbell & Slack 2008), Solomon and Solomon (2006:575) found that the investors preferred narrative SEE disclosures as opposed to quantitative disclosures. In contrast to the findings of other studies (BiE 1994; Campbell & Slack 2008), Solomon and Solomon (2006:585) found strong evidence that SEE disclosures were perceived as decision-useful. In addition, unlike the other studies (BiE 1994; Campbell & Slack 2008), Solomon and Solomon's (2006:586) study revealed a strong demand for SEE disclosures, and that institutional investors used the SEE disclosures to develop rating reports on SEE issues within investee companies (Solomon & Solomon, 2006:578). In addition, the SEE disclosures were used to inform meetings with investee companies, and in writing reports on the companies' SEE behaviour (Solomon & Solomon, 2006:578; 584).

However, consistent with the findings of the other studies (BiE 1994; Campbell & Slack, 2008), the investors were dissatisfied with the quantity and quality of public SEE disclosures (Solomon & Solomon, 2006:585). Specifically, they perceived the public SEE disclosures in the annual

reports to be inadequate, incomparable, and either too limited, or too lengthy (Solomon & Solomon, 2006:585). These shortcomings had led the investors to supplement the public SEE disclosures with private disclosures from sophisticated SEE disclosure channels which they developed.

Among the limitations of Solomon and Solomon's (2006) study was the limited size of the sample it employed, which weakened the generalisability of its findings to all the institutional investors in the UK. The study is also outdated, having been conducted more than six years ago. In addition, its findings may not represent the views of the investors in a lesser developed country such as South Africa. Besides, the study did not ask the investors to rank the relative importance of SEE disclosures as compared to other disclosures.

Although Solomon and Solomon's (2006) study revealed the investors' views on SEE disclosures, such views were based on what the users said, which at times may differ with their actual perceptions (Rikhardsson & Holm, 2005:02). In recognition of the possible discrepancy between what the users say are their perceptions and their actual perceptions, Rikhardsson and Holm (2005) conducted an experimental study in Denmark to investigate the use of environmental information in investment decision-making. Specifically, Rikhardsson and Holm (2005:03; 18) prompted 94 graduate business students (proxies for investors), to assess the relative importance of different sources of information based on the materiality of such information to long-term investment decisions.

By order of importance, the findings revealed that the most valuable information was that on management expectations for future periods, followed by income information (Rikhardsson & Holm, 2005:15). By contrast, the least valued information was that on health and safety, followed by currency information, then environmental information. The study further revealed that among the different types of sustainability information, the value statements were considered to be the most important, followed by environmental information, then social information, followed by health and safety information, and finally ethical information (Rikhardsson & Holm, 2005:16). In general, financial information was perceived to be more important for investment decision making than any of the sustainability information (Rikhardsson & Holm, 2005:21). Among the limitations of Rikhardsson and Holm's (2005) study were that it employed graduate business students as proxies for investors, as their perceptions may not represent those of actual investors. In addition,

the study was conducted more than seven years ago in a developed country, Denmark. As such the findings may not represent the perceptions of investors in developing countries such as South Africa.

One common weakness on all the above cited studies that elicited the views of analysts and investors is that none explored the views of the respondents on the reliability of sustainability and related disclosures. In a unique study, Hodge, Subramaniam and Stewart (2009) examined whether assurance, level of assurance and the type of assurance provider, affected the users' perceptions of reliability of sustainability reports in Australia. Based on an experimental survey administered to 126 MBA students (proxies for users), Hodge *et al.*, (2009:02) found that provision of assurance improved perceived reliability of sustainability reports.

In addition, Hodge *et al.*, (2009:02) found that report users placed more confidence in the sustainability reports when the level of assurance provided was reasonable (high), and when such assurance was provided by a top tier accountancy firm, rather than when the assurance is provided by a specialist consultant. By contrast, no such difference was found when the level of assurance provided was limited (low) for either type of assurance provider group. These findings suggested users' need for an improved assurance on sustainability reports, with proper wording to enable them to differentiate between the levels of assurance, if these reports were to be perceived as reliable (Hodge *et al.*, 2009:02). However, Hodge *et al's.*, (2009) study used MBA students whose perceptions may not represent those of actual investors. In addition, it only tested limited aspects of assurance and left out other key aspects such as users' perceptions on the materiality, scope and completeness of the assurance engagement. Furthermore, as an Australian study, its findings may not be applicable to South Africa.

A common weakness that is unique to the two experimental studies cited above (Rikhardsson & Holm, 2005:02; Hodge *et al.*, 2009) is the very nature of their experimental methodology that only required the users to make simulated investment decisions. Accordingly, these studies did not explore whether the respondents would seek sustainability information if not provided, other reasons why they would want the information, and whether or not they were satisfied with the information provided.

All the above cited studies on the views of analysts and investors focused on a single country. As

such their findings may not be generalisable to other countries. To provide an international perspective, De Villiers and Van Staden (2010a) conducted an on-line questionnaire survey meant to investigate the sustainability information needs of individual shareholders in Australia (305), the UK (105) and the USA (64). Their findings revealed that the individual shareholders required a description of a company's major environmental risks and impacts, disclosure of a company's environmental policy, and disclosure of performance against measurable targets (monetary and/or quantities) based on environmental policy (De Villiers & Van Staden, 2010a). In addition, they required information on environmental costs grouped into categories, and that all environmental disclosures be audited (De Villiers & Van Staden, 2010a).

The findings further revealed that most shareholders used (or would use) at least one type of environmental information and that different types of environmental information were used (or would be) used for different purposes (De Villiers & Van Staden, 2010a). Specifically, on one hand information on environmental risks and impacts, environmental policy, evaluation of sustainability/ecological footprint was (or would be) used mostly to inform investment decisions such as whether to buy, hold or sell a company's shares (De Villiers & Van Staden, 2010a). On the other hand, information on environmental targets, actual environmental performance against targets, and independent environmental audit was (or would be) used mostly to hold companies accountable. However, packaging and reduced life-cycle information was (or would be) used mostly for shareholders' own interest. In general, environmental disclosures were (would be) mainly used for investment decision-making (De Villiers & Van Staden, 2010a). This finding contrasts with those of other researchers (BiE, 1994; Rikhardsson & Holm, 2005; Campbell & Slack, 2008) but is consistent with that of Solomon and Solomon (2006).

Though commendable, De Villiers and Van Staden's (2010a) study did not investigate the shareholders' satisfaction with the environmental disclosures, and neither did it attempt to determine the shareholders' perceived relative importance of environmental disclosures as compared to other types of disclosures. Besides, the study only focused on the needs of shareholders in the developed countries and thus the findings may not represent the views of the shareholders in developing countries such as South Africa. In view of the scarcity of studies in the South African context that explored the environmental information needs of shareholders, De Villiers and Van Staden (2010b) replicated their earlier international electronic questionnaire survey in South Africa to determine the environmental information needs of individual

shareholders. In concurrence with their earlier findings (De Villiers & Van Staden, 2010a), De Villiers and Van Staden (2010b:442) found that individual shareholders required companies to disclose the following specific environmental information: environmental risks and impacts, environmental policy, measurable environmental targets, performance against targets, environmental costs by category, and an independent environmental audit report. In addition, the shareholders preferred that this information be presented in a separate section of the annual report and on company websites and that the disclosure of such information be prescribed by law, and/or security exchange rules (De Villiers & Van Staden, 2010b:443).

In addition, the study revealed that most (94%) individual shareholders wanted environmental information to hold companies accountable for their environmental stewardship, to address their concern about climate change (84%), and allow companies to defend their environmental management (79%) (De Villiers and Van Staden 2010b:443). Ironically, although most of the respondents were classified as active investors, investment decision-making was perceived as the least popular reason for requiring environmental disclosure (61%) (De Villiers and Van Staden, 2010b:443). Accordingly, unlike in the earlier study (De Villiers & Van Staden, 2010a) where environmental information was (would be) mainly used for investment decisions, accountability was perceived the most important reason why the individual shareholders wanted environmental information in the latter study (De Villiers and Van Staden, 2010b:444). Nonetheless, this finding concurs with De Villiers & Van Staden's (2010a) earlier finding on the use of information on environmental targets, actual environmental performance against targets, and independent environmental audit.

Like in their earlier findings (De Villiers & Van Staden, 2010a), De Villiers and Van Staden (2010b:445) found that the individual shareholders used (would use) different types of environmental information for different purposes. In particular, information on environmental risks, policy, sustainability, and liability was (would be used) to inform investment decisions (De Villiers and Van Staden, 2010b:445). Information on recycling, energy use and carbon neutrality was (would be) used for own interest, whereas information on environmental audit was (would be) used for purposes of accountability. However, some types of information (would be) were used for more than one purpose (De Villiers and Van Staden, 2010b:443). Specifically, information on performance against targets, rehabilitation and environmental targets was (would be) used for investment decisions, accountability and for shareholder' own interest, whereas

information on waste handling was (would be) used for accountability and for shareholders' own interest.

Although informative, De Villiers and Van Staden' (2010b) study neither investigated the shareholders' satisfaction with the environmental disclosures nor did it attempt to determine their perceived relative importance of environmental disclosures when compared to other types of disclosures. In addition, it did not interrogate the extent to which the shareholders read the environmental disclosures, and whether they sought the disclosures if not provided. Besides, the study was conducted before the King III Report took effect.

4.3.4 Studies that elicited the views of multiple stakeholders

One limitation that is common to all the studies cited above on users' perceptions is that they all elicited the views of a single user group. Accordingly they do not provide balanced views of multiple user groups, which make them susceptible to the prejudices of the user group they surveyed. To avoid a single user group's prejudices, some studies have been conducted to elicit the perceptions of multiple users with regard to environmental and related disclosures. One such study was conducted by the Investor Responsibility Research Center (IRRC) (1995), which examined the perceptions of key stakeholders in the USA regarding whether published third party attestation statements had enhanced the credibility of voluntary environmental reports produced in 1994. To this end, the researcher employed five focus groups that comprised environmental groups, institutional investors, regulators, the media, and corporate environmental staff. The study found that the third party statements did not enhance the credibility of the environmental reports (IRRC, 1995:17).

In fact the credibility of environmental reports was perceived to be hinged mostly on features such as the balance of tone and disclosure of numerous performance indicators (IRRC, 1995:22). The description of selected company policies and presentation elements such as CEO statements and graphics were perceived to be moderately important (IRRC, 1995:14). However, the third party attestation statements were perceived to be among the lowest three items, out of 42 factors whose impact on the credibility of the environmental reports was assessed by the focus groups (IRRC, 1995:16). Although insightful, IRRC's (1995) study was conducted more than 16 years ago before sustainability auditing standards were developed. In addition, the study did not ask the

respondents what their other information needs were, whether they read or used the reports to inform their decisions, their perception on the relative importance of environmental information and whether they were satisfied by the environmental reports.

In a related questionnaire survey, Deegan and Rankin (2004) sought to establish whether users of annual reports considered environmental information to be material for various decisions they made and whether they searched for such information within the annual reports, among other objectives. To this end, Deegan and Rankin (2004) surveyed 118 Australian respondents who comprised shareholders, stockbrokers and research analysts, accounting academics, representatives of financial institutions, and representatives of oversight organisations.

In tandem with Tilt's (1994) study, the findings of Deegan and Rankin (2004:576) revealed that users required environmental information to be disclosed in the annual reports, and that the reporting guidelines be mandated by the government as opposed to the accounting profession. In further agreement with the earlier findings (Solomon and Solomon, 2006), 67% of all the respondents in Deegan and Rankin's (2004:572) study believed that environmental issues were material to their decisions. In particular, 83% of the reviewers indicated that environmental issues were material to their decisions, followed by 72.4% of the shareholders, then 66.7% of the representatives of financial institutions and 59.1 % of the academics (Deegan & Rankin, 2004:573). By contrast, only 43.8% of the stockbrokers and analysts believed environmental issues to be material to their decisions (Deegan & Rankin, 2004:573), which concurs with the findings of other similar studies (BiE 1994; Campbell & Slack, 2008).

The findings of Deegan and Rankin's (2004:573) study further revealed that 67.8% of all the respondents sought the disclosure of environmental information in the annual reports. Specifically, 83% of the reviewers sought the disclosure of environmental information in the annual reports, followed by 75% of the academics, 73.3% of the shareholders, then 50% of the representatives of the financial institutions. By contrast, only 31.3% of the stockbrokers and analysts sought the disclosure of environmental information in the annual reports (Deegan & Rankin, 2004:573), which also concurs with the findings of other similar studies (BiE, 1994; Campbell & Slack, 2008). From the foregoing, it can be inferred that environmental information in the annual reports was not material to the stockbrokers and analysts, hence they did not seek for this type of information (Deegan & Rankin, 2004:573).

In agreement with the other studies (BiE 1994; Rikhardsson and Holm, 2005), Deegan and Rankin's (2004:579) study also revealed that although environmental information was perceived by most users to be important, it was not considered to be as important as financial information. However, information on community involvement was perceived to be significantly less important than all other items of information in the annual reports (Deegan & Rankin, 2004:573). Although informative, Deegan and Rankin's (2004) study did not ask the users why they wanted or needed environmental information, or if they had used, or even read the information. In addition, it only elicited their views on annual reports, and ignored the other reporting media such as company websites. Furthermore, the study was conducted in Australia, a developed country, therefore its findings may not be generalisable to the South African reader groups. Besides, the study as dated was conducted more than eight years ago, thus its findings may thus not be valid at present.

As already mentioned, at times, what users say differs with their actual perceptions (Rikhardsson & Holm, 2005:02). In recognition of this discrepancy, Rowbottom and Lymer (2010) investigated website usage to measure the download frequency of major annual reports items on the websites of 15 listed companies in the UK in the year 2003 and 2004. Consistent with the prior findings (BiE, 1994; Deegan & Rankin, 2004; Rikhardsson & Holm, 2005), Rowbottom and Lymer (2010) found that the most frequently downloaded items were the compulsory financial statements, and that the environmental reports were among the least down loaded items, thus they were not deemed as relatively important. However, the data used in Rowbottom and Lymer's (2010) study was collected more than seven years ago, and only focused on the websites of 15 companies, which limits the generalisability of its findings. Furthermore, the study focused on companies in the UK, a country where the Internet is readily accessible to the readers. Accordingly, the findings may not be applicable to reader groups in countries with lower accessibility of the Internet, such as most African countries. Besides, the study did not identify the reader groups that downloaded the various items of the annual reports, and their unique needs.

In a unique global questionnaire survey designed to uncover the unique information needs of users, KPMG and SustainAbility (2008) surveyed 1827 readers of sustainability reports, grouped into three categories namely: business readers, civil society (NGOs and labour organisation leaders), and others (investors, consultants, academics, individuals, public agency). In addition, the researchers surveyed 452 non-readers to determine why they did not read the sustainability reports. The findings of KPMG and SustainAbility (2008:02) revealed that most readers preferred

a stronger role for stakeholders in reporting, particularly in selection of the content to be reported on. In particular, most readers (90%) expected the reporters to describe how and with whom they had engaged and some evidence of a connection between the results from such an engagement and the issues reported (KPMG & SustainAbility, 2008:15). In addition, the readers preferred that their feedback be incorporated demonstrably into companies' strategies and targets, and that reports be based on a continuous stakeholder dialogue, linked to the core business agenda (KPMG & SustainAbility, 2008:15).

To highlight their need for credible information, most readers in the KPMG and SustainAbility (2008:15) preferred a demonstration of commitment to sustainability via disclosure of dissenting stakeholders' comments as well as a balanced disclosure of positive and negative information. In addition, they wanted stronger and more relevant assurance processes on sustainability reports based on globally accepted standards (KPMG & SustainAbility, 2008:39). Accordingly, the groups expected information on what the assurance provider had done to reach conclusions, and advocated for the use of an assurance provider with a reliable reputation (KPMG & SustainAbility, 2008:25). The readers regarded the following disclosures as important attributes of a good report: a link between sustainability strategy and overall business strategy; a full integration of sustainability reports into annual reports and other corporate communications; and commitment to sustainability (KPMG & SustainAbility, 2008:39). In addition, disclosure of information on specific sustainability impact of a company's activities; actions taken to address sustainability issues; a demonstration of how product and process innovation have been used to respond to sustainability challenges and establishment of a business case for sustainability were perceived as the other important attributes of a good report (KPMG & SustainAbility, 2008:39).

To highlight their need for comparable information, most readers expected the companies to use well-regarded, globally-applicable reporting guidelines, particularly the GRI guidelines as well as other sector-specific guidelines (KPMG & SustainAbility, 2008:12). The readers further wanted a seamless accessibility to sustainability reports on both global and country level operations through a variety of media (KPMG & SustainAbility, 2008:39), a finding which concurs with those of Tilt (1994) and Danatas and Gadenne (2006).

Despite the above agreements among all reader groups, there were some minor differences among them (KPMG & SustainAbility, 2008:11; 12; 16; 25; 27). In particular, the business reader groups

preferred professional assurance providers to provide assurance on sustainability performance, whereas the civil society readers preferred stakeholder representatives for the same role (KPMG & SustainAbility, 2008:12). This suggested a need for different types of assurance for different user groups (KPMG & SustainAbility, 2008:25). Similarly, the civil society reader groups prioritised reporting tailored to the needs of specific stakeholder groups, whereas the business reader groups saw this as one of the least appealing needs (KPMG & SustainAbility, 2008:27). Without mentioning the specific reader groups, the study further revealed that some reader groups preferred narrative reports, whereas others were keen on numerical data (KPMG & SustainAbility, 2008:11). Likewise, some readers preferred a limited coverage of the key relevant sustainability issues, whereas others preferred a wide coverage to allow them to determine what to read themselves (KPMG & SustainAbility, 2008:16).

The KPMG and SustainAbility (2008:09) study further revealed that the 1827 respondents that read the sustainability reports generally used the reports for different purposes. The business reader groups, particularly the investors and consultants used the sustainability reports to make investment decisions (KPMG & SustainAbility, 2008:27). By contrast, the civil society readers used the reports to decide on whether to open a dialogue (70%), to enter into a partnership with the reporting entity (55%), or launch a public campaign against a reporting entity (50%) (KPMG & SustainAbility, 2008:27). The other readers used the reports to make decisions on whether to buy products or services from the reporting entities, or supply their labour to the reporting entity (KPMG & SustainAbility, 2008:09).

Apart from making decisions, the sustainability reports were also used for other purposes (KPMG & SustainAbility, 2008:09). In particular, the business reader groups read the sustainability reports to improve their understanding of specific sustainability issues, to get informed of better practices, and for benchmarking purposes (KPMG & SustainAbility, 2008:08). By contrast the academics and consultants read the reports for research and education purposes (50%) (KPMG & SustainAbility, 2008:09). Yet, the NGOs read the reports to monitor the accountability of the reporting entities to the society (KPMG & SustainAbility, 2008:09).

The study further revealed that a vast majority of users perceived the sustainability reports to be relevant, detailed and easily accessible (KPMG & SustainAbility, 2008:11). However, 25% of the respondents believed that the most significant issues particularly related to companies' failures

were omitted from the reports (KPMG & SustainAbility, 2008:12). Other pieces of vital information perceived to be missing or incomplete included the overall sustainability impact of the companies, and a description of risks and opportunities (KPMG & SustainAbility, 2008:12).

Although most readers (70%) were satisfied with the annual frequency of reporting, 30% wanted more frequent reports (KPMG & SustainAbility, 2008:17). For the 452 respondents who did not read the sustainability reports, they indicated that the main reason why they did not read the reports was that the reports were too lengthy, or websites too difficult to navigate, which is an indication of information over-load that rendered the reports unreadable. Other reasons provided by non-readers in KPMG and SustainAbility's (2008:29) study included, a perception of no value in the reports, a lack of knowledge of how to use the reports for decision making, the use of alternative sources of sustainability information that are perceived to be more efficient and understandable.

However, the KPMG and SustainAbility's (2008) study was conducted by organisations with vested interest in sustainability consultancy and assurance services. As such it can be perceived as a mere marketing tool for those services that lacks academic impartiality. In addition, the respondents were mostly from Europe and Latin America with only 1% from Africa and Middle East. Accordingly the findings of this survey may not be representative of the views of African readers of sustainability reports. Furthermore, the study did not provide a thorough insight into the varying needs of the various stakeholders as it only focused on two broad reader groups namely, the business and the civil society reader group. As such it did not explore the unique needs of the individual stakeholder groups within the broader groups. Besides, the study did not ask the readers to rank the relative importance of the sustainability reports to their decisions.

In a follow-up survey that focused on the views of readers from developing countries, KPMG, SustainAbility and Futtera (2010), elicited the expectations of 5227 readers across four continents. Among the readers surveyed, 73% were from Brazil, 10% from India, 5% from the USA, and 12% from the rest of the world. The findings revealed that most readers wanted to see a genuine account of performance, with robust data indicating progress over time on specific issues that provides a proven track record of actions to achieve set goals (KPMG *et al.*, 2010:12). They further expected to see a clear link between sustainability and the business strategy adopted as well as and external input in form of third-party assurance, and stakeholder comments (KPMG *et*

al., 2010:12).

The KPMG *et al.* (2010:06) study further found that most readers used the reports to inform decisions on what products to use and in which companies to invest. In addition, the sustainability reports were used to inform employment or fund seeking decisions (KPMG *et al.*, 2010:23; 25). Other ways in which the readers used the reports included, to share views with others, to inform future dialogue with the reporting entities, for research purposes and to provide feedback to the reporting entities (KPMG *et al.*, 2010:23; 24). Interestingly, the reports were used for different purposes in different countries (KPMG *et al.*, 2010:23). Specifically, the Chinese used the reports mainly to decide which products to use, whereas the Indians used the reports mainly to inform their investment decisions (KPMG *et al.*, 2010:25). By contrast, the Americans used the reports mainly for research purposes (KPMG *et al.*, 2010:23).

The findings also revealed that a majority of readers (90%) trusted the sustainability reports, and did not consider it to be “green-wash” (KPMG *et al.*, 2010:17). However, only 10% of the readers believed that the sustainability reports provided a complete picture (KPMG *et al.*, 2010:17). This finding concurred with the earlier findings of KPMG and SustainAbility (2008), an indication of a lack of improvement in the period between the two studies (2008 and 2010).

However, KPMG *et al.*'s., (2010) study, like all the studies conducted by advisory firms, was conducted by organisations with vested interest in sustainability consultancy and assurance services. As such it can be perceived as a mere marketing tool for those services that lacks academic impartiality. In addition, the respondents were mostly from Latin America and Asia. Accordingly the findings of the survey may not be representative of the views of African readers of sustainability reports. Furthermore, the report failed to provide a thorough insight into the unique needs of the different stakeholder groups, the extent to which they read the reports, the types of decisions that would be made by different reader groups, their level of satisfaction and ranking of relative importance of sustainability reports.

In an attempt to further obtain an in-depth insight into the unique needs of various reader groups, the European Commission (2011b) explored the needs and expectations of various European readers of sustainability reports using 24 in-depth telephonic interviews and five workshop discussions. To this end, the readers were categorised into three main groups, namely; investors

and analysts, civil society (NGOs and charity organisations, media and journalists, consumers, affected communities), and trade unions (employees). The European Commission (2011b:104) found that the reader groups agreed to a large extent on what a good quality report should look like. However, they differed to a lesser extent as each group expressed its preferences according to its interests, relationship with the reporting company, and the purpose for which it intended to use the report (European Commission 2011b:89).

Specifically, the investors and analysts required relevant, reliable, comparable, understandable, and verifiable information linked to financial performance, risks and company strategy (European Commission, 2011b:92; 93). Accordingly, they preferred certified facts and figures presented in concise tables using a standardised set of parameters, as opposed to narrative statements of good intent (European Commission, 2011b:92). In addition, they preferred mandatory sustainability KPIs geared towards investment decisions that are aligned to financial reports (European Commission, 2011b:93). Moreover, they wanted the KPIs to be reported in the annual reports and be subjected to an appropriate level of mandatory assurance (European Commission, 2011b:93). Accordingly, they called for the integration of sustainability reports into financial reports to place sustainability information at the same level as financial information. These findings were consistent with those of BiE (1994) and, Campbell and Slack (2008), but contradicted those of Solomon and Solomon (2006).

The civil society reader groups, on the other hand, prioritised balanced and detailed sustainability reports of companies' impacts, that provide a comprehensive and systematic analysis, and that use standardised KPIs to ensure comparability of company reports to those of their peers (European Commission, 2011b:94). In addition, they preferred timely, transparent, reports that are tailored to cater for the diversified needs of different stakeholder groups. The civil society reader groups also advocated for mandatory reporting and assurance requirement for companies' own impacts and those of their entire supply chain (European Commission, 2011b:98). And that such assurance be provided by an independent external expert, with additional verification via public multi-stakeholder processes. Like the analysts, the civil society reader groups also championed for the integration of sustainability information into the annual reports and expected the information to be accorded the same status as financial information (European Commission, 2011b:98).

Within the ambit of the civil society, various reader groups had their own unique needs depending

on their relationship with the reporting entities (European Commission, 2011b:93). The media preferred continuously updated sustainability news on the web, a candid disclosure of tough or bad news, an explanation linking sustainability issues to a company's strategy, financial performance, risk and new technologies (European Commission, 2011b:95). On the other hand, the NGOs preferred information relevant to their own specific mission (European Commission, 2011b:95). By contrast, the consumers preferred product related information, to inform their choices of products and were accordingly interested in clear information on products' sustainability performance such as that contained on labels of product containers (European Commission, 2011b:97). Yet the affected communities preferred adequate, detailed, forward-looking, location-specific reports on the actual impacts and pollution produced, presented in the right way, in an appropriate language and in a timely manner (European Commission, 2011b:97). But the trade unions and employees needed relevant disclosures on worker related issues reported in an adequate, reliable, consistent, comparable and complete manner (European Commission, 2011b:100). In addition, they expected the sustainability information to be anticipatory, verified, and disaggregated on a country-by-country basis for multi-nationals, and that they be allocated a greater role in the reporting process (European Commission, 2011b:101).

The European Commission (2011b:91) further found that investors and analysts hardly read or used the reports to inform their investment or divestment decisions as they preferred to read questionnaires from analysts valuation models, which concurred with the findings of some earlier studies (BiE 1994; Deegan & Rankin, 2004; Campbell & Slack, 2008), but contrasted with the findings of Solomon and Solomon (2006). In line with prior studies (Tilt 1994; Taib, 2005; O'Dwyer *et al.*, 2004), the European Commission (2011b:94) also found that the civil society groups used the sustainability information when deciding whether to enter into partnerships with the reporting entities or whether to confront companies with a poor sustainability performance. Not only did they read the reports extensively, they also adopted a proactive approach by actively participating in co-writing of sustainability reports with the reporting entities (European Commission, 2011:102).

As expected, the media sought and read specific sustainability news which it used to inform the members of the public and to hold companies accountable for their performance (European Commission, 2011:89). Accordingly it employed the information when deciding which company to name and shame (European Commission, 2011b:95). By contrast, the consumers used the

sustainability information conveniently availed on container labels, when deciding which product to purchase (European Commission, 2011b:97). On the other hand, the affected communities employed information on impacts and pollution contained in sustainability reports to make decisions on whether to take action against companies perceived to have polluted the local environment, either directly or by partnering with the NGOs to confront such companies (European Commission, 2011b:97).

The employees and trade unions read sustainability reports to a very limited extent (European Commission, 2011b:99). For those that did, the information was used to inform decisions such as whether to pressurise companies to take a greater account of sustainability factors (European Commission, 2011b:99). The lack of interest in sustainability information by this group was partly attributed to the fact that it was directly related to the reporting entities and had a direct access to sustainability information, and thus did not need the publicly available sustainability reports (European Commission, 2011b:99). Equally, the readers in the group had focused on basic issues such as remuneration and working conditions, but not on wider issues such as the environmental issues (European Commission, 2011b:99). Besides, many respondents in this group lacked experience and training to deal with sustainability issues (European Commission, 2011b:99).

The European Commission's (2011b:91) study further revealed that the investors and analysts were dissatisfied with the quality of the reports which they perceived to be irrelevant, given that they contained backward looking information, whereas they required forward-looking information. In addition, they were mostly in the form of narrative statements of good intent, whereas these readers required numbers and figures (European Commission, 2011b:91). This finding concurred with some earlier studies (BiE 1994; Deegan & Rankin 2004; Campbell & Slack 2008), but it contrasted with the findings of Solomon and Solomon (2006).

Similarly, the civil society reader groups were in general dissatisfied with the sustainability reports, which they also perceived as increasingly irrelevant to their needs (European Commission, 2011b:94). In particular, the reports were perceived to focus more on positive news and topics that are easy to cover, with little detail on contentious issues (European Commission, 2011b:94). In addition, the reports dealt with isolated issues, whereas the readers preferred a comprehensive systematic analysis. The reports also lacked standardised KPIs which rendered them incomparable, were too untimely to be useful in addressing specific problems, and were

mistrusted, given that “green-wash” was perceived to be rife and on the rise (European Commission, 2011b:94).

In particular the NGOs mistrusted the sustainability reports as they perceived the reports to be irrelevant, self-advocacy tools that lacked complete information, particularly the negative information (European Commission, 2011b:95). Equally, the media perceived the reports as lacking in information on sensitive negative issues as well as an explanation on the link between sustainability issues, business strategy and financial performance (European Commission, 2011b:95). On the other hand, the consumers were dissatisfied with the sustainability reports which they perceived to contain lengthy raw sustainability data, whereas they required conveniently framed and precise sustainability information to allow quick decision-making (European Commission, 2011b:97). Where such information was available on products' containers, it was unclear or lacked key information. For the affected community groups, the annual sustainability reports did not often reach them in the right way, at the right time and language, and typically lacked adequate location-specific information to enable them to take an appropriate action (European Commission, 2011b:97).

The trade unions and employees found the sustainability reports to vary widely in terms of availability, quality and relevance between and within sectors and countries (European Commission, 2011b:100). Accordingly, they perceived the reports to be irrelevant. Specifically, the reports were perceived to contain more disclosures about policies and objectives than on how those policies were actually implemented (European Commission, 2011b:100). Similarly, the reports were perceived to provide more information on governance than on social and environmental issues, and employed targets and KPIs that were often not relevant to business strategies (European Commission, 2011b:100). Most importantly, the reports were perceived as unreliable and incomplete especially regarding sensitive contentious issues (European Commission, 2011b:100).

The main drawback of the European Commission's (2011b) study is that its findings cannot be generalised given the *ad hoc* small sample it employed. Furthermore, the study did not elicit the perceptions of the various reader groups with regard to relative importance of sustainability reports to decision making when compared to other types of reports. Besides, the study was based on the views of European readers, and as such may not be applicable in the context of a

developing country such as South Africa.

In a similar study, Mitchell and Hill (2010) investigated the expectations of a variety of South African stakeholder groups with regard to Corporate Social Responsibility (CSR) disclosure, and whether those expectations had been met. To this end they surveyed 121 representatives of key stakeholder groups using questionnaires, and a further eight using interviews. Mitchell and Hill (2010:49) found that all stakeholders universally believed that the CSR disclosures should be included in the annual reports, be prepared to the same standard as the financial disclosures and be externally verified.

However, Mitchell and Hill (2010:51) also noted some differences in preferences among different stakeholder groups. In particular, trade unions felt strongly about the need for external verification, whereas financial analysts were less enthusiastic about the same (Mitchell & Hill, 2010:68). Similarly, trade unions and environmental groups considered CSR disclosures to be more important than did bankers, accountants and financial analysts (Mitchell & Hill, 2010:65). Although all stakeholder groups generally wanted the CSR reports to be tailored to their needs, the trade unions felt more strongly about this than the others (Mitchell & Hill, 2010:68). Likewise, most groups considered reporting of impacts such as environmental pollution to be important, or very important, but the environmental groups considered reporting on such impacts to be extremely important (Mitchell & Hill, 2010:65).

Mitchell and Hill (2010:49) further found that the stakeholder groups were generally dissatisfied with the CSR disclosures as issues perceived to be important, such as impact on the society, employees, consumers, the biotic and environment were inadequately reported on. To the groups, key issues were either poorly reported on or omitted from the reports all together (Mitchell & Hill, 2010:65; 66). Probed further, the groups provided varying reasons for inadequate disclosure (Mitchell & Hill 2010:69). Environmental groups felt that companies considered the CSR information to be too sensitive to release, whereas trade unions attributed the inadequacy to a lack of legislation to compel companies to disclose the information (Mitchell & Hill, 2010:69). Chartered accountants and financial analysts thought that the costs of CSR disclosure exceeded the benefits, but the bankers opined that the CSR data was just not available (Mitchell & Hill, 2010:69). However, Mitchell and Hill's (2010) study was conducted prior to the King III Report taking effect, thus its findings may not be valid at present. In addition, the study did not ask the

readers the extent to which they read the CSR reports, whether they employed the reports to inform their decisions, and how they perceived the relative importance of the CSR reports when compared to other types of reports.

4.3.5 Gaps in prior literature on users perception of decision-usefulness of environmental reports

The following research gaps have been identified from the review of the prior literature in this section.

- Most studies elicited the views of respondents from other countries, particularly the developed countries. Only a few studies elicited the perception of South African respondents. Between 1998 and 2010 no survey of South African users could be traced.
- None of the reviewed prior studies employed a theory to describe, evaluate, or even prescribe decision-useful environmental reporting practices. Therefore the reviewed studies lack richness and depth, which could explain their lack of substantive conclusions.
- The most comprehensive of the prior studies were conducted by organisations with vested interests in environmental reporting as a marketing tool for environmental consultancy and assurance services – such studies lacked academic impartiality.
- Many studies were undertaken more than ten years ago, thus their findings are dated and may not be valid in the current times.
- Some of the studies only surveyed the views of a single user group, some of who have vested interest in answering questions in a particular way to support their pre-existing prejudices. Accordingly, such studies failed to provide balanced views of different stakeholder groups. On the other hand, those that surveyed the views of multiple users typically presented those views in general, and thus failed to provide specific views of each reader group.
- Some studies did not elicit the views of actual readers of environmental and related reports, instead they relied on the views of proxies such as students, which may not reflect the views of actual readers of those reports.
- Other studies only elicited users' perceptions on limited aspects of sustainability and environmental reports like the assurance of the reports. For those that focused on assurance, they did not elicit users' perceptions on key aspects of assurance such as materiality, scope and completeness of the assurance engagement.
- All the South African studies were conducted prior to the King III Report taking effect, thus

their findings may not be valid in the post King III Report era.

- Many studies employed small sample sizes which limited the generalisability of their findings to their entire population of users or led to inconclusive results.
- Only a few studies focused on the preferences and decision behaviour of users of environmental reports, instead most covered a wide-range of issues contained in sustainability reports. For those that focused on environmental reports, they were often restricted to a specific target group, typically the environmental groups.

A more recent study is therefore required to address the afore-mentioned gaps, particularly in the context of South Africa where there is a dearth of research on environmental report users' perceptions. This study will address the identified gaps by exploring South African users' perceived needs, usage, satisfaction and relative ranking of environmental reports.

4.4 STUDIES ON THE EXPECTATION GAP BETWEEN PREPARERS AND USERS OF ENVIRONMENTAL REPORTS

An expectation gap occurs when there is a difference in expectations between a group with expertise on a particular subject (preparers) and a group which relies upon that expertise (users) (Deegan and Rankin, 1999:315). This section reviews the prior literature that attempted to determine whether there was a difference between the expectations of users and preparers in relation to environmental reports. Such a review is necessitated by the dissatisfaction of users with the environmental reports as found in section 4.3.

4.4.1 International studies

A few studies have been conducted to determine whether there is an expectation gap between users and preparers of environmental reports. One such study was conducted by Deegan and Rankin (1999), who investigated whether there was an expectation gap in the perceived decision-usefulness of environmental information contained in annual reports of Australian companies. Using a questionnaire survey, they compared the perceptions of 116 preparers (business executives) to those of 118 users (shareholders, brokers and analysts, accounting academics, representatives of financial institutions and review organisations) of annual reports. Deegan and Rankin (1999:313) found significant differences in perceptions between users and preparers on

various environmental issues.

In particular, a majority of users (67.8%) sought the environmental information in the annual reports, whereas only 24.1% of the preparers disclosed this information in their annual reports, and fewer had plans of doing so in the future (Deegan & Rankin, 1999:329). Similarly, the preparers preferred scattering the information in various sections of the annual reports whereas the users preferred that such information be confined to a separate section of the annual reports (Deegan & Rankin, 1999:331). The study further revealed that the users perceived the environmental reports to be significantly more important to them than the preparers did (Deegan & Rankin, 1999:336). Similarly, users preferred that guidelines on disclosure of environmental information be provided by accounting professional bodies and governments, whereas the preparers were either neutral or did not want any guidelines to be provided (Deegan & Rankin, 1999:337).

An expectation gap was also apparent on the perceived influence of investors and lobby groups as well as on the importance of due diligence requirements (Deegan & Rankin, 1999:340). Whilst the preparers perceived investors to have a greater degree of influence on the environmental disclosure policies of entities, the user groups did not (Deegan & Rankin, 1999:340). Similarly, the preparers perceived the lobby groups to have lesser influence than perceived by the user groups. Likewise, the preparers perceived due diligence requirements to be more important than the users did (Deegan & Rankin, 1999:340). Deegan and Rankin (1999:336) also found some differences in perceptions within the preparer and user groups. With regard to whether environmental disclosure in the annual report should be voluntary or regulated, most preparers, except those from the mining sector, were neutral in this regard, whereas most users except brokers and analysts, were in favour of some form of regulation (Deegan & Rankin, 1999:337). In other words, the preparers from the mining sector supported the regulation of environmental disclosures in the annual reports, whereas the brokers and analysts were neutral on this issue. The researchers concluded therefore that there was an expectation gap between the preparer and the user groups, hence the need for improved environmental reporting in Australia (Deegan & Rankin, 1999:341).

Although enlightening, Deegan and Rankin's (1999) study was conducted more than 12 years ago, at a time when the quality of environmental disclosures was fairly low. For this reason, the

findings of the study may not be applicable in the current times. Furthermore, the study did not investigate whether there was an expectation gap with regard to the perceived attributes of a decision-useful environmental report. Besides the study was conducted in Australia, therefore the views of the respondents may not reflect those of users and preparers in the context of a developing country such as South Africa.

4.4.2 South African studies

In a South African study, Myburgh (2001) compared the perceptions of 129 preparers (financial directors or chief accounting officers) of annual reports and interim reports to those of 102 users (stockbrokers, shareholders, accounting academics, accounting conference delegates, members of professional accounting bodies, individual investors) of those reports. To determine if there were significant differences between the perceptions of the two, Myburgh (2001) required the respondents to rank 49 voluntary disclosure items, in terms of perceived importance, based on the effect of those disclosures on the market price of a company's shares. Myburgh (2001:211) found significant differences between the perceptions of preparers and those of users. In order of importance, the users ranked the environmental disclosures at 41.5 out of 49 items, whereas the preparers ranked the same at 48 out of 49 items (Myburgh, 2001:211). Thus, the users perceived the environmental disclosures to be relatively more important than the preparers did. Therefore there was evidence of existence of an expectation gap between the preparer and the user groups, with regard to the importance of environmental information hence the need for improved environmental reporting in South Africa (Myburgh, 2001:213).

Among the drawbacks of Myburgh's (2001) study was the fact that it was conducted more than 11 years ago, before King II and King III Reports took effect, thus its findings may not be valid presently. Additionally, the study failed to provide an in-depth comparison of the perceptions of preparers and users, on the decision-usefulness of environmental reports but rather compared their perceptions on the importance of 49 voluntary disclosures in the annual reports. Besides, the perceived importance was based on the effect of the information on the share price of a company, thus effectively excluding the non-financial stakeholders who are generally not interested in share-price information.

In another South African questionnaire survey, Mitchell and Quin (2005) compared the

expectations of preparers (company employees and environmental consultants) and users (environmental pressure groups) of environmental reports, with regard to the perceived importance of environmental reports, important areas that should be reported on and the expected levels of disclosure. Mitchell and Quin's (2005:17) study found significant differences between the expectations of users and preparers.

Predictably, the users expected higher levels of disclosure than the preparers in general (Mitchell & Quin's, 2005:26). Similarly, significant differences were found between the perceptions of users and preparers with regard to the importance of specific areas of environmental disclosure (Mitchell & Quin's, 2005:28). In this regard, some preparers (company representatives) rated many disclosures to be of lesser importance than the users (pressure groups). Such disclosures included information on recycling, energy efficiency, emergency management, research, effluent, noise, by-products, energy sources, raw materials, life cycle analysis, awards and media coverage (Mitchell & Quin's, 2005:27). Similarly, other preparers (environmental consultants) considered air emissions to be more important than did some users (pressure groups) (Mitchell & Quin's, 2005:28). By contrast, some users (pressure groups) considered disclosures on packaging, contributions and membership to be more important than both preparers, perhaps due to the fact that the latter two aspects represented significant sources of funding and support base for them (pressure groups) (Mitchell & Quin's, 2005:28).

The users and preparers also disagreed significantly on whether stakeholders' should access environmental reports, and on whether such reports should be included in the companies' annual reports (Mitchell & Quin's, 2005:25). Specifically, some preparers (the environmental consultants) felt more strongly that stakeholders should have more access to environmental reports, which should be included in annual reports, than the users. All told, there was evidence of the existence of an expectation gap between preparer and user groups, hence the need for improved environmental reporting in South Africa (Mitchell & Quin's, 2005:31). Although Mitchell and Quin's (2005) study was unique in the South African context, it only surveyed the views of one category of users (environmental pressure groups), who are known to provide prejudiced answers to further their own ulterior objectives. In addition, the study is outdated as it was conducted more than seven years ago. Besides, the study did not investigate whether there was an expectation gap with regard to the perceived attributes of a decision-useful environmental report.

4.4.3 Gaps in prior literature on the expectation gap between preparers and users of environmental reports

From the review of the prior literature in this section, the following gaps have been identified:

- Only a few studies examined the existence of an expectation gap between preparers and users of environmental reports, globally and even in South Africa.
- The three studies were conducted at least seven years ago. Given the dynamic nature of environmental reporting, the findings of these studies may not be applicable at present. The South African studies were conducted before King III Report took effect, thus their findings may not be valid, as the report is expected to change the reporting landscape.
- None of the studies addressed the expectations of preparers and users with regard to the decision-usefulness of environmental disclosures, but rather compared their views on wide-ranging issues of disclosures in the annual reports.
- One of the studies compared the perceptions of preparers' and users' on the effect of information on the share price of a company, thus it effectively excluded non-financial stakeholders. Yet another compared the expectations of preparers to those of environmental pressure groups known to provide prejudiced answers to further their own ulterior objectives. Thus, it failed to compare preparers' expectations to all-rounded expectations of a variety of users.

The cited gaps suggest a need for a more recent study, such as this one, to compare and contrast the expectations of preparers to those of users with regard to decision-usefulness of environmental reports in the South African context, with a view to confirm if indeed an expectation gap exists. If the gap is found to exist, this study will suggest an appropriate intervention to reduce it, which should in turn increase the decision-usefulness of environmental reports.

4.5 RESEARCH QUESTIONS

Considering the gaps in prior studies, the following questions have remained unanswered:

- Do the stakeholders of South African companies find the environmental reports prepared by the companies to be decision-useful?

- What is the nature and type of the current environmental reporting practices by South African companies? Do the South African environmental reports have decision-useful attributes?
- What are the information needs of users of environmental reports produced by South African companies?
- To what extent do the users read the environmental reports and employ the environmental reports when making decisions?
- To what extent are the users of environmental reports satisfied with the decision-usefulness of the reports?
- How do users rank environmental information relative to other types of information such as financial and social responsibility information?
- Is there an expectation gap between preparers and users of environmental reports with regard to the need for, and the decision-usefulness of the reports?

4.6 CHAPTER SUMMARY AND CONCLUSION

This chapter sought to describe and summarise the prior literature on decision-usefulness of sustainability reports in general and environmental reports in particular. The key content analysis studies that evaluated the decision-usefulness of environmental reports were discussed followed by those conducted to determine the environmental information needs of users and whether or not they read and employed the information to inform their decisions. The chapter then reviewed the studies meant to ascertain the level of satisfaction of users with the decision-usefulness of the environmental reports, followed by those meant to determine the relative importance of environmental information to that of other types of information. Next, the chapter reviewed studies meant to ascertain whether there was an expectation gap between preparers and users of environmental reports. In doing so, gaps in the prior literature were highlighted.

The content analysis studies, revealed that the quality of sustainability disclosures in general, and environmental disclosures in particular were questionable, as most disclosures were irrelevant, unreliable, incomparable, untimely, incomprehensible, and unverifiable. Nevertheless, the industries with a higher impact on the environment appeared to have a better quality of disclosures than those with a lower impact, and the volume of those disclosures appeared to have increased over time.

The review of studies on users' needs revealed the attributes of environmental (sustainability) information that the users preferred namely; relevance, reliability, understandability, comparability, verifiability and timeliness. Nevertheless there were some differences as some preferences seemed to vary from one reader group to another, based on a group's unique needs and the country in which the group is located.

With regard to the extent to which the users read and employed the information to inform their decisions, the literature review revealed that various user groups read and employed environmental information to inform various decisions such as whether to take action against companies that did not disclose environmental information, whether to partner with companies that reported satisfactorily, and whether or not to buy products or seek employment in a company. The prior literature also revealed different patterns of usage of environmental reports in different countries. However, some stakeholders notably the investors, stockbrokers and analysts employed environmental information to a very limited extent as they perceived it to be immaterial to their decisions.

With regard to the level of satisfaction of users with the decision-usefulness of the environmental reports, all studies indicated some level of dissatisfaction, albeit not to the same extent. Some studies, particularly the early ones found that the users were generally dissatisfied with the environmental disclosures which they perceived to be unreliable, irrelevant, untimely, incomparable, unclear, unverifiable, incomplete and insufficient. Other studies revealed that some media of disclosure were deemed more reliable than others, and that some were more understandable than others. Yet other studies revealed that environmental information was viewed by users as insufficient even when deemed relevant. By contrast, a few studies, particularly the more recent ones, found the reports to be satisfactory to some users and not others.

With respect to the perceived relative importance of environmental information, most studies indicated that users perceived financial disclosures to be the most important items in the annual reports and that environmental and social information were among the least important items, with all the other items falling in between. However, for those other items, their perceived importance seemed to vary from one reader group to another.

Some studies found significant differences between the expectations of users and preparers in

relation to various issues related to environmental reporting such as disclosure levels, reasons for and importance of topics disclosed, the medium of disclosure, frequency, location and regulation of disclosures. By contrast, some studies revealed some convergence in the views of the users and some preparers on certain issues.

This chapter also identified gaps in prior literature ranging from relatively limited research on the users of environmental reports of companies operating within the developing countries, to failure of the prior studies in acknowledging the emergence of alternative media of reporting, apart from the annual reports. In addition, none of the studies applied any theoretical perspectives to describe or evaluate current environmental reporting practices, or even prescribe future decision-useful environmental reporting practices of companies operating in developing countries. Furthermore, most studies lacked academic impartiality given that the researchers employed them as marketing tools for their services, and were undertaken in a short period, are out-dated and employed *ad hoc* samples which do not allow for generalisability of the research findings.

Most studies also covered a wide-range of sustainability issues besides the decision-usefulness of environmental reports. By contrast, some studies only surveyed the views of a single user group, and thus failed to provide balanced views of all key reader groups. Yet even those that surveyed the views of multiple user groups did not provide the views of each reader group but instead addressed the aggregated views of all reader groups surveyed. Worse still, some studies did not elicit the views of actual readers about sustainability, or environmental reports, instead they relied on the views of proxies, which could differ with those of the actual users. Besides, most studies focused on limited aspects of sustainability or environmental reports, and produced inconsistent results.

Given the above-mentioned gaps in the prior studies, the studies have raised as many questions as they have answered. Accordingly there are many unresolved issues on the decision-usefulness of environmental reports, over which the empirical evidence is either inconclusive or contradictory. Based on the studies performed since 1990 to 2012, the final conclusion regarding the decision-usefulness of environmental reports produced by South African companies still seems evasive.

The following chapter discusses the research methods employed to achieve the objectives of this thesis. Chapter 5 discusses the content analysis method and the questionnaire survey method.

CHAPTER 5

RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

The purpose of this chapter is to outline the research methods employed in this study to address the following research objectives:

- To evaluate the decision-usefulness of the current environmental reporting practices by South African companies
- to determine the informational needs of users of environmental reports produced by South African companies
- to determine the extent to which users read the environmental reports and whether they employ the environmental reports when making decisions
- to determine the degree of satisfaction of users with regard to the decision-usefulness of the environmental reports and suggest ways of improving those reports
- to investigate how users rank environmental information, relative to other types of information such as financial and social responsibility information
- to ascertain whether there is an expectation gap between preparers of environmental reports and users of those reports with regard to the decisions-usefulness of the reports

To address the research objectives, two methods were found to be appropriate and relevant, and thus, were made use of; content analysis and questionnaire survey methods. Accordingly, this study was conducted in two phases. The first phase, a content analysis study aimed at addressing the first research objective is discussed in section 5.2. The second phase was a questionnaire survey aimed at achieving the second, third, fourth, fifth and sixth objective, and is discussed in section 5.3. Lastly, the chapter summary and conclusion is presented in section 5.4.

5.2 CONTENT ANALYSIS

5.2.1 Definition of content analysis technique

Content analysis has been defined in various ways. It has been defined as “any technique for making inferences by objectively and systematically identifying specified characteristics of messages” (Holsti 1969:14). It has also been defined as “coding words or other units of text against a particular schema of interest, thus reducing the text to more structured and concise units of information, so that inferences can be drawn from the text or its source” (Wolfe, 1991:282).

Additionally, Abbot and Monsen (1979:504) say it is “a technique for gathering data that consists of codifying qualitative information, in anecdotal and literary form, into categories in order to derive quantitative scales of varying levels of complexity”. Krippendorff (1980:21) defined it as “a research technique for making replicable and valid inferences from data to their context”. It has also been described as a study that analyses the content of texts or documents, such as letters, speeches and annual reports, and that such an analysis is not restricted to texts, but can be extended to pictures, symbols, themes or any message that can be communicated (Mouton, 2005:165). In short, content analysis technique is essentially an analytical tool used to investigate the content of communication (Hibbit, 2004:306).

5.2.2 Justification for the selection of content analysis technique

The first research objective, meant to evaluate the decision-usefulness of environmental reports produced by South African companies required that the reports be analysed to determine their relevance, reliability, comparability, understandability, timeliness and verifiability. Accordingly, content analysis was deemed to be most appropriate as it has been widely and successfully used in prior studies with a similar objective (Cowan, 2007:109; De Villiers & Lubbe, 2001:81; De Villiers & Van Staden, 2006:763; Jose & Lee, 2006:311; O’Donovan, 2002:346).

Content analysis as a methodology was also selected because of its various advantages. First, it is a non-reactive or unobtrusive technique as neither the reporting entity nor the intended reader of the reports is aware that the reports will be analysed (Wolfe, 1991:282). Instead, the reporting entity will act “naturally”, which leaves the researcher with documents to analyse. As a non-reactive research technique, content analysis avoids the effects of non-response, interviewer and

social desirability bias that may occur when using questionnaires or conducting interviews (Macnamara, 2005:06).

Secondly, content analysis technique, unlike questionnaires, structured and semi-structured interviews, accepts unstructured data in a variety of forms, which is useful where the information sought by the researcher may exist in a variety of forms, particularly when reported in a variety of media (Krippendorff, 1980; Wolfe, 1991:282). Besides, by accepting unstructured data in a variety of forms, content analysis facilitates comparison of a variety of disclosure of environmental information across different media such as IARs, SSRs and companies websites (Neuman, 1997:272).

Thirdly, the technique is highly flexible and allows a researcher to use it to varying degrees: from simply identifying the presence or absence of the mention of a particular phenomenon in a communication medium, to determining the decision-usefulness of such communication, to assessing general compliance to guidelines such as the GRI guidelines (Wolfe, 1991:282). Fourthly, by using content analysis technique, large quantities of data can be analysed across a variety of media. This is because if the technique is properly applied, it has inbuilt replicability – more than one person can be used to analyse documents (Krippendorff, 1980:21).

5.2.3 Research population and sample

The population for the content analysis study comprised all operating large-cap (Top 40) and mid-cap (Top 41-100) companies listed on the JSE (See Appendix I). The large-cap companies are defined as the Top-40 listed companies on the JSE as measured by market capitalisation, whereas the mid-cap companies refer to the next Top-60 companies as measured by market capitalisation (Greyvenstein, 2010:43). These companies jointly form the top 100 listed companies on the JSE by market capitalisation (Sharenet, 2013:01). An important justification for choosing these companies is that they cover a broad range of business activities and account for a large percentage of all of the South African economic output (Greyvenstein, 2010:35). In fact, the top 100 JSE listed companies represent over 95% of the entire JSE market capitalisation (Greyvenstein, 2010:35).

The top 100 JSE listed operating companies were selected because of their significant

environmental impact in the areas in which they operate, given their large sizes and presence in many provinces of South Africa (Jose & Lee, 2006:311). In addition, their IARs, SSRs and company websites were more readily available than those of other forms of businesses.

The sample selected consisted of the top 100 operating JSE listed companies based on market capitalisation as obtained on Sharenet on 1st January 2013. The sample excluded four investment companies as these entities only held equity in others and have minimal environmental impact of their own. The sample also excluded four listed subsidiaries of operating parent companies where the parent companies were also listed and had reported on environmental performance on behalf of the subsidiaries. In addition, 21 listed securities were excluded from the sample as these were not physical companies with an environmental impact. Furthermore, the sample excluded three companies with no operations in South Africa as their activities do not have a direct impact on the country's environment. Two companies which were listed in the JSE top 100 under two different names (namely Mondi Ltd and Mondi PLC, and Investec Ltd and Investec PLC) were only included in the sample once. Based on the above criteria, only 66 companies comprised the final sample (See Table 5.1).

TABLE 5.1: SELECTION CRITERIA OF SAMPLED COMPANIES

Total number of top 100 companies listed on the JSE	100
Less investment companies	(4)
Less listed subsidiaries of operating parent companies which reported on environmental performance on behalf of the subsidiaries	(4)
Listed securities	(21)
Companies with no operations in South Africa	(3)
Companies appearing twice on the top 100	(2)
Total number of companies included in the sample	66

A sample size of 66 companies (66% of the JSE top 100 listed companies) was drawn, representing diverse sectors, from the environmentally sensitive and non-environmentally sensitive sectors. The diverse sectors included: mining and resources; industrial and construction; financial; retail and consumer services; information technology and communications; and real

estate (See Appendix J). Such an inclusion of sectors with varying degrees of environmental sensitivity in the sample could permit an exploration of the impact of environmental sensitivity of companies, if any, on the quality of environmental disclosures.

5.2.4 Framework for data collection

Before conducting any content analysis research, some questions need to be addressed, these include where to analyse? (Determining the communication channels to be analysed also referred to as the sampling units), what to analyse? (Defining the environmental disclosure, including any categories to be included in a control list (checklist); and how to analyse? (Hanafi, 2006:162) – (Codifying the data and calculating scores using a disclosure index). The following section addresses each of these questions in detail.

5.2.4.1 Where? IARs, SSRs and companies' websites

The first decision that needs to be taken in a content analysis study is the choice of the communication channel (sampling units) to be analysed (Hanafi, 2006:162; Krippendorff, 1980:57). Whereas it is acknowledged that South African companies, frequently disclose their environmental information through many channels (IARs, SSRs, company websites, brochures, product packaging and labelling, advertisements and so on), it is practically impossible to identify, let alone analyse the content of all communication channels (Hibbit, 2004:311). Faced with this dilemma, the majority of researchers have elected a pragmatic approach of limiting the communication channels that they analysed in their studies (Cowan, 2007; CPA Australia & GRI, 2013; Ernst & Young, & Greenbiz, 2013; Furmann *et al.*, 2013; Kamal, 2012; KPMG, 2013).

Although several environmental information disclosure channels may be available, a limit must be put on the range of documents to be examined in any particular study (Hibbit, 2004:311). An attempt to analyse the content of all environmental disclosure channels available is bound to be pragmatically, financially and technically infeasible (Hanafi, 2006:166). Besides, any researcher who makes such an attempt is more likely to be overwhelmed by the sheer number of documents to be analysed and still will not be able to analyse all environmental disclosures of a company (Unerman, 2000).

Nevertheless, the sampling units selected should at least cover the bulk of environmental

disclosures, and the selection of the appropriate sampling unit should ultimately depend on the research objectives, the environmental issues analysed as well as the population to which inferences are to be made (Hibbit, 2004:312). Accordingly, the channels selected for this study are the IARs, SSRs and companies' corporate websites. The justifications for the selection of these channels are provided in the subsection that follows.

5.2.4.1.1 Justification for IARs (annual reports)

Various justifications have been put forward in the prior literature for selection of annual reports as sampling units in content analysis studies. Firstly, annual reports are widely regarded as the single most important and popular source of information on a company's activities, which any general enquirer would tend to consult first (Hanafi, 2006:164; Hibbit, 2004:312; Milne & Alder, 1999). Secondly, annual reports are seen as a particularly effective legitimating medium by virtue of their widespread use, acceptance and recognition by a variety of stakeholders, who rely on them to inform their decisions (Bay & Petit, 1998; Deegan & Rankin, 1997; O'Dwyer, 2000). For this reason, companies employ annual reports for construction of their own social imagery and exert intellectual commitment, effort and care (Neimark, 1992; Hines, 1988). So much so that the reports reflect companies' best effort to respond to their stakeholders, which does not only influence how they are perceived but also indicates their attitudes towards societal concerns (Halme & Huse, 1997).

Thirdly, the environmental priorities of the society tend to be in conflict with the financial ambitions of companies (Gray, Kouhy & Lavers, 1995). Therefore the presentation, within the same document, of environmental information alongside the financial information is an important demonstration of how companies reconcile possible conflict between their financial objectives and environmental priorities of the society, and presents an arguably all rounded performance of a company (Gray *et al.*, 1995; Hackston & Milne, 1996).

Fourthly, company annual reports have been analysed extensively in the majority of the prior studies, therefore, the selection of the annual reports facilitates a comparison of the findings of this study to those of prior studies (Deegan & Gordon, 1996; Deegan & Rankin, 1996; Gamble, Hsu, Kite & Radtke, 1995; Harte & Owen, 1991; Niskala & Pretes, 1995). Fifthly, annual reports are regarded as highly credible given that they are a formal or official statutory requirement with sections that are audited mandatorily, readily available and widely accessible as they are regularly

produced on an annual basis (Tilt, 1994; Unerman, 2000; Wilmshurst & Frost, 2000;). Accordingly, they are perceived as a reliable source of information by many stakeholder groups (Buhr, 1998; Deegan & Rankin, 1997). For these reasons, the contents of IARs were analysed in this study.

Although annual reports are an important medium of disseminating environmental information, a content analysis study that entirely focuses on annual reports risks underestimating the volume and quality of environmental information reported by companies, which makes such an analysis incomplete (Robert, 1991). This is because annual reports are constrained in terms of space, and have a variety of divergent reports that need to be included (Unerman, 2000:674). By contrast, an analysis of environmental information disclosed in different media recognises the complimentary roles of varied media, and presents a more complete picture of the reporting practice (Clarkson, Li, Richardson & Vasvari, 2008; De Villiers & Van Staden, 2011). Indeed, some researchers have observed that companies were using different media for different types of environmental information, as the annual reports were no longer perceived to be the most appropriate medium for the provision of all environmental information (Tilt, 2008). Therefore, studies that focus exclusively on annual reports may not produce complete results (Hibbit, 2004:313; O'Dwyer 2000; Lindblom, 1994).

Consequently, a number of more recent environmental content analysis studies have increasingly employed other media in addition to annual reports as sampling units (Alin, Victor & Dumitru, 2011; Bolivar, 2009; Hibbit, 2004). Quite frequently, the SSRs have been employed (Laine, 2005; Jones 2006; Bebbington & Larrinaga, 2007), as well as the environmental disclosures on companies' websites (Lodhia 2006; Chatterjee & Mir 2008; Bolivar, 2009).

5.2.4.1.2 Justification for SSRs

The growing tendency by companies to supplement environmental reports in the annual reports with other media, such as SSRs, are an indication that annual reports are no longer a sufficient medium for disseminating the environmental reports (KPMG, 2005; 2008:Lodhia, 2006; Bebbington & Gray, 2001). Indeed, some researchers have noted that SSRs by their very nature are more comprehensive and informative in their disclosure of environmental information than annual reports (Frost, Jones, Loftus & Van der Laan, 2005), and that some groups of users rely more on SSRs than on annual reports in evaluating companies' environmental performance

(Danatas & Gadenne, 2006 ; O'Dwyer, Unerman & Hession, 2005). For these reasons, the current study also analysed the SSRs.

5.2.4.1.3 Justification of companies' corporate websites

The recent decade has witnessed an unprecedented growth of Internet usage, with a corresponding growth in disclosure of environmental information on company websites (Emtairah, 2002:12; Bebbington & Gray, 2001; Patten & Crampton, 2004; Chatterjee & Mir, 2008:01). The Internet has not only allowed a greater access to environmental information by the public, but it has also enabled companies to provide such information in a timely and cost effective manner (Mlarvizhi & Yadav, 2008:03). In addition, the internet has availed new web tools that can enhance the relevance, reliability, comparability, verifiability, and understandability of environmental information, in a manner that was previously not possible with annual reports (CSR Europe, 2010:15; HBS, 2010:viii; KPMG Huazhen, 2008:24; McKinsey Quarterly, 2009:03; McKinsey Quarterly, 2010:02; Radley Yeldar & GRI, 2011:05).

Furthermore, research evidence from prior studies that compared environmental disclosures made in the annual reports to those made on the corporate websites have suggested that, companies were increasingly replacing annual reports as the main media of environmental reporting with their websites (KPMG Huazhen, 2008:24). Given the growth in the use of the Internet as a medium for disseminating environmental information, a content analysis study of environmental reports that ignores the environmental disclosure on companies' corporate websites would be incomplete (Unerman, 2000). Informed by the above arguments, this study also analysed environmental disclosure on the sampled companies' corporate websites.

5.2.4.2 What? Control list and categories

Conducting content analysis research necessitates an accurate and exclusive definition of what is to be studied (Hanafi, 2006:166; Kamal, 2012:221). This requires precise identification of the mutually exclusive categories of environmental information disclosure, along with an extensive list of relevant questions within each of the categories, all which are incorporated in a control list (check list). The control list is then used to interrogate equally and capture the presence or absence of specific disclosures in all the sampled environmental reports (Hanafi, 2006:167).

The definition of environmental disclosure, though arbitrary in nature, is afforded some degree of precision and uniqueness through the use of decision rules which determine how environmental disclosures are categorised (Krippendorff, 1980). According to Holsti (1969), well established decision rules do not only enhance the objectivity and reliability of the research instrument used, but also facilitate replication by other researchers.

To determine whether pre-selected items of environmental information had been disclosed in the various environmental reports, 200 questions divided into 44 categories were compiled in five control lists (See A, B, C, D, and E). The control lists were based on prior studies (Wiseman, 1982; Borgiages & Vorster, 1993; Wingard, 2001), a well-known environmental quality scorecard (Deloitte Touche Tohmatsu, 2002), and the GRI Guidelines (GRI, 2008). To capture the quality of environmental information disclosed by the sampled companies, the control lists were designed to be consistent with the qualitative characteristics of decision-useful information, namely; relevance, reliability (combined with verifiability to ease data collection and avoid duplication), comparability, timeliness and understandability. The control lists were also meant to serve as a permanent record of the content analysis work performed on the environmental reports of the sampled companies, with one set of five being compiled for each company's environmental reports.

5.2.4.3 How? Measurement, judgement scale and development of disclosure indices

5.2.4.3.1 Measurement of environmental disclosures in the prior literature

Some researchers have measured environmental information disclosure based on whether a company's report contains any environmental information at all (See Ahmad, Hassan & Mohammad, 2003; Brammer & Pavelin, 2006; Buniamin, Alrazi, Johari & Rahman, 2008). However, this measure does not capture the depth and richness of the information (Alrazi, De Villiers & Van Staden, 2011:234).

Other researchers have measured environmental information disclosure by counting the number of words, sentences, number or proportions of pages (see Hackston & Milne 1996; Hooks & Van Staden 2011; Milner & Alder 1999; Unerman 2000), line counts (Choi, 1999; Pattern, 2002; Wiseman, 1982) or number of theme occurrence (Walden & Stagliano, 2004). However, merely counting words, sentences, pages and so on, only focuses on the quantity of information disclosed

and not on the quality of disclosure. This approach does not suit the objective of this study. Besides, such counting only focuses on the information itself rather than the format in which it is presented, and does not capture non-narrative disclosures such as pictures, photographs, charts and graphical representations, which are effective communication tools that enhance the quality of information disclosed (McMurtrie, 2005; Unerman, 2000).

Yet other researchers have employed a disclosure index in the form of a binary/dichotomous scoring system, to search for the presence or absence of pre-determined items/concepts in chosen texts, which then quantify and tallies the presence of the items found (Guthrie & Abeysekara, 2006). A score of one (1) is awarded if an item is present in the reports, and a score of zero (0), if absent (Kamal, 2012:227). However, the binary coding system adopts an un-weighted approach and thus can only assess the quantity of the environmental information disclosed, given that it treats all items of disclosure equally (Guthrie & Abeysekara, 2006; Kamal, 2012:228).

According to Hasseldine, Salama and Toms (2005), the overall quality of environmental disclosure, has a greater impact on the environmental reputation of a company, than the quantity of the disclosure. This suggests that the quality measure is relatively more important than the quantity measure (Alrazi *et al.*, 2011:08). Consistent with this perspective, some researchers have gone beyond just counting the number of disclosures, and have attempted to capture the quality of such disclosures, by not only focusing on just what environmental information is reported, but also on how such information is reported (Aerts & Cormier, 2009; Alrazi *et al.* 2011; Kamal, 2012; Wiseman, 1982; Wingard, 2001). To this end, they have employed ordinal scaled/polychotomous disclosure indices to assess, rate, rank and benchmark the quality of environmental reports of different companies (Jones & Alabaster, 1999).

Using ordinal scale indices, the researchers have assigned scores for disclosure of environmental information depending on type and nature of data communicated, including the evidence (monetary, quantitative, and declarative), the types of news (positive, negative and neutral), and the time frame (Past, present, and future) (Wiseman, 1982; Wingard, 2001; Aerts & Cormier, 2009; Alrazi *et al.*, 2011; Kamal, 2012). A typical ordinal scale would for instance be used to assign scores for a disclosure item along a scale, from 0 for non-disclosure, 1 for narrative disclosure, 2 for quantitative but non-monetary disclosure, and 3 for monetary disclosure (Alrazi *et al.*, 2011:08; Kamal, 2012 :73).

The use of an ordinal scale disclosure index has increasingly become more prominent in environmental reporting research for various reasons. Firstly, ordinal indices are a more objective measurement of quality than other qualitative assessments that do not assign scores or rankings to the disclosed information (Wiseman, 1982). Secondly, the index mitigates some issues inherent in the measurement of pages (such as treatment of blank pages, differences in font and size, and the size of page margins), sentences (such as measurement for graphs, charts, pictures and visual images), and words (considered to be meaningless without a sentence to put them in context) (Alrazi *et al.*, 2011:08). Thirdly, the index enhances the understanding of what is currently being reported as much as what remains unreported, which uncovers the weaknesses in the current reporting practices for future improvement.

Fourthly, when carefully constructed, an ordinal scale index is capable of assessing qualitative attributes of information, including relevance, reliability, comparability, understandability, verifiability and timeliness, simultaneously (Hooks & Van Staden, 2011). Given the first objective of this research, which is to evaluate the decision-usefulness of environmental information disclosures, the foregoing merits of an ordinal scale index are persuasive, therefore it is adopted in this study.

5.2.4.3.2 Development of a Judgement scale

To measure the quality of environmental information that was gathered, a judgement scale was designed that incorporated an adjusted ordinal scaled disclosure index/polychotomous scoring system. The judgement scales were juxtaposed to each of the five control lists. Two scoring systems were employed in the study, the first one with a score range of 0 to 3 (with an option of two additional points) was employed to measure the relevance, reliability (including verifiability), timeliness, and understandability of environmental information disclosures (See Appendix A, B, C, D) (Kamal, 2012:73). The second one with a score range of 0 to 5 was employed to measure the comparability of the environmental information disclosures (See Appendix E) (Alrazi *et al.*, 2011:19).

According to the first scoring system (with a score range of 0 to 3), a score of 0 was assigned for non-disclosure, 1 for narrative disclosure, 2 for quantitative but non-monetary disclosure, and 3 for monetary disclosure (See Table 5.2) (Kamal, 2012:73). As with the prior studies, monetary quantitative and non-monetary quantitative disclosures were accorded greater weight (3 and 2

respectively) in the judgement scale compared to narrative disclosures (1) because quantified information is more precise, comparable and has higher potential value in decision-making by various stakeholders (Kamal, 2012:73; Wingard, 2001:85). However, monetary quantitative disclosures were weighted higher than non-monetary ones because they assist stakeholders in assessing the financial implications of environmental decisions or actions on the overall performance of a company (Kamal, 2012:233).

Moreover, presentation of monetary quantitative disclosures facilitates the integration of environmental performance information with financial performance information (Howes, 1999:32). Such integration of both environmental and financial performance demonstrates how the company reconciles possible conflict between its financial objectives and environmental priorities of diverse stakeholder groups (Grey *et al.*, 1995).

TABLE 5.2: JUDGEMENT SCALE FOR MEASURING RELEVANCE, RELIABILITY (VERIFIABILITY), UNDERSTANDABILITY AND TIMELINESS OF ENVIRONMENTAL REPORTS

	Extent of disclosure	Score
1	Not disclosed	0
2	Disclosed in narrative form	1
3	Disclosed in quantitative but non-monetary form	2
4	Disclosed in monetary form	3
5	Futuristic/forward-looking disclosures	1 additional point
6	Specificity	1 additional point

The judgement scale was adjusted to make a provision for one extra point over and above the basic weight for environmental information disclosures that are futuristic/forward-looking (Kamal, 2012:231). This is because futuristic information can influence future decisions, unlike information about the past or present (Wingard, 2001:85). In addition, futuristic information, if based on well-founded expectations increases predictability by reducing information asymmetries and uncertainty (PricewaterhouseCoopers, 2006:05).

Another provision of one extra point was made over and above the basic weight, for specific environmental information disclosures (Wingard, 2001:85). This is because specific disclosures inform specific decisions and are more likely to be verifiable, thus accurate than general disclosures which are typically made to legitimise companies' activities (De Villiers & Van Staden, 2006:767).

The second scoring system (with a score range of 0 to 5) was used for measuring the comparability of the GRI environmental performance indicators (Alrazi *et al.*, 2011:19). The scoring system assigned a score of 0 points for non-disclosure of a performance indicator; 1 point for disclosure in a narrative form; 2 points for disclosure of a quantitative performance indicator for the current period. 3 points for disclosure of a quantitative indicator relative to that of the prior period. 4 points for disclosure of a quantitative indicator relative to targets; and 5 points for disclosure of a quantitative indicator relative to peers or industry averages (Clarkson *et al.*, 2007:11).

TABLE 5.3 JUDGEMENT SCALE FOR MEASURING COMPARABILITY

	Extent of disclosure	Score
1	Not disclosed	0
2	Disclosed in a narrative form	1
3	Disclosed for the current period in quantitative form	2
4	Disclosed relative to prior periods	3
5	Disclosed relative to targets	4
6	Disclosed relative to peers or industry averages	5

Consistent with the prior studies, performance indicators disclosed relative to peers, targets and prior periods were accorded greater weight (5, 4 and 3 respectively) in the judgement scale than those disclosed for the current period only (1), because they provide a context that enables a reader to judge how well or badly a company performed (Clarkson *et al.*, 2007:08; Deloitte Touche Tohmatsu, 2002:35). However, performance indicators disclosed relative to peers were assigned higher points than those disclosed relative to targets, because targets are set internally, and therefore are less objective (OECD, 1997:03) (See Table 5.3).

On the other hand, the performance indicators disclosed relative to targets were assigned higher points than those disclosed relative to prior periods because prior periods are historical, backward looking, whereas targets are forward looking and reflect a company's seriousness in achieving its future objectives (PricewaterhouseCoopers, 2007b:08). By contrast, the performance indicators disclosed relative to prior periods were assigned higher points than those disclosed for the current period only because they provide the trend, or trajectory of a company's past performance (Clarkson *et al.*, 2007:11).

5.2.4.3.3 Pilot study

Having developed five control lists and two judgement scales, a pilot study was conducted on IARs, SSRs and corporate websites of ten randomly selected top 100 JSE listed operating companies from different sectors. During the pilot study, the categories and questions in the five control lists were refined, processes altered, and data sheets revised in preparation for the actual coding and recording process. The pilot stage was also used for checking the reliability of the five control lists and two judgement scales.

5.2.5 Data collection

5.2.5.1 Collection of environmental reports

The IARs and SSRs for the fiscal year ended 31 December 2013 were downloaded from companies' websites in PDF format. For each of the companies included in the sample, the researcher also searched for and saved the environmental disclosures found on a company's website using a sitemap tool and homepage menu, during the period between 1st January 2013 and 31st December 2013. In addition, a check was conducted on company profiles and corporate governance sections as these sections were expected to contain among other things, a message from the chief executive officer/chairman, company vision, mission, policies, organisation structure and awards. Other reports (apart from the IAR and SSR) such as mandatory reports, environmental news releases, company bulletins, and periodic publications on the websites were also considered, provided they contained environmental information and were related to the fiscal year ended 31 December 2013. Also included in the content analysis was multimedia-based environmental information such as audios and videos available on companies' websites.

However, since accessibility is an important aspect of web disclosures (Alrazi *et al.*, 2011:12), the

content analysis was limited to two levels from the homepage/sitemap, unless further links indicated disclosure of environmental information beyond the second level. Such a limitation was necessary because it is unlikely that the stakeholders would spend much time seeking for and evaluating environmental information in hidden sections of the websites (De Villiers & Van Staden, 2011; Lodhia, 2006). Similarly, links to external websites, including those of subsidiaries were excluded, as they were considered to be beyond the editorial control of companies (Tilt, 2008).

5.2.5.2 The actual coding and recording process

Essentially, the coding and recording process entailed tracing each item in the five control lists to the IAR, SSR and website of each company, a company at a time. If a control list item was missing in any of the three media, a score of 0 was assigned, and recorded in the control list, next to the item. If a control list item was present, it was assessed and assigned an appropriate score according to the applicable judgement scale and recorded against the item.

5.2.5.2.1 Measuring relevance, reliability (including verifiability), timeliness and understandability

A set of four control lists (check-list) in a spread sheet form, one for each qualitative characteristic (relevance, reliability (including verifiability), timeliness and understandability) were used for capturing data from every IAR, SSR and website of a company. One set was used for each company. The presence or absence in the reports of each item on the control list was established first. If absent, a score of 0 points was assigned. However, where a disclosure in the control list was present, the quality of such a disclosure was assessed, then assigned points according to the judgement scale discussed in table 5.2 above.

For instance, for quantitative disclosures other than the GRI environmental performance indicators, a score of 3 points was assigned if the disclosure was monetary, but 2 points if the disclosure was quantitative but non-monetary, and 1 point if the disclosure was narrative. Such a disclosure was then examined for its time frame and specificity. If it was futuristic, an additional point was awarded. Similarly if it was specific, an additional point was awarded. The above-mentioned procedure was repeated for each item in the four control lists, for all sampled companies.

5.2.5.2.2 Measuring comparability

With regard to GRI environmental performance indicators, a control list (check-list) for measuring comparability in a spread sheet form was used for recording data from every IAR, SSR and website of a company. A single control list was used for each company. The presence or absence, in the reports, of each item on the control list was first established. If absent, a score of 0 points was assigned. However, where a disclosure in the control list was present, the quality of such a disclosure was assessed, and then assigned points according to the judgement scale discussed in table 5.3 above.

For instance, if a company disclosed a performance indicator relative to those of its peer companies or industry averages, a score of 5 points was assigned to that company for that particular indicator. For disclosure of a performance indicator relative to targets, a score of 4 points was assigned, yet for disclosure of a performance indicator relative to prior periods, a score of 3 points was assigned. For quantitative disclosure of a performance indicator for the current period only, a score of 2 points was awarded whereas for a narrative disclosure of a performance indicator, a score of 1 point was awarded. The above-mentioned procedure was repeated for each item in the comparability control list, for each of the sampled companies.

5.2.5.2.3 The use of electronic data spread sheets

The contents of the five control lists in a spread sheet form were then used to generate a sub-quality index for each qualitative characteristic for each company. From the sub-quality indices, the total environmental disclosure quality index was computed for each company.

5.2.6 Environmental disclosure sub-quality and quality indices

As above, control lists in form of spread sheets were used to derive the quality disclosure indices for each company. Quality disclosure indices are often applied in accounting research, particularly in studies that examine annual reports, where they provide a single-figure summary indicator either of the entire contents of corporate annual reports or of particular aspects of interest such as environmental disclosures (Ahmed & Courtis, 1999; Coy & Dixon, 2004; Kamal, 2012:237). Such a single-figure summary index, can be used to rate, rank and benchmark corporate reports (Jones & Alabaster, 1999), and is computed as a percentage of the actual disclosure score awarded to a company over the maximum possible disclosure expected (Cooke, 1989).

A disclosure sub-quality index was computed for each of the five qualitative characteristics, namely; relevance, reliability (including verifiability), comparability, timeliness and understandability. The sub-quality indices were used because they provide a deeper understanding of and richer insights into the disclosure quality, which could help to comprehensively profile the disclosure quality strategies adopted by a company (Beretta & Bozzolan, 2004). The overall quality index was then computed as a simple arithmetic mean of the sub-quality indices, an approach that also eliminated the scale effect of the sub-quality indices. In so doing, the overall quality index collapsed the different sub-qualities into a single value, which provided a composite summary measure that was used to rank the overall quality of environmental disclosures across companies.

5.2.6.1 Environmental disclosure sub-quality indices

To compute a sub-quality index for each of the five qualitative characteristics, an aggregate score for each characteristic was computed for each company from the respective company's control list. The aggregate score was then divided by the maximum applicable total sub-quality score which the sampled company could earn for the highest quality disclosure. The quotient was then expressed as a percentage. The maximum applicable total sub-quality scores were 70 points for relevance, 115 points for reliability (including verifiability), 200 points for comparability, 100 points for understandability and 15 points for timeliness. Each company's environmental disclosure sub-quality index was computed according to the following formula (Kamal, 2012:241):

$$\text{CED Sub-Quality} = \frac{\sum_{i=1}^n \text{Sub-Quality}_i}{\text{MAX Sub-Quality}}$$

Where:

CED Sub-Quality = Company's Environmental Disclosure Sub-Quality Index,

Sub-Quality_{*i*} = Scoring scale for each sub-quality is applied to item *i*,

MAX Sub-Quality = Maximum applicable disclosure sub-quality score,

n = number of items disclosed.

Using the above formula, the environmental disclosure index for each of the five sub-qualities of relevance, reliability (including verifiability), comparability, understandability and timeliness are computed for each company. Specifically, the sub-quality indices for each of these qualitative characteristic is computed as follows:

5.2.6.2 Environmental disclosure relevance index

Each company's environmental disclosure relevance index was computed according to the following formula (Kamal 2012:241):

$$\text{CED Relevance} = \frac{\sum_{i=1}^n \text{Relevance}_i}{\text{MAX Relevance}}$$

Where:

CED Relevance = Company's Environmental Disclosure Relevance Index,

Relevance_{*i*} = 3 if item *i* is monetary quantitative; 2 if item *i* is non-monetary quantitative; 1 if item *i* is narrative; 1 additional point if item *i* is specific; 1 additional point if item *i* is foreword looking,

MAX Relevance = Maximum applicable disclosure relevance score,

n = number of items disclosed.

5.2.6.3 Environmental disclosure reliability index

Each company's environmental disclosure reliability index was computed according to the following formula (Kamal 2012:243):

$$\text{CED Reliability} = \frac{\sum_{i=1}^n \text{Reliability}_i}{\text{MAX Reliability}}$$

Where:

CED Reliability = Company's Environmental Disclosure Reliability Index,

Reliability $_i$ = 3 if item i is monetary quantitative; 2 if item i is non-monetary quantitative; 1 if item i is narrative; 1 additional point if item i is specific; 1 additional point if item i is forward looking,

MAX Reliability = Maximum applicable disclosure Reliability score,

n = number of items disclosed.

5.2.6.4 Environmental disclosure comparability index

Each company's environmental disclosure comparability index was computed according to the following formula ((Kamal 2012:241):

$$\text{CED Comparability} = \frac{\sum_{i=1}^n \text{Comparability}_i}{\text{MAX Comparability}}$$

Where:

CED Comparability = Company's Environmental Disclosure Comparability Index,

Comparability $_i$ = 4 if item i is disclosed relative to peers or industry averages; 3 if item i is disclosed relative to targets; 2 if item i is disclosed relative to prior periods; 1 if item i is disclosed for the the current period only,

MAX Comparability = Maximum applicable disclosure Comparability score,

n = number of items disclosed.

5.2.6.5 Environmental disclosure understandability index

Each company's environmental disclosure understandability index was computed according to the following formula (Kamal 2012:241):

$$\text{CED Understandability} = \frac{\sum_{i=1}^n \text{Understandability}_i}{\text{MAX Understandability}}$$

Where:

CED Understandability = Company's Environmental Disclosure Understandability Index,

Understandability_{*i*} = 3 if item *i* is monetary quantitative; 2 if item *i* is non-monetary quantitative; 1 if item *i* is narrative; 1 additional point if item *i* is specific; 1 additional point if item *i* is foreword looking,

MAX Understandability = Maximum applicable disclosure Understandability score,

n = number of items disclosed.

5.2.6.6 Environmental disclosure timeliness index

Each company's environmental disclosure timeliness index was computed according to the following formula (Kamal 2012:241):

$$\text{CED Timeliness} = \frac{\sum_{i=1}^n \text{Timeliness}_i}{\text{MAX Timeliness}}$$

Where:

CED Timeliness = Company's Environmental Disclosure Timeliness Index,

Timeliness_{*i*} = 3 if item *i* is monetary quantitative; 2 if item *i* is non-monetary quantitative; 1 if item *i* is narrative; 1 additional point if item *i* is specific; 1 additional point if item *i* is foreword looking,

MAX Timeliness = Maximum applicable disclosure Timeliness score,

n = number of items disclosed.

5.2.6.7 Overall disclosure quality index

After the five sub-quality indices were computed, the overall disclosure quality index for each company was then computed as an arithmetic mean of the five sub-quality indices and expressed as a percentage. The sampled listed companies were then ranked from high to low according to the overall disclosure quality index. Each company's overall environmental disclosure quality index (CED Quality) was computed according to the following formula (Kamal 2012:244):

CED Quality =

$$\frac{[\text{CED Relevance} + \text{CED Reliability} + \text{CED Comparability} + \text{CED Understndability} + \text{CED Timeliness}]}{5}$$

Where:

CED Quality = Company's Environmental Disclosure Quality Index,

CED Relevance = Company's Environmental Disclosure Relevance Index,

CED Reliability = Company's Environmental Disclosure Reliability Index,

CED Comparability = Company's Environmental Disclosure Comparability Index,

CED Understandability = Company's Environmental Disclosure Understandability Index,

CED Timeliness = Company's Environmental Disclosure Timeliness Index.

5.2.7 Reliability of the content analysis study

Reliability is the degree to which a research instrument produces stable, replicable and consistent results (Krippendorf, 1980:130; Leedy & Ormrod, 2005:31). To test for reliability in a content analysis study, Krippendorf (1980:130-132) advocates for three types of tests; stability, reproducibility and accuracy. The stability test (or test-retest design) involves repeating the content analysis procedure, usually after a certain period of time, to detect any discrepancies in the results (Krippendorf, 1980:130; Alrazi *et al.*, 2011:08). A lack of discrepancies in the results of the two rounds would suggest that the results are reliable.

To test for stability, the content analysis of the environmental reports was conducted twice at different dates, in a two-week interval. The control lists filled in each round were compared to determine any discrepancies in the results. Although slight differences were observed between both rounds, they were noted and promptly rectified. This ensured that there were no deviations between the respective end results, an indication that stability had been achieved. However, even where there is a high level of intra-coder agreement, a stability test is considered to be the weakest form of reliability testing because it only establishes that a coder is consistent with the use and interpretation of a control list and decision rules (coding instructions) (Guthrie & Mathews, 1985; Neuman 2000; Alrazi *et al.*, 2011:08).

Reproducibility refers to the ability of different coders to produce the same results on the same data set (Krippendorf, 1980:130). This can be achieved using Krippendorf's (1980:130) test-test approach where two or more independent coders complete a content analysis of a sample of reports in different locations with minimum contact. A high level of agreement among multiple coders in relation to the way coding and measurement instructions are interpreted and applied

would suggest that the results are reliable (Hibbit, 2004:320). Reproducibility provides a higher level of reliability than stability.

In the present study, the coding process was tested using inter-coder reliability at the pilot stage, where, another coder other than the researcher independently analysed the content of the environmental reports in the IARs, SSRs and on companies' websites. More specifically, the other coder was provided with the objectives of the study, an introduction and training on content analysis, five control lists, and decision rules. The coder was then required to analyse ten of the reports that had been analysed by the researcher. The perspectives of both coders (the researcher and the independent coder), were captured and on comparison, minor variations and disagreements were noted. These variations were addressed by reconciling the inconsistencies to reach a consensus. The reconciliation minimised ambiguities and overlaps of meanings or interpretations of the control lists thus ensuring that reproducibility is achieved.

Accuracy, regarded as a superior test of reliability, seeks to assess coder performance against a pre-determined standard, known as a test-standard set by a panel of experts, or based on prior studies (Guthrie & Mathews, 1985). However, at present there are no universal minimum standards that could be adopted to test accuracy of content analysis of environmental reports (Hibbit, 2004:320). Thus it was not possible to employ this reliability test in the current study. But as Unerman (2000) observed, there is no single test that can provide adequate reliability within any of the tests of reliability. Therefore researchers must select the tests that they consider to be most appropriate to their study. In concurrence with Unerman (2000), the researcher has selected stability and reproducibility as adequate tests of reliability.

5.2.8 Validity of disclosure measurement

“Validity is concerned with whether the instrument (in this case the control list and the judgement scale) measures what it is supposed to measure” (Leedy & Ormrod, 2005:31), and whether it will lead to valid conclusions (Creswell, 2005:600). Validity raises questions such as (Leedy, 1989:40; Creswell, 2005:600): What does an instrument measure? Does it in fact measure what it is supposed to measure? How well, how comprehensive, how accurately does the instrument measure what it is intended to measure? Can valid conclusions drawn from the sample be generalised to the entire population? The internal and external validity determines the overall

validity of the research (Leedy, 1989:41).

5.2.8.1 Internal validity

Internal validity requires evidence that the instrument, technique, or process used to measure a concept does indeed measure the intended concept (Sekaran, 2003:425). Although a self-constructed disclosure index is a useful research tool in capturing environmental disclosure practices, it requires subjective assessments by the researcher in its development and application (Botosan, 1997; Kamal, 2012:244). Therefore, various tests are essential to assessing the internal validity of the disclosure index. In this study, the validity of the disclosure indices are assessed using construct validity and content validity (Kamal, 2012:244).

5.2.8.1.1 Construct validity

Construct validity refers to the degree to which, data collected from a research instrument can be interpreted as representing the intended underlying construct (Straub, 1989:150). It is concerned with the soundness or effectiveness of the measuring instrument (Leedy, 1997:32). Given that the self-constructed judgement scale and control lists employed in this study required subjective assessments in their development and application, various measures were undertaken to enhance the construct validity of the instruments, to ensure that they indeed measured the quality of the environmental disclosures (Kamal, 2012:244). First, as suggested by Rowley (2002), the 200 questions in the control lists were directly linked to the first research objective. Second, the control lists and judgement scales were constructed after a thorough review of well-established control lists and disclosure indices in the prior literature, as well as world re-known environmental quality disclosure scorecards (Wiseman, 1982; Borgiages & Vorster, 1993; Wingard, 2001; Cormier & Magnan, 2003; Deloitte Touche Tohmatsu, 2002). In addition, the coding process was conducted according to well-established decision rules and procedures, an approach that eliminated any uncertainty when coding the data (See Appendix K) (Kamal, 2012:459).

Third, the control lists were informed by the GRI guidelines, which are developed after extensive consultations with the users (GRI, 2008; Alrazi *et al.*, 2011:08). Fourth, the control lists and judgement scales were reviewed and refined by a panel of three experts with extensive experience in content analysis studies (Kamal, 2012:222). Fifth, the ranking of companies according to the current study's ordinal scores in the judgement scale was compared to that of an alternative

(binary/dichotomous) scoring system and found to be consistent (Alrazi *et al.*, 2011:25). Taken together, the above measures were deemed adequate in ensuring the construct validity of the research instruments.

5.2.8.1.2 Content validity

Content validity refers to the extent to which a research instrument represents all facets of a given social construct (Boudreau, Gefen & Straub, 2001:05). It requires research instruments to include an adequate and representative set of items that cover the concept (environmental disclosure quality) being measured (Straub, 1989:150; Sekaran, 2003). To this end, five control lists, made up of a comprehensive set of 200 questions that interrogated the six qualitative characteristics of decision-useful information (relevance, reliability, comparability, timeliness, verifiability and understandability) were developed.

To ensure that no questions were omitted, the design of the questions was informed by a thorough literature review of prior studies, well established environmental quality disclosure scorecards, as well as the GRI index (G3.1 check-list) (Borgiages & Vorster, 1993; Cormier & Magnan, 2003; Deloitte Touche Tohmatsu, 2002; GRI, 2008; Wingard, 2001; Wiseman, 1982). The latter, which provides an extensive check-list of standard environmental disclosures was developed through an extensive consensus seeking process that involved numerous user groups of environmental reports (GRI 2008). In addition, the control lists were also adjusted to reflect the recommendations of the King III Report, compliance to which is a listing requirement by the JSE (IODSA, 2013:02). Furthermore, the content validity of the questions was also attested to by a panel of three experts with extensive experience in content analysis studies, who reviewed and refined the questions (Kamal, 2012:222).

Furthermore, before finalising the 44 categories and 200 questions in the five control lists, a pilot study designed to test the content validity of the control lists was conducted by checking their applicability in the South African context (Kamal, 2012:222). This was done to capture items not yet included in the list as well as eliminate those not disclosed by any of the sampled companies. The pilot study revealed that the control lists developed were applicable in the South African context as almost all the disclosure in the environmental reports fell within pre-determined categories. However, there were a few items included in the preliminary control lists that are recommended by the GRI guidelines but were rarely, if ever, disclosed by South African

companies. These items were regarded as inapplicable items, and were deleted from the control lists, in order to avoid penalising companies for disclosure of non-standard items. Taken together, the above measures were deemed adequate in ensuring the content validity of the research instruments.

5.2.8.2 External validity

External validity refers to the extent to which the conclusions drawn from the selected sample can be generalised to the entire population (Leedy & Ormrod, 2005:105). This requires the use of a random and representative sample. To enhance external validity, a sample of 66 companies was drawn from a population of top 100 JSE listed operating companies. Although not randomly selected, this sample represented 66% of the entire population of the study. In addition, the sample included both environmentally sensitive and non-environmentally sensitive sectors, with different degrees of environmental sensitivity. Accordingly, external validity was achieved as the sample was representative of the population.

5.2.8.3 Limitations of the content analysis study

The content analysis phase of this study however, is subject to the usual limitations of this methodology which should be considered in the interpretation of the findings. Firstly, the construction of disclosure indices is not free from subjectivity or bias as the same document may be interpreted differently by different researchers (Kamal, 2012:400). To minimise the subjectivity, the control list and judgement scale (research instruments) were pre-tested by another coder other than the researcher who independently analysed the content of 10 environmental reports that had been analysed by the researcher during the pilot stage of the study. The results of the coding process of the independent coder and those of the researcher were then compared, and found to have only minor variations. The variations which had arisen due to ambiguities and overlaps of meanings or interpretations of the control lists were promptly corrected by re-examining the control list items, reconciling the differences by rewording the items to minimise the effects of subjectivity.

Secondly, the use of sub-quality disclosure indices of environmental disclosure quality to arrive at an overall disclosure quality score involves attaching an equal weighting to various quality dimensions (Kamal, 2012:400). However, each dimension cannot be equally important to all

stakeholders. Nevertheless, this approach was deemed appropriate in the current study as no specific user group is of particular interest to the research, but rather all diverse stakeholder groups (Kamal, 2012:22).

The third limitation pertains to the fact that a content analysis study does not provide data that is exact or precise and therefore may not be suitable for statistical analysis (Campbell, 2001). Accordingly such data is merely indicative and not absolute (Hibbit, 2004:479). This view is supported by Deegan and Gordon (1996:189) who conceded that content analysis can be used as an indication of the current quality of environmental disclosures. The current study was not aimed at ascertaining the absolute quality of the environmental reports, but rather to get an indication of the same, therefore the content analysis method used was deemed to be sufficient for this aim.

The fourth limitation is that the study provides a snap shot of the quality of environmental reports produced by listed companies, as only one year's environmental reports were analysed (Alrazi *et al.*, 2011:25). Accordingly, the results reported here may neither be representative of the quality of disclosures in other years, nor reflect the emerging trends in the quality of environmental reports analysed. However, it is the researcher's contention that analysing environmental reports in three media (IAR, SSR and on the companies' websites), mitigates for failure to analyse the trends in the quality of environmental reports, as it is better than most prior studies that only focus on the annual report or do not distinguish between the various reporting media (Alrazi *et al.*, 2011:04; Deegan & Gordon, 1996; Deegan & Rankin, 1996; Harte & Owen, 1991; Nik Ahmad & Sulaiman, 2002; Niskala & Pretes, 1995).

The fifth limitation is that this study only focused on three media types of reporting environmental information, namely, IARs, SSRs and company websites whereas there are various other alternative channels for environmental reporting that a company could use, such as advertising, promotional leaflets, press releases and so on (Kamal, 2012:20). Therefore, focus on only three media creates the possibility that some environmental disclosures could be missed. However, the selection of the three media is justified as they are perceived to be the most important media for environmental reporting in prior research (Hibbit, 2004:312; Danatas & Gadenne, 2006; KPMG Huazhen, 2008:24). Besides, it is practically impossible to identify, let alone analyse the content of all communication channels (Hibbit, 2004:311).

The sixth limitation of this study is that the sample selected for the study comprised only the JSE top 100 listed operating companies. Thus it is neither random nor representative of all listed companies operating in South Africa. Therefore, the quality of the environmental reports of these companies may not reflect the general quality of environmental reports produced by all the listed companies operating in South Africa. Nevertheless, the selection of these companies is justified on the basis that they represent over 95% of the market capitalisation of the JSE (Greyvenstein, 2010:35). Besides, the JSE top 100 listed operating companies include both environmentally sensitive and non-environmentally sensitive sectors, with different degrees of environmental sensitivity, which is arguably representative of all the listed companies (Greyvenstein, 2010:35).

Lastly, this study did not examine the volume (number of sentences, words and pages), of information disclosed in the environmental reports, even though prior studies have provided evidence that the quality measure is highly correlated with the quantity measure (Hooks & Van Staden, 2011; Warsame, Neu & Simmons, 2002). The researcher contends that it would be pragmatically and technically infeasible to determine the volume of environmental disclosures across three diverse and unstandardised reporting media (Hanafi, 2006:166). Besides, the objective of the study was to evaluate the quality of the environmental reports and not the quantity.

5.2.8.4 Ethical considerations of the content analysis study

Content analysis method is an unobtrusive technique that does not require interaction with human beings (Wolfe, 1991:282). Accordingly the ethical risks associated with the methodology are virtually negligible, given that the environmental reports in IARs, SSRs and companies' websites analysed in this study were publicly available documents, access to which was neither restricted nor required permission.

5.3 QUESTIONNAIRE SURVEY

5.3.1 Justification for questionnaire survey methodology

The second, third, fourth, fifth and sixth research objectives aimed at determining the perceptions of users and preparers regarding the decision-usefulness of environmental reports produced by South African companies. Achieving these objectives required that a survey be conducted via

either conducting interviews with the respondents or using a questionnaire survey (Al-Mubarak, 1997:172). In deciding the suitable method for this survey, the researcher compared the strengths and weaknesses of the two methods in the context of characteristics of the targeted respondents (Al-Mubarak, 1997:183). The characteristics included: 1) A relatively large sample size of 100 users and 100 preparers targeted, as well as their widely dispersed distribution all over South Africa. 2) A limited access to these respondents as well as limited time and resources at the researcher's disposal. 3) The need to maintain confidentiality and anonymity, which was considered vital to secure the cooperation of respondents. 4) The fact that users and preparers of environmental reports are generally considered to be a well-educated segment of the society.

In view of the above-mentioned characteristics of respondents, a questionnaire survey was the most appropriate method for various reasons. First, it is a faster, less expensive and more convenient way of obtaining data from a large number of widely dispersed respondents, than the personal interviews method (Al-Mubarak, 1997:178). Secondly, unlike in personal interviews, respondents can complete the questionnaire anonymously, ensuring confidentiality (Al-Mubarak, 1997:179). Thirdly, it does not require the researcher to nurture interviewing skills (Sekaran, 1992:201). Fourthly, unlike the personal interviews, it allows the respondents to answer the questions at their own convenience without the undue influence of the researcher's presence, which tends to introduce bias (Al-Mubarak, 1997:180). Besides, if closed-ended questions are used, a questionnaire survey facilitates comparison and analysis of differences in the perceptions of different groups of respondents (Johnson & Christensen, 2010:170).

5.3.2 Research population and sample

The population comprised both users and preparers of environmental reports produced by JSE listed companies. The population of users as defined in the accounting conceptual frameworks could foreseeably consist of the entire South African population (GRI, 2008; IASB, 2008; FASB, 2010; Mitchell & Quinn, 2005:22). This study focused on the user groups actively involved in 1) ethical investment (ethical investment funds and their representatives), 2) environmental protection (environmental NGOs and their representatives), and 3) environmental reporting research (environmental reporting researchers published journal articles on environmental reporting in South Africa).

Given that there appears to be no comprehensive public listing of all ethical investment funds, environmental NGOs and environmental reporting researchers in South Africa, a compilation of a population frame list was done with aid of the Internet. A thorough Internet search was conducted, which yielded 100 users that comprised 30 ethical investment funds, 30 environmental NGOs and 40 accounting researchers. Consistent with the prior studies, a census of the identified users was conducted given that the population was relatively small (Tilt, 1994, Danatas & Gadenne, 2004:08).

The population of preparers of environmental reports included the top 100 operating listed companies and their representatives. The latter included financial directors, accountants, executives, managers and other environmental officers involved in the preparation of environmental reports. Although the questionnaires were directed at financial directors, demographic data was collected to determine the extent to which questionnaires were completed by other qualified personnel to whom the task of replying to the questionnaire was delegated (Mitchell & Quinn, 2005:22). Again, a census of the preparers was conducted, given that the population was relatively small (Tilt, 1994:Danatas & Gadenne, 2004:08).

5.3.3 Questionnaire design

Two sets of questionnaires were designed, the first one for users of environmental reports and the second for preparers of environmental reports (See Appendix G and H). Both questionnaires consisted of seven pages excluding the cover page (cover letter), which was used to briefly state the objective of the questionnaire and to assure the respondents that the information divulged would be used for the purpose of the study only and would be kept confidential (See Appendix F). Given that a cover letter is the first document examined by the respondent before completing the questionnaire, the cover letters in this study were also used to encourage the respondents to complete the questionnaire and return it expeditiously.

In order to maximise the response rate, both questionnaires comprised of 15 simple questions, designed to be completed in 10 minutes. To further encourage the respondents to complete the questionnaires, no question asked the respondents to directly identify themselves or their organisation, which guaranteed respondents' anonymity.

As similarly used by Deegan and Rankin (1999:322), the 15 questions in the users' questionnaire were almost identical to the 15 questions in the preparers' questionnaire to maximise the comparability of responses of the users to those of preparers. Furthermore, both questionnaires, with the exception of question 14, comprised of closed-ended questions, with responses requested on either a five-point likert scale, yes/no answers, multiple-choice questions, or numerical answers.

As can be seen below, both questionnaires were designed to suit the study objectives and the nature of respondents. The questionnaires were also designed to be easy to answer and easy to analyse as the questions were mostly closed-ended. The two sets of questionnaires are now discussed in the section that follows.

5.3.3.1 The questionnaire for users

The questionnaire for users was divided into five sections; A, B, C, D and E (see Appendix G). The first section (A) dealt with the background of the respondent, whereas the second section (B) dealt with the information needs of the users of environmental reports. The third section (C) dealt with the extent to which the users read the environmental reports and whether they employed the reports to make decisions, whereas the fourth section (D) ascertained whether users were satisfied with the decision-usefulness of the environmental reports and elicited suggestions on how to improve the reports in this regard. The last section (E) aimed at determining how the users ranked environmental information relative to other types of information. Each section and the questions contained therein are now discussed in more detail below.

5.3.3.1.1 Section A of the users' questionnaire

This section of the questionnaire dealt with the background of the respondents. It included questions on their gender, age, highest educational qualification as well as the occupation of the respondent (Question one to four). The respondents were required to respond by crossing (x) the appropriate box or “clicking” on the appropriate answer.

The aim of this section was to obtain a profile of the respondents who participated in this survey. The background information would also be used in the analysis of data obtained from the other sections of the questionnaire, to determine if the information had any effect on the respondents'

answers (De Villiers & Van Staden, 2010a:238). Besides, the information provided evidence that a range of different respondents had responded to the questionnaire.

5.3.3.1.2 Section B of the users' questionnaire

This section of the questionnaire was meant to determine whether users had read an environmental report in the past 12 months, reasons for not reading the reports as well as your perception on how an environmental report should be. The section comprised of questions five to seven.

Question five: Did you read at least one environmental report in the past 12 months?

The aim of this question was to identify those respondents that had read an environmental report from those that had not. The respondents were required to respond with a yes or no by crossing (x) the appropriate box or “clicking” on the appropriate answer. Those who had read the report were then requested to proceed with the entire questionnaire from question seven, whereas those who had not were referred to question six.

Question six: Which of the following explains why you did not read any environmental report in the past 12 months?

The objective of this question was to establish why some respondents (non-readers) had not read environmental reports. The respondents were given six statements that could explain why they had not read the environmental reports, with an option of adding one statement of their own. They were then required to rank the six statements according to how important they perceived the statements in explaining why they had not read the reports. A rank of one was to be allocated to the most important reason for not reading any environmental report, a rank of two to the second most important reason and so on. To each statement, the respondents were also required to allocate a rank only once, which meant that the least important reason for not reading the environmental reports would be ranked seventh. Upon completion of this question, the non-readers were requested to submit their questionnaire.

Question seven: To what extent do you agree with each of the following statements about how environmental reports should be?

The question was asked to elicit suggestions on how the environmental reports should be, from those who had read the reports. The respondents were required to indicate their degree of disagreement or agreement with 28 statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree].

5.3.3.1.3 Section C of the users' questionnaire

This section of the questionnaire was meant to determine the extent to which the users read the environmental reports, whether they employed the environmental reports to make decisions, and how useful they perceived the reports to be. The section comprised of questions eight, nine, 10 and 11.

Question eight: Which of the following best describes how thoroughly you read environmental reports?

This question was asked to determine the depth to which the users had read the environmental reports. The respondents were required to indicate how thoroughly they had read the reports by crossing (x) in the appropriate box or “clicking” on one of five multiple choices provided: scanning; skimming; exploratory reading; study reading and critical reading.

Question nine: How often do you read environmental reports in the following media?

The purpose of asking this question was to determine how frequently the users had read the environmental reports as well as their most preferred media. The respondents were required to indicate how often they had read the reports in various media, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=never, 2=rarely, 3=sometimes, 4=often, 5=almost always].

Question 10: To what extent do you agree with each of the following statements about how you use environmental reports?

This question was asked to determine whether users had employed the environmental reports to inform decisions and also to determine the types of decisions made on the basis of the

environmental reports. The respondents were required to indicate their degree of disagreement or agreement with seven statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree].

Question 11: How useful were the environmental report(s) that you read?

This question was asked to determine the users' perception of the usefulness of the environmental reports that they had read. The users were required to indicate their perception of the usefulness of the reports by crossing (x) in the appropriate box or “clicking” on one of five multiple choices provided: not useful at all; not very useful; neutral; useful; very useful.

5.3.3.1.4 Section D of the users' questionnaire

This section of the questionnaire aimed at determining whether users were satisfied with the decision-usefulness of the environmental reports and to elicit their suggestions on how to improve the decision-usefulness of the reports. The section had questions 12, 13 and 14.

Question 12: To what extent do you agree with each of the following statements about the quality of the environmental reports that you read?

This question was asked to determine whether the users perceived the environmental reports read to be relevant, reliable, comparable, understandable, timely and verifiable. The respondents were required to indicate their degree of disagreement or agreement with six statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree].

Question 13: How satisfied are you with the quality (decision-usefulness) of the environmental report that you read?

This question was meant to gauge the level of satisfaction of the readers with the decision-usefulness of the environmental report that they had read. The respondents were required to indicate their degree of dissatisfaction or satisfaction with the quality (decision-usefulness) of the environmental report they had read by crossing (x) in the appropriate box or “clicking” on one of

five multiple choices provided: not at all satisfied; slightly satisfied; moderately satisfied; very satisfied; extremely satisfied.

Question 14: Can you suggest how the quality (decision usefulness) of the environmental reports should be improved?

This question was meant to provide the users who had read the environmental reports, particularly those dissatisfied, with an opportunity to suggest how the decision-usefulness of the reports should be improved. Given the numerous possible suggestions that the respondents could provide, the question was open-ended to elicit as many suggestions as possible.

5.3.3.1.5 Section E of the users' questionnaire

This section of the questionnaire aimed at determining how the users ranked environmental information relative to other types of information. The section comprised of question 15.

Question 15: How important are the following types of information to you?

This question was meant to determine the users' perception of the relative importance of environmental reports compared to other types of information. The respondents were required to rate the importance of eight types of information that are regularly published in the annual reports (integrated annual reports) by crossing (x) the appropriate box or "clicking" on the appropriate answer [1=not at all important, 2=slightly important, 3=fairly important, 4=very important, 5=extremely important].

5.3.3.2 The questionnaire for preparers

To ascertain whether there is an expectation gap between users and preparers of environmental reports with regard to the decision-usefulness of the reports, a separate questionnaire was designed for the preparers (See Appendix H). Like the users' questionnaire, the preparers' questionnaire with the exception of question 14 mostly consisted of closed-ended questions, with responses requested on either a five-point likert scale, yes/no answers or multiple-choice questions.

5.3.3.2.1 Section A of the preparers' questionnaire

Section A of the preparers' questionnaire dealt with the background of the respondents, which included their gender, age, highest educational qualification as well as the occupation of the respondents (Question one to four). The respondents were required to respond by crossing (x) the appropriate box or “clicking” on the appropriate answer. Like in the users' questionnaire, the aim of this section was to obtain a profile of the respondents who participated in this survey. The background information would also be used in the analysis of data obtained from the other sections of the questionnaire to determine if the information had any effect on the respondents' answers (De Villiers & Van Staden, 2010a: 238). The information also provided evidence that a range of different respondents had responded to the questionnaire.

5.3.3.2.2 Section B of the preparers' questionnaire

This section was meant to determine whether preparers had a way of determining if their environmental reports had indeed been read, measures undertaken by preparers to encourage readership of the reports as well as the preparers' perception of the information needs of the users of environmental reports. The section comprised questions five to seven.

Question five: Do you have a way of determining whether or not your intended users actually read your last environmental report?

The aim of this question was to determine if the preparers had a way of knowing whether their last report had actually been read. The responses obtained in this question would then be compared to those of question five of the users (did you read at least one environmental report in the past 12 months?) with a view to ascertain if there were any differences in the perceptions of the two groups. If the preparers do not have a way of determining whether their reports are being read or not, then it probably would not matter to them whether the reports are perceived as decision-useful by the readers (Deegan & Ranking, 1997:568).

Question six: Which of the following best explains why some of your intended readers may not have read your last environmental report?

The objective of this question was to establish the preparers' perceptions on why some respondents (non-readers) had not read the preparers' environmental reports. Like in the users'

questionnaire, the preparers were given six statements that could explain why their readers had not read the environmental reports, with an option of adding one statement of their own. They were then required to rank the six statements, according to how important they felt the statements explained why the readers had not read the reports. A rank of one was to be allocated to the most important perceived reason why the readers had not read any environmental report, a rank of two to the second most important reason and so on.

To each statement, the preparers were also required to allocate a rank only once, which meant that the least important reason would be ranked seventh. The responses obtained from the preparers were then compared to those of question six of the users (which of the following explains why you did not read any environmental report in the past 12 months?), with a view to ascertain if there were any differences in the perceptions of the two groups.

Question seven: To what extent do you agree with each of the following statements about how environmental reports should be?

The question was asked to elicit the preparers' views on how the environmental reports should be to be decision-useful. The preparers were required to indicate their degree of disagreement or agreement with 21 statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree]. Those views would then be compared to those of the users who were asked exactly the same question in question seven of their questionnaire, with a view to ascertain if there were any differences in the perceptions of the two groups.

5.3.3.2.3 Section C of the preparers' questionnaire

This section of the questionnaire was meant to determine the preparers' perceptions on the extent to which the users read the environmental reports, whether the users employed the environmental reports to make decisions and how useful the reports were perceived to be by the users. The section comprised of questions eight, nine, 10 and 11.

Question eight: In your view, which of the following best describes how thoroughly your readers read your environmental reports?

This question was asked to determine the preparers' perceptions of the depth to which their readers do read the environmental reports. The preparers were required to indicate their perception on how thoroughly their readers had read the reports, by crossing (x) in the appropriate box or “clicking” on one of five multiple choices provided: scanning; skimming; exploratory reading; study reading and critical reading. The responses obtained were compared to those of users in question eight (which of the following best describes how thoroughly you read environmental reports?), with a view to ascertain if there were any differences in the perceptions of the two groups.

Question nine: In your opinion, how often do your intended readers read your environmental reports in the following media?

The purpose of asking this question was to determine the preparers' perception on how frequently the users had read the environmental reports as well as their most preferred media. The preparers were required to indicate their views on how often the readers had read their reports in various media, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=never, 2=rarely, 3=sometimes, 4=often, 5=almost always]. The responses obtained were compared to those of users in question nine (how often do you read environmental reports in the following media?) with a view to ascertain if there were any differences in the perceptions of the two groups.

Question 10: To what extent do you agree with the following statements regarding the purpose for which your readers use environmental reports?

This question was asked to determine whether the preparers were cognisant of the use to which the users employed the environmental reports. The preparers were required to indicate their degree of disagreement or agreement with seven statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree]. The responses obtained were compared to those of users in question 10 (to what extent do you agree with each of the following statements about how you use environmental reports?) with a view to ascertain if there were any differences in the perceptions of the two groups.

Question 11: In your opinion, how useful are your environmental reports to the users?

This question was asked to determine the preparers' perception of the usefulness of the environmental reports to the users. The preparers were required to indicate their perception of the usefulness of the reports by crossing (x) in the appropriate box or “clicking” on one of five multiple choices provided: not useful at all; not very useful; neutral; useful; very useful. The responses obtained were compared to those of users in question 11 (How useful were the environmental report(s) that you read?) with a view to ascertain if there were any differences in the perceptions of the two groups.

5.3.3.2.4 Section D of the preparers' questionnaire

This section of the questionnaire aimed at determining the preparers' perception on the users' satisfaction with the decision-usefulness of the environmental reports. The section also aimed at eliciting suggestions from preparers on how to improve the decision-usefulness of the reports. Section D consisted of questions 12, 13 and 14.

Question 12: To what extent do you agree with each of the following statements about your readers' perception of the quality of your environmental reports?

This question was asked to determine the opinion of the preparers on whether the users perceived the environmental reports read to be relevant, reliable, comparable, understandable, timely and verifiable. The respondents were required to indicate their degree of disagreement or agreement with six statements on a scale of one to five, by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree]. The responses obtained were compared to those of users in question 12 (to what extent do you agree with each of the following statements about the general quality of the environmental reports that you read in the past 12 months?) with a view to ascertain if there were any differences in the perceptions of the two groups.

Question 13: In your opinion, how satisfied were your readers with the following quality attributes of the last environmental report that your company published?

This question was meant to gauge the preparers' perception of the level of satisfaction of their

readers with the decision-usefulness of the environmental reports. Such perceptions are important because they would indicate whether the preparers are cognisant of the need for improvement. The preparers were required to indicate their perception on the degree of dissatisfaction or satisfaction of their readers with regard to the quality (decision-usefulness) of the environmental report read. They were to do so by crossing (x) in the appropriate box or “clicking” on one of five multiple choices provided: not at all satisfied; slightly satisfied; moderately satisfied; very satisfied; extremely satisfied. The responses obtained were compared to those of users in question 13 (in general, how satisfied are you with the following quality attributes of the environmental reports that you read in the past 12 months?) with a view to ascertain if there were any differences in the perceptions of the two groups.

Question 14: Can you suggest how the quality (decision-usefulness) of your environmental reports should be improved?

This question was meant to elicit suggestions from preparers on how to improve the decision-usefulness of their reports. Given the numerous possible suggestions that the respondents could provide, the question was open-ended to elicit as many suggestions as possible. Those views were then compared to those of the users who were asked exactly the same question in question 14 of their questionnaire, to ascertain if there were any differences in the perceptions of the two groups.

5.3.3.2.5 Section E of the preparers' questionnaire

This section of the questionnaire aimed at determining whether the preparers were cognisant of the users' perception of the relative importance of environmental reports when compared to other types of information. The section had only question 15.

Question 15: In your opinion, how important are the following types of information to the readers of your environmental reports?

The preparers were required to indicate their perception of the importance of eight types of regularly published information to the readers of environmental reports by crossing (x) the appropriate box or “clicking” on the appropriate answer [1=not at all important, 2=slightly important, 3=fairly important, 4=very important, 5=extremely important]. The responses obtained were compared to those of users in question 14 (how important are the following types of

information to you?) with a view to ascertain if there were any differences in the perceptions of the two groups.

5.3.3.3 Pilot testing

Prior to disseminating the questionnaires, a pilot test was undertaken to ensure that the questions were clear, unambiguous and understandable by the respondents. To this end, the questionnaires were completed and critically evaluated by ten selected academics with vast experience in questionnaire design. The academics were asked to complete the questionnaires, discuss any problems they encountered and suggest any modifications they felt would make the questionnaires more user-friendly. In order to take note of any instruction or question that was unclear as well as the respondents' general reaction to the questionnaires, the researcher was present in person as the selected participants completed and critiqued the questionnaires. The researcher also noted the length of time it took the participants to complete the questionnaires.

Among the shortcomings revealed in the pilot test of the preliminary questionnaires were: misinterpretations by the respondents, lack of continuity, poor skip patterns and fewer alternatives for closed-ended questions. After the pilot testing, some changes were made to the questionnaires to clarify their instructions, enhance continuity, reduce skip patterns and increase the alternatives for closed-ended questions. In addition, the questionnaires were adjusted to rectify errors, structure answers, minimise the time taken to complete them and to make the responses suitable for statistical analysis. The questionnaires were also adjusted to reflect the recommendations made by the academics with regard to wording, ordering, layout, filtering, and length. Besides, some changes were made in the questions to ensure that the questionnaires were adequate in meeting the research objectives.

After the adjustments, the questionnaires were then resubmitted to the selected academics, who approved the corrections made. Upon approval, the questionnaires were then retested on 10 full-time senior students (fourth year accounting students) who acted as surrogates for users, and 10 part-time students (fourth year accounting students working as junior accountants) who acted as surrogates for preparers, and were found to be clear, concise and understandable.

5.3.4 Questionnaire distribution

Upon completion of the pilot test, the two sets of questionnaires were sent to respondents via an e-mail to which a cover letter and an ethics clearance letter were attached. The e-mail which briefly explained the purpose of the study invited the respondents to participate in the survey by clicking on the URL link provided, which redirected them to a web-based survey that they were to complete anonymously. This implies that only respondents who had an e-mail address were included in this survey. The survey was designed to be short and would have taken an average of fifteen minutes to complete, a strategy deployed to increase the response rate. The questionnaires were sent out on the 1st of July 2013 with a deadline of the 31st of August 2013 for the return of the questionnaire. To enhance the response rate, a telephonic follow-up was made one week before the deadline of submission. The respondents who failed to return the questionnaire before the deadline were contacted telephonically once more after the deadline date had passed.

5.3.5 Data analysis

The data from the returned questionnaires was imported from the web-based survey form to the Statistical Package for Social Sciences (SPSS) version 22, which was then used for analysing the quantitative data. The SPSS was selected because of its user-friendly nature and because it readily allows data to be imported from web-based surveys. The quantitative data was analysed using both descriptive statistics and inferential statistics, except for questions 14 in both sets of questionnaires, which were open-ended (qualitative in nature) and thus were analysed using Creswell's data analysis spiral.

5.3.5.1 Descriptive statistics

Descriptive statistics provide simple summaries about the sample and about the observations that have been made. Some measures that are commonly used to describe a sample are measures of central tendency (which measure central position of a group of data) such as arithmetic mean, and measures of variability (which measure how spread or dispersed from central position the data is) such as standard deviation. In this study, the arithmetic mean was used to provide a single figure that could summarise and rank the responses of users and preparers, and thus serve as a basis for comparing the perceptions of the two groups of respondents (Al-Mubarak, 1997:204). To measure variability or dispersion of the responses from the mean, standard deviation was used as it is the

most commonly used and the most important measure of variability (Al-Mubarak, 1997:205). In addition, percentages were used to summarise the responses of respondents, and to rank the responses.

5.3.5.2 Inferential statistics

Inferential statistics enable a researcher to make inferences about a population from observations and analyses of a sample. They allow a researcher to determine how variables in a population relate to each other, and whether there are any significant differences between two groups of samples drawn from different populations and so on (Al-Mubarak, 1997:205). With regard to inferential statistics, three tests were performed in this study namely a T-Test, a Binomial Test and a Chi-Square Test (refer to KAMPHD-CD). The T-Test for equality of means (2-tailed) was used to test for non-response bias among the users and preparers, and to test for significant mean differences between the responses of users and preparers. The Binomial Test and Chi-Square Test were used to test for significant differences in the percentages of the respondents' responses to categorical questions with two mutually exclusive and exhaustive outcomes (questions with "Yes" or "No" answers), since a T-Test cannot be used in such cases, as it is meaningless to calculate the means of categorical data (Al-Mubarak, 1997:205).

5.3.5.3 Qualitative data analysis

Given that question 14 was open-ended, a qualitative data analysis was deemed appropriate to analyse the responses to this question. To this end, Creswell's data analysis spiral, as described in Leedy and Ormrod (2001:161), was employed. Each respondents' response was content analysed and any patterns or trends that the data reflected were assembled together in six groups of meaning units to resemble the qualitative characteristics of decision-useful information, namely, relevance, reliability, verifiability, comparability, timeliness and understandability (GRI, 2000:16; IASB, 2008:12; FASB, 2010:16). The meaning units were then compared to the theory discussed in the literature review to test whether they supported and confirmed the theory or not (Leedy & Ormrod, 2005:136).

5.3.6 Reliability of the research instrument

The reliability of the research instrument was established using a pilot test of the questionnaires

conducted to check that the questions were clear, unambiguous and understandable, in order to ensure consistency in the results obtained. To this end, the questionnaires were completed and critically evaluated by ten selected academics with vast experience in questionnaire design (See section 5.3.3.3). Following the recommendations of the academics, the shortcomings in the questions were then promptly rectified.

The questionnaires were then tested and retested after a two week interval on 20 senior students (fourth year accounting students) who acted as surrogates for users and preparers, to determine whether they could be completed properly and whether they yielded consistent results. In particular, the researcher looked out for problems such as failure to answer questions, respondents giving contradicting answers to similar questions, and written comments in the margin, which are indications that the research instrument is unreliable (De Vaus, 1996:54). Interestingly, none of these problems were encountered in this study. Besides, the students indicated that they found the questions to be clear, concise and understandable, and thus the questionnaire did not need any further revision.

5.3.7 Validity

5.3.7.1 Internal validity

Only construct and content validity were deemed relevant for this phase of the study and are hence discussed below.

5.3.7.1.1 Construct validity

Construct validity refers to the validity of inferences that a research instrument actually represent or measures the construct being investigated (Straub, 1989:150). Simply put, construct validity answers the following questions: is the research instrument measuring what it should be measuring? are the questions relevant to the purpose of the questionnaire? Rowley (2002) suggested that construct validity can be achieved by reducing subjectivity of questions in a questionnaire through linking the questions posed to the original research questions or research objectives. In agreement with Rowley's (2002) suggestion, the questionnaires used in this study were directly linked to the second, third, fourth, fifth and sixth research objectives.

Another way of achieving construct validity is by pilot testing (Rowley, 2002). In this regard, a

pilot test of the questionnaires was conducted in which the questionnaires were completed and critically evaluated by ten selected academics with vast experience in questionnaire design. As part of this exercise, the academics were requested to justify and elaborate on their understanding of each question, and to point out weaknesses that undermined the construct validity of the questionnaires. The questionnaire was then amended to reflect the suggested corrections, which included inclusion of questions deemed important and deletion of those perceived to be less important from the questionnaire. This was to ensure that construct validity is achieved.

5.3.7.1.2 Content validity

Content validity refers to the extent to which a research instrument covers all facets of a given construct (decision-usefulness of environmental reports) (Boudreau *et al.*, 2001:05). Simply put, content validity ensures that the questionnaire includes an adequate and representative set of items that cover the concept (Sekaran, 1992:171). To ensure that content validity is achieved, the input of the ten accounting academics with vast experience in questionnaire design and environmental reporting was elicited on the coverage and adequacy of the questions included in the questionnaires. The questionnaire was then amended to reflect the suggestions made such as inclusion of questions deemed important, particularly the open-ended question (14) and deletion of those perceived to be unimportant ones from the questionnaire, which should have ensured content validity of the questionnaires.

5.3.7.2 External validity

External validity refers to the extent to which the research findings based on a sample can be generalised to the population from which the sample is taken or to other similar populations in terms of contexts, individuals, times, and settings (Leedy & Ormrod, 2005:105). This requires the use of a random and representative sample. With regard to the latter requirement, 100 users, who comprised 30 representatives of ethical investment funds, 40 accounting researchers, and 30 representatives of environmental NGOs were invited to participate in the survey, in the form of a census. These three user groups are considered by many researchers to be representative of the user groups of environmental reports (Tilt, 1994; Deegan & Rankin, 1997; Danatas & Gadenne, 2006; O'Dwyer *et al.*, 2005; Solomon & Solomon, 2006). Similarly, 100 preparers drawn from the top 100 listed companies operating in different sectors were invited to participate in the survey. Accordingly, they were a fair representation of all preparers of environmental reports produced by

the top 100 listed companies. Given that the respondents in the survey were a fair representation of the population that they were drawn from, external validity of the results and findings of this study was achieved.

With regards to the former requirement, effort was made to ensure that the respondents were selected randomly. Both users and preparers were selected randomly from a variety of websites that contained extensive lists and links to the websites of the respondents or their organisations. Their inclusion in the study was however based on whether they agreed to participate in the study in the pre-survey telephone call made by the researcher. The researcher acknowledges this as one of the limitations of the study.

With a self-administered questionnaire, there is always a possibility that only those with a particular interest in the subject may respond to the questionnaire (De Villiers & Van Staden, 2010a:237). This may introduce a non-response bias that occurs when some subjects choose not to respond at all, or fail to respond to some particular questions, due to their differences in some way from those who do respond (Vogt, 2005:210). Non-response bias arises when those subjects who do not return the completed questionnaire have certain characteristics that diminish the randomness of the sample (for instance if all the non-respondents are male) (Deegan & Rankin, 1997:571). If the sample is biased and no longer random, then it lacks the potential to be representative of the larger population from which the sample was drawn, thereby limiting the study's external validity (Vogt, 2005:210). Similarly, if a sample is too small in proportion to the population or as required by the type of statistical test, the researcher will not be able to make valid statistical inference about the population, as the sample will not be representative of the population (Deegan & Rankin, 1997:572).

To minimise the effect of a non-response bias, the current study selected three user groups, namely; representatives of ethical investment funds, representatives of environmental NGOs, and environmental reporting researchers, as well as a different types of preparers to ensure that the respondents were heterogeneous. This increased the likelihood that respondents of different persuasions answered the questionnaire (De Villiers & Van Staden, 2010a:240). In addition, the respondents were specifically asked to complete the questionnaire even if they had little interest or were against environmental disclosure to ensure that the results would be representative of all views (De Villiers & Van Staden, 2010a:240).

To further enhance the external validity of the results and findings of this questionnaire survey, various measures were undertaken to increase the response rate. These included, the use of a simplified questionnaire that was made conveniently accessible via a web-link, which also reduced the possibility of non-response bias (De Villiers & Van Staden, 2010b:440). Respondents were also encouraged to participate in the survey by the assurance provided that they would be treated anonymously and that the findings would only be used for research purposes (De Villiers & Van Staden, 2010a:241). Telephonic follow-ups were also made where the respondents could be identified, as well as a second e-mail follow-up request where the respondents could not be identified (O'Dwyer *et al.*, 2005:07). The response rates achieved in this study were also compared to those of similar prior studies, and found to be typical, which meant that the subject matter did not deter more potential respondents than prior surveys, thus the probability of non-response bias was not higher than usual (O'Dwyer *et al.*, 2005:08).

To test for non-response bias, the responses of early responders were compared to those of late responders, an approach used widely in prior literature (Deegan & Rankin, 1997:571). Early responders are taken to represent individuals who are favourably disposed towards the subject of the questionnaire, whereas the late responders are taken to represent those who are less in favour, as well as those who chose not to complete the questionnaires (De Villiers & Van Staden, 2010a:241). For each of the seven likert scale questions (out of a total of 15 questions in the questionnaire), a series of T-Tests was conducted for both the users and preparers.

A respondent was deemed to be early if the response was received within two weeks of the questionnaire being sent to them, and late if the response was received after the due date to respond. There were no significant differences in the questionnaire answers between those who responded early when compared to those who responded late for both groups (refer to KAMPHD-CD). Accordingly there was no evidence of non-response bias in this test. Although this kind of test is not conclusive in ruling out a non-response bias, however it is an accepted practice that is used widely in similar surveys (Deegan & Rankin, 1997:571; De Villiers & Van Staden, 2010b:241). Nevertheless, with the acceptable response rate, differing opinions in the results, and similarity of early and late responders' responses, it is unlikely that non-response bias influenced the results significantly.

5.3.7.3 Limitations of the questionnaire survey

Apart from the non-response bias already discussed, the other limitations of a questionnaire survey are also well documented in the prior literature. Key among the limitations is the inability of the researcher to probe responses and seek clarification for ambiguous answers (Nachmias & Nachmias, 1992; Al-Mubarak, 1997:181). To mitigate for this limitation, respondents were provided with an option to expound on their answer where the response was “other”. This was done by requesting them to specify their answer. Furthermore, one question was open-ended to elicit more information than would have otherwise been provided had the researcher strictly confined the questionnaire to closed-ended questions. Besides, a logical sequence of questions was used in a probing pattern.

Yet another limitation of the questionnaire survey is that the researcher cannot ascertain whether the questionnaire was completed by the appropriate respondent for whom the questionnaire was intended for (Nachmias & Nachmias, 1992; Al-Mubarak, 1997:181). It is common for senior personnel to hand over questionnaires to their juniors for completion. To mitigate for this limitation, the questionnaires were, where possible addressed to specific individuals and not just positions. Besides, the questionnaires had a demographic profile which would assist the researcher to determine whether they had been answered by the intended person (De Villiers & Van Staden, 2010b:441).

5.3.8 Ethical considerations

Before the commencement of the actual questionnaire survey, an application for approval of the research project by the College of Economic and Management Sciences Research Ethics Committee (CEMS REC) was made and obtained (See Appendix L). Once the approval of the research project was obtained, respondents were invited to participate in the questionnaire survey via a cover letter that accompanied the questionnaires (See Appendix F). The purpose of the study and the participation required from the respondents were explained in the cover letter. The respondents were further informed in the letter that they had the right to decide voluntarily whether to participate in the study, right to ask questions, refuse to give information or to withdraw from the study at any time if they so wished.

In the same letter, anonymity and confidentiality were assured to the respondents by stating that

the identity of the respondents could not be linked with their individual responses. To further ensure anonymity and confidentiality, the respondents were requested not to write their names on the questionnaires. The respondents were further assured that the information would be used for the purpose of the research only and that the findings of the research would be made available to them if they so requested. In addition, the respondents were informed that they would not receive any remuneration for participation in the study, however, the findings of the study would assist in improving the decision-usefulness of environmental reports produced by South African companies.

5.4 CHAPTER SUMMARY AND CONCLUSION

This chapter discussed two research methodologies employed to collect data for meeting the objectives of this study. The two methodologies discussed were content analysis and questionnaire survey methodologies, which were undertaken in two phases. Accordingly, the discussion in this chapter was divided into the two phases. In the first phase, the chapter commenced by defining the content analysis method and justifying its use in addressing the first research objective. The chapter then presented the population for the content analysis phase of the study which consisted of the top 100 JSE listed operating companies, together with the justification for the selection of the population, as well as the sampling criteria employed. The environmental reporting media, namely; the IAR, SSR, and company websites were then discussed and the justification for their selection provided.

The design of the five control lists and categories adapted from the prior studies were then discussed, as well as the judgement scale employed to distinguish the quality of different environmental information content. This was followed by a discussion of the pilot study conducted to finalise the questions and categories in the control lists, as well as the decision rules for coding. The actual coding processes which entailed scanning of IARs, SSRs and websites of companies to determine the presence of the pre-selected items contained in the five control lists was done in a manner that recorded only the actual environmental related disclosures instead of implied meanings.

The chapter went on to elaborate on how the decision-usefulness of environmental reports was measured. To measure relevance, reliability (including verifiability), timeliness and

understandability, four manual control lists were employed. If an item pre-listed in the control list was absent in the IAR, SSR and a website of a company, a score of 0 points was assigned, if present, the quality of such a disclosure was assessed then assigned 1 point, 2 points, or 3 points according to the quantitative nature of the disclosure, as indicated on the judgement scale. 1 extra point was awarded if the disclosure was futuristic and 1 more point if the disclosure was specific.

To measure comparability, a manual control list was employed. If a performance indicator pre-listed in the control list was absent in the IAR, SSR and a website of a company, a score of 0 points was assigned. If present, the quality of the performance indicator was assessed then assigned scores of 1 point, 2 points, 3 points, 4 points and 5 points depending on how the performance indicator had been disclosed.

The data captured in the control lists were then analysed in a spread sheet to generate sums for each qualitative characteristic, as well as a total environmental disclosure quality index for each company. The latter was used to rank the operating top 100 JSE listed companies in a descending fashion. The chapter then discussed the measures undertaken to ensure the reliability and validity of the content analysis phase of the study, as well as the limitations and ethical considerations of this method.

The second phase of the study, in form of a questionnaire survey meant to collect data for meeting the second, third, fourth, fifth and sixth objective was then discussed. The second phase commenced with the justification for questionnaire survey methodology, followed by a discussion of the population and sample (comprising both users and preparers) as well as the convenient sampling technique employed in selecting respondents. Two sets of questionnaires designed for this study were then discussed. The two sets, one for users (representative of ethical investment funds, representative of NGOs and environmental reporting researchers) and the other for preparers (finance directors, accountants, executives managers and environmental officers) were accompanied with a cover letter to encourage the would-be respondents to participate in the survey and to guarantee them anonymity. The two sets were also designed to maximise the comparability of responses of the two groups of respondents. To this end, they had identical sections, similar questions and were mostly closed-ended with responses requested on either a five-point likert scale, yes/no answers or as multiple-choice questions.

The questionnaires were divided into five sections which comprised 15 questions. They were deliberately simplified to be completable in 15 minutes, a strategy meant to elicit a high response rate. Each section of the questionnaire, as well as the questions therein and their objectives were also discussed in the chapter. The questionnaires were pilot tested prior to dissemination to ascertain that they were clear, unambiguous and understandable by the respondents. The questionnaires were essentially disseminated to the respondents via an e-mail message with a request to click on a URL link that redirected the respondents to a web-based survey.

The chapter then discussed the data analysis done using SPSS version 22. Both descriptive statistics in form of percentages and measures of central tendency (mean) and measures of variability (standard deviation) were employed to analyse the data. Inferential statistics in form of a T-Test, Binomial Test and a Chi-Square were also performed. Question 14 which was open-ended was analysed using Creswell's data analysis spiral, as its data was qualitative in nature. The chapter then discussed the measures undertaken to ensure the reliability and validity of the questionnaire survey phase of the study, as well as the related limitations and ethical considerations. In conclusion, it is the researcher's contention that the methodology adopted in the current study was appropriate in addressing the research objectives of the study.

The next chapter (Chapter 6) presents the results and discussion relating to the content analysis phase of the study.

CHAPTER 6

ANALYSIS OF RESULTS OF CONTENT ANALYSIS

6.1 INTRODUCTION

In this chapter, the results of the content analysis phase of the study are presented and discussed. The chapter proceeds with a discussion of the objective and sub-objectives of the content analysis phase of the study in section 6.2. This is followed by a discussion of the profile of the top 100 companies included in the content analysis phase of the study, including their market capitalisation, and classification into sectors according to the FTSE global classification system and global footprint in section 6.3. Section 6.4 of the chapter then presents results on the relevance of the environmental reports of South African listed companies. This is followed by a presentation of results on reliability (verifiability) of the environmental reports of South African listed companies in section 6.5.

Section 6.6 presents results on comparability of environmental reports of South African listed companies, followed by a presentation of results on understandability of environmental reports of South African listed companies in section 6.7. Section 6.8 provides the results on timeliness of environmental reports of South African listed companies, followed by a presentation of results on overall decision-usefulness of South African listed companies in section 6.9. Section 6.10 then provides an explanation of content analysis results using the decision-usefulness theory. Finally, section 6.11 summarises the results and concludes the chapter.

6.2 OBJECTIVE AND SUB-OBJECTIVES OF THE CONTENT ANALYSIS PHASE OF THE STUDY

The objective of the content analysis phase of the study was to evaluate the decision-usefulness of the current environmental reporting practices by South African companies. To achieve this objective required that the qualitative characteristics that make reports to be decision-useful be evaluated. This necessitated the sub-division of the research objective into sub-objectives listed below:

- To evaluate the relevance of the current environmental reporting practices by South African companies
- to evaluate the reliability (verifiability) of the current environmental reporting practices by South African companies
- to evaluate the comparability of the current environmental reporting practices by South African companies
- to evaluate the timeliness of the current environmental reporting practices by South African companies
- to evaluate the understandability of the current environmental reporting practices by South African companies

6.3 PROFILE OF THE TOP 100 COMPANIES

The top 100 companies whose environmental disclosures located in the Integrated Annual Reports (IARs), Stand-alone Sustainability Reports (SSR) and Corporate websites were analysed, comprised all operating large-cap (Top 40) and mid-cap (Top 41-100) companies listed on the JSE as measured by market capitalisation (See Appendix I).

The top 100 companies included in this study are large size organisations with a high turnover – typically industry leaders in their own sectors – with physical presence in many provinces of South Africa as well as with international presence. Given their large sizes and physical presence in most provinces, these organisations do not only significantly impact the environment in the areas in which they operate, they also exert pressure on the natural resources in those areas. In addition, they employ a large number of people and support auxiliary industries in their supply chain which further exacerbate their impact on the environment indirectly. Furthermore, these companies are well resourced and can thus afford to employ dedicated personnel to focus on environmental issues, as well as afford to prepare environmental reports on a variety of media.

As discussed earlier in section 5.23, only 66 companies were included in the sample. These companies were drawn from diverse sectors, ranging from those with a significant impact on the environment to those with a minimal impact (See Table 6.1). In terms of the percentage of the top 100 companies sampled, 37.88% were from the Retail and Services sector, 19.70 from the Industrial and Consumption sector, and 18.18% from the Mining and Resources sector. The

remainder comprised 13.64% from the Financial sector, 7.58% from Real Estate sector, and 3.03% from the ICT sector.

TABLE 6.1: SECTOR CLASSIFICATION OF THE SAMPLED TOP 100 COMPANIES

No	Sector	Number of companies in the sample	Percentage
1	Retail and Services	25	37.88%
2	Mining and Resources	13	19.70%
3	Industrial and Consumption	12	18.18%
4	Financial	9	13.64%
5	Real Estate	5	7.58%
6	Information and Communication Technologies (ICT)	2	3.03%
	Total	66	100%

6.4 ANALYSIS OF RELEVANCE OF CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.4.1 First sub-objective of the analysis

The first sub-objective of the content analysis phase of the study was to evaluate the relevance of the current environmental reporting practices by the top 100 listed operating South African companies. Environmental reports are relevant when they address the diverse concerns, expectations and decision-making needs of the intended users (GRI, 2000:16). This can only happen when the stakeholders are meaningfully engaged in the reporting process through a dialogue meant to understand their information needs (Deloitte Touche Tohmatsu, 2002:36). Accordingly, the disclosure of stakeholder engagement practices can be used to gauge the relevance of the environmental reports (Deloitte Touche Tohmatsu, 2002:13).

To evaluate the relevance of the environmental reports, the content analysis of the environmental

reports was centred on: the disclosure of the identification; selection and prioritisation of stakeholders to be engaged; use of a variety of methods to engage them; determination of what is of concern to stakeholders; selection, and reporting content that addresses these concerns. In addition, the analysis was centred on the disclosure of the engagement process and outcomes, disclosure of stakeholder' participation in the reporting process, nature of information disclosed and the use of on-line features to enhance the relevance of the reports to the users.

The relevance of the environmental disclosures of the top 100 listed operating companies was evaluated using the checklist and judgement scale according to the criteria discussed in Chapter 5 and computed as a percentage. The companies were then ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.2.

TABLE 6.2: RANKING OF COMPANIES ACCORDING TO RELEVANCE OF THEIR ENVIRONMENTAL REPORT

Rank	Name	Score	Sector
1	Anglo American Platinum Corporation Limited	94%	Mining and Resources
2	Barloworld Limited	94%	Industrial and Consumption
3	Anglo American Public Limited Company	91%	Mining and Resources
4	Lonmin Public Limited Company	91%	Mining and Resources
5	Nampak Limited	91%	Industrial and Consumption
6	Distell Group Limited	90%	Industrial and Consumption
7	Mondi Public Limited Company	90%	Industrial and Consumption
8	AECI Limited	89%	Financial
9	Pretoria Port Cement	89%	Industrial and Consumption
10	Pick n Pay Stores Limited	88%	Retail and Services
11	Vodacom Group Limited	88%	ICT
12	Northam Platinum Limited	87%	Mining and Resources
13	African Rainbow Minerals	86%	Mining and Resources

TABLE 6.2: RANKING OF COMPANIES ACCORDING TO RELEVANCE OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
14	Exxaro Resources Limited	86%	Mining and Resources
15	Hyprop Investments Limited	86%	Real Estate
16	Netcare Limited	85%	Retail and Services
17	BHP Billiton Public Limited Company	83%	Mining and Resources
18	Reunert Limited	82%	Industrial and Consumption
19	The Bidvest Group Limited	82%	Retail and Services
20	Standard Bank Group Limited	81%	Financial
21	Tongaat Hulett Limited	81%	Retail and Services
22	Harmony Gold Mining Company Limited	80%	Mining and Resources
23	Kumba Iron Ore Limited	80%	Mining and Resources
24	Nedbank Group Limited	80%	Financial
25	Sasol Limited	80%	Industrial and Consumption
26	Steinhoff International Holdings Limited	80%	Retail and Services
27	Woolworths Holdings Limited	80%	Retail and Services
28	Compagnie Fin Richemont	79%	Retail and Services
29	Assore Limited	77%	Mining and Resources
30	Capitec Bank Limited	77%	Financial
31	Gold fields Limited	77%	Mining and Resources
32	Growthpoint Properties Limited	77%	Real Estate
33	Life Healthcare Group Holding Limited	77%	Retail and Services
34	Old Mutual Public Limited Company	77%	Financial
35	Clicks Group Limited	76%	Retail and Services
36	Impala Platinum Holdings Limited	76%	Mining and Resources

TABLE 6.2: RANKING OF COMPANIES ACCORDING TO RELEVANCE OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
37	MTN Group Limited	75%	ICT
38	Arcelormittal South Africa Limited	74%	Industrial and Consumption
39	Mediclinic International	74%	Retail and Services
40	Massmart Holdings Limited	73%	Retail and Services
41	Redefine Properties Limited	71%	Real Estate
42	The Foschini Group Limited	71%	Retail and Services
43	Absa Group Limited	69%	Industrial and Consumption
44	Imperial Holdings Limited	69%	Retail and Services
45	Remgro Limited	68%	Industrial and Consumption
46	Tsogo Sun Holdings Limited	66%	Retail and Services
47	The Spar Group Limited	65%	Retail and Services
48	British American tobacco (PLC)	64%	Industrial and Consumption
49	Discovery Holdings Limited	63%	Financial
50	Aspen Pharmacare Holdings	60%	Retail and Services
51	Investec Bank Limited	60%	Financial
52	Shoprite Holdings Limited	57%	Retail and Services
53	SabMiller Public Limited Company	56%	Industrial and Consumption
54	Anglogold Ashanti Limited	51%	Mining and Resources
55	Mr Price Group Limited	49%	Retail and Services
56	Tiger Brands Limited	46%	Retail and Services
57	AVI Limited	44%	Retail and Services
58	Pioneer Foods Group Limited	44%	Industrial and Consumption
59	Sanlam Limited	44%	Financial
60	Naspers Limited	41%	Retail and Services
61	Firstrand Limited	40%	Financial
62	Illovo Sugar Limited	40%	Retail and Services

TABLE 6.2: RANKING OF COMPANIES ACCORDING TO RELEVANCE OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
63	MMI Holdings Limited	34%	Retail and Services
64	Truworths International Limited	34%	Retail and Services
65	Capital Property Fund	20%	Real Estate
66	Resilient Property Income Fund	20%	Real Estate

6.4.2 Results on relevance of environmental reports

The results of the current study indicate that the relevance of the environmental reports varied widely among the companies sampled (See Table 6.2); from 94% for the company with the most relevant reports to 20% for the company with the least relevant report. This result is consistent with those of the prior studies which have shown that the disclosure practices of companies tend to vary widely among listed companies (Kolk, 2005:39; KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01). All the same, the reports produced by the sampled companies were relevant as only 12 companies scored less than 50%. Simply put, about 82% of the companies' environmental reports had a relevance score of at least 50%. The average score for all the 66 companies was 70.43%, further confirmation that the reports were relevant.

6.5 ANALYSIS OF THE RELIABILITY (VERIFIABILITY) OF CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.5.1 Second sub-objective of the analysis

The second sub-objective of the content analysis phase of the study was to evaluate the reliability and verifiability of the current environmental reporting practices by the top 100 listed operating South African companies. Environmental reports are reliable and verifiable if they fulfil a number of conditions, including: when they contain a statement from the most senior decision-maker of a company; disclose the organisation structure; divulge the initiatives undertaken to mitigate the environmental impacts; demonstrate external recognition and involvement; are independently attested to, and if they contain independent third party commentary (Delloite Touche Tohmatsu, 2002:40; GRI, 2006:17). In addition, environmental reports are reliable and verifiable when the

content is reported in a balanced manner, with risk and opportunities divulged candidly, and if policies, objectives and strategies are disclosed (Delloite Touche Tohmatsu, 2002:13; GRI, 2006:03). Accordingly, the evaluation of the reliability and verifiability of environmental disclosures was centred on the disclosure of the above-mentioned aspects.

The reliability and verifiability of environmental disclosures of the top 100 listed operating companies was evaluated using the checklist and judgement scale according to the criteria discussed in Chapter 5, and computed as a percentage. The companies were then ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.3.

6.5.2 Results on the reliability (verifiability) of environmental reports

As evident from table 6.3, the results of the current study indicate that the reliability and verifiability of environmental reports varied widely among the companies sampled, from 97% for the company with the most reliable (verifiable) report to 17% for the company with the least reliable (verifiable) report. This result is consistent with those of the prior studies which have shown that the disclosure practices of companies tend to vary widely among listed companies (Kolk, 2005:39; KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01). Nonetheless, the environmental reports produced by the sampled companies were reliable as only 26 companies scored less than 50%.

TABLE 6.3 RANKING OF COMPANIES ACCORDING TO RELIABILITY (VERIFIABILITY) OF THEIR ENVIRONMENTAL REPORT

Rank	Name	Score	Sector
1	Anglo American Public Limited Company	97%	Mining and Resources
2	Gold fields Limited	96%	Mining and Resources
3	Anglo American Platinum Corporation Limited	95%	Mining and Resources
4	Woolworths Holdings Limited	95%	Retail and Services
5	Exxaro Resources Limited	94%	Mining and Resources
6	Mondi Public Limited Company	94%	Industrial and Consumption

**TABLE 6.3 RANKING OF COMPANIES ACCORDING TO RELIABILITY
(VERIFIABILITY) OF THEIR ENVIRONMENTAL REPORT (CONT...)**

Rank	Name	Score	Sector
7	BHP Billiton Public Limited Company	92%	Mining and Resources
8	Kumba Iron Ore Limited	91%	Mining and Resources
9	Nedbank Group Limited	91%	Financial
10	Illovo Sugar Limited	90%	Retail and Services
11	Investec Bank Limited	89%	Financial
12	Harmony Gold Mining Company Limited	88%	Mining and Resources
13	Sasol Limited	88%	Industrial and Consumption
14	Anglogold Ashanti Limited	87%	Mining and Resources
15	Sanlam Limited	86%	Financial
16	Compagnie Fin Richemont	83%	Retail and Services
17	MTN Group Limited	83%	ICT
18	Standard Bank Group Limited	83%	Financial
19	Tongaat Hulett Limited	83%	Retail and Services
20	African Rainbow Minerals	82%	Mining and Resources
21	Barloworld Limited	81%	Industrial and Consumption
22	Lonmin Public Limited Company	81%	Mining and Resources
23	Northam Platinum Limited	81%	Mining and Resources
24	SabMiller Public Limited Company	79%	Industrial and Consumption
25	Vodacom Group Limited	79%	ICT
26	The Bidvest Group Limited	78%	Retail and Services
27	Impala Platinum Holdings Limited	77%	Mining and Resources
28	Absa Group Limited	76%	Industrial and Consumption
29	AECI Limited	76%	Financial

**TABLE 6.3 RANKING OF COMPANIES ACCORDING TO RELIABILITY
(VERIFIABILITY) OF THEIR ENVIRONMENTAL REPORT (CONT...)**

Rank	Name	Score	Sector
30	British American tobacco Public Limited Company	76%	Industrial and Consumption
31	Pretoria Portland Cement	74%	Industrial and Consumption
32	Discovery Holdings Limited	67%	Financial
33	Netcare Limited	63%	Retail and Services
34	Nampak Limited	58%	Industrial and Consumption
35	Imperial Holdings Limited	57%	Retail and Services
36	Old Mutual Public Limited Company	54%	Financial
37	Arcelormittal South Africa Limited	52%	Industrial and Consumption
38	Pick n Pay Stores Limited	52%	Retail and Services
39	Distell Group Limited	51%	Industrial and Consumption
40	Growthpoint Properties Limited	50%	Real Estate
41	Clicks Group Limited	49%	Retail and Services
42	Aspen Pharmacare Holdings	47%	Retail and Services
43	Hyprop Investments Limited	47%	Real Estate
44	Reunert Limited	47%	Industrial and Consumption
45	Mediclinic International	43%	Retail and Services
46	Steinhoff International Holdings Limited	43%	Retail and Services
47	Remgro Limited	42%	Industrial and Consumption
48	AVI Limited	38%	Retail and Services
49	Massmart Holdings Limited	38%	Retail and Services
50	Tiger Brands Limited	38%	Retail and Services
51	Firststrand Limited	37%	Financial
52	Naspers Limited	37%	Retail and Services
53	Tsogo Sun Holdings Limited	37%	Retail and Services
54	Assore Limited	36%	Mining and Resources

**TABLE 6.3 RANKING OF COMPANIES ACCORDING TO RELIABILITY
(VERIFIABILITY) OF THEIR ENVIRONMENTAL REPORT (CONT...)**

Rank	Name	Score	Sector
55	Redefine Properties Limited	36%	Real Estate
56	The Foschini Group Limited	36%	Retail and Services
57	MMI Holdings Limited	35%	Retail and Services
58	Shoprite Holdings Limited	35%	Retail and Services
59	Pioneer Foods Group Limited	34%	Industrial and Consumption
60	Capitec Bank Limited	31%	Financial
61	The Spar Group Limited	31%	Retail and Services
62	Life Healthcare Group Holding Limited	27%	Retail and Services
63	Mr Price Group Limited	27%	Retail and Services
64	Truworths International Limited	23%	Retail and Services
65	Resilient Property Income Fund	19%	Real Estate
66	Capital Property Fund	17%	Real Estate

Simply put, about 61% of the companies' environmental reports had a reliability score of at least 50%, with an average score of 61.80% for all the 66 companies.

Comparing the average for relevance (70.43%) with that of reliability (verifiability) (61.80%), one can conclude that the sampled environmental reports were more relevant than they were reliable. This finding concurs with FASB's (2008:15) conceptual framework assertion that for non-financial reports or statements, relevance should be the dominant quality in the information conveyed in accounting reports, even at the expense of reliability. Although accounting information must be both relevant and reliable, information may possess both characteristics to varying degrees (FASB, 2008:15). In fact, it may be necessary or beneficial to trade reliability for relevance, and vice versa, in order to increase the overall decision-usefulness of accounting reports, though not to the point of dispensing with one of them altogether.

6.6 COMPARABILITY OF CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.6.1 Third sub-objective of the analysis

The third sub-objective of the content analysis phase of the study was to evaluate the comparability of the current environmental reporting practices by the top 100 listed operating South African companies. Central to the evaluation of comparability of environmental reports is the analysis of disclosure of key performance indicators that enable readers to assess the performance of a company both over time and in comparison with other companies (GRI, 2000:25). This evaluation advocates that where applicable, key performance indicators disclosed should include quantitative information for the current period, historical trends for at least the previous two reporting periods, and a target period, as well as a comparison to industry averages.

Accordingly, the comparability of environmental reports can be gauged by analysing the disclosure of standardised GRI environmental key performance indicators EN1 to EN30, and evaluating whether these indicators are disclosed in narrative or quantitative form, relative to prior periods, to targets or to peers/industry averages. Comparability of environmental reports may also be gauged by whether or not companies archive their reports for multiple years in an accessible manner on their websites.

To determine the comparability of the environmental reports, the disclosure of standardised GRI environmental key performance indicators EN1 to EN30 by the top 100 listed operating companies was evaluated according to the criteria, checklist and a judgement scale discussed in Chapter 5. In addition, companies' websites were evaluated to determine whether they contained an archive of environmental reports for multiple years. The comparability of the environmental disclosures of the top 100 listed operating companies was then computed as a percentage and the companies ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.4.

TABLE 6.4: RANKING OF COMPANIES ACCORDING TO COMPARABILITY OF THEIR ENVIRONMENTAL REPORT

Rank	Name	Score	Sector
1	Anglo American Platinum Corporation Limited	51%	Mining and Resources
2	Barloworld Limited	50%	Industrial and Consumption
3	Standard Bank Group Limited	50%	Financial
4	Mondi Public Limited Company	48%	Industrial and Consumption
5	Woolworths Holdings Limited	48%	Retail and Services
6	Vodacom Group Limited	47%	ICT
7	Nedbank Group Limited	46%	Financial
8	The Foschini Group Limited	45%	Retail and Services
9	Gold fields Limited	44%	Mining and Resources
10	Lonmin Public Limited Company	43%	Mining and Resources
11	British American tobacco Public Limited Company	42%	Industrial and Consumption
12	Sasol Limited	42%	Industrial and Consumption
13	Pick n Pay Stores Limited	40%	Retail and Services
14	Anglo American Public Limited Company	39%	Mining and Resources
15	Tongaat Hulett Limited	38%	Retail and Services
16	Absa Group Limited	37%	Financial
17	Impala Platinum Holdings Limited	36%	Mining and Resources
18	Mediclinic International	36%	Retail and Services
19	Anglogold Ashanti Limited	35%	Mining and Resources
20	Investec Bank Limited	35%	Financial
21	African Rainbow Minerals	33%	Mining and Resources
22	BHP Billiton Public Limited Company	33%	Mining and Resources

TABLE 6.4: RANKING OF COMPANIES ACCORDING TO COMPARABILITY OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
23	Harmony Gold Mining Company Limited	33%	Mining and Resources
24	Exxaro Resources Limited	32%	Mining and Resources
25	Kumba Iron Ore Limited	32%	Mining and Resources
26	Netcare Limited	32%	Retail and Services
27	Discovery Holdings Limited	30%	Financial
28	Distell Group Limited	30%	Industrial and Consumption
29	Sanlam Limited	30%	Financial
30	Aspen Pharmacare Holdings	29%	Retail and Services
31	Illovo Sugar Limited	28%	Retail and Services
32	Old Mutual Public Limited Company	28%	Financial
33	Compagnie Fin Richemont	27%	Retail and Services
34	Remgro Limited	27%	Industrial and Consumption
35	Pretoria Portland Cement	26%	Industrial and Consumption
36	Reunert Limited	26%	Industrial and Consumption
37	The Spar Group Limited	26%	Retail and Services
38	Northam Platinum Limited	24%	Mining and Resources
39	Arcelormittal South Africa Limited	23%	Industrial and Consumption
40	Imperial Holdings Limited	23%	Retail and Services
41	Steinhoff International Holdings Limited	23%	Retail and Services
42	Assore Limited	22%	Mining and Resources
43	Nampak Limited	22%	Industrial and Consumption
44	The Bidvest Group Limited	21%	Retail and Services
45	Massmart Holdings Limited	20%	Retail and Services
46	MTN Group Limited	20%	ICT

TABLE 6.4: RANKING OF COMPANIES ACCORDING TO COMPARABILITY OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
47	Naspers Limited	20%	Retail and Services
48	Clicks Group Limited	19%	Retail and Services
49	SabMiller Public Limited Company	19%	Industrial and Consumption
50	Firstrand Limited	18%	Financial
51	Hyprop Investments Limited	18%	Real Estate
52	MMI Holdings Limited	18%	Retail and Services
53	Mr Price Group Limited	18%	Retail and Services
54	AECI Limited	16%	Industrial and Consumption
55	AVI Limited	16%	Retail and Services
56	Capitec Bank Limited	16%	Financial
57	Life Healthcare Group Holding Limited	15%	Retail and Services
58	Tiger Brands Limited	15%	Retail and Services
59	Tsogo Sun Holdings Limited	15%	Retail and Services
60	Pioneer Foods Group Limited	14%	Industrial and Consumption
61	Growthpoint Properties Limited	13%	Real Estate
62	Shoprite Holdings Limited	12%	Retail and Services
63	Redefine Properties Limited	10%	Real Estate
64	Capital Property Fund	7%	Real Estate
65	Resilient Property Income Fund	7%	Real Estate
66	Truworths International Limited	5%	Retail and Services

6.6.2 Results on the comparability of environmental reports

As shown in Table 6.4, the results of the current study indicate that the comparability of the environmental reports varied widely among the companies sampled, with 51% for the company with the most comparable environmental report and 5% for the company with the least comparable report. This result is consistent with those of prior studies, which indicated that the disclosure practices of companies tend to vary widely among listed companies (Kolk, 2005:39;

KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01). Unlike in the other qualitative characteristics of decision-useful information, the environmental reports of the sampled companies were not comparable as only three companies scored at least 50%. Quite distinctly, just above 95% of the companies' environmental reports had a comparability score below 50%. The average score for all the 66 companies was 27.92%.

Comparing the companies' environmental reports' average for comparability (27.92%) to their average for relevance (70.43%) and reliability (verifiability) (61.80%), one can conclude that the sampled environmental reports were more relevant and reliable, than they were comparable. The incomparability of environmental reports can be explained using FASB's (2008:27) conceptual framework which posits that incomparability arises because business enterprises, even those in the same sector, do not use similar inputs, do not apply similar procedures, or do not classify costs using the same systems.

Sampled companies appear to be aligned with FASB's (2008:12) conceptual framework assertion that comparability as an enhancing qualitative characteristic does not significantly impact the decision-usefulness of accounting information, as does relevance and reliability. In fact, attempting to force comparability of two measures that are essentially different could undermine relevance and reliability if comparability is attained by making the unlike disclosures to look alike (FASB's, 2008:28). Simply put, in seeking comparability, real differences should not be disguised as more can be learned from differences than from similarities – if the differences can be explained (FASB, 2008:27).

Although the use of a consistent disclosure method, whether from one period to another within a single company, or within a single period across companies is a necessary condition for comparability, it is not a sufficient condition for the latter (FASB's, 2008:28). In addition a consistent disclosure method from one accounting period to another, if pushed too far, can inhibit accounting progress because no change to a preferred disclosure method can be made without sacrificing consistency. Yet, there is no way that accounting can progress without change (FASB's, 2008:28).

6.7 ANALYSIS OF UNDERSTANDABILITY OF CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.7.1 Fourth sub-objective of the analysis

The fourth sub-objective of the content analysis phase of the study was to evaluate the understandability of the current environmental reporting practices by the top 100 listed operating South African companies. Understandability requires classifying, characterising, and presenting information clearly and concisely (FASB, 2010:21). In environmental reporting, understandability of the reports can be enhanced by contextualising the reports: by disclosing the company profile, scale of operation and providing the reports' scope and boundary (GRI, 2006:21). In addition, it can be enhanced by providing a summary of performance indicators, ensuring accessibility of the information in the reports, use of a logical report structure, use of suitable graphics and pictures, reporting bilingually as well as through simplification of terms used (Deloitte Touché Tohmatsu, 2002:15). Furthermore, understandability can be enhanced by using web capabilities to ease interactivity, navigation, accessibility of information and user-friendliness of on-line environmental reports (GRI, 2006:16).

To gauge the understandability of the environmental reports, they were evaluated according to whether or not they disclosed information discussed in the previous paragraph or whether they had the features described in it. All these were based on the criteria, checklist and a judgement scale discussed in Chapter 5. The understandability of the environmental disclosures of the top 100 listed operating companies was then computed as a percentage and the companies ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.5.

6.7.2 Results on the understandability of environmental reports

As shown in Table 6.5, the results of the current study indicate that the understandability of the environmental reports varied widely among the companies sampled – 89% for the company with the most understandable environmental report to 30% for the company with the least understandable report. This result is consistent with those of the prior similar studies which reported that the disclosure practices of companies tend to vary widely among listed companies (Kolk, 2005:39; KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01). Notwithstanding the above-mentioned disparity in the understandability of the environmental

reports, the reports of the sampled companies were understandable as only six companies scored less than 50%. About 91% of the companies' environmental reports had an understandability score of at least 50%. The average score for understandability for all the 66 companies sampled was 69.68%.

TABLE 6.5: RANKING OF COMPANIES ACCORDING TO UNDERSTANDABILITY OF THEIR ENVIRONMENTAL REPORT

Rank	Name	Score	Sector
1	Sasol Limited	89%	Industrial and Consumption
2	Vodacom Group Limited	87%	ICT
3	Anglo American Public Limited Company	85%	Mining and Resources
4	Barloworld Limited	84%	Industrial and Consumption
5	Woolworths Holdings Limited	84%	Retail and Services
6	BHP Billiton Public Limited Company	83%	Mining and Resources
7	Pretoria Port Cement	83%	Industrial and Consumption
8	Standard Bank Group Limited	82%	Financial
9	Anglogold Ashanti Limited	81%	Mining and Resources
10	British American tobacco (PLC)	81%	Industrial and Consumption
11	SabMiller Public Limited Company	80%	Industrial and Consumption
12	MTN Group Limited	79%	ICT
13	African Rainbow Minerals	78%	Mining and Resources
14	Harmony Gold Mining Company Limited	78%	Mining and Resources
15	Old Mutual Public Limited Company	78%	Financial
16	Aspen Pharmacare Holdings	77%	Retail and Services
17	Nampak Limited	77%	Industrial and Consumption
18	Northam Platinum Limited	77%	Mining and Resources
19	Absa Group Limited	76%	Financial

TABLE 6.5: RANKING OF COMPANIES ACCORDING TO UNDERSTANDABILITY OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
20	Impala Platinum Holdings Limited	76%	Mining and Resources
21	Kumba Iron Ore Limited	76%	Mining and Resources
22	Mondi Public Limited Company	76%	Industrial and Consumption
23	Arcelormittal South Africa Limited	75%	Industrial and Consumption
24	Remgro Limited	75%	Industrial and Consumption
25	Anglo American Platinum Corporation Limited	74%	Mining and Resources
26	Discovery Holdings Limited	74%	Financial
27	Pick n Pay Stores Limited	74%	Retail and Services
28	Reunert Limited	74%	Industrial and Consumption
29	Distell Group Limited	73%	Industrial and Consumption
30	Investec Bank Limited	73%	Financial
31	Mediclinic International	73%	Retail and Services
32	Nedbank Group Limited	73%	Financial
33	Netcare Limited	73%	Retail and Services
34	Compagnie Fin Richemont	72%	Retail and Services
35	Exxaro Resources Limited	72%	Mining and Resources
36	Hyprop Investments Limited	72%	Real Estate
37	Redefine Properties Limited	72%	Real Estate
38	Lonmin Public Limited Company	71%	Mining and Resources
39	Naspers Limited	71%	Retail and Services
40	Tongaat Hulett Limited	71%	Retail and Services
41	Assore Limited	70%	Mining and Resources
42	Gold fields Limited	70%	Mining and Resources
44	AECI Limited	69%	Industrial and Consumption
45	Life Healthcare Group Holding	69%	Retail and Services

TABLE 6.5: RANKING OF COMPANIES ACCORDING TO UNDERSTANDABILITY OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
46	Massmart Holdings Limited	69%	Retail and Services
47	The Bidvest Group Limited	69%	Retail and Services
48	Tiger Brands Limited	69%	Retail and Services
49	Clicks Group Limited	68%	Retail and Services
50	Pioneer Foods Group Limited	67%	Industrial and Consumption
51	MMI Holdings Limited	66%	Retail and Services
52	Truworths International Limited	65%	Retail and Services
53	Sanlam Limited	63%	Financial
54	The Spar Group Limited	62%	Retail and Services
55	Imperial Holdings Limited	61%	Retail and Services
56	The Foschini Group Limited	61%	Retail and Services
57	AVI Limited	59%	Retail and Services
58	Growthpoint Properties Limited	56%	Real Estate
59	Mr Price Group Limited	56%	Retail and Services
60	Firststrand Limited	53%	Financial
61	Illovo Sugar Limited	48%	Retail and Services
62	Shoprite Holdings Limited	46%	Retail and Services
63	Capitec Bank Limited	38%	Financial
64	Tsogo Sun Holdings Limited	34%	Retail and Services
65	Resilient Property Income Fund	32%	Real Estate
66	Capital Property Fund	30%	Real Estate

Comparing the companies' environmental reports' average for understandability, to their average score for relevance (70.43%), reliability (verifiability) (61.80%) and comparability (27.92%), one can conclude that the sampled environmental reports were more relevant than they were understandable. However, the reports were more understandable than they were reliable and comparable.

6.8 ANALYSIS OF TIMELINESS OF CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.8.1 Fifth sub-objective of the analysis

The fifth sub-objective of the content analysis phase of the study was to evaluate the timeliness of the current environmental reporting practices by the top 100 listed operating South African companies. Timeliness requires that information be provided within the time it is needed or before it loses its capacity to influence decisions (IASB 2008:40). The sooner the information is received, the more useful it is in influencing decisions (FASB 2010:20).

TABLE 6.6: RANKING OF COMPANIES ACCORDING TO TIMELINESS OF THEIR ENVIRONMENTAL REPORT

Rank	Name	Score	Sector
1	Old Mutual Public Limited Company	100%	Financial
2	Anglo American Public Limited Company	90%	Mining and Resources
3	Kumba Iron Ore Limited	90%	Mining and Resources
4	SabMiller Public Limited Company	90%	Industrial and Consumption
5	Sanlam Limited	90%	Financial
6	Woolworths Holdings Limited	90%	Retail and Services
7	Clicks Group Limited	80%	Retail and Services
8	Compagnie Fin Richemont	80%	Retail and Services
9	Exxaro Resources Limited	80%	Mining and Resources
10	Gold fields Limited	80%	Mining and Resources
11	Illovo Sugar Limited	80%	Retail and Services
12	Impala Platinum Holdings Limited	80%	Mining and Resources
13	Massmart Holdings Limited	80%	Retail and Services
14	Mondi Public Limited Company	80%	Industrial and Consumption

TABLE 6.6: RANKING OF COMPANIES ACCORDING TO TIMELINESS OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
15	Tongaat Hulett Limited	80%	Retail and Services
16	Vodacom Group Limited	80%	ICT
17	African Rainbow Minerals	70%	Mining and Resources
18	Aspen Pharmacare Holdings	70%	Retail and Services
19	AVI Limited	70%	Retail and Services
20	Barloworld Limited	70%	Industrial and Consumption
21	BHP Billiton Public Limited Company	70%	Mining and Resources
22	Firststrand Limited	70%	Financial
23	Harmony Gold Mining Company Limited	70%	Mining and Resources
24	Hyprop Investments Limited	70%	Real Estate
25	Imperial Holdings Limited	70%	Retail and Services
26	Investec Bank Limited	70%	Financial
27	Lonmin Public Limited Company	70%	Mining and Resources
28	Mediclinic International	70%	Retail and Services
29	MTN Group Limited	70%	ICT
30	Northam Platinum Limited	70%	Mining and Resources
31	Pick n Pay Stores Limited	70%	Retail and Services
32	Standard Bank Group Limited	70%	Financial
33	Steinhoff International Holdings Limited	70%	Retail and Services
34	The Bidvest Group Limited	70%	Retail and Services
35	Absa Group Limited	60%	Financial
36	AECI Limited	60%	Industrial and Consumption
37	Anglo American Platinum Corporation Limited	60%	Mining and Resources
38	Anglogold Ashanti Limited	60%	Mining and Resources

TABLE 6.6: RANKING OF COMPANIES ACCORDING TO TIMELINESS OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
39	Arcelormittal South Africa Limited	60%	Industrial and Consumption
40	Assore Limited	60%	Mining and Resources
41	British American tobacco Public Limited Company	60%	Industrial and Consumption
42	Capitec Bank Limited	60%	Financial
43	Discovery Holdings Limited	60%	Financial
44	Distell Group Limited	60%	Industrial and Consumption
45	Growthpoint Properties Limited	60%	Real Estate
46	Life Healthcare Group Holding Limited	60%	Retail and Services
47	MMI Holdings Limited	60%	Retail and Services
48	Mr Price Group Limited	60%	Retail and Services
49	Nampak Limited	60%	Industrial and Consumption
50	Naspers Limited	60%	Retail and Services
51	Nedbank Group Limited	60%	Financial
52	Netcare Limited	60%	Retail and Services
53	Pioneer Foods Group Limited	60%	Industrial and Consumption
54	Pretoria Port Cement	60%	Industrial and Consumption
55	Remgro Limited	60%	Industrial and Consumption
56	Reunert Limited	60%	Industrial and Consumption
57	Sasol Limited	60%	Industrial and Consumption
58	Shoprite Holdings Limited	60%	Retail and Services
59	Tiger Brands Limited	60%	Retail and Services
60	Truworths International Limited	60%	Retail and Services
61	The Foschini Group Limited	50%	Retail and Services
62	The Spar Group Limited	50%	Retail and Services
63	Tsogo Sun Holdings Limited	50%	Retail and Services

TABLE 6.6: RANKING OF COMPANIES ACCORDING TO TIMELINESS OF THEIR ENVIRONMENTAL REPORT (CONT...)

Rank	Name	Score	Sector
64	Capital Property Fund	40%	Real Estate
65	Redefine Properties Limited	40%	Real Estate
66	Resilient Property Income Fund	40%	Real Estate

In environmental reporting, timeliness of the reports can be enhanced if reports are published frequently or at fixed intervals that follow a regular cycle. To gauge the timeliness of the environmental reports, they were evaluated according to whether or not they disclosed the frequency of reporting. On-line reports were evaluated on whether or not they disclosed how current the environmental information contained therein was based on the criteria, checklist and a judgement scale discussed in Chapter 5. The timeliness of the environmental disclosures of the top 100 listed operating companies was then computed as a percentage and the companies ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.6.

6.8.2 Results on timeliness of environmental reports

As indicated in Table 6.6, the results of the current study reveal a wide disparity in the timeliness of the environmental reports, as the company with the timeliest report scored 100%, whereas the one with the least timely report scored 40%. This result is consistent with those of similar prior studies, which reported that the disclosure practices of companies tend to vary widely among listed companies (Kolk, 2005:39; KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01). Nevertheless, the reports produced by the sampled companies were timely as only three companies scored less than 50%. Simply put, just above 95% of the companies' environmental reports had a timeliness score of at least 50%. The average score for timeliness for all the 66 sampled companies is 67.27%.

If one ranks the average score of the qualitative characteristics of the environmental reports analysed, relevance (70.43%) of the reports would rank first, followed by understandability (69.68%) in the second position. Third would be timeliness (67.27%), followed by reliability (verifiability) (61.80%) in the fourth position, and comparability (27.92%) in the fifth position.

6.9 ANALYSIS OF OVERALL DECISION-USEFULNESS OF THE CURRENT ENVIRONMENTAL REPORTING DISCLOSURES

6.9.1 Overall objective of the content analysis phase of the study

The overall objective of the content analysis phase of the study was to evaluate the decision-usefulness of the current environmental reporting practices by the top 100 listed companies in South Africa. The overall decision-usefulness score of the companies was determined by dividing their aggregate score of relevance, reliability (verifiability), comparability, understandability and timeliness by five as discussed in Chapter 5. The companies were then ranked in a descending order from the highest scorer to the lowest as summarised in Table 6.7.

TABLE 6.7: RANKING OF SAMPLED COMPANIES ACCORDING TO THE OVERALL DECISION-USEFULNESS OF THEIR ENVIRONMENTAL REPORTS

Rank	Name	Score	Sector
1	Anglo American Public Limited Company	80%	Mining and Resources
2	Woolworths Holdings Limited	79%	Retail and Services
3	Mondi Public Limited Company	78%	Industrial and Consumption
4	Vodacom Group Limited	76%	ICT
5	Barloworld Limited	76%	Industrial and Consumption
6	Anglo American Platinum Corporation Limited	75%	Mining and Resources
7	Kumba Iron Ore Limited	74%	Mining and Resources
8	Standard Bank Group Limited	73%	Financial
9	Exxaro Resources Limited	73%	Mining and Resources
10	Gold fields Limited	73%	Mining and Resources
11	Sasol Limited	72%	Industrial and Consumption
12	BHP Billiton Public Limited Company	72%	Mining and Resources
13	Tongaat Hulett Limited	71%	Retail and Services
14	Lonmin Public Limited Company	71%	Mining and Resources

**TABLE 6.7: RANKING OF SAMPLED COMPANIES ACCORDING TO THE OVERALL
DECISION-USEFULNESS OF THEIR ENVIRONMENTAL REPORTS
(CONT...)**

Rank	Name	Score	Sector
15	Nedbank Group Limited	70%	Financial
16	African Rainbow Minerals	70%	Mining and Resources
17	Harmony Gold Mining Company Limited	70%	Mining and Resources
18	Impala Platinum Holdings Limited	69%	Mining and Resources
19	Absa Group Limited	68%	Financial
20	Northam Platinum Limited	68%	Mining and Resources
21	Compagnie Fin Richemont	68%	Retail and Services
22	Old Mutual Public Limited Company	67%	Financial
23	Pretoria Port Cement	66%	Industrial and Consumption
24	MTN Group Limited	65%	ICT
25	Investec Bank Limited	65%	Financial
26	Pick n Pay Stores Limited	65%	Retail and Services
27	British American tobacco Public Limited Company	65%	Industrial and Consumption
28	SabMiller Public Limited Company	65%	Industrial and Consumption
29	The Bidvest Group Limited	64%	Retail and Services
30	Sanlam Limited	63%	Financial
31	Anglogold Ashanti Limited	63%	Mining and Resources
32	Netcare Limited	63%	Retail and Services
33	Nampak Limited	62%	Industrial and Consumption
34	Distell Group Limited	61%	Industrial and Consumption
35	Mediclinic International	59%	Retail and Services
36	Discovery Holdings Limited	59%	Financial
37	Hyprop Investments Limited	59%	Real Estate

**TABLE 6.7: RANKING OF SAMPLED COMPANIES ACCORDING TO THE OVERALL
DECISION-USEFULNESS OF THEIR ENVIRONMENTAL REPORTS
(CONT...)**

Rank	Name	Score	Sector
38	Clicks Group Limited	58%	Retail and Services
39	AECI Limited	58%	Industrial and Consumption
40	Reunert Limited	58%	Industrial and Consumption
41	Aspen Pharmacare Holdings	57%	Retail and Services
42	Steinhoff International Holdings Limited	57%	Retail and Services
43	Illovo Sugar Limited	57%	Retail and Services
44	Arcelormittal South Africa Limited	57%	Industrial and Consumption
45	Imperial Holdings Limited	56%	Retail and Services
46	Massmart Holdings Limited	56%	Retail and Services
47	Remgro Limited	54%	Industrial and Consumption
48	Assore Limited	53%	Mining and Resources
49	The Foschini Group Limited	53%	Retail and Services
50	Growthpoint Properties Limited	51%	Real Estate
51	Life Healthcare Group Holding Limited	50%	Retail and Services
52	The Spar Group Limited	47%	Retail and Services
53	Naspers Limited	46%	Retail and Services
54	Tiger Brands Limited	46%	Retail and Services
55	Redefine Properties Limited	46%	Real Estate
56	AVI Limited	45%	Retail and Services
57	Firststrand Limited	44%	Financial
58	Capitec Bank Limited	44%	Financial
59	Pioneer Foods Group Limited	44%	Industrial and Consumption
60	MMI Holdings Limited	43%	Retail and Services
61	Shoprite Holdings Limited	42%	Retail and Services
62	Mr Price Group Limited	42%	Retail and Services

TABLE 6.7: RANKING OF SAMPLED COMPANIES ACCORDING TO THE OVERALL DECISION-USEFULNESS OF THEIR ENVIRONMENTAL REPORTS (CONT...)

Rank	Name	Score	Sector
63	Tsogo Sun Holdings Limited	40%	Retail and Services
64	Truworths International Limited	37%	Retail and Services
65	Resilient Property Income Fund	24%	Real Estate
66	Capital Property Fund	23%	Real Estate

6.9.2 Results on the decision-usefulness of environmental reports

As Table 6.7 shows, the results of the current study reveal a wide disparity in the overall decision-usefulness of the environmental reports, as the company with the most decision-useful report scored 80%, whereas the one with the least decision-useful report scored 23%. This result is consistent with the findings of similar prior studies, which reported that the disclosure practices of companies varied widely among listed companies (Kolk, 2005:39; KPMG, 2010:78; MacLean & Gottfrid, 2000:247; Mammatt *et al.*, 2010:01).

Nonetheless, the reports produced by the sampled companies were decision-useful as only 15 out of 66 companies scored less than 50%. In other words, just above 77% of the companies' environmental reports had an overall decision-usefulness score of at least 50%, with an average score of about 60% for all the 66 sampled companies.

Although the average scores of the environmental reports for the five qualitative characteristics ranged from 70.43% for relevance to 27.92% for comparability, the overall average score for decision-usefulness was 60%. This result concurs with FASB (2008) conceptual framework's assertion that accounting information may possess varying degrees of qualitative characteristics and still be decision-useful (FASB, 2008:15).

6.9.3 Overall decision-usefulness of environmental reports analysed according to the sectors of the sampled companies

The results of the current study show that the overall decision-usefulness of environmental

disclosures differs widely among different sectors, and even within sectors. As evident from Table 6.7, companies from the sectors known to have a significant impact on the environment seemed to have produced more decision-useful reports than their counterparts from sectors with a lesser impact on the environment. A closer examination of Table 6.7 reveals that 11 of the top 20 ranked companies in terms of overall decision-usefulness of the reports are from the Mining and Resources sector, and that three of the top 20 companies are from the Industrial and Consumption sector. These two sectors which have a relatively higher impact on the environment therefore constitute 70% of the top 20 companies as ranked according to the overall decision-usefulness of the environmental reports. The rest of the top 20 companies is made up of three companies from the Financial sector, two from Retail and Services sector, and one from the ICT sector.

The observation that companies from the sectors known to have a significant impact on the environment seemed to have produced more decision-useful reports than their counterparts from sectors with a lesser impact on the environment is also reflected in the bottom 20 ranked companies which are mostly from sectors with an insignificant impact on the environmental impact. Specifically, 11 of the bottom 20 companies are from the Retail and Services sector, four are from the Real Estate sector, two are from the Financial sector, two from the Industrial and Consumption sector, and only one was from the Mining and Resources sector. This means that 85% of the bottom 20 companies were from sectors with an insignificant impact on the environment. The top ranked company with regard to the overall decision-usefulness of the environmental reports was from the Mining and Resources sector (with a score of 80%), a sector with a significant impact on the environment, whereas the bottom ranked company was from the Real Estate sector (with a score of 23%), a sector with an insignificant impact on the environment.

The immediate results above support the findings of prior studies which indicated that the quality of environmental disclosures of companies with a significant impact on the environment tend to be higher than those of companies with a lesser impact (European Commission, 2011a:100; KPMG, 2013:14; KPMG, 2002:05; Trucost & Environmental Agency, 2009, 2006, 2004). Although important, the above analysis and ranking of companies does not illustrate how the decision-usefulness of the environmental reports varies in different sectors. To illustrate how it varies in different sectors, an average score for decision-usefulness was computed for each sector as shown in Table 6.8.

According to Table 6.8, the ICT, a sector known to have an insignificant impact on the environment than its counterparts listed in the table, had the highest average (71%) percentage score for overall decision-usefulness of environmental reports. This contradicts the prior studies' observation that sectors known to have a significant impact on the environment tend to produce higher quality reports than sectors with a lesser impact on the environment (European Commission, 2011a:100; KPMG, 2013:14; KPMG, 2002:05; Trucost & Environmental Agency, 2009, 2006, 2004). However, the relatively small number of ICT companies included in this study, two to be precise, requires that caution be exercised when interpreting the current study's results.

TABLE 6.8: SECTORAL RANKING OF OVERALL DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

Number	Sector	Number of companies in the sample	Average percentage per sector	Highest percentage per sector	Lowest percentage per sector	Variation in percentage
1	ICT	2	71%	76%	65%	11%
2	Mining and Resources	13	70%	80%	53%	27%
3	Industrial and Consumption	13	63%	78%	44%	34%
4	Financial	9	61%	73%	44%	29%
5	Retail and Services	24	54%	79%	37%	42%
6	Real Estate	5	41%	59%	23%	36%

The other sectors' ranking of the overall decision-usefulness of environmental reports appears to conform with the observation made in the prior studies that sectors with a significant impact on the environment tend to produce higher quality reports than sectors with a lesser impact (European Commission, 2011a:100; KPMG, 2013:14; KPMG, 2002:05; Trucost & Environmental Agency, 2009, 2006, 2004). Specifically, the Mining and Resources sector, with an average overall decision-usefulness percentage score of 70%, has a higher impact on the environment than

the Industrial and Consumption sector with an average decision-usefulness percentage score of 63%, and is accordingly ranked higher.

Likewise, the Financial sector with an average overall decision-usefulness percentage score of 61% has a lower impact on the environment than the Industrial and Consumption sector, and is thus ranked lower than the latter, but higher than the Retail and Services sector which has a score of 54%. A probable explanation for the relatively high score of the Financial sector above the Retail and Services sector is that the Financial sector's services have a significant indirect impact on the environment as it provides funding for major projects, such as mining exploration that have a significant impact on the environment (KPMG, 1999:04). Again the Real Estate sector trails all the others with an average overall decision-usefulness percentage score of 41%.

Within sectors, the overall decision-usefulness of the environmental reports varies widely as indicated in Table 6.8. It is interesting to note that with the exception of the Financial and Real Estate sectors, the variation in the overall decision-usefulness of the reports appear to increase as the average percentage score of overall decision-usefulness decreases. However, further study is required to confirm this observation.

6.9.4 Overall decision-usefulness of environmental reports analysed according to the size of sampled companies

As evident from a comparison of Appendix I with Table 6.7, the results of the current study suggest that the overall decision-usefulness of sampled companies' environmental reports appear to be somewhat related to the size of the company as measured by market capitalisation. Specifically, out of the top 20 largest companies by market capitalisation, eight were ranked among the top 20 with regard to the overall decision-usefulness of their environmental reports. However, only three companies from the bottom 20 largest companies by market capitalisation were ranked among the top 20 with regard to the overall decision-usefulness of their environmental reports. Similarly, only three of the top 20 largest companies by market capitalisation were ranked among the bottom 20 in terms of the overall decision-usefulness of their environmental reports. The above results are consistent with those of prior studies which indicated that the quality of environmental disclosures is related to the size of the reporting entity (Barbu *et al.*, 2012:01; Brammer & Pavelin, 2006:01; Joshi, Suwaidan & Kumar, 2011:01).

6.10 EXPLANATION OF CONTENT ANALYSIS RESULTS USING DECISION-USEFULNESS THEORY

A theory is defined as “a scheme or system of ideas or statements held as an explanation or account of a group of facts or phenomena” (Deegan, 2011:211). In other words, a theory offers accounts through which results of a study can be explained. Given that the objective of the content analysis phase of the study was to evaluate the decision-usefulness of environmental reporting practices of South African companies, explanation of results of this phase of the study requires a suitable theory that can evaluate and explain the usefulness of the current environmental reporting practices in informing the decisions of users (Deegan, 2006:04). Decision-usefulness theory as contained in the accounting conceptual framework is deemed suitable for this purpose and hence is employed to explain the results of the content analysis phase of this study.

6.10.1 Relationship between an accounting theory, an accounting conceptual framework and decision-usefulness theory

According to Hendriksen (1970:01), an accounting theory is “a coherent set of hypothetical, conceptual and pragmatic principles forming the general framework of reference for a field of inquiry” (Hendriksen, 1970:01). Hendriksen (1982:01) later refined his definition by stating that an accounting theory is “a set of broad principles that provide a general frame of reference by which accounting practice can be evaluated and secondly guide the development of new practices and procedures”. FASB (2010:05) on the other hand defines an accounting conceptual framework as a coherent system of interrelated objectives and fundamentals that prescribes the nature, function and limits of accounting reporting.

Looking at Hendriksen's (1970:01) definition of a theory, and FASB's (2010:05) definition of an accounting conceptual framework, it is reasonable to argue that a conceptual framework attempts to provide a theory of accounting (Deegan, 2011:211). This is because the conceptual framework provides a set of broad principles that provide a general frame of reference by which accounting practice can be evaluated and guide the development of new accounting practices and procedures (FASB, 2008:04). Given that conceptual frameworks prescribe certain actions, they are normative in nature.

If as suggested by Deegan (2011:211) an accounting conceptual framework attempts to provide a theory of accounting, a question emerges as to which theory is it? The answer to this question is perhaps provided by the FASB and IASB joint conceptual framework, which asserts that a conceptual framework is a “coherent system of concepts that flow from an objective” (FASB, 2010:05; IASB, 2008:12), and that the objective of accounting reporting is the foundation of the framework (IASB, 2010:09). Given that the primary objective of accounting is to provide information that is useful for decision-making (FASB, 2010:01; GRI, 2000:16; IASB, 2010:09; IASB, 2008:12), it is clear that the decision-usefulness objective is the one from which the conceptual framework flows from and is thus the foundation of the framework.

Based on the decision-usefulness objective, accounting researchers have proposed a theory, namely; the decision-usefulness theory, which is premised on the assertion that the primary purpose of accounting and environmental reporting without an exception, is to provide information to permit informed judgements and decisions by users of the information (AAA, 1966:01; Inanga & Schneider, 2005:246). As a normative theory, decision-usefulness theory prescribes the type of accounting information and manner of disclosure that is useful to the users when making decisions (Deegan, 2006:05). Accordingly, the theory that the conceptual framework attempts to provide is actually the decision-usefulness theory. Based on the foregoing discussion, it is the contention of the researcher that an accounting conceptual framework has not only emanated from decision-usefulness theory, it indeed embodies the theory and is inextricably linked to the theory. Accordingly, it represents the decision-usefulness theory and will thus be used to interpret the results of the current study.

6.10.2 Accounting conceptual frameworks

According to accounting conceptual frameworks, the primary objective of the general purpose accounting reporting is to provide information that is useful to a wide range of users in making decisions (FASB, 2010:18; FASB, 2008:01; IASB, 2010:09; IASB, 2008:12). The degree to which accounting information is useful will depend on its qualitative characteristics. The qualitative characteristics that make accounting information useful include but are not limited to relevance, reliability, verifiability, comparability, understandability and timeliness (FASB, 2010:19; FASB, 2008:02; IASB, 2010:16; IASB, 2008:35). Relevance and reliability are the two primary (fundamental) qualitative characteristics that make accounting information useful for decision-

making (FASB, 2010:16; FASB, 2008:02; IASB, 2010:17; IASB, 2008:38). If either of these two qualities is missing, the information will not be useful. Ideally, the choice of an accounting alternative should produce information that is more relevant and more reliable. However, in reality it may be necessary to sacrifice some of one quality for a gain in another (FASB, 2010:21; IASB, 2010:22; FASB, 2008:02; IASB, 2008:58).

Unlike relevance and reliability, the other qualities namely, verifiability, comparability, understandability and timeliness enhance the decision-usefulness of accounting information (FASB, 2010:19; IASB, 2010:22; IASB, 2008:38). The enhancing qualitative characteristics, either individually or as a group cannot make information useful if that information is irrelevant or unreliable (FASB, 2010:21; IASB, 2010:22; IASB, 2008:41). Accounting information may possess enhancing qualitative characteristics to varying degrees. It thus may be possible for accounting information to trade one qualitative characteristic without losing overall decision-usefulness. In fact, in some cases, trade-offs between characteristics may be necessary or beneficial (FASB, 2010:21; FASB, 2008:15; IASB, 2010:22; IASB, 2008:58). The notion of a trade-off can be used to explain the variation in the qualitative characteristics of the sampled environmental reports (See section 6.8.2).

Apart from providing the primary objective of accounting reporting, and the qualitative characteristics of decision-usefulness, the conceptual frameworks also assert that providing decision-useful accounting information is limited by two pervasive constraints, namely cost and materiality (FASB, 2008:02; IASB, 2008:12). With regard to cost constraint, information can be useful and yet too costly to justify providing it. To be useful and worth providing, the perceived benefits of providing the information should exceed its perceived costs (FASB, 2010:21; FASB, 2008:12; IASB, 2010:65; IASB, 2008:13). Therefore companies should only disclose accounting information if the benefits of disclosing such information outweigh the disclosure costs. This requires assessing whether benefits of reporting information are likely to justify costs incurred to provide and use that information (FASB, 2010:22; IASB, 2010:22; IASB, 2008:43). When making this assessment, it is necessary to consider whether one or more qualitative characteristics might be sacrificed to some degree to reduce cost.

The costs of providing information include costs of collecting, classifying, processing, verifying, disseminating as well as the costs that arise as a consequence of providing or not providing the

information such as litigation and lost competitive advantages (FASB, 2010:21; FASB, 2008:31; IASB, 2010:22; IASB, 2008:42). The benefits of providing information include avoidance of regulation, lower cost of capital, attraction of quality labour, enhancement of reputation and customers' goodwill. As apparent from the foregoing, the benefits of disclosing accounting information are not always evident or measurable, and are thus more difficult to quantify than the costs (FASB, 2008:31). In fact, assessing whether the benefits of providing information justify the related costs will usually be more qualitative than quantitative, and will often be incomplete (IASB, 2008:42). Therefore determination of benefits and some costs requires a judgement call that is bound to vary from one entity to another (FASB, 2010:22; FASB, 2008:31; IASB, 2010:23; IASB, 2008:42).

With regard to materiality constraint, accounting information is material if its omission or misstatement significantly misrepresents it to its stakeholders, and thereby change or influence their conclusion, decisions and actions (FASB, 2008:06; IASB, 2008:41). Materiality is determined by the magnitude, circumstances in which judgement is made and nature of the information item in question, all which vary from one entity to another. In other words, given that materiality depends on the nature and amount of the item judged in the particular circumstances of its omission or misstatement, it is not possible to specify a uniform quantitative threshold at which a particular type of information becomes material (FASB, 2010:17; IASB, 2010:17; IASB, 2008:41). Therefore, determining whether or not information is material can only be done in relation to a particular entity's situation.

A decision as to whether information is material enough to be disclosed entails a judgement call whether an item is large enough, in light of surrounding circumstances, to influence the judgement of a reasonable person relying on the information, if it is either omitted or misstated (FASB, 2008:30). A decision not to disclose certain information may be made if the amounts or impacts involved are too small to make a difference (FASB, 2008:03). However, magnitude by itself, without regard to the nature of the item and the circumstances in which decisions have to be made, will not generally be a sufficient basis for a material judgement.

The more material accounting information is, the more relevant, reliable, verifiable, comparable, understandable and verifiable it should be (FASB, 2008:03). For this reason, materiality constraint is a pervasive constraint which pertains to all the qualitative characteristics of decision-useful

accounting information. For instance, materiality should be considered when determining whether information has sufficient predictive or confirmatory value to be relevant to users and is sufficiently complete, neutral and free from error to be reliable (IASB, 2008:42).

In sum, the cost and materiality pervasive constraints guide companies in deciding whether or not to disclose accounting information, and in determining the degree to which accounting information disclosed should possess the qualitative characteristics of decision-useful information (FASB, 2008:02; IASB, 2008:12). In essence therefore, the two constraints are the overriding factors that limit, or constrain the decision-usefulness of accounting reports and are accordingly important in explaining the results of the content analysis phase of the study.

6.10.3 Explanation of the results of content analysis using trade-offs of qualitative characteristics

According to the accounting conceptual frameworks, it may be necessary to sacrifice some of one quality of information for gain in another (FASB, 2010:21; FASB, 2008:15; IASB, 2010:22; IASB, 2008:58). This assertion could explain why the average for relevance (70.43%) of the sampled companies' environmental reports was higher than the reports' average for reliability (verifiability) (61.80%). The relatively low score for reliability (verifiability) could indicate that this qualitative characteristic was perhaps sacrificed in order to achieve the average score of relevance of 70.43%. Indeed the FASB's (2008:15) conceptual framework reiterates that for non-financial reports or statements, relevance should be the dominant quality in the information conveyed in accounting reports, even at the expense of reliability.

The assertions that it may be necessary to sacrifice some of one quality of information for gain in another, and that accounting information may possess varying degrees of qualitative characteristics and still be decision-useful (FASB, 2010:21; FASB, 2008:15; IASB, 2010:22; IASB, 2008:58), perhaps also explains the fact that the companies' environmental reports had an average score for comparability of 27.92% and yet their overall average score for decision-usefulness was 60%. The foregoing implies that comparability, being an enhancing qualitative characteristic, was sacrificed and yet the environmental reports still remained decision-useful.

The preceding paragraph further underscores the conceptual frameworks' assertion that enhancing qualitative characteristics, either individually or as a group, cannot make information useful if that

information is irrelevant or unreliable (FASB, 2010:19; IASB, 2010:22). Simply put, information that is relevant and reliable will be decision-useful, even if it lacks enhancing qualitative characteristics such as comparability.

6.10.4 Explanation of the results of content analysis using cost and materiality constraints

The cost constraint as propagated by the accounting conceptual framework could be used to explain the variation in the relevance, reliability (verifiability), comparability, understandability, timeliness and overall decision-usefulness of environmental reports of the sampled companies. According to the frameworks, the more decision-useful an environmental report is, the more costly it is to produce (FASB, 2010:31; FASB, 2008:02; IASB, 2010 64; IASB, 2008:58). For example, producing a more relevant environmental report may require a more thorough stakeholder engagement exercise, which is costlier, than producing a less relevant report. Likewise, producing a more reliable report may require a more robust information system and a reasonable assurance statement from a third party, which costs more than producing a less reliable report that does not need a robust system or a reasonable assurance statement.

As alluded to earlier, the costs of providing decision-useful information are ascertainable to some extent, but the benefits of disclosing the information are not always evident or measurable (FASB, 2008:3; IASB, 2008:25). Accordingly, ascertainment of the benefits is subjective and thus varies from one entity to another (FASB, 2010:22; IASB, 2010:23). Because of the subjective nature of the benefits against which to justify additional costs for higher quality reports, companies tend to rely on subjective judgement calls when determining how relevant, reliable (verifiable), comparable, understandable and timely their environmental reports should be (FASB, 2008:3; IASB, 2008:25). As a result, different companies produce reports with varying relevance, reliability (verifiability), comparability, understandability, timeliness and overall decision-usefulness.

Materiality constraint as postulated by the accounting conceptual frameworks can also be used to interpret the wide disparity in relevance, reliability (verifiability), comparability, timeliness, understandability and overall decision-usefulness of the environmental reports of sampled companies (FASB, 2008:02; IASB, 2008:12). Materiality of environmental information is determined by the magnitude, circumstances in which judgement is made and nature of the

information item in question, all which vary from one entity to another (FASB, 2010:17; FASB, 2008:03; IASB, 2010:17; IASB, 2008:41). Even for companies from the same sector, their impact on the environment varies widely, depending on the nature of their specific operations, distribution, size and so on (FASB, 2008:37; IASB, 2008:41). Therefore, determining whether or not information is material can only be done in relation to a particular entity's situation and is bound to vary from one entity to another, as an environmental issue that is material to one entity may not be material to another (FASB, 2010:17; FASB, 2008:37; IASB, 2008:61).

A decision as to whether environmental information is material enough to be disclosed and how it should be disclosed requires a judgement call which is subjective in nature thus varies from one entity to another (FASB, 2010:17; FASB, 2008:30; IASB, 2010:59). Generally, the more material accounting information is, the more relevant, reliable, verifiable, comparable, understandable, verifiable it should be (FASB, 2008:03). Given that materiality varies from one entity to another, the above attributes of decision-useful environmental reports will also vary to reflect the materiality of environmental information as judged by the management of companies. The foregoing explains the variation of the above-mentioned attributes of the environmental reports of the sampled companies, as well as the variation in overall decision-usefulness of the reports.

The cost constraint as postulated by accounting conceptual frameworks can be used to explain the fact that companies with a significant impact on the environment appear to have more decision-useful environmental reports than their counter parts with a lesser impact (FASB, 2010:31; FASB, 2008:02; IASB, 2010:22; IASB, 2008:13). Given their obviously visible impact on the environment, companies from sectors with a significant impact on the environment such as those from the Mining and Resources sector, have higher political costs of non-disclosure of environmental information, than their counterparts from sectors with an insignificant impact on the environment such as those from Retail and Services sector (Wimhurst & Frost, 2000; Patten, 1991). The higher political costs include more stringent regulation, taxation regimes and potential withdrawal of operating license(s). The companies from sectors with a significant impact therefore tend to make more voluntary disclosures and of higher quality (more decision-useful) to minimise their political costs, that arise from a higher political visibility (Tilt, 2009:25).

To put it in another way, the political costs of companies with a significant impact on the environment that could arise from non-disclosure or inferior quality disclosure are higher than the

costs of disclosing high quality environmental disclosures. Therefore the companies opt for the lower cost, which when compared to benefits such as improved reputation and goodwill are likely to be lower.

Likewise, the cost constraint can be used to explain why larger companies appear to have more decision-useful environmental reports than their smaller counterparts. Specifically, larger companies, have higher political visibility and higher political costs of non-disclosure or disclosure of inferior quality environmental information than their smaller counterparts (Wimhurst & Frost, 2000; Patten, 1991). Therefore larger companies are more likely to reduce their political costs by making more comprehensive and decision-useful environmental disclosures than their smaller counterparts. Simply put, failure to disclose environmental information or disclosure of inferior quality information by large companies encourages environmental reporting regulation, compliance to which is bound to cost money to the companies. It can also be argued that contrary to the smaller companies, large-size companies need to raise more external funds. In order to attract external investors, larger companies are willing to disclose better quality environmental information to reduce agency costs arising from asymmetric information and to gain public support (Joshi *et al.*, 2011:01).

Another way to explain the apparent higher quality environmental reports of the larger companies as compared to their smaller counterparts is that larger companies generally have robust information management systems that can capture, measure, analyse and disseminate accounting information that enables them to operate (Bae & Ashcroft, 2004:02; Ernst & Young, 2013:07). Given their robust information systems, the cost of producing higher quality environmental disclosures for the large companies is lower than the potential reputational costs that these entities would face if they did not disclose the information (Ernst & Young, 2013:07). By contrast, smaller companies have low reputational costs but relatively high environmental information capturing, measuring, analysing, and disseminating costs. Therefore the benefits of producing high quality environmental information for the larger companies exceed the reputational costs, and the reverse is true for their smaller counterparts (Ernst & Young, 2013:07). Accordingly, the larger companies will tend to produce higher quality environmental information than the smaller ones.

The argument in the preceding paragraph could also be used to explain why the ICT sector had the most decision-useful environmental reports. The ICT sector companies sampled in this study,

given the nature of their operations, have robust information systems that lower the cost of providing high quality environmental information. Even though the ICT sector has an insignificant impact on the environment, the companies in this sector can produce high quality environmental reports at a low cost because of the robust information systems that they already have. Besides, being companies from a communication sector, the ICT sector companies are likely to have internal expertise in effective and efficient communication at a lower cost, an attribute that could further explain why the sector had the highest quality of environmental reports.

The relatively high quality disclosures of the companies in the Financial Sector could also be explained using cost constraint as postulated by the conceptual frameworks (FASB, 2010:31; FASB, 2008:02; IASB, 2010:22; IASB, 2008:13). Given the indirect impact of the activities of the companies in this sector such as financing major projects that could have adverse impact on the environment, the companies in this sector face high reputational and political costs where they are perceived to be financing environmentally detrimental projects indiscriminately (Global Reporting Initiative, 2005:03). To lower their reputational and political costs, it is imperative for these companies to disclose high quality environmental information. Besides, given the nature of their operations, particularly the on-line operations, companies in the Financial sector generally have robust information management systems that can capture, measure, analyse and disseminate high quality environmental information at a low cost (Afi, 2013:02). Therefore, the cost of producing higher quality environmental disclosures for companies in this sector is lower than the reputational and political costs that these entities would face if they do not disclose high quality environmental information (GRI, 2005:03).

The materiality constraint can equally be used to explain the relatively higher quality environmental reports of companies from sectors known to have a significant impact on the environment than their counterparts from sectors with a lesser significant impact on the environment. The Mining and Resources sector for example dramatically alters the natural surroundings, through toxic waste rock, water contamination, acid mine drainage, and air pollution, abandoned quarry lakes which are visible and are felt by the stakeholders. Therefore it has a different materiality threshold for environmental issues than the Real Estate sector whose primary business is renting properties to tenants, and thus has a minimal direct impact on the environment.

Given the adverse impact on the environment, failure by Mining and Resources sector companies to disclose higher quantity and quality environmental information, through omission or misstatement of such information would significantly misrepresent the reality to the reports' users, thereby wrongfully influencing their conclusions, decisions and actions (FASB, 2008:06; IASB, 2008:13). If the users perceive that a mining company's environmental information misrepresents the reality, they will undertake measures to pressurise the company to produce decision-useful information (Deegan & Haque, 2009:14; Wingard, 2001:1). Such measures could include boycott of a company's products, launching aggressive campaigns against the company, instituting legal action against a company, naming and shaming a company, deciding not to supply their labour to the company and lobbying for government intervention. Such measures could compel the government to intervene by either instituting regulatory intervention or withdrawing a company's license (KPMG, 2005:7; Jose & Lee, 2006:307; Pramanik, Shil & Das, 2008:151). It is in an attempt to avoid the foregoing that sectors with a significant impact on the environment such as the Mining and Resources sector have undertaken a proactive role of availing more relevant, reliable, comparable, understandable, timely and verifiable environmental information to their stakeholders, to ensure that they continue to enjoy stakeholders' support.

By contrast, the Real Estate sector, whose primary business is renting of properties to tenants does not have an obvious and visible impact on the environment. If anything, this sector avails shopping malls and offices to the members of the community in which the companies operate, and any impacts on the environment are probably from the tenants such as the leading retailers. Given the nature of operations of the Real Estate sector, environmental information is not as material to the sector as it is for the Mining and Resources sector. Therefore failure by Real Estate sector companies to disclose environmental information or disclosure of inferior quality information does not affect the reports' decision-usefulness, as it would for the Mining Sector companies (FASB, 2008:12).

The relatively high quality disclosures of the companies in the Financial sector could also be explained using materiality constraint as postulated by the decision-usefulness theory. Given the indirect impact of the activities of the companies in this sector such as financing major projects that could have adverse impact on the environment, omitting or misstating the indirect environmental impact of these companies could significantly misrepresent the activities of the companies to the reports' users, thereby wrongfully influencing their conclusion, decisions and

actions (FASB, 2008:06; GRI, 2005:03). This would compel users to intervene by undertaking adverse measures discussed above, which could jeopardise the operations of the companies (Deegan & Haque, 2009:14; Wingard, 2001:1). To avoid the adverse measures against them, companies in the Financial sector have undertaken a proactive role of availing more relevant, reliable, comparable understandable, timely and verifiable environmental information to their stakeholders, to ensure that they continue to enjoy their stakeholders' support.

6.11 CHAPTER SUMMARY AND CONCLUSION

The main objective of the content analysis phase of the study is to evaluate the decision-usefulness of the current environmental reporting practices by South African companies. To this end, the qualitative characteristics that make the reports decision-useful are evaluated. The findings of the study reveal that the environmental reports produced by the top 100 listed South African companies are relevant, reliable (verifiable), understandable and timely. However, the findings also revealed that the reports are not comparable. Overall, the findings of the current study reveal that the environmental reports produced by the top 100 listed South African companies are decision-useful.

The findings of the current study also reveal that the above qualitative characteristics of decision-useful information vary widely among the sampled companies, a phenomenon that is attributed to the cost and materiality constraints postulated in the accounting conceptual frameworks. As a result, the overall decision-usefulness of the environmental reports also varies widely among the sampled companies, with companies from sectors with a significant impact on the environment producing more decision-useful reports than their counterparts from sectors with a lesser impact on the environment. Likewise larger companies also produce more decision-useful environmental reports than their smaller counterparts.

The next chapter presents the results of the questionnaire survey phase of the study. Chapter 7 proceeds with a restatement of the research objectives of the questionnaire survey phase of the study outlined in Chapter 1. This is followed by a discussion of the response rate and non-response bias, as well as the background information of the respondents. Chapter 7 then presents the results on users' environmental information needs, the extent to which they read the environmental reports and how they employ the reports, their degree of satisfaction with the

reports, as well as how important they perceive environmental reports relative to other types of reports, and compares all these to preparers' perceptions, to determine whether there is an expectation gap.

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CHAPTER 7

ANALYSIS OF RESULTS OF QUESTIONNAIRE SURVEY

7.1 INTRODUCTION

The purpose of this chapter is to present and discuss the results of the questionnaire survey phase of the study, in order to address five out of six research objectives outlined in the first chapter of this thesis. The chapter proceeds with a restatement of the research objectives of the study in section 7.2. This is followed by a discussion of the response rate and non-response bias in section 7.3. The background information of the respondents is provided in section 7.4. Section 7.5 analyses and discusses results on whether environmental reports were read, whereas section 7.6 analyses and discusses results on users' environmental information needs. This is followed by an analysis and discussion of results on the extent to which environmental reports are read and how they are used in section 7.7.

Section 7.8 then analyses and discusses the results on the usage of different media as a source of environmental reports, whereas section 7.9 presents an analysis and discussion of the results on how environmental reports were used. This is followed by an analysis and discussion of results on how useful the environmental reports were perceived to be in section 7.10. Section 7.11 analyses and discusses the results on the perception of the quality of environmental reports, followed by an analysis and discussion of results on satisfaction with the quality of environmental reports in section 7.12. Section 7.13 analyses and discusses the results on suggestions for improvement of the quality of environmental reports, followed by an analysis and discussion on the results of the relative importance of environmental reports/statements.

7.2 OBJECTIVES OF THE QUESTIONNAIRE SURVEY PHASE OF THE STUDY

The broad aim of this study was to determine the decision-usefulness of environmental reports prepared by South African companies to users of those reports. To this end, the following objectives, as outlined in Chapter 1 were formulated:

1. To evaluate the decision-usefulness of the current environmental reporting practices by South African companies
2. to determine the informational needs of users of environmental reports produced by South African companies
3. to determine the extent to which users read the environmental reports and whether they employ the environmental reports when making decisions
4. to determine the degree of satisfaction of users with regard to the decision-usefulness of the environmental reports and suggest ways of improving the report
5. to investigate how users rank environmental information relative to other types of information such as financial and social responsibility information
6. to ascertain whether there is an expectation gap between preparers of environmental reports and users of those reports with regard to the need for, and the decisions-usefulness of the reports

The analysis and discussion of results to address the first research objective was done in the previous chapter (Chapter 6). Therefore the analysis and discussion of results in this chapter only address the second, third, fourth, fifth and sixth research objectives.

7.3 SURVEY RESPONSE

7.3.1 Survey response rate

As mentioned in the previous chapter, the population of the current study comprised both users and preparers of environmental reports produced by JSE listed companies. Given that the population of users could foreseeably consist of the entire South African population (Mitchell & Quinn, 2005:22), the current study focused on: 1) representatives of ethical investment funds, 2) representatives of environmental Non-Governmental Organisations (NGOs), and 3) environmental reporting researchers in the country, for practicality purposes. Due to an apparent lack of a comprehensive public listing of all ethical investment funds, environmental NGOs and environmental reporting researchers in South Africa, a compilation of a population frame list was done with aid of the Internet, which yielded 100 users that comprised 30 ethical investment funds, 30 environmental NGOs and 40 accounting researchers.

Consistent with prior studies, a census of the identified users was conducted, given the smallness of the population (Danatas & Gadenne, 2004: 08; Tilt, 1994:53). Out of 100 questionnaires that were sent out to users, 54 usable questionnaires were returned, resulting in a response rate of 54% (See Table 7.1). The above response rate was achieved by persistent follow-ups that entailed resending the questionnaires, e-mailing and making telephone calls to users that had expressed interest in completing the questionnaire, by contacting the researcher directly, but lacked time. The latter prompted the researcher to extend the deadline for submission of completed questionnaires. These measures resulted to a response rate of 54%, a rate higher than that achieved by Tilt (1994) (46.8%), and O'Dweyer, Unerman and Hession (2004) (52.8%), that also conforms to Fowler's (1988) recommendation that a response rate should be at least 20% to provide credible statistics about a population.

The population of preparers of environmental reports comprised representatives of the top 100 operating listed companies, such as finance directors, accountants, environmental executives, and managers. Again, a census of the preparers was conducted, given the smallness of the population (Danatas & Gadenne, 2004: 08; Tilt, 1994:53). Out of 100 questionnaires that were sent out to preparers, 42 usable questionnaires were returned after persistent follow-ups that entailed resending the questionnaires, e-mailing and making telephone calls to preparers that had expressed interest in completing the questionnaire, by contacting the researcher directly, but lacked time. The latter prompted the researcher to extend the deadline for submission of completed questionnaires. These measures resulted in a response rate of 42% (see Table 7.1), which also conforms to Fowler's (1988) recommendation cited in the previous paragraph.

TABLE 7.1: RESPONSE RATE

Respondent category	Number of questionnaires distributed	Number of questionnaires returned	Response rate
Users	100	54	54%
Preparers	100	42	42%

7.3.2 Non-response bias

To minimise the possibility of a non-response bias, the current study selected three user groups namely; representatives of ethical investment funds, representatives of environmental NGOs, and environmental reporting researchers, as well as a heterogeneous group of preparers, an approach meant to ensure that respondents of different persuasions answered the questionnaire (De Villiers & Van Staden, 2010a:240) (See Table 7.2).

In addition, the above high response rates minimised the non-response bias, and were compared to the rates of similar prior studies, and found to be typical, which meant that the non-response bias was not higher than usual (De Villiers & Van Staden, 2010:14). Furthermore, the results below show that respondents who were against environmental reports also answered the questionnaire, an indication that non-response bias had indeed been minimised.

TABLE 7.2: DIFFERENT TYPES OF RESPONDENTS

User category	Number	Preparer category	Number
Environmental groups	12	Accountants	5
Academics/researchers	21	Other	37
Ethical investors	3		
Other	18		
Total	54	Total	42

Besides, a series of non-response bias tests in form of T-Tests for equality of means (2-tailed) were performed on the responses of the users on each of the likert scale questions by comparing the responses of the first 27 users that responded (early responders), to those of the last 27 users that responded (late responders). Similar tests were also conducted on the responses of preparers on each of the likert scale questions, by comparing the responses of the first 21 preparers that responded (early responders), to those of the last 21 preparers that responded (late responders). The late responders served as proxies for non-responders, an approach that has been widely used in the prior literature (Danatas & Gadenne, 2004; Deegan & Rankin, 1997; De Villiers & Van Staden, 2010). The T-Tests revealed no significant differences between the views of early and late

responders for both users and preparers at 95% confidence level ($p < 0.05$) (See Appendix B). With acceptable response rates, a variety of opinions from heterogeneous respondents and a lack of significant differences between the early and late responses, it is unlikely that non-response bias influenced the results of the current study significantly (De Villiers & Van Staden, 2010:15).

7.4 BACKGROUND INFORMATION OF THE RESPONDENTS

The respondents were asked in section A of the questionnaires to provide background information relating to their gender, age, highest educational qualification, and occupation. This was done to ascertain whether they were knowledgeable users or preparers of environmental reports, and thus appropriate as respondents for this study.

7.4.1 Background information of users

The analysis of the background information (see Table 7.3) of the users shows that 55.56 % are male whereas 44.44% are female. Of the users, 31.48% were aged between 46 and 55 years old, 27.78% between 36 and 45 years old, and 22.22% between 26 and 35 years old; 12.96% were aged between 56 and 65 years old, whereas 5.56% were over 65 years old. None of the users was aged less than 25 years old. As far as the highest educational qualification is concerned, 79.25% of the users had a postgraduate degree, 11.32% had a baccalaureate degree. Only 9.43% had a post matric or diploma certificate. None of the users had only a matric or no matric.

An examination of the professional occupation of the users reveals that 39.62% were academics/researchers, whereas 22.64% were representatives of environmental groups. Only 5.66% of users were representatives of ethical investors, whereas 32.08% belonged to the “other” category. According to the conceptual frameworks (FASB, 2008:02; IASB, 2008:40), understandability of accounting information depends largely on the characteristics of the users of that information. Users of accounting reports are assumed to have reasonable knowledge of business activities and to be able to read an accounting report. The above background information on users suggests that they were generally well educated, had a reasonable knowledge of business activities, and thus should have been able to understand the content of environmental reports. Accordingly, their views on the decision-usefulness of the environmental reports were deemed valuable to the current study.

7.4.2 Background information of preparers

TABLE 7.3: ANALYSIS OF GENDER, AGE, HIGHEST EDUCATIONAL QUALIFICATION AND OCCUPATION

Background characteristic	Users	Preparers
Male	55.56%	45.24%
Female	44.44%	54.76%
Under 25 years old	0%	0%
Between 26 and 35 years old	22.22%	21.95%
Between 36 and 45 years old	27.78%	46.34%
Between 46 and 55 years old	31.48%	24.39%
Between 56 and 65 years old	12.96%	7.32%
Over 65 years old	5.56%	0%
No Matric	0%	0%
Matric	0%	4.76%
Post Matric certificate or Diploma	9.43%	14.29%
Baccalaureate degree	11.32%	14.29%
Postgraduate degree	79.25%	66.67%
Representative of environmental groups	22.64%	
Academic/researcher	39.62%	
Representative of ethical investor	5.66%	11.90%
Accountant		
Other	32.08%	88.10%

The background information (see Table 7.3) of the preparers reveals that 45.24% of the preparers are male, whereas 54.76% are female. Of the preparers, 46.34% were aged between 36 and 45 years old, whereas 24.39% were aged between 46 and 55 years old. 21.95% were aged between 26 and 35 years old, while 7.32% were aged between 56 and 65 years old. None of the preparers was either aged above 65 or below 25 years old. Concerning the highest educational qualification attained, 66.67% of the preparers had a postgraduate degree, whereas 14.29% had a baccalaureate degree. Another 14.29% had a post matric or diploma certificate, whereas 4.76% of the respondents had only a matric qualification but none did not have a matric qualification. In terms

of professional occupation, 11.9% of the preparers were accountants, however 88.1%, of the preparers belonged to other category.

Although the above background information of preparers implies that the environmental reporting task was primarily done by non-accountants, an observation also made in the prior studies (Adams 2002; Gray, Walters, Bebbington & Johnson 1995), still the information suggests that the preparers were generally well educated and knowledgeable, and thus appropriate to answer the questionnaire. Comparing and contrasting the background information of the users to that of the preparers reveals that, the majority of users are male (55.46%), whereas the majority of preparers are female (54.76%). Most users (31.48%) were aged between 46 and 55, whereas most preparers (46.34%) were aged between 36 and 45. Qualification wise, majority of both users (79.25%) and preparers (66.67%) had a postgraduate degree. However, occupation-wise, most users (39.62%) were academics whereas most preparers (88.10%) belonged to the other category, perhaps due to specialisation in the environmental reporting arena.

7.5 WHETHER ENVIRONMENTAL REPORTS WERE READ

7.5.1 Whether or not users read environmental reports

Users were asked by way of a yes/no question whether they had read an environmental report in the past 12 months. The responses to this question are reported in Table 7.4. As shown in the table, 83.33% of the users indicated that they had read an environmental report in the past 12 months, whereas only 16.67% indicated that they had not. Such an overwhelming majority of users would not have read environmental reports if the reports were not material to them, or if they were not benefitting from the reports.

A Binomial Test (2-tailed) was conducted to determine whether there was a significant difference between the total number of users who read the environmental report, and those who did not. A significant difference was found between the proportion of the users who had read the environmental reports (83.33%), and the proportion of those who had not read the reports (16.67%) ($p < 0.05$).

The preceding results are consistent with the findings reported in the prior literature (Danatas &

Gadanne, 2004:09; KPMG & SustainAbility, 2008:05; Solomon & Solomon, 2006:574; Tilt 1944:55), which indicated that a majority of users read sustainability reports and indeed actively sought these reports. However, the results contrast the findings of other prior studies (Campbell & Slack, 2008:28; Deegan & Rankin, 2004:329; European Commission, 2011b:91), who found that environmental reports were rarely read by users.

TABLE 7.4: WHETHER USERS READ ENVIRONMENTAL REPORTS

Total number of users	Number responding to the question	Percentage responding “Yes”	Percentage responding “No”	Binomial Exact sig. (2 - tailed)
54	42	83.33%	16.67%	0.000*

*statistically significant difference ($p < 0.05$) at 95% confidence level

A probable explanation for the differences between the findings of other prior studies and the results of the current study is that the sampled users of the prior studies were primarily financial stakeholders such as analysts, stockbrokers, and investors, whereas the sampled users of the current study were primarily non-financial stakeholders, such as academics and representatives of environmental NGOs. According to the FASB (2008:09) conceptual framework, whatever information is provided, it cannot be expected to be equally useful to all users, for the simple reason that user groups' needs and objectives vary. For this reason, financial stakeholders in the prior studies, who typically needed numerical data that can influence a financial forecast, may not have read the sustainability reports because of their narrative nature at the time, and inability to influence a financial forecast (Campbell & Slack, 2008:05).

7.5.2 Whether or not preparers had a way of determining if intended users read environmental reports

In a manner consistent with the preceding section, the preparers were asked by way of a yes/no question to indicate if they had a way of determining whether or not their intended readers had actually read their company's last environmental report. The responses to this question are reported in Table 7.5.

As shown in the Table 7.5, only 22.58% of the preparers indicated that they had a way of determining whether their intended readers had actually read their company's last environmental report, whereas a majority 77.42% indicated that they did not have a way of doing so. A Chi-Square Test (2-tailed) was conducted to investigate if there was a significant difference between the total number of preparers who indicated that they had a way of determining whether their intended readers had actually read their company's last environmental report, and those who indicated that they did not.

TABLE 7.5: WHETHER PREPARERS HAD A WAY OF KNOWING IF USERS READ ENVIRONMENTAL REPORTS

Total number of preparers	Number responding to the question	Percentage responding “Yes”	Percentage responding “No”	Chi-square Asymptotic <i>p</i> value
42	31	22.58%	77.42%	0.02*

*statistically significant difference ($p < 0.05$) at 95% confidence level

A significant difference was found between the number of preparers who responded that they had a way of determining whether or not their intended readers had actually read their company's last environmental report, and those who indicated that they did not have a way of doing so ($p < 0.05$). Given that most preparers (77.42%) had no way of knowing whether or not their companies' environmental report had actually been read, it appears as if the reports were prepared without stakeholders' feedback, a situation that is likely to create an expectation gap.

7.5.3 Users' (non-readers') ranking of reasons why they did not read any environmental report in the past 12 months

The potential users who did not read any environmental report in the past 12 months (here on referred to as non-readers) were asked to allocate ranks to the various statements that could explain why they did not read any environmental report in the mentioned period. In so doing, a scale of seven ranks was provided, with one being the most important statement, two being the second most important statement and seven being the least important statement. A rank was to be allocated to each statement once only. The mean rank for each statement was then computed. The

closer the mean of the statement was to one, the more important the statement was explaining why environmental reports were not read. The ranking of the means of the responses to this question is tabulated in Table 7.6.

TABLE 7.6: REASONS WHY ENVIRONMENTAL REPORTS WERE NOT READ IN THE PAST 12 MONTHS

Reason for not reading	Users (non-readers)	Rank	Standard Deviation
	n=6		
	Mean		
Environmental reports are not reliable	2.83	1	1.941
Environmental reports are not verifiable	3.33	2	1.751
Environmental reports are not understandable	3.67	3	2.338
Environmental reports are not timely	4.00	4	1.265
Other	4.33	5	3.011
Environmental reports are not relevant	4.83	6	2.401
Environmental reports are not comparable	5.00	7	0.632

Scale: 1=most important; 7=least important

As Table 7.6 shows, the most important statement that could explain why non-readers did not read environmental reports is that environmental reports were not perceived to be reliable. The second most important reason is that the reports were not perceived to be verifiable. The least important statement that could explain why environmental reports were not read is that they were not perceived to be comparable. The non-readers views varied widely on all the statements except the last statement (environmental reports were not comparable), as indicated by standard deviations

above one.

The preceding results differ from the findings of KPMG and SustainAbility (2008:29), which indicated that the main reason why non-readers of sustainability reports did not read the reports was that the reports were too lengthy, or websites too difficult to navigate, both which rendered the reports inaccessible and unreadable. Other reasons provided by non-readers in the KPMG and SustainAbility's (2008:29) study were the perception that the reports had no value, or that the non-readers lacked knowledge of how to use the reports for decision making, and the availability of alternative sources of sustainability information perceived to be more efficient and understandable.

A possible explanation for the difference between the current study's results and KPMG and SustainAbility's (2008:29) findings is the time difference between when the two studies were conducted. With passage of time, the Internet has become faster, particularly mobile broadband data, thus enabling the users of environmental reports to access information on company websites more efficiently (Research ICT Africa, 2013:01). Besides, the level of awareness of the users in South Africa has increased dramatically in the recent years, as company stakeholders have become increasingly conscious of the impacts of companies' activities on the environment, and thus increasingly see value in sustainability related reports (Goulder Associates, 2014:116). However, given the general distrust of companies' intentions in the country, non-readers are sceptical of the reports' reliability and verifiability (McKay, 2013:01). Given that the non-readers in the current study did not perceive the environmental reports to be reliable, and considering that reliability is one of the fundamental (primary) characteristics that accounting reports must possess to be decision-useful (FASB, 2008:28; IASB, 2008:13), one can conclude that the non-readers did not perceive the reports to be decision-useful.

7.5.4 Measures undertaken by preparers' companies to convert non-readers of environmental reports to readers

Consistent with the preceding section, the preparers were asked to indicate the extent to which their companies had undertaken measures to make their environmental reports more relevant, reliable, comparable, understandable, timely and verifiable, in order to convert non-readers of the reports to future readers. In doing so a scale of five points was used with one being no extent, two

lesser extent, three moderate extent, four great extent, and five very great extent. The mean of each measure undertaken was then computed. The closer the mean was to five, the greater the extent of the measure undertaken to convert non-readers into readers. The ranking of the means of the preparers' responses to this question is tabulated in Table 7.7.

As Table 7.7 shows, the preparers' companies undertook measures that were moderate to great extent to convert non-readers to readers. Except for responses on measures undertaken to make the environmental reports more verifiable and timely, both which had a standard deviation above one, all the other responses had a standard deviation below one, an indication of agreement in the views of preparers.

TABLE 7.7: EXTENT OF MEASURES UNDERTAKEN TO CONVERT NON-READERS TO READERS

Measures undertaken	Preparers n=42	Rank	Standard Deviation
	Mean		
Make reports more reliable	3.84	1	0.884
Make reports more verifiable	3.69	2	1.176
Make reports more relevant	3.59	3	0.798
Make reports more understandable	3.50	4	0.916
Make reports more timely	3.39	5	1.086
Make reports more comparable	3.25	6	0.950

Scale: 1=no extent; 5=very great extent

The measures that were undertaken to the greatest extent were to make the reports more reliable, followed by measures to make the reports more verifiable, both which suggest that the preparers were aware of the lingering trust deficit between stakeholders and companies (McKay, 2013:01). The third ranked measures undertaken to the greatest extent were meant to make the reports more relevant, whereas the measures undertaken to the least extent were to make reports more

comparable. This result is consistent with the results disclosed in the content analysis phase of the study which indicated that the current environmental reports produced by South African companies were incomparable (See section 6.6.2).

The fact that the measures to make environmental reports comparable were undertaken to the least extent is consistent with the conceptual frameworks (FASB 2008:27; IASB 2008:51), which assert that improving comparability may destroy or weaken relevance and reliability of information if for instance, unlike sets of information are made to look alike. Given that relevance and reliability are primary qualitative characteristics of decision-useful information while comparability is an enhancing characteristic, it seems logical for companies to sacrifice the latter, in the interest of relevance and reliability.

7.5.5 Comparison of non-readers' reasons for not reading environmental reports to measures undertaken by preparers' to convert non-readers to readers

Comparing the views of non-readers to those of preparers by eliminating the row “other” in non-readers' responses (as the response “other” was not an option available to preparers), some interesting observations can be made. First, the most important reasons cited by non-readers for not reading any environmental report namely, that the reports were not reliable and not verifiable, appear to correspond with the measures undertaken by companies to the greatest extent to convert the non-readers to readers (namely measures to make the reports more reliable and to make the reports verifiable). Second, the least important reason cited by users (non-readers) for not reading any environmental report namely, that the reports were not comparable appears to correspond with the measures undertaken by companies to the least extent to convert the non-readers to readers (namely measures to make the reports more comparable).

The ranking by non-readers, of the reasons that the reports were not understandable (three), and that they were not timely (four), is more or less similar to the ranking of measures undertaken by companies to convert the non-readers to readers, namely to make the reports more understandable (four) and more timely (five).

TABLE 7.8: COMPARISON OF USERS' REASONS FOR NOT READING ENVIRONMENTAL REPORTS TO PREPARERS' MEASURES UNDERTAKEN TO CONVERT NON-READERS TO READERS

Reason for not reading	Users (non-readers) n=6	Rank	Standard Deviation	Measures undertaken	Preparers n=42	Rank	Standard Deviation
	Mean				Mean		
Environmental reports are not reliable	2.83	1	1.941	Make reports more reliable	3.84	1	0.884
Environmental reports are not verifiable	3.33	2	1.751	Make reports more verifiable	3.69	2	1.176
Environmental reports are not understandable	3.67	3	2.338	Make reports more understandable	3.50	4	0.916
Environmental reports are not timely	4.00	4	1.265	Make reports more timely	3.39	5	1.086
Environmental reports are not relevant	4.83	5	2.401	Make reports more relevant	3.59	3	0.798
Environmental reports are not comparable	5.00	6	0.632	Make reports more comparable	3.25	6	0.95

Users: scale: 1=most important; 7=least important

Preparers: scale: 1=no extent; 5=very great extent

However, a clear departure from the above pattern is that the non-readers did not consider the statement that environmental reports were not relevant (five), to be a relatively important reason

for not reading the reports, whereas the preparers indicated that they undertook measures to make the reports more relevant (three), to a relatively great extent to convert non-readers to readers. One can therefore conclude that there is an apparent expectation gap between the non-readers and preparers with regard to the perceived relevance of the environmental reports.

7.6 USERS' ENVIRONMENTAL INFORMATION NEEDS

7.6.1 Users perceptions on what a company's environmental report should do or should be

The users were asked to rate the importance of 28 statements about what a company's environmental reports should do or should be. A five point likert scale was used with weightings of one for not important at all, two, slightly important, three, fairly important, four, very important, and five, extremely important. Therefore the closer the mean was to five, the more important the statement was to the users. For the sake of clarity and brevity, the percentages of those who perceived each of the 28 statements as either very important or extremely important were added up together, and reported as “percentage that perceive statement to be important” in the fourth column of Table 7.9.

In essence therefore, those who perceived the statements to be fairly important were conservatively reported as perceiving the statements not to be important, as the words “fairly important” suggest neutrality in perception of the importance of the statements. This approach is justified to ensure that only those who really perceive the statements to be important are reported as such, and it has also been used in the prior studies (See DeVilliers & Van Staden, 2010:15).

As Table 7.9 shows, most users perceived the 28 statements to be important, as 25 out of 28 statements were perceived to be either very important or extremely important by at least 50% of the sampled users. 100% of users felt that the disclosure of both negative and positive aspects in a balanced manner was either very important or extremely important, whereas 91.67% of the users felt that the identification and description of key relevant issues (significant aspects) was either very important or extremely important. A similar percentage to the latter (91.67%) also indicated that provision of specific and accurate information, as well as future oriented information were either very important or extremely important.

TABLE 7.9: USERS' PERCEPTION OF WHAT A COMPANY'S ENVIRONMENTAL REPORT SHOULD DO/SHOULD BE

No	Statement	Related qualitative characteristic	Percentage that perceive statement to be important	Rank	Users	Standard Deviation
					n=48	
					Mean	
1	Disclose both negative and positive aspects in a balanced manner	Reliability	100.00%	1	4.67	0.478
2	Identify and describe key relevant issues (significant aspects)	Relevance	91.67%	2	4.61	0.728
3	Be specific and contain accurate information	Reliability	91.67%	2	4.47	0.810
4	Provide future oriented information	Relevance	91.67%	2	4.42	0.732
5	Identify and address key stakeholders and their concerns	Relevance	88.89%	5	4.33	0.756
6	Demonstrate the integration of environmental issues into core business processes	Reliability	88.89%	5	4.33	0.756
7	Compare quantitative outputs/ impacts against best practice /industry standards	Comparability	88.88%	7	4.33	0.676

TABLE 7.9: USERS' PERCEPTION OF WHAT A COMPANY'S ENVIRONMENTAL REPORT SHOULD DO/SHOULD BE (CONT...)

No	Statement	Related qualitative characteristic	Percentage that perceive statement to be important	Rank	Users	Standard Deviation
					n=48	
					Mean	
8	Adhere to well-established international guidelines	Reliability	86.11%	8	4.36	0.798
9	Demonstrate top management commitment to environmental issues	Reliability	86.11%	8	4.33	0.793
10	The reports should be readily accessible via multiple media (Printed hard copies and soft copies via Internet)	Understandability	86.11%	8	4.31	0.786
11	Provide targets	Comparability	83.34%	11	4.36	0.762
12	Allow for quick reading (executive summary, and fact sheet of key indicators)	Understandability	83.33%	12	4.28	0.741
13	Provide quantitative/monetary disclosure of significant impacts	Comparability	80.56%	13	4.17	0.811

TABLE 7.9: USERS' PERCEPTION OF WHAT A COMPANY'S ENVIRONMENTAL REPORT SHOULD DO/SHOULD BE (CONT...)

No	Statement	Related qualitative characteristic	Percentage that perceive statement to be important	Rank	Users	Standard Deviation
					n=48	
					Mean	
14	Include interpretation and benchmarks to provide context	Understandability	80.56%	13	4.17	0.811
15	Show trends (performance over time)	Comparability	77.78%	15	4.19	0.786
16	Be produced annually	Timeliness	70.59%	16	3.74	1.109
17	Enhance readability using multiple languages, pictures, charts, explanations	Understandability	69.45%	17	3.86	1.046
18	Include an assurance statement from an independent third party	Reliability	69.44%	18	3.94	1.013
19	The reports should provide contacts for feedback	Relevance	66.67%	19	3.78	1.045
20	Indicate whether internal auditing coverage is extended to environmental systems/procedures	Verifiability	66.67%	19	3.78	1.017

TABLE 7.9: USERS' PERCEPTION OF WHAT A COMPANY'S ENVIRONMENTAL REPORT SHOULD DO/SHOULD BE (CONT...)

No	Statement	Related qualitative characteristic	Percentage that perceive statement to be important	Rank	Users	Standard Deviation
					n=48 Mean	
21	Describe the management system	Verifiability	65.71%	21	3.74	0.95
22	Indicate whether environmental management systems have been certified	Reliability	61.12%	22	3.75	1.105
23	Describe an organisation's structures that deal with environmental matters	Reliability	61.11%	23	3.83	1.082
24	Enhance accessibility of information using navigation tools	Understandability	50.00%	24	3.50	0.878
25	Be produced on a real time basis	Timeliness	50.00%	24	3.06	1.393
26	Include stakeholder voices	Reliability	47.23%	26	3.42	1.052
27	Be produced quarterly or bi-annually	Timeliness	28.57%	27	2.77	1.109
28	Be interactive	Understandability	27.77%	28	2.97	1.108

Scale: 1=not important at all; 5=extremely important

88.89% felt that identification and addressing key stakeholders and their concerns, and demonstrating the integration of environmental issues into core business processes were either very important or extremely important. The standard deviation of user's rating of 17 out of 28 statements of less than one indicates agreement in users' responses on the majority (61%) of the statements, and concurs with the observation of the European Commission (2011b:104) that different user groups agree on what a good quality sustainability report should look like.

A striking observation that can be made from the above responses of users is that the top six statements perceived by most users to be either very important or extremely important relate to the fundamental (primary) qualitative characteristics of decision-useful information, namely relevance or reliability. In fact out of the top 10 statements ranked according to the percentage of users that perceived them either as very important or extremely important, only two statements relate to the qualitative characteristics that enhance the decision-usefulness of environmental information, whereas eight statements relate to the fundamental (primary) qualitative characteristics. Specifically, out of the top 10 statements, five relate to reliability, and three relate to relevance. Each of the remaining two statements was either related to comparability or to understandability.

The above results support the accounting conceptual frameworks' assertion that relevance and reliability are the two fundamental (primary) qualities that make accounting information useful for decision-making and hence desirable (FASB, 2010:16; FASB, 2008:02; IASB, 2010:17; IASB, 2008:13). If either of these two characteristics is missing completely, the information cannot be decision-useful. The observation that five out of top 10 statements relate to reliability is consistent with the results discussed earlier in section 7.5.3 which indicated that most non-readers of environmental reports did not perceive the reports to be reliable, a further indication of a lingering trust deficit of stakeholders towards companies (McKay, 2013:01).

By contrast, the statement that environmental reports should be interactive was the least popular as it was perceived to be either very important or extremely important by only 27.77% of the users. The second least popular statement was that environmental reports should be produced on a quarterly or bi-annual basis as only 28.57% of the users perceived it to be either very important or extremely important. Surprisingly, only 47.23% of the users perceived the inclusion of stakeholder voices in the environmental reports to be either very important or extremely important, making the statement the third least popular, although the statement relates to reliability, a fundamental

qualitative characteristic. Other statements that were less popular included statements that environmental reports should be produced on a real time basis and that they should enhance accessibility of information using navigation tools, both which were perceived as very important or extremely important by 50% of the users.

Another interesting observation that can be made is that four out of five bottom ranked statements relate to the qualitative characteristics that enhance the decision-usefulness of environmental information, whereas only one statement relates to the fundamental (primary) qualitative characteristics. This observation is consistent with the accounting conceptual frameworks assertion that enhancing qualitative characteristics, either individually or as a group cannot make information useful if that information is irrelevant or unreliable (FASB, 2010:21; FASB, 2008:21; IASB, 2010:22; IASB, 2008:41). Therefore enhancing qualitative characteristics are sub-ordinate to the primary (fundamental) qualitative characteristics and are bound to be perceived to be of lesser importance. In short, the current results indicate that the users' preferred reports which have primary (fundamental) qualitative characteristics, and thus which are decision-useful.

Perhaps, one of the most surprising observations that can be made from Table 7.9 is that the statement “inclusion of an assurance statement from an independent third party”, which ideally should be the most effective way of enhancing the reliability of an environmental report, was relatively less popular than one would expect. In fact, it ranked 18th in terms of popularity by the users, and yet five of the top 10 most popular statements were related to reliability.

The perception by users that assurance statements were relatively less important appears to support FASB's (2008:23) conceptual framework assertion that verification of accounting information does not guarantee that the information has a high degree of representational faithfulness. In fact, according to the conceptual frameworks (FASB, 2010:20; IASB, 2010:63; IASB, 2008:52), the forward looking information contained in accounting reports is not verifiable, and therefore verifiability cannot be a required component of faithful representation. A possible explanation for the relatively low regard of assurance statements is perhaps provided by the findings of prior studies (CorporateRegister.com & ACCA, 2004:54; Owen, 2003:09), which indicated that stakeholders were sidelined from the assurance process as assurance engagements which were determined by and undertaken for the companies' management. This undermined the perceived independence of the assurance providers, who also doubled as consultants. In addition,

assurance statements appeared to vary widely in their scope, methodology and conclusions, covered only certain pre-selected items of the reports, and contained caveats to protect auditors from potential liability arising thereafter (KPMG, 1999:25; IRRC, 1996:21).

The above results of the current study concur with the earlier findings of prior studies (Danatas & Gadenne 2004; European Commission 2011b; KPMG *et al.*, 2010; KPMG & SustainAbility, 2008; IRRC 1995; Tilt 1994), which revealed users' preferences, chief among which was a balanced disclosure of accurate, positive and negative sustainability information. However, the above results contrast the earlier findings of some prior studies (European Commission, 2011b:102; Hodge, Subramaniam & Stewart, 2009; KPMG & SustainAbility, 2008; O'Dwyer *et al.*, 2004; Tilt, 1994), notable among which was a perception by users that the inclusion of an assurance statement in a sustainability report had a higher relative importance in achieving reliability, than was the case in the current study.

A possible explanation for the difference between the results of the current study and the findings of the prior studies, particularly with regard to the importance of assurance of environmental/sustainability reports is that the prior studies were conducted in developed countries in which assurance practices may have advanced to a level that ensured the independence of the assurers, and their statements. Besides, some of the developed countries in which the studies were undertaken had mandatory and rigorous regulations that governed the assurance process, which could have prompted the users to prefer assurance as an approach to ensure reliability of the environmental/sustainability reports.

7.6.2 Comparison of users and preparers' perceptions on what a company's environmental report should do or should be

Having asked the users to rate the importance of 28 statements about what a company's environmental reports should do or should be, the preparers were also asked to rate the 28 statements, using the criteria described above in section 7.6.1. The responses of both users and preparers were then ranked according to the mean score of responses to each statement, in a descending order, and then compared to each other to determine whether there were differences in the perceptions of the two groups with regard to the importance of the 28 statements. In addition, the mean scores of the users' and preparers' rating of the 28 statements were compared, and T-

Tests for equality of means (2-tailed) performed to determine whether there were any statistically significant differences between the perceptions of the two groups on the importance of the 28 statements.

In general, the responses of both the users and preparers suggest that both groups perceived most of the 28 statements to be important. Specifically, the users' mean scores of 16 out of 28 statements were between four and five (between very important and extremely important), and their mean scores for 11 statements were between three and four (between fairly important and very important). For only two statements were the users' mean scores between two and three (between slightly important and fairly important). Likewise, the preparers' mean scores of seven out of 28 statements were between four and five (between very important and extremely important), and the mean scores of 17 statements were between three and four (between fairly important and very important). For only four statements were the preparers' mean scores between two and three (between slightly important and fairly important).

As summarised in Table 7.10, only four out of 28 statements were ranked equally by both users and preparers. These included the statement that “environmental reports should identify and describe key relevant issues (significant aspects)”, ranked second by both groups, although the mean of the users was marginally higher (4.61) than that of the preparers (4.31). Likewise both users and preparers ranked the statement that “environmental reports should adhere to well-established international guidelines” fifth, but the users' mean was marginally higher (4.36) than that of the preparers (4.13). Similarly, both groups ranked the statement that “environmental reports should indicate whether environmental management systems have been certified” 21st. Here again the users' mean was higher (3.75) than that of the preparers (3.31). Following the same pattern, both users and preparers ranked the statement that “environmental reports should be produced quarterly or bi-annually” 28th. However, the users' mean was again relatively higher (2.77) than that of the preparers (2.09). The foregoing indicates that users perceived the above statements to be more important than the preparers did, although both groups ranked them equally, which could suggest existence of an expectation gap between the two groups on the importance of the four statements.

TABLE 7.10: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON WHAT AN ENVIRONMENTAL REPORT SHOULD DO OR SHOULD BE

No	Statement	Users	Rank	Preparers	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
1	Disclose both negative and positive aspects in a balanced manner	4.67	1	4.03	6	0.000*
2	Identify and describe key relevant issues (significant aspects)	4.61	2	4.31	2	0.098
3	Be specific and contain accurate information	4.47	3	4.39	1	0.634
4	Provide future oriented information	4.42	4	3.72	11	0.001*
5	Adhere to well-established international guidelines	4.36	5	4.13	5	0.226
6	Provide targets	4.36	5	3.88	8	0.019*
7	Identify and address key stakeholders and their concerns	4.33	7	4.16	4	0.365
8	Demonstrate top management commitment	4.33	7	4.25	3	0.669
9	Compare quantitative outputs/impacts against best practice/industry standards	4.33	7	3.50	17	0.000*
10	Demonstrate the integration of environmental issues into core business processes	4.33	7	3.69	12	0.009*

TABLE 7.10: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON WHAT AN ENVIRONMENTAL REPORT SHOULD DO OR SHOULD BE (CONT...)

No	Statement	Users	Rank	Preparers	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
11	The reports should be readily accessible via multiple media (Printed hard copies and soft copies via Internet)	4.31	11	3.72	10	0.008*
12	Allow for quick reading (executive summary/fact sheet)	4.28	12	4.00	7	0.254
13	Show trends	4.19	13	3.69	12	0.018*
14	The report should provide quantitative/monetary disclosure of significant outputs/impacts	4.17	14	3.69	12	0.024*
15	Include interpretation and benchmarks to provide context	4.17	14	3.63	16	0.019*
16	Include an assurance statement from an independent third party	3.94	16	3.45	19	0.074
17	Enhance readability using multiple languages, pictures, charts, explanations	3.86	17	3.23	23	0.027*
18	Description of the organisation's structures that deal with environmental matters	3.83	18	3.26	22	0.037*
19	The reports should provide contacts for feedback and further information	3.78	19	3.69	12	0.725

TABLE 7.10: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON WHAT AN ENVIRONMENTAL REPORT SHOULD DO OR SHOULD BE (CONT...)

No	Statement	Users	Rank	Preparers	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
20	Indicate whether internal auditing coverage is extended to environmental systems and procedures	3.78	19	3.34	20	0.073
21	Indicate whether environmental management systems have been certified	3.75	21	3.31	21	0.114
22	Describe the management system	3.74	22	3.50	17	0.323
23	Be produced annually	3.74	22	3.88	8	0.595
24	Enhance accessibility of information using navigation tools	3.50	24	2.88	25	0.017*
25	Include stakeholder voices	3.42	25	3.06	24	0.181
26	Be produced on a real time basis	3.06	26	2.48	27	0.103
27	Be interactive	2.97	27	2.53	26	0.102
28	Be produced quarterly or bi-annually	2.77	28	2.09	28	0.019*

Scale: 1=not important at all; 5=extremely important

*statistically significant differences ($p<0.05$) at 95% confidence level

Apart from the four statements discussed above, all the other statements in Table 7.10 were ranked differently, but in all cases, the users' means were higher than those of the preparers. For instance, the users ranked the statement that "environmental reports should disclose both negative and positive aspects in a balanced manner" first with a mean score of 4.67, whereas the preparers

ranked the statement sixth with a mean score of 4.03. Even in cases where the preparers ranked a statement higher, the users' means remained higher than those of preparers. For example, the preparers ranked the statement "environmental reports should be specific and contain accurate information" first whereas the users ranked it third, nonetheless the users' mean score for this statement (4.67) was relatively higher than that of the preparers (4.47). The foregoing suggests that the users perceived the 28 statements to be more important than the preparers did, which further suggests the existence of an expectation gap between the two groups with regard to the perceived importance of the 28 statements.

The results of the T-Tests for equality of means (2-tailed) revealed significant differences ($p < 0.05$) between the responses of users and preparers in 13 (46% of all statements) out of 28 statements at a 95% confidence level. Of the 13 significant differences, four relate to statements associated with comparability, four to statements linked to understandability, three to statements related to reliability, one to a statement associated with relevance and another to a statement related to timeliness. The foregoing discussion suggests that the significant differences found mostly relate to statements associated with enhancing qualitative characteristics, as nine out of the 13 statements with significant differences relate to these characteristics.

The above results suggest the existence of an expectation gap between the users and preparers with regard to the importance of the 28 statements, but that the expectation gap is primarily related to the enhancing qualitative characteristics. However, given that three significant differences found in statements relate to reliability of the environmental reports and one to relevance, but on a key statement namely that "environmental reports should identify and address key stakeholders and their concerns", one can conclude that there was an expectation gap between users and preparers with regard to the overall decision-usefulness of environmental reports.

The above results are consistent with the findings of prior studies (Mitchell & Quin, 2005; Myburgh 2001; Deegan & Rankin, 1999), which also found an expectation gap between users and preparers on various issues related to environmental reporting. The existence of an expectation gap between the users and preparers with regard to the importance of the 28 statements could explain why users' may not be satisfied with the decision-usefulness of the current environmental reporting practices, as documented in the prior studies (Campbell & Slack, 2008; Danatas & Gadanne 2004; European Commission, 2011b; Mitchell & Hill 2010; Solomon & Solomon, 2006;

Tilt 1994; O'Dwyer *et al.*, 2004). The existence of an expectation gap suggests a need for more concerted efforts to improve the quality of environmental reports, in order to make the reports more decision-useful.

7.7 EXTENT TO WHICH ENVIRONMENTAL REPORTS ARE READ AND HOW THEY ARE USED

7.7.1 How often various reading techniques are employed by users when reading environmental reports

Bearing in mind that the technique employed to read a report determines how well it's understood, and used to influence decisions, the users were asked to indicate how often they employed five techniques when reading environmental reports. The techniques included, scanning (to locate specific information), skimming (rapid reading of headings, topic sentence to get the main idea), exploratory reading (to get a fairly accurate picture of the entire report), study reading (to maximise understanding of the main ideas) and critical reading (questioning, analysing and evaluating the text). A five point likert scale was used with weightings of one for never, two for rarely, three for sometimes, four for often, and five for almost always. Therefore the closer the mean was to five, the more often a reading technique was used by the users.

For the sake of clarity and brevity, the percentages of those who indicated that they had used each of the five reading techniques either often or almost always were added up together, and reported as "percentage that used the technique often" in the third column of Table 7.11. In essence therefore, those who indicated that they had used a reading technique sometimes or rarely are conservatively reported as never having used the technique, as the words "sometimes" and "rarely" suggest infrequent to almost non-usage of a technique. This approach is justified because it ensures that only those who frequently use a reading technique are reported as such, and it has also been used in prior studies (See DeVilliers & Van Staden, 2010:15).

As Table 7.11 shows, most users (77.15%) indicated that they used scanning, followed by skimming (74.29%), then exploratory reading (64.70%). The least often used reading technique was study reading (34.28%), followed by critical reading (42.86%). The results in Table 7.11 further reveal an agreement in the responses of the users as the standard deviations of the

responses are below one, except for critical reading.

TABLE 7.11: HOW OFTEN VARIOUS READING TECHNIQUES WERE EMPLOYED

No	Reading technique	Percentage that used the technique often	Users n=48 Mean	Standard Deviation
1	Scanning (to locate specific pieces of information)	77.15%	4.06	0.873
2	Skimming (rapid reading of headings, topic sentence to get the main idea)	74.29%	3.89	0.796
3	Exploratory reading (to get a fairly accurate picture of the entire report)	64.70%	3.68	0.638
4	Critical reading (questioning, analysing and evaluating the text)	42.86%	3.34	1.027
5	Study reading (to get a maximum understanding of the main ideas)	34.28%	3.37	0.731

Scale: 1=never; 5=almost always

It is discouraging to note that lesser effective reading techniques (scanning, skimming and exploratory reading) were more often used by a larger percentage of the users than the more effective reading techniques (critical and study reading), a situation likely to undermine the understandability of the information read from the environmental reports. This result differs from the findings of some earlier prior studies (European Commission, 2011b:102; Solomon & Solomon, 2006), which indicated that some users did not only thoroughly/extensively read sustainability reports, they also actively participated in co-writing of sustainability reports with the reporting entities. The preceding result is also contrary to the conceptual frameworks (FASB, 2008:10; IASB, 2008:40), which appear to emphasize critical and study reading techniques, by asserting that in making decisions, users are responsible for studying and analysing accounting information with reasonable diligence. In short, users' preference of lesser effective reading

techniques when reading environmental reports undermines the decision-usefulness of the reports.

7.7.2 Comparison of users' and preparers' perceptions on the frequency of usage of various reading techniques by users when reading an environmental report

Like the users, the preparers were also asked to express an opinion on how often their readers employed the five reading techniques, based on the criteria described above in the first paragraph of section 7.7.1. The responses of both users and preparers were then ranked according to the mean scores for the responses, in a descending order, and then compared to each other.

TABLE 7.12: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON FREQUENCY OF USAGE OF VARIOUS READING TECHNIQUES

No	Reading technique	Users n=48 Mean	Rank	Preparers n=42 Mean	Rank	Statistical Significance of differences
1	Scanning (to locate specific pieces of information)	4.06	1	3.81	1	0.239
2	Skimming (rapid reading of headings, topic sentence to get the main idea)	3.89	2	3.68	2	0.291
3	Exploratory reading (to get a fairly accurate picture of the entire report)	3.68	3	3.00	3	0.000*
4	Study reading (to get a maximum understanding of the main ideas)	3.37	4	2.71	4	0.006*
5	Critical reading (questioning, analysing and evaluating the text)	3.34	5	2.55	5	0.033*

Scale: 1=never; 5=almost always

*statistically significant differences at 95% confidence level

In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between the perceptions of the two groups with regard to the frequency of usage of the five reading techniques employed by users when reading environmental reports.

As summarised in Table 7.12, the ranking of the five reading techniques, based on the means of the users and preparers are identical. The ranking reveals that both users and preparers perceive that the most frequently used technique by users when reading environmental reports is scanning, followed by skimming, then exploratory reading, followed by study reading, then lastly critical reading. However, the means of the users on the five reading techniques are higher than those of the preparers, indicating that users perceived themselves to have used the reading techniques more often than was perceived by the preparers, which suggests the existence of an expectation gap between the perceptions of users and preparers.

Indeed, the T-Test for equality of means (2-tailed) performed reveals three significant differences ($p < 0.05$) in the perceptions of the users and preparers pertaining to exploratory reading, study reading and critical reading at a 95% confidence level, which further provides evidence of the existence of an expectation gap. The apparent existence of an expectation gap, particularly on the three reading techniques considered to be more effective, could perhaps explain the provision of lengthy environmental reports documented in the prior literature (KPMG, & SustainAbility, 2008:29; Solomon & Solomon, 2006:585; Spada, 2008:32). The lengthy environmental reports are meant to be read using lesser effective reading techniques such as scanning and skimming, techniques that are unlikely to inform sound decision-making.

7.8 USAGE OF DIFFERENT MEDIA AS A SOURCE OF ENVIRONMENTAL REPORTS

7.8.1 Users' frequency of reading environmental reports from different media

Users were asked to indicate how often they read environmental reports from various media, primarily the print media and company websites. With regard to the print media, the users were required to specify how often they read environmental reports from annual reports or

sustainability reports. Likewise, with regard to the company websites, the users were required to specify how often they read environmental reports in integrated annual reports, or stand-alone sustainability reports, and the format of the reports that they often read (HyperText Markup Language (HTML) format or Portable Document Format (PDF)). A five point likert scale was used with weightings of one for never, two for rarely, three for sometimes, four for often, and five for almost always. Therefore, the closer the mean was to five, the more often environmental reports were read from a given medium.

For the sake of clarity and conciseness, the percentages of those who indicated that they had read environmental reports from the various media, either often or almost always, were added up together, and reported as “percentage of users that read from the medium often” in the third column of Table 7.13. In essence therefore, those who indicated that they had read from a given medium sometimes or rarely are conservatively reported as never having read from a given medium, as the words “sometimes” and “rarely” suggest infrequent reading of the reports from a given medium. This approach was used to ensure that only those who frequently read environmental reports from a specific medium are reported as such. Besides, the approach has also been used in the prior studies (See for example DeVilliers & Van Staden, 2010:15).

As summarised in Table 7.13, most users read environmental reports from companies' websites as opposed to the print medium. Of the users, 51.43% often read environmental reports in PDF integrated annual reports posted on companies' websites, 45.72% of users often read environmental reports in PDF format stand-alone sustainability reports posted on companies' websites', while 42.86% of users often read environmental reports in HTML format stand-alone sustainability reports posted on companies' websites'. By contrast, only 34.29% of users often read environmental reports in print medium integrated annual reports. Likewise, only 26.47% of users often read environmental reports from print medium stand-alone sustainability reports. The users' opinions were mixed as the standard deviation of their responses for the three media were above one, whereas for the other three, below one.

The preceding results highlight the emergence of companies' websites as a medium of choice for users as this medium made access to environmental reports easily accessible, readily searchable and portable, time-saving and cost-effective, as opposed to print medium reports (Mlarvizhi & Yadav, 2008:03). The preference of websites by users is consistent with the accounting conceptual

frameworks' assertion that users incur costs to obtain information, and that unless benefits derived from the information (or in this case the medium from which the information is obtained), exceeds the costs associated with it, it will not be sought after (FASB, 2008:30; IASB, 2008:42). Hence users are bound to prefer a medium that minimises costs, such as a company's website which minimises inconvenience and time spent in searching and accessing desired information, unlike a printed report.

TABLE 7.13: HOW OFTEN USERS READ ENVIRONMENTAL REPORTS FROM DIFFERENT MEDIA

No	Medium	Percentage of users that read from the medium often	Users n=48 Mean	Standard Deviation
1	PDF integrated annual reports on companies' websites	51.43%	3.46	1.170
2	PDF stand-alone sustainability reports on companies' websites	45.72%	3.43	0.770
3	HTML format stand-alone sustainability reports on companies' websites	42.86%	3.29	1.172
4	HTML format integrated annual reports on companies' websites	38.23%	3.32	0.976
5	Print medium integrated annual reports	34.29%	2.83	1.014
6	Print medium stand-alone sustainability reports	26.47%	2.74	0.963

Scale: 1=never; 5=almost always

The above findings are also consistent with the findings of prior studies (Danatas & Gadenne, 2004; Deegan & Rankin, 2004; De Villiers & Van Staden, 2010; KPMG & SustainAbility, 2008; Mitchell & Hill, 2010; Taib, 2005), which indicated that users preferred reading sustainability reports from annual reports. Users' preference for annual reports has been attributed to the fact that the reports are regarded as highly credible, given that their annual production is a statutory

requirement, and that some of their sections have to be audited as required by law (Tilt, 1994; Unerman, 2000; Wilmshurst & Frost, 2000). In addition, annual reports are readily available and widely accessible given that they are produced regularly.

The above results are also consistent with the earlier findings of some prior studies (KPMG & SustainAbility, 2008:17), which revealed that the single most popular format for sustainability reporting among users was the PDF. The preference for PDF reports is rather puzzling as these reports are merely electronic replicas of printed reports (ACCA & CorporateRegister.com, 2001:09). KPMG and SustainAbility (2008:17) speculates that PDF reports are probably preferred because they are easily accessible, electronically portable, readily searchable, more re-assuring given that they are replicas of printed versions of reports, and have a clearly defined structure, with a beginning, middle and end, unlike HTML format reports. Accordingly, users can tell what the reports contain (scope) as well as what they exclude (boundary). Given that PDF reports are hardly interactive, users' preference of PDF format environmental reports is consistent with the results contained in Table 7.9, which indicate that the statement “environmental reports should be interactive” was perceived by users to be the least important among 28 statements.

7.8.2 Comparison of users' and preparers' perceptions on how often users read environmental reports from different media

Having asked users to indicate how often they read environmental reports from various media, the preparers were also asked to express an opinion on how often their users read environmental reports from the same media using the criteria described in the first paragraph of section 7.8.1 above. The responses of both users and preparers were then ranked according to mean scores of responses, in a descending order, and then compared to each other. In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between perceptions of the two groups.

As illustrated in Table 7.14, the ranking of three media was identical for both users and preparers, namely, PDF integrated annual reports on companies' websites, ranked first, HTML format stand-alone sustainability reports on companies' websites, ranked third, and print medium stand-alone sustainability reports ranked sixth. In addition, the ranking of HTML format integrated annual reports on companies' websites was more or less the same for both users and preparers, as users

ranked it fourth whereas the preparers ranked it fifth. However, the rankings of users and preparers differed with regard to PDF stand-alone sustainability reports on companies' websites which users ranked second, whereas the preparers ranked it fourth. Likewise, the users ranked print medium integrated annual reports fifth, whereas the preparers ranked it second.

TABLE 7.14: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON HOW OFTEN ENVIRONMENTAL REPORTS WERE READ FROM DIFFERENT MEDIA

No	Medium	Users	Rank	Preparers	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
1	PDF integrated annual reports on companies' websites	3.46	1	4.30	1	0.005*
2	PDF stand-alone sustainability reports on companies' websites	3.43	2	4.07	4	0.057
3	HTML format stand-alone sustainability reports on companies' websites	3.32	3	4.10	3	0.010*
4	HTML format integrated annual reports on companies' websites	3.29	4	3.29	5	0.989
5	Print medium integrated annual reports	2.83	5	4.23	2	0.000*
6	Print medium stand-alone sustainability reports	2.74	6	3.19	6	0.178

Scale: 1=never; 5=almost always

*statistically significant differences ($p < 0.05$) at 95% confidence level

Notwithstanding the preceding results, the preparers' means were relatively higher than users' for all the media except HTML format integrated annual reports on companies' websites, which were

equal for both groups (3.29). The foregoing suggests the existence of an expectation gap as preparers perceived that users read more often from the media provided in Table 7.14, than the users themselves did.

The T-Tests for equality of means (2-tailed) revealed three statistically significant differences ($p < 0.05$) in the perceptions of the users and preparers with regard to the media that users most often read their environmental reports from. The significant differences pertained to how often users read environmental reports from three media namely PDF format integrated annual reports on companies' websites, HTML format stand-alone sustainability reports on companies' websites, and print medium integrated annual reports. These differences suggest the existence of an expectation gap that could undermine the decision-usefulness of the environmental reports. In other words, the preparers could be using inappropriate and costly media, particularly the print medium integrated annual reports, to disseminate the environmental reports, and yet the users do not read from this medium, a situation that undermines the decision-usefulness of the environmental reports.

The above results are consistent with the findings of prior studies (Deegan & Rankin, 1999:329; Haque & Deegan, 2011:13; Mitchell & Quin, 2005:25), which found an expectation gap between the users and preparers with regard to the usage of annual reports for environmental reporting. In particular, Deegan & Rankin (1999:313) found that a majority of users (67.8%) sought the environmental information in the annual reports, whereas only 24.1% of the preparers disclosed this information in their annual reports, and fewer had plans of doing so in the future.

7.9 HOW ENVIRONMENTAL REPORTS WERE USED

7.9.1 Users' perceptions on how environmental reports were used

Bearing in mind that the ultimate test for usefulness of environmental information is its impact on decision-making (Dierkes & Antal, 1985:30), users were asked to indicate the purpose for which they used the environmental reports read. To this end, users were required to indicate their degree of agreement or disagreement with seven statements. A five point likert scale was used with weightings of one for strongly disagree, two for disagree, three for neutral, four for agree and five for strongly agree. Therefore the closer the mean was to five, the more the users agreed with a

statement. For the sake of clarity and brevity, the percentages of those who indicated that they either strongly agreed or agreed with the statements were added up together, and reported as “percentage that agree with the statement” in the third column of Table 7.15. In essence therefore, those who indicated neutral (neither agree nor disagree) are conservatively reported as disagreeing with the statement as the word “neutral” suggests a lack of a clear stand. This approach is justified to ensure that only those who agree with the statements are reported as such, and it has also been used in prior studies (See DeVilliers & Van Staden, 2010:15).

TABLE 7.15: HOW ENVIRONMENTAL REPORTS ARE USED

No	Statement	Percentage that agree with the statement	Users n=48	Standard Deviation
			Mean	
1	For education or research	88.89%	4.08	1.170
2	For own knowledge	80.56%	4.08	0.770
3	To hold a company accountable	57.14%	3.54	1.268
4	To decide whether or not to buy a company's products	54.29%	3.43	0.979
5	To decide whether to invest or disinvest from a company	54.29%	3.43	1.037
6	To decide whether to partner with a company	45.72%	3.29	1.178
7	To decide whether to support or launch action against a company	31.43%	3.03	1.124

Scale: 1=strongly disagree; 5=strongly agree

As illustrated in Table 7.15, most users (88.89%) indicated that they used environmental reports for education or research purposes, which perhaps reflects the fact that most of the users that responded to the questionnaire were academics (21 out of 54 users). In addition, 80.56% of users used the environmental reports for their own knowledge. Although the above two most popular

uses of environmental reports do not indicate any action taken by the users after reading the reports, it still demonstrates the decision-usefulness of environmental reports in informing opinion, which eventually could result into action. For instance, the research output of academics could be used to establish the best practice against which companies' environmental performance/reporting could be gauged and appropriate action taken against companies perceived to be underperforming or underreporting.

Table 7.15 also shows that 57.14% of users indicated that they used environmental reports as members of the public to hold companies accountable. Indeed, according to Jollands, Akroyd and Sawabe (2012), accountability requires that companies provide decision-useful information to enable the stakeholders to decide whether the companies are meeting the stakeholders' ever changing expectations. The foregoing is consistent with the notion that the accountability role of accounting information has been encapsulated by the decision-usefulness objective, as information that is decision-useful is also able to discharge accountability (FASB, 2008:11; Schoonraad, 2004:65).

The decision-usefulness of accounting information is more pronounced when action is taken based on the information, than when no action results (Dierkes & Antal, 1985:30). As far as the use of environmental reports for taking action is concerned, 54.29% of users indicated that they used the reports to decide whether to buy a company's products or not. A similar percentage of users indicated that they used the reports to decide whether to invest or disinvest from a company. Of the users, 45.72% indicated that they used the environmental reports to decide whether or not to partner with a company. Only 31.43% of users indicated that they used the environmental reports to decide whether or not to support or launch action against a company.

The above results correspond to the findings of the prior studies documented in literature (Danatas & Gadenne, 2004; De Villiers & Van Staden, 2010a; De Villiers & Van Staden, 2010b; KPMG & SustainAbility, 2008; O'Dwyer *et al.*, 2004; Solomon & Solomon, 2006; Taib, 2005; Tilt, 1994), all which indicated that environmental reports were used for different purposes by different users. The above results however contrast the findings of some prior studies (BiE 1994; Campbell & Slack 2008; Deegan & Rankin, 2004; European commission, 2011b), which found that environmental disclosures were hardly used to inform their investment or disinvestment decisions, given that they were mostly narrative in nature. The difference between the current study and the

latter prior studies can be explained by the fact that with passage of time, environmental reports in South Africa increasingly contain quantified data that can inform investment decisions that require numerical data.

7.9.2 Comparison of users' and preparers' perceptions on how environmental reports were used by the users

The preparers were also asked to express an opinion on how users used the environmental reports read, using a criteria similar to the one described above in the first paragraph of section 7.9.1. The responses of both users and preparers were then ranked according to their mean scores, in a descending order, and then compared to each other. In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between the perceptions of the two groups.

As highlighted in Table 7.16, only two statements on the uses of environmental reports were ranked equally by both users and preparers. The two statements were, “for own knowledge” ranked first, and “to decide whether to support or launch action against a company” ranked seventh. However, the users' mean scores were higher than those of the preparers on both statements, an indication that users agreed more to the statements than the preparers did.

The ranking of two other statements, namely “to hold a company accountable” and “to decide whether to partner with a company” was more or less the same, with the users having ranked the former third, whereas the preparers ranked it second. The users ranked the latter sixth whereas the preparers ranked it fifth. However, in the case of these two statements, the preparers' mean scores were higher than those of users, an indication that preparers agreed more to the statements than the users did.

The ranking of three statements was different between users and preparers. Users ranked the statement “for education or research” first, whereas the preparers ranked it fourth. The users also ranked the statement “to decide whether or not to buy a company's products” fourth whereas the preparers ranked it sixth. Lastly, users ranked the statement “to decide whether to invest or disinvest from a company” sixth whereas the preparers ranked it third. Users' mean scores for the first two statements in this paragraph were higher than those of preparers, but the reverse was true

for the third statement.

TABLE 7.16: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON THE USE OF ENVIRONMENTAL REPORTS

No	Statement	Users n=48 Mean	Rank	Preparers n=42 Mean	Rank	Statistical Significance of differences
1	For education or research	4.08	1	3.42	4	0.001*
2	For own knowledge	4.08	1	3.67	1	0.045*
3	To hold a company accountable	3.54	3	3.68	2	0.602
4	To decide whether or not to buy a company's products	3.43	4	3.10	6	0.167
5	To decide whether to invest or disinvest from a company	3.43	5	3.48	3	0.829
6	To decide whether to partner with a company	3.29	6	3.32	5	0.893
7	To decide whether to support or launch action against a company	3.03	7	2.87	7	0.566

Scale: 1=strongly disagree; 5=strongly agree

*statistically significant differences ($p < 0.05$) at 95% confidence level

The T-Tests for equality of means (2-tailed) revealed two statistically significant differences ($p < 0.05$) in the perceptions of users and preparers with regard to the use of environmental reports for education or research, and for own knowledge. Given that these two uses were the most popular among users, significant differences regarding these two suggest the existence of an expectation gap. The gap could undermine the decision-usefulness of the environmental reports, as it suggests that preparers may be preparing the reports in a manner that renders them unsuitable for the intended use by the users. The above results are in line with the findings of the earlier prior

studies (Deegan & Rankin, 1999; Mitchell & Quin, 2005; Myburgh, 2001), which revealed expectation gaps between users and preparers with regard to various issues concerning environmental reports.

7.10 HOW USEFUL THE ENVIRONMENTAL REPORTS WERE

7.10.1 Users' perceptions on the usefulness of the environmental reports

The users were asked to indicate how useful the environmental reports read were, for the purpose for which they were used. A five point likert scale was used with weightings of one for not useful at all, two for not very useful, three for somewhat useful, four for useful and five for very useful. Therefore the closer the mean was to five, the more useful users perceived the environmental reports to be for their intended purposes. Again for the sake of clarity and brevity, the percentages of those who indicated that the environmental reports were either useful or very useful were added up together, and reported as “percentage that perceive environmental reports to be useful” in the third column of Table 7.17. Therefore, those who indicated that environmental reports were somewhat useful or not very useful were conservatively reported as perceiving the environmental reports not to be useful at all, to ensure that only those who indeed perceive environmental reports to be useful for their intended purposes are recorded as such. This approach is justified as it has also been used in prior studies (See DeVilliers & Van Staden, 2010:15).

TABLE 7.17: USERS' PERCEPTIONS ON HOW USEFUL THE ENVIRONMENTAL REPORTS ARE

Total number of users	Number responding to the question	Percentage that perceive environmental reports to be useful	Mean	Standard Deviation
54	36	52.57%	3.44	0.809

Scale: 1=not useful at all; 5=very useful

As shown in Table 7.17, 52.57% of the users perceived environmental reports to be useful for the purpose for which they were used, with a mean of 3.44, which indicates that on average, users perceived the usefulness of environmental reports to be between somewhat useful and useful. The standard deviation of less than one indicates an agreement in users' perceptions.

The above results concur with the findings of prior studies (KPMG & SustainAbility, 2008:11; Deegan & Rankin, 2004), which found that sustainability/environmental reports were perceived to be decision- useful by users. However, the above results differ from the findings of other prior studies (Campbell & Slack, 2008:05; Miller, 2012:01; O'Dwyer *et al.*, 2004:01; Wong, 2011:266), which found that non-financial/sustainability reports were not decision-useful as they were not quantified, and that they were perceived to lack a stakeholder engagement and feedback mechanism, sufficiency and credibility.

The difference between the current study's results and the findings of the prior studies above could be due to the differences in the type of respondents sampled. Most of the respondents of the prior studies whose findings contradict the results of the current study were financial stakeholders or representatives of environmental NGOs, whereas the respondents of the current study, are a heterogeneous group comprising three different types of users (Academics, ethical investors, environmental NGOs). Financial stakeholders who typically need numerical data that can influence a financial forecast, may not find predominantly narrative sustainability reports to be decision-useful as such reports are perceived to lack the ability to influence a financial forecast (Campbell & Slack, 2008:05). On the other hand, NGOs may not reveal their true perception of decision-usefulness of sustainability reports as they have vested interest in answering questions in a particular way, to influence public opinion towards certain objectives. Thus, they tend to answer questionnaires in a manner that supports their existing prejudices (Deegan & Rankin, 1997:571).

7.10.2 Preparers' perceptions on how useful environmental reports were for the purpose for which they are used

Using the same criteria described above in the first paragraph of section 7.10.1, the preparers were also asked to express an opinion on how useful the environmental reports are to the users for various purposes. For the sake of clarity and brevity, the percentages of those who indicated that the environmental reports were either useful or very useful were added up together, and reported as "percentage that perceive environmental reports to be useful" in the fourth column of Table 7.18. Therefore, those who indicated that environmental reports were somewhat useful or not very useful are conservatively reported as perceiving the environmental reports not to be useful at all, to ensure that only those who indeed perceive environmental reports to be useful for their intended purposes are recorded as such. This approach is justified as it has also been used in prior studies

(See DeVilliers & Van Staden, 2010:15).

A mean score was then computed for the preparers that perceived environmental reports to be useful to users, then it was compared to that of users as summarised in Table 7.18. As can be seen from the table, a higher percentage of preparers (56.67%) perceived the environmental reports to be useful than the percentage of users (52.57%). Likewise the preparers' mean (3.55), was higher than that of the users (3.44), which also indicates that the preparers perceived environmental reports to be more useful to the users than the users did. A standard deviation of less than one for both users and preparers highlights an agreement in perceptions of both groups.

TABLE 7.18: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON THE USEFULNESS OF ENVIRONMENTAL REPORTS

Types of respondents	Total number of respondents	Number responding to the question	Percentage that perceive environmental reports to be useful	Mean	Standard Deviation
Users	54	48	52.57%	3.44	0.809
Preparers	42	42	56.67%	3.55	0.854

Scale: 1=not useful at all; 5=very useful

The above results suggest the existence of an expectation gap between the users and preparers, as the preparers perceived the environmental reports to be more useful to the users than the users themselves did. However, a T-Test for equality of means (2-tailed) was inappropriate as the question asked to the users was on overall usefulness of environmental reports (See Appendix C, question 11), whereas that asked to the preparers was on usefulness for specific purposes (See Appendix D, question 11), which meant that a further computation of averages for percentage and mean scores, was necessary before preparers' percentage and mean scores could be compared to those of users'. The implications of existence of an expectation gap in this context is that the preparers could become complacent in improving the usefulness of the environmental reports, as they already perceive as useful to users, a scenario that could further undermine the decision-usefulness of the reports.

The above results are consistent with the finding of Haque *et al.*, 2013:18), who found low levels of disclosure of climate change information, as compared to what users expected. Consistent with the conceptual frameworks (FASB, 2010:21; IASB, 2010:65), Haque *et al.* (2013:18) attributed their finding partly to perceived higher costs of producing the information relative to mostly unquantifiable benefits derived.

7.11 PERCEPTION OF THE QUALITY OF ENVIRONMENTAL REPORTS

7.11.1 Users' perception of the quality of environmental reports read

To gauge users' perception of the quality (decision-usefulness) of environmental reports read, they were asked to indicate the extent to which they agreed with six statements on relevance, reliability, comparability, understandability, timeliness and verifiability of the reports that they had read in the past 12 months. A five point likert scale was used with weightings of one for strongly disagree, two for disagree, three for neutral, four for agree and five for strongly agree. Therefore the closer the mean was to 5, the more users agreed with the statement. For the sake of clarity and brevity, the percentages of those who indicated that they either strongly agreed or agreed with the statements were added up together, and reported as “percentage that agree with the statement” in the third column of Table 7.19a.

In essence therefore, those who indicated neutral (neither agree nor disagree) are conservatively reported as disagreeing with the statement as the word “neutral” suggests a lack of a clear stand. This approach is justified because it ensures that only those who outrightly agree with the statements are reported as such, and it has also been used in prior studies (See DeVilliers & Van Staden 2010:15).

As summarised in Table 7.19a, most users (62.86%) felt that the environmental reports they had read were understandable. Likewise 61.11% of users felt that the reports they had read were relevant. However, only 37.14% of users felt that the reports they had read were reliable which is also consistent with the notion of a lingering trust deficit among users with regard to companies' activities and reporting practices (Mckay, 2013:01). Only 37.14% of users felt that the reports they had read were timely. Worse still, only 14.29% felt that the reports they had read were verifiable, even more worse was the fact that only 8.57% of the users felt that the reports they had read were

comparable. The standard deviations of less than one for all the six statements indicate agreement in users' perceptions.

The results in the previous paragraph are somewhat consistent with the earlier results of the content analysis phase of the study shown in the last paragraph of section 6.8.2, which revealed that on average environmental reports produced by South African companies were more relevant and understandable, than they were timely, reliable (verifiable), and comparable. The preceding results are consistent to some extent with those of Tilt (1994), who found that some forms of sustainability disclosure media were perceived by environmental NGOs to be easier to understand than others.

TABLE 7.19A: USERS' PERCEPTION OF THE QUALITY OF ENVIRONMENTAL REPORTS READ

No	Statement	Percentage that agree with the statement	Rank	Users	Standard Deviation
				n=48 Mean	
1	The environmental reports were understandable	62.86%	1	3.57	0.698
2	The environmental reports were relevant	61.11%	2	3.56	0.695
3	The environmental reports were reliable	37.14%	3	3.17	0.785
4	The environmental reports were timely	37.14%	3	3.20	0.797
5	The environmental reports were verifiable	14.29%	5	2.71	0.860
6	The environmental reports were comparable	8.57%	6	2.71	0.667

Scale: 1=strongly disagree; 5=strongly agree

The results also concur with the findings of KPMG and SustainAbility (2008), Danatas and Gadenne (2004:02; 11), who found that users perceived sustainability disclosures to be relevant to their needs, but that the disclosures were insufficient, untimely, and of low reliability given their over-emphasis on positive information whereas omitting negative disclosures. Likewise the above

results agree with the findings of O'Dwyer et al. (2004:11); Taib (2005) and Campbell and Slack (2008), who found that users perceived sustainability disclosures to be insufficient, lacking in reliability, and incomparable.

However, the above results differ with the findings of some prior studies (O'Dwyer *et al.*, 2004; Deegan & Rankin, 2004; Business in the Environment, 1994), which indicated that users perceived sustainability reports to be irrelevant, incomprehensible, lengthy but inadequate, useless, immaterial, unreadable and difficult to navigate. A plausible explanation for the difference between the current results and those of prior studies is that prior studies were conducted more than a decade ago in an era of printed reports, whereas the current study has been conducted in an era of electronic reporting on companies' websites. Accordingly, most of the shortcomings cited above may have been overcome by available web technologies.

7.11.2 Comparison of users' and preparers' perceptions on the quality of environmental reports read by users

In order to compare perceptions of users to those of preparers, preparers were also asked to indicate their agreement or disagreement with the six statements, about users' perception of the quality of their companies' last environmental reports. To this end, a five point likert scale was used as discussed in section 7.11.1. The responses of both users and preparers were ranked in a descending order according to their mean scores, and then compared to each other. In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between the perceptions of the two groups.

As highlighted in Table 7.19b, two statements were ranked equally by both users and preparers, namely, the statement that "the environmental reports were reliable" ranked first by both groups, and the statement that "the environmental reports were verifiable" ranked fifth by both groups. Users' and preparers' ranking of three other statements was more or less the same. Specifically, users ranked the statement "the environmental reports were relevant" second whereas the preparers ranked it third. Likewise, the users ranked the statement "the environmental reports were timely" third whereas the preparers ranked it fourth. Following a similar pattern, the users ranked the statement "the environmental reports were comparable" fifth, whereas the preparers ranked it sixth.

TABLE 7.19B: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON THE QUALITY OF ENVIRONMENTAL REPORTS READ BY USERS

No	Statement	Users	Rank	Preparers	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
1	The environmental reports were understandable	3.57	1	3.93	1	0.028*
2	The environmental reports were relevant	3.56	2	3.80	3	0.177
3	The environmental reports were timely	3.20	3	3.77	4	0.004*
4	The environmental reports were reliable	3.17	4	3.83	2	0.001*
5	The environmental reports were verifiable	2.71	5	3.73	5	0.000*
6	The environmental reports were comparable	2.71	5	3.63	6	0.000*

Scale: 1=strongly disagree; 5=strongly agree

*statistically significant differences ($p<0.05$) at 95% confidence level

Interestingly, it is only with regard to ranking the statement that “the environmental reports were reliable” that users' ranking differed from that of preparers', as users ranked the statement fourth whereas the preparers ranked it second. However, a closer examination of Table 7.19b reveals that preparers' means were higher than those of users' for all the statements, an indication that they agreed more with the statements than the users did. Indeed the T-Tests for equality of means (2-tailed) revealed statistically significant differences ($p<0.05$) in the perceptions of the users and preparers in five of the six statements at 95% confidence levels. The foregoing suggests the existence of an expectation gap that could undermine the decision-usefulness of environmental reports. The above results are consistent with the finding of Haque *et al.*, (2013:18), cited earlier.

7.12 SATISFACTION WITH THE QUALITATIVE ATTRIBUTES OF ENVIRONMENTAL REPORTS

7.12.1 Users' satisfaction with the qualitative attributes of the environmental reports read

Users were asked to indicate how satisfied they were with regard to relevance, reliability, comparability, understandability, timeliness and verifiability of the environmental reports they had read in the past 12 months. A five point likert scale was used with weightings of one for not satisfied at all, two for slightly satisfied, three for moderately satisfied, four for very satisfied, and five for extremely satisfied. Therefore the closer the mean was to five, the more satisfied the users were with a qualitative attribute of an environmental report.

For the sake of clarity and conciseness, the percentages of those who indicated that they were either very satisfied or extremely satisfied, were added up together, and reported as “percentage of users satisfied with a qualitative attribute” in the third column of Table 7.20. In essence therefore, those who indicated that they were moderately satisfied or slightly satisfied were conservatively reported as not satisfied at all, as the words “moderately satisfied” and “slightly satisfied” imply some reservation with regard to the level of satisfaction. This approach is justified to ensure that only those who were completely satisfied by a qualitative attribute of an environmental report are reported as such. Besides, the approach has also been used in prior studies (See for example DeVilliers & Van Staden, 2010:15).

Overall, Table 7.20 depicts a low level of satisfaction of users with the qualitative attributes of the environmental reports read in the past 12 months. Only 40% of users indicated that they were satisfied with the understandability of environmental reports read, whereas 37.14% of users indicated that they were satisfied with the relevance of environmental reports read. Only 22.86% of users were satisfied with reliability of the reports read, whereas 20% were satisfied with the timeliness of the reports. Quite discouragingly, only 5.71% of the users were satisfied with the comparability of the environmental reports. The standard deviation of less than one for responses to all the six attributes suggests agreement among the users on their level of satisfaction with the reports read.

TABLE 7.20: USERS' SATISFACTION WITH THE QUALITATIVE ATTRIBUTES OF ENVIRONMENTAL REPORTS

No	Qualitative attribute of an environmental report	Percentage of users satisfied with a qualitative attribute	Rank	Users	Standard Deviation
				n=48	
				Mean	
1	Understandability	40.00%	1	3.26	0.886
2	Relevance	37.14%	2	3.06	0.906
3	Reliability	22.86%	3	2.80	0.994
4	Timeliness	20.00%	4	2.89	0.993
5	Verifiability	11.43%	5	2.46	0.980
6	Comparability	5.71%	6	2.46	0.780

Scale: 1=not satisfied at all; 5=extremely satisfied

The preceding results are consistent with the findings of the prior studies (Campbell & Slack, 2008; Danatas & Gadenne, 2004; European Commission, 2011b; Mitchell & Hill, 2010; O'Dwyer *et al.*, 2004; Solomon & Solomon, 2006; Tilt, 1994), which unanimously indicated that the users were dissatisfied with the relevance, reliability, comparability, timeliness and understandability of the environmental reports.

7.12.2 Comparison of users' and preparers' perceptions regarding user's satisfaction with the qualitative characteristics of the environmental reports read

Using the criteria described above in the first paragraph of section 7.12.1, the preparers were also asked to indicate their perceptions on users' satisfaction with the relevance, reliability, comparability, timeliness, understandability and verifiability of their company's last environmental report. The responses of both users and preparers were then ranked according to mean scores, in a descending order, and then compared to each other. In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between the perceptions of the two groups.

TABLE 7.21: COMPARISON OF USERS' AND PREPARERS' PERCEPTIONS ON USERS' SATISFACTION WITH THE QUALITATIVE ATTRIBUTES OF ENVIRONMENTAL REPORTS READ

No	Qualitative attribute of an environmental report	Users	Rank	Preparer	Rank	Statistical Significance of differences
		n=48		n=42		
		Mean		Mean		
1	Understandability	3.26	1	3.77	1	0.020*
2	Relevance	3.06	2	3.63	4	0.008*
3	Timeliness	2.89	3	3.67	3	0.001*
4	Reliability	2.80	4	3.70	2	0.000*
5	Verifiability	2.46	5	3.60	5	0.000*
6	Comparability	2.46	5	3.37	6	0.000*

Scale: 1=not satisfied at all; 5=extremely satisfied

*statistically significant differences ($p < 0.05$) at 95% confidence level

As shown in Table 7.21, both users and preparers ranked users' satisfaction with three qualitative characteristics of environmental reports equally, and these are: understandability, ranked first, timeliness, ranked third, and verifiability ranked fifth. In addition, users' satisfaction with comparability of the reports was ranked more or less the same, by both groups as users ranked this attribute fifth, whereas the preparers ranked it sixth. By contrast, the ranking of the users' satisfaction with the fundamental attributes of a decision-useful report differed from that of preparers. Specifically, users ranked satisfaction with relevance of the reports second, whereas the preparers ranked it fourth. The exact opposite was the case with the ranking of reliability, as users ranked their satisfaction with this attribute fourth, whereas the preparers ranked this attribute second.

Another notable difference is that the mean scores of responses of preparers' were higher than those of users on all the six attributes, including those ranked equally by both users and preparers. This suggests that preparers perceived users to be more satisfied with the six attributes of

decision-useful environmental reports than the users themselves did. Indeed the T-Tests for equality of means (2-tailed) revealed statistically significant differences ($p < 0.05$) in the perceptions of the users and preparers with regard to users' satisfaction with all the six qualitative attributes at 95% confidence levels, suggesting the existence of an expectation gap between users and preparers.

A possible explanation for the differences in perceptions of users and preparers regarding users' satisfaction with the six attributes of decision-useful environmental reports can be explained using the cost constraint articulated in the accounting conceptual frameworks (FASB, 2008:31; IASB, 2008:42). Specifically, most of the costs of providing accounting information such as cost of collecting, processing, assuring and disseminating the information fall initially on the preparers, whereas the benefits are reaped by both users and preparers (FASB, 2008:31). Users also may incur costs if the preparers pass on the above mentioned costs to them or in obtaining information, for instance downloading a PDF report from a company's website. However, users' costs are a small fraction of the preparers' and in fact it could be deemed to be negligible.

Considering that some of the benefits of providing accounting reports are intangible, unquantifiable and even questionable, it is probable that preparers will perceive that just about any information provided is satisfactory, given that the users do not initially contribute to the cost of providing such information (IASB, 2008:25). Moreover, bearing in mind that higher quality environmental disclosures increase costs for reporting entities with unclear commensurate benefits, preparers will be reluctant to divulge such quality information and will thus be inclined to perceive the current disclosures as satisfactory, and value for money for the company even if the opposite is true.

7.13 SUGGESTIONS FOR IMPROVEMENT OF THE QUALITY (DECISION- USEFULNESS) OF ENVIRONMENTAL REPORTS

7.13.1 Users' suggestions for improvement of the quality (decision-usefulness) of environmental reports read

Users were asked to suggest how the quality of the environmental reports that they had read in the past 12 months should be improved. Given that this was an open-ended question, a qualitative

data analysis approach was deployed using Creswell's data analysis spiral, as described in Leedy and Ormrod (2001:161). Each respondents' response was content analysed and any patterns or trends that the data reflected were assembled together in six groups of meaning units that matched the qualitative characteristics of decision-useful information, which were then compared to the findings in prior studies to determine whether they concurred with the literature or not (Leedy & Ormrod, 2005:136) (See Table 7.22 and Table 7.24).

Nineteen users responded to this question, however, three did not have any suggestions for improvement and therefore only 16 users' suggestions are summarised in Table 7.22. Out of the 16 users that provided suggestions on how the quality of environmental reports should be improved, 50% suggested improvements related to the reliability of the reports, most notably independent verification of the environmental reports.

Just above 31% suggested improvements related to the relevance of the reports. Twenty five percent of the users suggested improvements related to the comparability of the reports, whereas about 19% suggested improvements related to understandability and verifiability of the reports. Only 7% of users suggested an improvement related to timeliness of the reports. What is noteworthy is that most of users' suggestions for improvement were related to reliability, an observation that is consistent with the existence of a trust deficit of users on the reporting activities of South African companies (Mckay, 2013:01).

The preceding results of the current study are consistent with the findings of prior studies (DeVilliers & Van Staden, 2010a; European Commission, 2011b; Mitchell & Hill, 2010; Taib, 2005; Tilt, 1994), which suggested that the decision-usefulness of sustainability reports could be improved by mandatory independent assurance and regulation and use of quantified and accurate indicators, as well as integration of sustainability reports with financial reports.

**TABLE 7.22: USERS' SUGGESTIONS FOR IMPROVEMENT OF THE QUALITY
(DECISION-USEFULNESS) OF ENVIRONMENTAL REPORTS READ**

User No	Suggestion	Meaning unit
1	Improving practicality and verifiability of the reports from the outset	Relevance Verifiability
2	Wider participation of stakeholders in the reporting process	Relevance
3	Regulation through competent authorities to ensure that reports are of an adequate quality. Enforcing independence of auditors.	Reliability
4	Presenting verifiable facts that have been audited by a third party to ensure correctness	Verifiability Reliability
5	Reporting on what a company plans to do in the future	Relevance
6	Standardising formats as well as reporting techniques to avoid obscuring details through corporate branding in the reporting style.	Comparability Understandability
7	Stakeholder consultation that involves ordinary employees	Relevance
8	Ensuring that all environmental reports look the same and contain similar information. All reports should be verified by independent verifiers especially for the purpose of carbon tax	Comparability Verifiability Reliability
9	Inclusion of monetary value in the environmental disclosures	Comparability
10	Ensuring that the reports are current and that they reflect stakeholders' feedback	Timeliness Relevance
11	Adherence to King III report's requirement for integrated reporting, as well as GRI guidelines	Reliability
12	Reducing the variety of reports, many of which are poorly written. Improving the readability of the reports. Reducing the wide range of reporting consultants by introducing professional registration, annual review and regulation of the environmental consulting profession	Comparability Understandability Reliability

**TABLE 7.22: USERS' SUGGESTIONS FOR IMPROVEMENT OF THE QUALITY
(DECISION-USEFULNESS) OF ENVIRONMENTAL REPORTS READ
(CONT...)**

User No	Suggestion	Meaning unit
13	Demonstrating the integration of environmental reporting with other core aspects of a business, such as financial and social aspects	Reliability
14	Eliminating bias or subjective reporting as the reports tend to reflect only positive aspects of a reporting entity, given that editorial control lies with the companies' management	Reliability
15	Reducing the length, difficulty to download, and sizes of files to allow readability and accessibility of environmental reports.	Understandability
16	By being honest	Reliability

7.13.2 Preparers' suggestions for improvement of the quality (decision-usefulness) of their companies' last environmental report

As with users, preparers were also asked to suggest how the quality of their company's last environmental report could be improved. Given that this was an open-ended question, a similar approach to the one used for users, as described in the first paragraph of section 7.13.1 was adopted, and the results captured in Table 7.23 and further summarised in Table 7.24. Fourteen preparers responded to the request for suggestions on how to improve the quality of their company's last environmental reports. Two indicated that they had no suggestions for improvement.

As illustrated in Table 7.24, of the twelve that provided suggestions, 75% suggested improvements related to comparability of the reports, whereas about 33% suggested improvements related to reliability of the reports. A similar percentage suggested improvements related to the relevance of the reports, whereas about 17% suggested improvements related to the understandability of the reports. Only 8% of the preparers suggested improvements related to verifiability and none of the preparers suggested improvements related to timeliness of the reports.

**TABLE 7.23: PREPARERS' SUGGESTIONS FOR IMPROVEMENT OF THE QUALITY
(DECISION-USEFULNESS) OF THEIR COMPANIES' LAST
ENVIRONMENTAL REPORT**

Preparer Number	Suggestion	Meaning unit
1	Widening stakeholder engagement process	Relevance
2	Improving the reporting balance between negative and positive performance Focussing on materiality Ensuring a golden thread throughout the reports	Reliability Relevance Understandability
3	Providing comparable information of competitors or industry averages	Comparability
4	Including a reasonable assurance statement in the reports as opposed to the current practice of including a limited assurance statement Greater focus on industry-wide benchmarking	Reliability Comparability
5	Including targets to allow monitoring of progress and for comparability purposes	Comparability
6	Providing more specific targets.	Comparability
7	Providing quantitative information and set targets	Reliability Comparability
8	Providing more specific targets, reporting performance against these targets more extensively and thoroughly Making use of well documented quantitative measures Greater transparency and response to stakeholders' questions	Comparability Verifiability Relevance
9	Comparison of performance with industry averages and benchmarking against best international practice	Comparability
10	More robust measurement of the key environmental measures	Comparability/ Reliability

**TABLE 7.23: PREPARERS' SUGGESTIONS FOR IMPROVEMENT OF QUALITY
(DECISION-USEFULNESS) OF THEIR COMPANIES' LAST
ENVIRONMENTAL REPORT**

Preparer Number	Suggestion	Meaning unit
11	Providing more granular data (detailed data)	Comparability Understandability
12	Reporting more on actual business impact and on the business risk to ensure that the reports are relevant and understandable to the stakeholders	Relevance Understandability

The preparers' suggestion for improvement in comparability is consistent with results found in the content analysis phase of the study which indicated that on average, the environmental reports produced by South African companies were less comparable than they were relevant, reliable (verifiable), timely and understandable (section 6.8.2). It is further interesting to note that by far the most popular improvement suggestions made by preparers relate to comparability, an enhancement qualitative characteristic, as opposed to relevance-related and reliability-related improvements which were only recommended by about a third of the preparers (see Table 7.24).

7.13.3 Comparison of users' and preparers' suggestions for improvement of quality (decision-usefulness) of environmental reports

Users' and preparers' suggestions for improvement in the quality of environmental reports were ranked in a descending order according to percentage of respondents that suggested the improvements, and then compared to each other as shown in Table 7.24. As illustrated in the table, the ranking of users' and preparers' suggestions for improvement related to three qualitative characteristics; relevance (ranked second), understandability (ranked fourth) and timeliness (ranked sixth) were similar. However, the ranking of three suggestions related to reliability, verifiability and comparability were different for both groups, with users having ranked the suggestions related to reliability first, whereas the preparers ranked the suggestions second. Likewise the users' ranked the suggestions related to verifiability fourth whereas the preparers ranked them fifth. More notably, the users ranked the suggestions related to comparability third,

but preparers ranked it first and by a relatively large percentage of 75%.

Given that 75% of the preparers suggested improvements related to comparability, while only 25% of users made related suggestions, and bearing in mind that 50% of users suggested improvements related to reliability, with a similarly corresponding 33% of preparers, one can conclude that there is an expectation gap between the two groups. Such an expectation gap can for instance result in preparers providing more comparable information, by attempting to make unlike items to look alike, and in so doing undermine reliability of the reports which is the attribute that most users recommended for improvement.

TABLE 7.24: COMPARISON OF USERS' AND PREPARERS' SUGGESTIONS FOR IMPROVEMENT OF THE QUALITY (DECISION-USEFULNESS) OF ENVIRONMENTAL REPORTS

No	Qualitative characteristic	Percentage of users suggesting improvement	Rank	Percentage of preparers suggesting improvement	Rank
1	Reliability	50%	1	33%	2
2	Relevance	31%	2	33%	2
3	Comparability	25%	3	75%	1
4	Understandability	19%	4	17%	4
5	Verifiability	19%	4	8%	5
6	Timeliness	7%	6	0%	6

7.14 RELATIVE IMPORTANCE OF ENVIRONMENTAL REPORTS/STATEMENTS

7.14.1 Users' perception of relative importance of different types of reports/statements

Users were requested to specify their perceived importance of different types of reports/statements that typically appear in the annual reports, which can broadly be categorised into financial and

non-financial reports. A five point likert scale was used, with one representing not important at all, two slightly important, three fairly important, four very important, and five representing extremely important. Therefore the closer the mean was to five, the more important the reports/statements were perceived to be. For the sake of clarity and brevity, the percentages of those who perceived each of the eight reports/statements, as either very important or extremely important were added up together, and reported as “percentage that perceive a report/statement to be important” in the third column of Table 7.25.

TABLE 7.25: USERS' PERCEPTION OF RELATIVE IMPORTANCE OF DIFFERENT TYPES OF REPORTS/STATEMENTS

No	Statement	Percentage that perceive statement to be important	Users n=36 Mean	Standard Deviation
1	Environmental reports	75.68%	3.97	0.897
2	Statement of financial position	71.06%	3.71	1.271
3	Statement of comprehensive income	71.06%	3.71	1.271
4	Corporate governance reports	68.42%	3.74	1.057
5	Cashflow statements	65.79%	3.74	1.058
6	Community engagement reports	50.00%	3.45	1.369
7	Statements of changes in equity	39.48%	3.03	1.262
8	Employees reports	34.21%	3.03	1.241

Scale: 1=not important at all; 5=extremely important

Users who perceive the reports/statements to be fairly important are conservatively reported as perceiving the reports/statements not to be important, as the words “fairly important” suggests a reservation in perception of importance of the reports/statements. This approach is justified for the reason ensuring that only those who perceive the reports/statements to be important without a reservation are reported as such. It has also been used in the prior studies (See DeVilliers & Van

Staden, 2010:15).

As shown in Table 7.25, the reports perceived to be important by most users (75.68%) were environmental reports – in fact more important than any other reports/statements. Indeed, the standard deviation of users' perception of environmental reports, which is below one, suggests an agreement among the users, about the importance of the reports, unlike the other reports or statements which have a standard deviation above one. The statement of financial position and statement of comprehensive income were jointly ranked as the second most important statements, as 71.06% of users perceived them to be important. By contrast, employees' reports were perceived to be the least important, as only 34.21% of the users' perceived these reports to be important. In short, a higher percentage of users perceived environmental reports to be important than the percentage that perceived the financial statements to be important.

The current results summarised in the previous paragraph are consistent with the findings of the European Commission (2011b:98), which revealed that the civil society reader groups expected sustainability information in the annual reports to be accorded the same status as financial information (European Commission, 2011b:98). However, the above results contrast the findings of some prior studies (BiE, 1994; Campbell & Slack, 2008; Deegan & Rankin, 2004; Richardson & Holm, 2005; Rowbottom & Lymer, 2010), which found that environmental reports, given their narrative nature, were ranked low, as compared to financial information, as they were deemed to be immaterial and irrelevant for investment related decisions.

A probable explanation for the differences between the findings of other prior studies and the results of the current study is that, the sampled users of the prior studies were primarily financial stakeholders such as analysts, stockbrokers, and investors, whereas the sampled users of the current study were primarily non-financial stakeholders, such as academics and representatives of environmental NGOs. Given that the perception of decision-usefulness of accounting reports is user group-specific, different user groups may accord a different level of importance to different types of reports depending on factors such as the decision to be made, methods of decision-making used, information already possessed or obtainable from other sources and the user group's capacity to process information (FASB, 2008:01). Therefore, reports that are perceived to be important to one user group may not necessarily be equally important to a different user group. For instance, financial stakeholders, who predominate the above-mentioned prior studies, may

prefer financial information that can fit in their predictive models, and may also possess or obtain information not available to non-financial users. Accordingly, their perception of importance of accounting reports/statements may not be the same as that of non-financial stakeholders who predominate the current study.

7.14.2 Comparison of users' and preparers' perception of relative importance of different types of reports/statements

TABLE 7.26: COMPARISON OF USERS' AND PREPARERS' PERCEPTION OF RELATIVE IMPORTANCE OF DIFFERENT TYPES OF REPORTS /STATEMENTS

No	Statement	Users n=48 Mean	Rank	Preparers n=42 Mean	Rank	Statistical Significance of differences
1	Environmental report	3.97	1	3.62	5	0.153
2	Corporate governance report	3.74	2	4.07	1	0.201
3	Cash flow statement	3.74	2	3.59	6	0.658
4	Statement of financial position	3.71	4	3.72	3	0.966
5	Statement of comprehensive income	3.71	4	3.83	2	0.714
6	Community engagement report	3.45	6	3.41	7	0.904
7	Statement of changes in equity	3.03	7	3.28	8	0.445
8	Employees report	3.03	8	3.64	4	0.034*

Scale: 1=not important at all; 5=extremely important

*statistically significant differences ($p < 0.05$) at 95% confidence level

Using the criteria described above in the first paragraph of section 7.14.1, the preparers were also asked to indicate their opinions on the importance of the eight reports/statements to users. The responses of users and preparers were then ranked according to their mean scores in a descending

order, and then compared to each other. In addition, T-Tests for equality of means (2-tailed) were performed to determine whether there were statistically significant differences between the perceptions of the two groups.

As shown in Table 7.26, the users' and preparers' perception of importance of the eight reports/statements to the users differed on all reports/statements. Most notable among the differences was that users ranked environmental reports first, above all financial statements, whereas the preparers ranked the reports fifth, below primary financial statements such as statement of financial position and statement of comprehensive income.

Given the differences between users and preparers ranking of the eight reports/statements, one would have expected the T-Tests for equality of means (2-tailed) to reveal various significant differences between the views of users and those of preparers. Surprisingly, the T-Tests for equality of means revealed only one statistically significant difference ($p < 0.05$) in the perceptions of the users and preparers with regard to the importance of the employees report. Indeed, the users had ranked this report eighth whereas the preparers had ranked it fourth. Given that the T-Tests revealed only one significant difference, and that the difference only pertained to employees' reports, one can conclude that there was no expectation gap between the users and preparers for all the other reports and statements.

However, given the differences in ranking of the eight reports/statements between the users and preparers in the current study, its results contrast those of prior studies (Deegan & Rankin, 1999:334; Myburgh, 2001:11; Stainbank & Peebles, 2006:75), which found that both users and preparers ranked financial statements above environmental reports. In fact, according to Stainbank and Peebles (2006:75), all the non-financial reports such as environmental reports, employee reports and corporate governance reports were ranked low by both users and preparers. The difference between the current study's results and the findings in these earlier studies can be explained by the difference between the sampled users of the prior studies and the sampled users in the current study. Specifically, users in earlier prior studies primarily comprised financial stakeholders such as analysts, stockbrokers, and investors, whereas the sampled users of the current study primarily comprised non-financial stakeholders such as academics and representatives of environmental NGOs.

Given the perception that decision-usefulness of accounting reports is user group-specific, the level of importance accorded to different types of information will vary from one user group to another (FASB, 2008:01). Accordingly, the information perceived to be important by financial stakeholders (typically will be of financial nature), will be different from the information deemed important by the non-financial stakeholders (typically of non-financial nature). Since most of the sampled users in prior studies were financial stakeholders, their preference for financial information over environmental information should be expected. Likewise, given that most of the sampled users of the current study were non-financial stakeholders, with a particular interest in environmental issues, their preference for environmental information over the financial information should be expected.

7.15 CHAPTER SUMMARY AND CONCLUSION

The broad aim of this study was to determine the decision-usefulness of environmental reports prepared by South African companies to users of those reports. The findings of the questionnaire survey phase of the study revealed that an overwhelming majority of users read environmental reports, and that they preferred that the reports disclose both negative and positive aspects in a balanced manner, to identify and describe key relevant issues, be specific and contain accurate information. In addition, most users preferred future oriented information, which identifies and addresses key stakeholders and their concerns. In short, users' needs were more inclined towards more reliable and relevant environmental information, the two fundamental attributes of decision-useful accounting information.

As to the extent in which users read the environmental reports is concerned, the findings of the current study reveal that environmental reports were more often read using lesser effective reading techniques such as scanning, skimming and exploratory reading. The preference of these techniques is likely to undermine the understandability of the information read from the environmental reports. The findings of the current study further revealed that the reports read were mostly read from the PDF integrated annual reports on companies' websites. The latter could explain the preference of the above-mentioned reading techniques, given the lengthy nature of PDF integrated annual reports. In general, users' also read more often from websites than from the print medium, given the accessibility, time-saving and cost effective nature of the websites.

In relation to whether users employ the environmental reports for making decisions, the findings of this study reveal that the reports were mostly used for education or research, and for users' own knowledge. In addition, the findings revealed that the reports were used to hold companies accountable, to decide whether or not to buy a company's products, as well as whether to decide to invest or divest from a company. Only a minority of users used environmental reports to decide whether to partner with a company, or even to decide whether to support or launch action against a company. In short, environmental reports were not used as much for making decisions as they were used for research, own knowledge or for accountability.

Although most users perceived environmental reports to be useful, understandable and relevant, the findings of the study revealed that most users were dissatisfied by the reports' reliability, verifiability, timeliness, and comparability. However, when asked to make suggestions for improvement, most users suggested various ways through which the reliability of the environmental reports should be improved. In short, users were more concerned with the reliability of the environmental reports, an aspect that could undermine the decision-usefulness of the environmental reports.

With regard to the relative importance of environmental reports compared to other types of reports, the findings of the current study reveal that most users perceived environmental reports to be relatively more important than even financial statements, such as the statement of financial position and the statement of comprehensive income. The fact that environmental reports were perceived to be even more important than the financial statements perhaps suggests the need for the decision-usefulness of these reports to be improved and to be on par with financial statements.

With regards to the expectation gap between users and preparers of environmental reports, the findings of the study show evidence of existence of expectation gaps on various issues related to the decision-usefulness of environmental reports. First, an overwhelming majority of preparers did not have a way of ascertaining whether or not their companies' environmental reports had been read. Second, 13 significant differences were found between responses of users and those of preparers in 28 statements on what environmental reports should be/do. In addition, significant differences were found between responses of users and preparers on how often users used the more effective reading techniques to read environmental reports, and how often users read environmental reports from three of six media. Furthermore, two significant differences were found between the responses of users and preparers on how environmental reports were used,

particularly relating to use of the reports for education/research and for own knowledge.

Third, significant differences were found between the responses of users and preparers on the understandability, timeliness, reliability, verifiability and comparability of the environmental reports. In addition, significant differences were found between the responses of users and preparers on users' satisfaction with all six qualitative characteristics of decision-useful information. Lastly, whereas users suggested improvements in environmental reports' reliability, an overwhelming majority of preparers suggested improvements related to comparability. The existence of the above-mentioned expectation gaps may undermine the decision-usefulness of the environmental reports.

In general, the environmental reports produced by South African companies were perceived to be decision-useful by the users, mostly for research, own knowledge and for holding companies accountable. However there is a need for improvement, particularly with regard to the reliability of the environmental reports, which is one of the two fundamental characteristics that decision-useful reports must possess.

The following chapter summarises the key findings and conclusions of this study. It then presents the original contributions and significance of the study, the limitations of the study as well as provides suggestions for further research. Chapter 8 ends with the final concluding remarks.

CHAPTER 8

SUMMARY AND CONCLUSIONS

8.1 INTRODUCTION

The broad aim of this study was to assess and determine the decision-usefulness of environmental reports prepared by South African companies to users of those reports. The study was motivated by a lack of research on users' perception on decision-usefulness of environmental reports in South Africa in a period during which legislation on corporate reporting, rules on integrated reporting, and principles of corporate governance have undergone far reaching changes. To achieve the above aim, content analyses of environmental reports, as well as a questionnaire survey of users and preparers of the reports were conducted.

The main purpose of this chapter is to summarise the key findings and to present the conclusions of the study. The chapter also provides the original contributions of this study, discusses its limitations and provides suggestions for further research.

The chapter proceeds with a restatement of the research problem and objectives, as outlined in Chapter 1, in section 8.2. This is followed by a summary and conclusion of the evolution of environmental reporting, presented in Chapter 2, in section 8.3. Section 8.4 presents a summary and conclusion of the theoretical foundation of environmental reporting adopted in this study, presented in Chapter 3. Thereafter, a summary and conclusion of review of prior literature on decision-usefulness of environmental reports, presented in Chapter 4, is provided in section 8.5. Section 8.6 provides a summary and conclusion of research design and methodology employed in this study, presented in Chapter 5. This is followed by a summary and conclusion of key findings of the content analysis phase of the study, presented in Chapter 6, in section 8.7. Section 8.8 presents a summary of key findings of the questionnaire survey phase of the study, presented in Chapter 7, followed by a discussion of original contribution and significance of this study in section 8.9. Section 8.10 provides the limitations of the study, followed by suggestions for further research in section 8.11. Section 8.12 provides the final concluding remarks.

8.2 CHAPTER 1: RESEARCH PROBLEM AND OBJECTIVES

8.2.1 Research problem

The research problem investigated by this thesis is that the increase in the volume and number of environmental reports produced by South African companies appears to have occurred without a commensurate improvement in quality (KPMG, 2013:39). As a result, the decision-usefulness of the environmental reports produced is doubtful (IRC, 2011:01). Notwithstanding the commendable effort by South African companies to increase the quantity of environmental reports produced, they appear to have done so by side-lining users from the reporting process (IRC, 2011:01; KPMG, 2013:23). Consequently, the environmental reports seem not to address users' needs. In addition, environmental reports produced by South African companies have increasingly been criticised for tending to be biased and/or, self-laudatory with minimal negative information disclosure even when such information is known to exist (KPMG, 2013:76). These criticisms have further undermined the perceived decision-usefulness of the reports.

Given that limited environmental reporting research has been conducted in South Africa on users' environmental information needs, the extent to which they read environmental reports, whether they employ the reports to inform their decisions, their level of satisfaction with the reports and perception of relative importance of the reports, little is known about their perception of decision-usefulness of the reports. Considering that the main objective of accounting, and environmental reporting is not an exception (FASB, 2010:01; GRI, 2013:17; IASB, 2010:43), is to provide information that is useful to users for making decisions, it is imperative that users' perceptions on decision-usefulness of environmental reports be investigated if the above overarching objective is to be met.

8.2.2 Research objectives

The broad aim of this study was to assess and determine the decision-usefulness of environmental reports prepared by South African companies to users. Towards this end, the following specific objectives were pursued:

1. To evaluate the decision-usefulness of the current environmental reporting practices by South African companies

2. to determine the information needs of users of environmental reports produced by South African companies
3. to determine the extent to which users read the environmental reports and whether they employ the reports when making decisions
4. to determine the degree of satisfaction of users with regard to the decision-usefulness of the environmental reports and suggest ways of improving those reports
5. to investigate how users rank environmental information relative to other types of information such as financial and social responsibility information
6. to ascertain whether there is an expectation gap between preparers of environmental reports and users of those reports with regard to the decisions-usefulness of the reports

8.3 CHAPTER 2: SUMMARY AND CONCLUSION OF EVOLUTION OF ENVIRONMENTAL REPORTING

In Chapter 2, the origins and developments of environmental reports were traced from 1960 to 2014 to assess whether the developments had resulted in decision-useful reports. Despite the general improvement of environmental/sustainability reports from dis-informative greened advertisements of the 1960s to a systematic approach of environmental reporting in 2014 that enhanced the relevance, reliability, comparability, verifiability, timeliness and understandability of environmental reports, the decision-usefulness of environmental reports remained questionable (Vrubic, 2010:16).

With regard to the latter, stakeholder engagement initiatives of many companies appeared superficial in manner likely to result in irrelevant reports (Bromley & Powell, 2012:485). In addition, many companies' environmental reports contained incomplete, inaccurate, selective and self-laudatory information, with low levels of reasonable assurance (KPMG, 2013:76). Furthermore, the reports varied widely in a manner that rendered them incomparable (Fonseca, 2010:05). Besides, many reports were lengthy in nature, overloaded with over-aggregated information, a situation that rendered them incomprehensible (Laud & Schepers, 2009:368). Some reports also appeared to contain repeated information over several years (Scott & Jackson, 2002:201). Given the above concerns regarding relevance, reliability, comparability, timeliness, understandability and verifiability of reports produced by most companies, the final conclusion on decision-usefulness of the sustainability reports produced remained evasive.

8.4 CHAPTER 3: SUMMARY AND CONCLUSION OF THEORETICAL FOUNDATION OF ENVIRONMENTAL REPORTING

Chapter 3 examined various theoretical perspectives employed in the existing literature in an attempt to describe, explain, and evaluate the current environmental reporting practices and to prescribe how the reporting should be practiced. Ultimately, decision-usefulness theory, which posits that environmental reports are prepared because different stakeholders require information to support their decisions (AAA, 1966:01), was selected as it renders itself well to the content analysis and questionnaire survey methodologies adopted in this study. The theory was also deemed suitable because of its normative nature that questions the status quo and prescribes how environmental reporting should be practiced (Deegan, 2006:05).

The decision-makers paradigm of this theory was adopted for this study as it assumes that the decision-makers themselves know best the type of information that they want and that such information should be provided (Laughlin & Gray, 1988:334). The current study adopted the Behavioural Accounting Research approach (BAR) of decision-makers paradigm, an approach that entails directly asking the users to indicate the information that they want, in order to prescribe that information (Belkaoui, 2004:368; Deegan, 2006:12; Laughlin & Gray, 1988:335). The BAR approach was also selected because it is consistent with the overall aim of this study, and it has been successfully employed in similar prior research as it renders itself well to content analysis and questionnaire survey methodologies employed in this study (European Commission, 2011b; Said *et al.*, 2013). Chapter 3 concluded that decision-usefulness theory was suitable for describing, explaining, and evaluating the current environmental reporting practices and to prescribing how the reporting should be practiced.

8.5 CHAPTER 4: SUMMARY AND CONCLUSION OF PRIOR RESEARCH ON DECISION-USEFULNESS OF ENVIRONMENTAL REPORTS

Chapter 4 reviewed the prior literature on decision-usefulness of sustainability reports in general and environmental reports in particular. Key prior content analysis studies that evaluated the decision-usefulness of sustainability/environmental were reviewed, followed by surveys conducted to determine the environmental information needs of users and whether or not they read and employed the information to inform their decisions. The chapter also reviewed prior

studies on users' satisfaction with the decision-usefulness of environmental reports, as well as studies on users' perception of relative importance of environmental reports. Lastly, the chapter reviewed studies conducted to determine whether there is an expectation gap between preparers and users of environmental reports. In so doing, Chapter 4 highlighted gaps in the prior literature and the questions that have remained unanswered.

8.5.1 Review of prior content analysis studies

The review of prior content analysis studies conducted prior to 2010 revealed that the quality of sustainability reports in general, and environmental reports in particular was questionable, as most disclosures were irrelevant, unreliable, incomparable, untimely, incomprehensible, and unverifiable (Deegan & Rankin, 1996:52; Gamble *et al.*, 1995; Guthrie & Parker, 1990; KPMG, 1993; 1996; 1999, Niskala & Pretes, 1995). By contrast, a review of studies conducted post 2010 revealed that environmental reports were increasingly, more relevant, reliable, comparable, verifiable, understandable and timely (Bolivar, 2009; Chatterjee & Mir, 2008; KPMG, 2013, 2011, 2008, 2005, 2002; Mammatt *et al.*, 2010; Trucost and Environmental Agency, 2010, 2006, 2004). However, the decision-usefulness of the reports remained questionable even with the improvement in the reports.

8.5.2 Review of prior surveys

The review of surveys on users' needs revealed that users unanimously preferred environmental (sustainability) information that is relevant, reliable, understandable, comparable, verifiable and timely (Danatas & Gadenne, 2004; European Commission, 2011b; KPMG & SustainAbility, 2008; KPMG *et al.*, 2010; IRRC, 1995; Tilt, 1994). However, there were some unique differences as some preferences seemed to vary from one reader group to another, based on a group's unique needs (European Commission, 2011b; KPMG *et al.*, 2010). Chapter 4 also revealed that various user groups read and employed environmental information to inform various decisions (Danatas & Gadenne, 2004:09; KPMG & SustainAbility, 2008:05; Solomon & Solomon, 2006:574; Tilt, 1944:55). In addition, the chapter revealed different patterns of usage of environmental reports in different countries (KPMG *et al.*, 2010:23). The chapter further revealed that financial stakeholders employed environmental reports to a limited extent as they perceived them to be immaterial to their decisions (Campbell & Slack, 2008:28; Deegan & Rankin, 2004:329; European Commission, 2011b:91).

Chapter 4 revealed dissatisfaction of users with the decision-usefulness of the environmental reports in all prior studies reviewed, albeit not to the same extent (Campbell & Slack, 2008; Danatas & Gadenne, 2004; European Commission, 2011b; Mitchell & Hill, 2010; Solomon & Solomon, 2006; O'Dwyer *et al.*, 2004; Tilt, 1994). Some studies, particularly the early ones found that the users were generally dissatisfied with the environmental disclosures which they perceived to be unreliable, irrelevant, untimely, incomparable, unclear, unverifiable, incomplete and insufficient (O'Dwyer *et al.*, 2004; Tilt, 1994). Other studies revealed that some media of disclosure were deemed more reliable than others, and that some were more understandable than others (Danatas & Gadenne, 2004). Yet other studies revealed that environmental information was viewed by users as insufficient even when deemed relevant (Danatas & Gadenne, 2004). By contrast, a few studies, particularly the more recent ones, found the reports to be satisfactory to some users and not others (European Commission, 2011b; KPMG *et al.*, 2010).

With regard to the perceived relative importance of environmental information, most prior studies indicated that users perceived financial disclosures to be the most important disclosures in the annual reports, whereas environmental and social disclosures were perceived to be the least important (BiE, 1994; Campbell & Slack, 2008; Deegan & Rankin, 2004; Richardson & Holm, 2005; Rowbottom & Lymer, 2010). By contrast, one study indicated that some users wanted environmental reports to be accorded the same status as financial reports (European Commission, 2011b:98).

Chapter 4 further revealed that some prior studies found significant differences between the expectations of users and preparers in relation to various issues related to environmental reporting such as disclosure levels, reasons for and importance of topics disclosed, the medium of disclosure, frequency, location and regulation of disclosures (Deegan & Rankin, 1999; Mitchell & Quin, 2005; Myburgh, 2001). By contrast, some studies revealed convergence in the views of the users and some preparers on certain issues (Mitchell & Quin, 2005).

Based on the review of the prior literature, Chapter 4 identified various gaps such as limited research on decision-usefulness of environmental reports in developing countries, failure of prior studies to apply theory, lack of academic impartiality in the prior studies, out-datedness of the prior studies and use of *ad hoc* samples that did not allow generalisability of their findings. Other gaps identified included, a lack of focus on decision-usefulness of environmental reports,

surveying of views of a single user group, eliciting views of proxies instead of actual users, and inconsistent or contradicting results. Given the above-mentioned gaps, chapter 4 concluded that there were many unresolved issues on the decision-usefulness of environmental reports over which the empirical evidence was either inconclusive or contradictory. Therefore research was required to evaluate the decision-usefulness of the environmental reports of South African companies, and to determine users' perception of decision-usefulness of the reports.

8.6 CHAPTER 5: SUMMARY AND CONCLUSION OF RESEARCH DESIGN AND METHODOLOGY

Chapter 5 discussed two research methodologies, namely content analysis and questionnaire survey employed to collect data for meeting the six objectives of this study.

8.6.1 Content analysis phase of the study

Chapter 5 commenced by defining the content analysis method and justifying its use in addressing the first research objective. It then presented the population for the content analysis phase of the study which comprised top 100 JSE listed operating companies, and justified the selection of the population, as well as the sampling criteria employed. The chapter then presented the media from which environmental reports were analysed, namely IARs, SSRs and company websites and justified the selection of the same.

The design of five manual control lists and two judgement scales employed to evaluate the quality of environmental reports was then discussed. This was followed by a discussion of the pilot study conducted to finalise the questions and categories in the control lists, as well as the decision rules for coding adopted. The actual coding processes entailed scanning the IARs, SSRs and websites of companies to determine the presence of preselected environmental related items contained in the five control lists. The data captured in control lists was analysed using a spreadsheet to generate an environmental disclosure sub-quality index for each qualitative characteristic, as well as the total environmental disclosure quality index for each company. The latter was used to rank the companies in a descending fashion. Chapter 5 then discussed the measures undertaken to ensure the reliability and validity of the content analysis phase of the study, as well as the limitations and ethical considerations of the method.

8.6.2 Questionnaire survey phase of the study

Having discussed the content analysis phase of the study, chapter 5 discussed the questionnaire survey methodology designed to collect data for meeting the second, third, fourth, fifth and sixth objective of the current study. The questionnaire survey phase commenced with the justification for the questionnaire survey methodology, followed by a discussion of the population and sample (that comprised both users and preparers) as well as the sampling technique employed to select respondents. Two sets of questionnaires designed, one for users and the other for preparers, were then discussed. The two were designed to maximise comparability of responses of the two groups of respondents and as such had identical sections, similar questions and were mostly closed-ended.

Chapter 5 then discussed the data analysis conducted using SPSS version 22. Both descriptive as well as inferential statistics were employed to analyse the data except for one question which was open-ended in both sets of questionnaires, and thus was analysed using Creswell's data analysis spiral given its qualitative nature. The chapter then discussed the measures undertaken to ensure the reliability and validity of the findings of the questionnaire survey phase of the study, as well as the related limitations and ethical considerations. Chapter 5 then concluded by affirming that the methodologies adopted in the current study were appropriate in addressing the research objectives of the study.

8.7 CHAPTER 6: SUMMARY AND CONCLUSION OF KEY FINDINGS OF THE CONTENT ANALYSIS PHASE OF THE STUDY

Chapter 6 commenced by outlining the objective and sub-objectives of the content analysis phase of the study, followed by the profile of the top 100 companies included in the study. The chapter then presented the results on relevance, reliability (verifiability), comparability, understandability, timeliness and overall decision-usefulness of top 100 South African listed companies. This was followed by an explanation of the results using the decision-usefulness theory.

8.7.1 Objective and sub-objectives of the content analysis phase of the study

The overall objective of the content analysis phase of the study was to evaluate the decision-usefulness of the current environmental reporting practices by South African companies. To

achieve this objective required that the qualitative characteristics that make reports to be decision-useful be evaluated, which necessitated a further sub-division of the research objective into five sub-objectives listed below:

- i. To evaluate the relevance of the current environmental reporting practices by South African companies
- ii. to evaluate the reliability (verifiability) of the current environmental reporting practices by South African companies
- iii. to evaluate the comparability of the current environmental reporting practices by South African companies
- iv. to evaluate the timeliness of the current environmental reporting practices by South African companies
- v. to evaluate the understandability of the current environmental reporting practices by South African companies

8.7.2 First sub-objective: relevance of environmental reports

Results of the content analysis phase of the study indicate that the relevance of the environmental reports varied widely among the companies sampled, from 94% for the company with the most relevant report to 20% for the company with the least relevant report. The results further show that the reports were relevant as only 12 out of 66 companies scored less than 50%. In other words, about 82% of the companies' environmental reports had a relevance score of at least 50%. Given that the average relevance score for the 66 companies sampled was 70.43%, Chapter 6 concluded that the environmental reports produced by top 100 South African companies were relevant.

8.7.3 Second sub-objective: reliability (verifiability) of environmental reports

The results of the current study indicate that the reliability (verifiability) of the reports of the sampled companies varied widely, from 97% for the company with the most reliable (verifiable) report to 17% for the company with the least reliable (verifiable) report. Notwithstanding the variation in reliability (verifiability), chapter 6 concluded that the environmental reports of sampled top 100 listed companies were reliable (verifiable) as only 26 companies scored less than 50%. In other words, about 61% of the companies' environmental reports had a reliability (verifiability) score of at least 50%, with an average score of 61.80% for the 66 companies

sampled. Therefore the environmental reports sampled were more relevant (70.43%) than they were reliable (verifiable) (61.80%). This conclusion is consistent with FASB's (2008:15) conceptual framework assertion that for non-financial reports/statements, relevance should be the dominant quality in accounting reports, even if that is at the expense of reliability.

8.7.4 Third sub-objective: comparability of environmental reports

The results of the current study indicate that the comparability of environmental reports varied widely among sampled companies, as the company with the most comparable report had a score of 51%, whereas the company with the lowest score had a score of 5%. The environmental reports of the sampled companies were not comparable as only three companies scored at least 50%. Discouragingly, above 95% of the companies' environmental reports had a comparability score below 50%. With an average comparability score for all 66 sampled companies' environmental reports of 27.92%, Chapter 6 concluded that the environmental reports of the companies were not comparable. Chapter 6 explained the incomparability of environmental reports using FASB's (2008:27) conceptual framework, which posits that incomparability arises because companies, even if in the same sector, do not use similar inputs, apply similar procedures, or classify costs using the same systems.

8.7.5 Fourth sub-objective: understandability of environmental reports

Results of the current study indicate that the understandability of the environmental reports varied widely among the sampled companies – from 89% for the company with the most understandable report to 30% for the company with the least understandable report. Despite the disparity in the understandability of the reports, the reports of the sampled companies were understandable as only six companies scored less than 50%. About 91% of the companies' environmental reports had an understandability score of at least 50%. Given that the average score for understandability for the 66 companies sampled was 69.68%, Chapter 6 concluded that the environmental reports of the companies were understandable.

8.7.6 Fifth sub-objective: timeliness of environmental reports

As was the case with the other qualitative characteristics, the results of the current study revealed a wide disparity in the timeliness score of the environmental reports, ranging between 100% for

the company with the timeliest report to 40% for the one with the least timely report. In spite of the disparity, the reports of the sampled companies were timely as only three companies scored less than 50%. Simply put, just above 95% of the companies' environmental reports had a timeliness score of at least 50%. With an average timeliness score of 67.27% for all 66 companies sampled, Chapter 6 concluded that the environmental reports were timely. The chapter further ranked the qualitative characteristics of the sampled reports according to the average scores. In this regard, relevance (70.43%) ranked first, followed by understandability (69.68%) in the second position, then timeliness (67.27%) in the third position. In the fourth position was reliability (verifiability) (61.80%) followed by comparability (27.92%) in the fifth position.

8.7.7 Results of analysis of overall decision-usefulness of environmental reports

8.7.7.1 Determination of the overall decision-usefulness score

The overall decision-usefulness score for each company was computed by aggregating the company's average score for relevance, reliability (verifiability), comparability, understandability and timeliness, then dividing it by five. The resulting index was then used to rank companies in a descending order from the highest scorer to the lowest as discussed in Chapter 5.

8.7.7.2 Results of overall decision-usefulness of environmental reports

The results of the current study revealed a wide disparity in the overall decision-usefulness of the environmental reports, as the company with the most decision-useful report scored 80%, whereas the one with the least decision-useful report scored 23%. This result is in line with the findings of similar prior studies, which reported that the disclosure practices of companies varied widely among listed companies (MacLean & Gottfrid, 2000:247; Kolk, 2005:39; KPMG, 2010:78; Mammatt *et al.*, 2010:01). Notwithstanding the variation, the reports produced by sampled companies were decision-useful as only 15 out of 66 companies scored less than 50%. In other words, just above 77% of the companies' environmental reports had an overall decision-usefulness score of at least 50%. With an average score of about 60% for all 66 companies sampled, Chapter 6 concluded that the environmental reports produced by the sampled South African companies were decision-useful.

The fact that the average scores of the sampled environmental reports for the five qualitative

characteristics ranged from 70.43% for relevance to 27.92% for comparability, and that the overall average score for decision-usefulness was 60% supports FASB's conceptual framework (FASB, 2010:21; IASB, 2010:22). According to the framework, accounting information may possess varying degrees of qualitative characteristics and still be decision-useful. According to the conceptual framework, comparability as an enhancing qualitative characteristic does not significantly impact the decision-usefulness of accounting information, as does relevance and reliability (FASB, 2008:12). In fact, forcing comparability of two measures that are essentially different should be avoided as it can undermine relevance and reliability if comparability is attained by making the unlike disclosures to be alike (FASB, 2008:28).

8.7.7.3 Sector analysis of overall decision-usefulness of environmental reports

Results of the current study show that the overall decision-usefulness of environmental reports varies widely among different sectors, and even within sectors. In general, companies from the sectors known to have a significant impact on the environment appear to have produced more decision-useful reports than their counterparts from sectors with a lesser impact on the environment. This observation concurs with the findings of prior similar studies (KPMG, 2002:05; European Commission, 2011b:100; KPMG, 2013:14; Trucost & Environmental Agency, 2009, 2006, 2004). Notwithstanding the above conclusion, some sectors with a lesser impact on the environment particularly the ICT sector and Financial sector had a high average overall decision-usefulness scores for their reports.

8.7.7.4 Analysis of overall decision-usefulness of environmental reports according to sizes of companies

Results of the current study also suggest that in general, the overall decision-usefulness of sampled companies' environmental reports appears to be related to the size of the company as measured by market capitalisation. Specifically, larger companies appear to produce more decision-useful environmental reports than their smaller counterparts, a finding that is also consistent with those of the prior studies (Barbu, Dumontier, Feleaga & Feleaga, 2012:01; Brammer & Pavelin, 2006:01; Joshi, Suwaidan & Kumar, 2011:01).

8.7.7.5 Explanation of content analysis results using decision- usefulness theory

Chapter 6 reiterated that the accounting conceptual frameworks have not only emanated from decision-usefulness theory, they indeed embody the theory and are inextricably linked to it. Accordingly, they represent the theory and thus can be used to explain the results of the current study. In particular, the cost and materiality pervasive constraints articulated in the frameworks are meant to guide companies in deciding whether or not to disclose accounting information, and in determining the degree to which accounting information disclosed should possess the qualitative characteristics of decision-useful information (FASB, 2008:02; IASB, 2008:12). Accordingly they can be and were used in explaining the results of the content analysis phase of this study.

8.7.7.6 Overall conclusion of Chapter 6

The overall objective of the content analysis phase of the study was to evaluate the decision-usefulness of the current environmental reporting practices by South African companies. The overall conclusion of Chapter 6 is that the environmental reports produced by the listed sampled companies are decision-useful. In addition, companies from sectors with a significant impact on the environment appear to have more decision-useful environmental reports than those from the sectors with an insignificant impact on the environment. Furthermore, larger companies also appear to have more decision-useful reports than their smaller counterparts.

8.8 CHAPTER 7: SUMMARY OF KEY FINDINGS OF THE QUESTIONNAIRE SURVEY PHASE OF THE STUDY

Chapter 7 presented and discussed the results of the questionnaire survey phase of the study, which addressed the second, third, fourth, fifth and sixth objective of this thesis. The chapter commenced with a restatement of the research objectives, followed by a discussion of the response rate, non-response bias, and the background information of the respondents. The chapter then presented the analysis and discussion of results on whether environmental reports are read, users' environmental information needs, extent to which environmental reports are read and how they are used. Chapter 7 then analysed and discussed results on the usage of different media as a source of environmental reports, how the reports were used, and how useful they were perceived to be. This was followed by an analysis and discussion of results on users' perception of quality of environmental reports, their satisfaction with the same, suggestions for improvement of the

quality of the reports and perception of relative importance of the reports.

8.8.1 Population and response rate

The population of users comprised representatives of 30 ethical investment funds, representatives of 30 environmental NGOs and 40 accounting researchers all totalling to 100 users. A questionnaire was sent to the entire population of users that yielded a response rate of 54%. For the purpose of comparing users' perceptions to those of preparers, a similar questionnaire was also sent to 100 preparers representing the top 100 listed companies which yielded a response rate of 42%.

8.8.2 Results on information needs of users of environmental reports produced by South African companies

The second objective of this thesis was to determine the information needs of users of environmental reports produced by South African companies. To this end, users were required to indicate their perception of importance of 28 statements on what a company's environmental reports should do or should be. Results indicate that users perceived the disclosure of both negative and positive aspects in a balanced manner to be the most important issue, followed by identification and description of key relevant issues. Other issues perceived to be important by users include provision of specific and accurate information, provision of future oriented information, as well as identification and addressing of key stakeholders' concerns. In short, users' needs were more inclined towards more reliable and relevant environmental information, which happen to be the two fundamental qualitative characteristics of decision-useful accounting information. Surprisingly, the inclusion of an assurance statement in environmental reports was perceived to be relatively of lesser importance.

The above results of the current study concur with the earlier findings of some prior studies (Danatas & Gadenne, 2004; European Commission, 2011b; IRRC, 1995; KPMG & SustainAbility, 2008; KPMG *et al.*, 2010), but contrast those of other prior studies (Hodge *et al.*, 2009; KPMG & SustainAbility, 2008; O'Dwyer *et al.*, 2004; Tilt, 1994). The users in the latter studies had prioritised the inclusion of an assurance statement in a sustainability report to enhance its reliability. Chapter 7 attributed the above contrast to the fact that the prior studies were conducted in developed countries in which assurance practices on environmental issues are

advanced, independent, rigorous and mandatory, aspects which may have inclined users to prefer assurance as a measure to enhance the reliability of the reports.

8.8.3 Results on the extent to which users read and employ environmental reports

The third objective of this thesis was to determine the extent to which users read the environmental reports and whether they employ the reports when making decisions. To this end, users were asked to indicate whether they had actually read environmental reports in the past 12 months, how they read and used those reports.

8.8.3.1 Results on the extent to which users read the environmental reports

The results reveal that 83.33% of the users had read an environmental report in the past 12 months, whereas 16.67% had not. A Binomial Test (2-tailed) conducted found a significant difference between the proportion of the users who had read the reports (83.33%), and the proportion of those who had not (16.67%) ($p < 0.05$). These results are consistent with the findings reported in the prior literature (KPMG & SustainAbility, 2008:05; Danatas & Gadenne, 2004:09; Solomon & Solomon, 2006:574; Tilt, 1944:55), which indicated that a majority of users read sustainability reports and indeed actively sought these reports. However, the results contrast the findings of other prior studies (Campbell & Slack, 2008:28; Deegan & Rankin, 2004:329; European Commission, 2011b:91), which found that environmental reports were rarely read by users. The difference was attributed to the fact that the current study had mostly sampled non-financial stakeholders whereas the prior studies with opposing findings had mostly sampled financial stakeholders, who typically do not read non-financial reports.

The results of the current study also reveal that environmental reports are more often read using lesser effective reading techniques such as scanning, skimming and exploratory reading – techniques that are likely to undermine the understandability of the information read. The users' preference of the lesser effective reading techniques was attributed to their preference for environmental reports in PDF IARs, which are typically lengthy in nature. The above result differs from the findings of the European Commission (2011b:102), and Solomon and Solomon (2006), which indicated that users did not only thoroughly read sustainability reports, they also actively participated by co-writing the reports with the reporting entities. The preceding result also contradicts the accounting conceptual frameworks (FASB, 2008:10; IASB, 2008:40), which assert

that in making decisions, users are responsible for studying and analysing accounting information with reasonable diligence.

8.8.3.2 Results on whether users employ environmental reports for making decisions

With regard to how users used the environmental reports read, the results of this study reveal that the reports were mostly used for education or research, and for users' own knowledge. In addition, they were used to a lesser extent by users to hold companies accountable, to decide whether or not to buy a company's products, as well as to decide whether to invest or divest from a company. Only a minority of users used the reports to decide whether to partner with a company, or even to decide whether to support or launch action against a company. In short, environmental reports were not used as much for making action-oriented decisions as they were used for research, own knowledge or for holding companies accountable.

The above results concur with the findings of some prior studies (Danatas & Gadenne, 2004; De Villiers & Van Staden, 2010a; De Villiers & Van Staden, 2010b; KPMG & SustainAbility, 2008; O'Dwyer *et al.*, 2004; Solomon & Solomon, 2006; Taib, 2005; Tilt, 1994), but contrast the findings of other prior studies (BiE, 1994; Campbell & Slack, 2008; Deegan & Rankin, 2004). The latter studies found that environmental disclosures were hardly used to inform investment or divestment decisions, given their narrative nature. The contrast can be explained by the time difference between the current study and the latter studies which were conducted at least six years ago when sustainability reporting was predominantly narrative in nature. With passage of time, environmental reports particularly in South Africa, have increasingly quantified their data in a manner that can inform investment decisions.

8.8.4 Results on users' satisfaction with decision-usefulness of environmental reports and suggestions for improvement

The fourth objective of this thesis was to determine the degree of satisfaction of users with the decision-usefulness of the environmental reports as well as their suggestions for improving the reports. To this end, users were asked to indicate: how useful the environmental reports read were for the purpose for which they were used; how relevant, reliable, comparable, understandable, timely and verifiable the reports read were; how satisfied they (users) were with above-mentioned attributes of the reports read. In addition, users were asked to make suggestions for improving the

quality of the environmental reports read.

8.8.4.1 Results on how useful environmental reports read were for the purpose they were used

Results of the current study indicate that 52.57% of users perceived environmental reports to be useful for the purpose for which the reports were used with a mean of 3.44 (between somewhat useful and useful). These results concur with the findings of prior studies (Deegan & Rankin, 2004; KPMG & SustainAbility, 2008:11), which found that sustainability/environmental reports were perceived to be decision-useful by users. However, the above results differ from the findings of other prior studies (Campbell & Slack, 2008:05; Miller, 2012:01; O'Dwyer *et al.*, 2004; Wong, 2012:266), which found that non-financial/sustainability reports were not decision-useful as they were not quantified, and that they were perceived to lack a stakeholder engagement and feedback mechanism, sufficiency and credibility.

A plausible explanation for the difference between the current study's results and those of prior studies was attributed to the difference in the type of respondents sampled by the two sets of studies. Most of the respondents of the prior studies (with findings that differed from those of the current study) were financial stakeholders or representatives of environmental NGOs, whereas the respondents of the current study are a heterogeneous group comprising three different types of users (Academics, ethical investors, environmental NGOs). Financial stakeholders who typically need numerical data that can influence a financial forecast, may not find predominantly narrative sustainability reports to be decision-useful as such reports are perceived to lack the ability to influence a financial forecast (Campbell & Slack, 2008:05). On the other hand, NGOs may not reveal their true perception of decision-usefulness of sustainability reports as they have vested interest in answering questions in a particular way, to influence public opinion towards certain objectives. Academics, who are the main respondents in the current study are however impartial and thus are bound to have differing responses.

8.8.4.2 Results on users' perception of relevance, reliability, comparability, understandability, timeliness and verifiability of environmental reports read

Results of the current study reveal that most users perceived environmental reports to be understandable (62.86%) and relevant (61.11%). However, only a minority perceived the reports to be reliable (37.14%) and timely (37.14%). Likewise only a minority perceived the reports to be

verifiable (14.29%). Worse still, only 8.57% of users perceived the reports to be comparable. These results are consistent with those of prior studies (Campbell & Slack, 2008; Danatas & Gadenne, 2004:02; 11; KPMG & SustainAbility, 2008; O'Dwyer *et al.*, 2004:11).

8.8.4.3 Results on users' satisfaction with the relevance, reliability, comparability, understandability, timeliness and verifiability of the environmental reports read

Results of the current study indicate that 40% of users were satisfied with the understandability of environmental reports read, whereas 37.14% were satisfied with the relevance of the reports read. Only 22.86% of users were satisfied with reliability of the reports read, whereas 20% were satisfied with the timeliness of the reports. Only 11.43% of users were satisfied with the verifiability of the reports read. Quite discouragingly, only 5.71% of the users were satisfied with the comparability of the environmental reports. These results are consistent with the findings of the prior studies (Campbell & Slack, 2008; Danatas & Gadenne, 2004; European Commission 2011b; Mitchell & Hill, 2010; O'Dwyer *et al.*, 2004; Solomon & Solomon, 2006; Tilt, 1994).

8.8.4.4 Results on users' suggestions for improvement of quality of environmental reports read

As far as suggestions for improvement are concerned, 50% of users suggested improvements related to reliability of the reports most notably verification of reports by independent auditors, elimination of biased or subjective reporting, integration of environmental issues with other core business activities as well as adherence to King III Report recommendations and GRI guidelines. A lesser percentage (31%) suggested improvements related to the relevance of the reports most noteworthy of which was improving stakeholder consultation and feedback in the reporting process. Yet other users (25%) suggested improvements related to the comparability of the reports by standardising the formats of reports. Some users (19%) suggested improvements related to understandability namely, improving readability of the reports, reducing their length and file size.

Only 7% of users suggested improvement related to timeliness of the reports. In short, the two qualitative characteristics that most users suggested improvement on, were reliability and relevance, which happen to be the fundamental attributes of decision-useful information. The above results are consistent with the findings of prior studies (European Commission, 2011b; DeVilliers & Van Staden, 2010a; Mitchell & Hill, 2010; Taib, 2005; Tilt, 1994).

8.8.5 Results on how users rank environmental information relative to other types of information such as financial and social responsibility information

The fifth objective of this thesis was to investigate how users rank environmental information relative to other types of information. To achieve the objective, users were requested to indicate their perceived importance of different types of reports/statements that typically appear in the annual reports. Results of the current study show that environmental reports ranked first as they were regarded to be important by most users (75.68%), followed by the statement of financial position and statement of comprehensive income which jointly ranked second (71.06%). Corporate governance reports ranked fourth (68.42%), cash flow statements fifth (65.79%) and community engagement reports sixth (50.00%). Statement of changes in equity ranked seventh (39.48%) whereas employees' reports ranked eighth (34.21%). In sum, a higher percentage of users perceived environmental reports to be important than the percentage that perceived the same of financial statements. The above results of the current study are consistent with the findings of the European Commission (2011b:98), but contrast the findings of other prior studies (BiE, 1994; Campbell & Slack, 2008; Deegan & Rankin, 2004; Richardson & Holm, 2005; Rowbottom & Lymer, 2010;), which found that sustainability reports, given their narrative nature, were perceived to be irrelevant, immaterial and of lesser importance than financial information for investment related decisions.

The difference between the current results and those of the prior studies could be explained by the fact that sampled users of the prior studies were primarily financial stakeholders, whereas those of the current study were mostly non-financial stakeholders. Given that the perception of decision-usefulness of accounting reports is user group-specific, different user groups may accord a different level of importance to the same reports (FASB, 2008:01). Financial stakeholders, who typically need numerical data that can influence a financial forecast, may not find predominantly narrative sustainability reports to be important as such reports are perceived to lack the ability to influence a financial forecast (Campbell & Slack, 2008:05). By contrast, non-financial stakeholders may find environmental reports to be more important as they may be interested in narrative information that also provide context and that are readily understandable.

8.8.6 Results on whether there is an expectation gap between preparers and users of environmental reports

The sixth objective of this thesis was to ascertain whether there are expectation gaps between users and preparers of environmental reports on the decision-usefulness of the reports. To achieve this objective, users' and preparers' responses to similar questionnaires were compared to ascertain if there were any significant differences between the two groups that indicate the existence of expectation gaps. Consistent with the prior studies (Deegan & Rankin, 1999; Haque *et al.*, 2013; Mitchell & Quin, 2005; Myburgh, 2001), results of the current study provided evidence of the existence of expectation gaps on various issues. To start with, 13 significant differences were found between responses of users and those of preparers in 28 statements on what environmental reports should be or should do. In addition, three significant differences were found between responses of users and preparers on how often users used five reading techniques to read environmental reports. Likewise, three significant differences were found between users and preparers responses' on how often users read environmental reports from six media sources. Furthermore, two significant differences were found between the perceptions of the two groups on seven ways in which the environmental reports were used.

Significant differences were also found between the responses of users and preparers on the reliability, understandability, timeliness, verifiability and comparability of the environmental reports. In addition, six significant differences were found between the responses of the two groups with regard to users' satisfaction with the six qualitative characteristics of decision-useful information. Furthermore, whereas users suggested improvements related to environmental reports' reliability, an overwhelming majority of preparers suggested improvements related to their comparability. Besides, an overwhelming majority of preparers (77.42%) did not have a way of determining whether their reports had been read. The existence of the above-mentioned expectation gaps undermines the decision-usefulness of the environmental reports.

8.8.7 Overall conclusion of Chapter 7

In summary, users of environmental reports produced by South African companies need relevant and reliable reports, and that an overwhelming majority do read the reports and employ the reports for making decisions. However, users are not fully satisfied with the decision-usefulness of the reports and suggest improvements mainly on the relevance and reliability of the reports. The

results also show that users rank environmental reports above all other reports including financial statements. The results further indicate the existence of an expectation gap between users and preparers on various issues related to environmental reports, a situation likely to undermine the reports' decision-usefulness.

The overall conclusion of Chapter 7 is that environmental reports produced by South African companies are perceived to be decision-useful by the users, mostly for research, own knowledge and for holding companies accountable. However there is a need for improvement, particularly with regard to the reliability of the environmental reports, which is one of the two fundamental characteristics that decision-useful reports must possess.

8.9 CONTRIBUTIONS, SIGNIFICANCE AND RECOMMENDATIONS OF THE STUDY

8.9.1 Original contributions of the study

This study makes several original contributions to environmental reporting literature. Firstly, it is the first study in the South African context to empirically evaluate the quality (decision-usefulness) of environmental reports in line with the accounting conceptual framework and the GRI guidelines combined. In so doing, the study introduces to the academic literature an extensive five dimensional qualitative characteristic framework for evaluating the decision-usefulness of environmental reports. The five control lists and two judgement scales developed by the current study, are to the best of the authors' knowledge, the first comprehensive instruments, that attempt to capture the relevance, reliability (verifiability), comparability, understandability and timeliness of environmental reports of South African companies, in manner that is consistent with the accounting conceptual frameworks and the recommendations of the GRI guidelines.

Secondly, the current study uniquely employs decision-usefulness theory to provide insights into the environmental reporting practices of South African companies. In so doing, the study re-contextualises the theory that is typically employed in explaining financial reporting, and demonstrates its applicability in explaining the decision-usefulness of the environmental reporting practices of South African companies, thus affords new insights into a less understood reporting phenomenon.

Thirdly, by using both content analysis methodology and questionnaire survey methodology, the current study uniquely combines two disparate methodologies to enrich its findings as the results obtained from one method are used to corroborate the results of the alternative method, an approach which provides a better insight into the decision-usefulness of environmental reporting practice.

Fourthly, the current study is the first one in the South African context, to comprehensively compare the views of users and preparers on various aspects of decision-usefulness of environmental reports. Most prior studies had only focused on one aspect such as perceived importance of various types of reports (Mitchell & Quinn, 2005; Myburgh, 2001), or perceived importance of qualitative characteristics of various reports that are contained in annual reports (Stainbank & Peebles, 2006). By comprehensively comparing the views of users and preparers, this study contributes to a better understanding of where the expectation gaps lie, information which can be used to develop a holistic solution to address the gaps.

8.9.2 Significance of the findings of the study

8.9.2.1 Significance of the findings of the study to preparers

The findings of the current study provide valuable insights to the preparers of environmental reports wishing to enhance the decision-usefulness of their reports to stakeholders as they are made aware of users' needs, the extent to which they read the reports, how they employ the reports, the attributes of the reports that satisfy their needs and how they rank environmental reports relative to other types of reports. In addition, preparers are made aware of reading techniques employed by users when reading environmental reports, and the preferred medium from which they read the reports. With this awareness, preparers should be able to bridge the expectation gap by preparing more decision-useful reports that are satisfactory to users.

Based on the findings of the current research, preparers may also want to carefully assess the value of external assurance of environmental reports. Though results suggest that users perceive assurance of the reports to be important and that it indeed can improve users' satisfaction with the reports, they rank it relatively low when compared to other measures that enhance reliability. Considering the costs required for assurance, preparers may have to be prudent by instead opting for the other measures considered to be more important in enhancing the reliability of

environmental reports. Preparers also need to take cognisance of the different ways that different users use environmental reports through a comprehensive stakeholder engagement exercise that identifies the unique needs of different users groups. In so doing, the preparers should be able to cater for different stakeholders' needs by providing the type of information needed and in a manner that suits the stakeholders.

8.9.2.2 Significance of the findings of the study to government, accounting professional bodies and other regulatory bodies

The findings of this study are also significant to the government and accounting standard setters/reporting guideline developers, given that these authoritative bodies undertake the task of formulating new legislation and accounting standards/guidelines respectively, and amend the existing ones. The findings provide invaluable insights on specific attributes perceived by users to enhance decision-usefulness of environmental reports, which could be used to inform future endeavours to guide South African companies' environmental reporting practices. If deemed appropriate, the findings could in fact be embedded and integrated into the legislation, standards and guidelines to reinforce the preparation of decision-useful reports for the benefit of the under-privileged non-financial stakeholders. This should alter the current status quo in which most guidelines and recommendations tend to over-emphasize the quantity of environmental disclosures without much consideration as to the decision-usefulness of such disclosures. The government, accounting standard setters/reporting guideline developers and the regulatory bodies should however adopt a cautious approach when enacting or amending legislation/accounting standards/reporting guidelines to ensure that the costs of providing such information do not outstrip the benefits. This may be achieved by requiring only certain sectors or sizes of companies to comply with certain legislation/standards.

The findings of this study are particularly important to the accounting professional bodies and sustainability reporting guideline developers most notably the GRI. The accounting professional bodies will be made aware that non-financial stakeholders too need accounting information for decision-making, which implies a need to update the existing accounting conceptual frameworks that have so far prioritised financial stakeholders, to reflect this emerging reality. In addition, the accounting professional bodies may wish to consider promulgating a conceptual framework for presentation and preparation of non-financial information that primarily prioritises non-financial

stakeholders. The GRI, given that one of its core objectives is to elevate the rigor, comparability, auditability and general acceptance of sustainability reporting practices to a level equivalent to that of financial reports, should benefit from this study by employing its findings to inform the strategy adopted to achieve the above objective.

8.9.2.3 Significance of the findings of the study to academics

The findings of this study are also significant to accounting academics who may adapt the framework developed in the content analysis phase of this study to evaluate the decision-usefulness of other non-financial reports, with a view to improve the quality of these reports. This should improve the overall decision-usefulness of IARs thus resulting in better informed decisions by users. In addition, the findings of the questionnaire survey phase of this study reinforces the need for further surveys to better understand the needs of users, so that companies can be made aware of the same. Resultantly, preparation of decision-useful environmental reports could become a regular and expected practice of all companies. Universities may embed the findings of this study in their curriculum to ensure that future accountants do not only appreciate the importance of environmental reports and related non-financial reports, but to also ensure that they are equipped with the necessary skills required to prepare decision-useful environmental and other non-financial reports.

8.9.2.4 Significance of the findings of the study to companies' stakeholders

Different stakeholder groups will also be informed of the need to pay attention to the quality of environmental reports rather than just merely focusing on the quantity. Such a focus will eventually compel companies to find better ways of producing decision-useful information that address the ever changing and varied concerns of stakeholders. Besides, the findings of this study serve to redress the imbalance between preparers and users in lobbying regulators to enforce preparation of decision-useful information. In fact, the regulators may draw directly from this study's findings input required for formulating the measures that are meant to improve the decision-usefulness of environmental reports produced by South African companies.

8.9.3 Recommendations of the study

Based on the findings of this research, various recommendations are suggested. First, South

African companies should establish a mechanism of determining whether or not their environmental reports are read and by whom. This intelligence will enable them to produce more relevant reports tailored to the needs of different user groups. Second, the companies should improve the reliability and verifiability of their environmental reports. These should be done by, disclosing negative and positive aspects in a balanced manner, providing specific and accurate information, demonstrating integration of environmental issues into core business processes, adhering to international guidelines and demonstrating top management commitment to environmental issues, among other measures.

Third, the environmental reports of South African companies should identify and describe key relevant issues, provide future oriented information, identify and address key stakeholders and their concerns, among other measures, to improve their relevance. Fourth, comparability of South African companies' environmental reports, which was found to be dismally low should be improved. This could be done by enacting legislation or accounting standards that require quantification of environmental disclosures, disclosure against targets and against industry benchmarks. The legislation and accounting standards could be used to level out the playing field by requiring all companies to produce some standard environmental information. Given that companies release information through a variety of media (channels), they must ensure that their data remains consistent across various reporting platforms and within the different business units, particularly in the case of multinational companies.

Fifth, South African companies should preferably present their environmental reports in PDF IARs or PDF SSRs on company websites instead of using print medium which is increasingly less popular among users. However, the environmental reports should be made concise in order to encourage users to employ more effective reading techniques such as critical reading and study reading, techniques which increase the likelihood of such reports being used for decision making.

Sixth, preparers should endeavour to produce relevant, reliable, verifiable, comparable, timely and understandable reports to satisfy users' expectations. This can only be achieved by a meaningful stakeholder engagement and feedback mechanism aimed at establishing exactly what the stakeholders' environmental information needs are in order to satisfy them. Ultimately, the production of decision-useful reports should become the norm rather than the exception among South African companies.

Seventh, environmental reporting should be taken seriously by South African companies as some users perceive these reports to be more important than financial statements, or any other reports for that matter. This could mean allocating more resources to environmental reporting to improve the decision-usefulness of the reports, and integrating environmental performance and reporting exercise into the core business activities. Lastly, the expectation gap between users and preparers of South African environmental reports should be reduced through a meaningful stakeholder engagement mechanism.

8.10 LIMITATIONS OF THE STUDY

8.10.1 Limitations of the content analysis phase of the study

The following limitations should be considered when interpreting the findings of the content analysis phase of the study. Firstly, the construction of disclosure indices is susceptible to subjectivity or bias as the same document may be interpreted differently by different researchers (Kamal, 2012:400). Secondly, the computation of the overall decision-usefulness score involved attaching an equal weighting to five qualitative characteristics (Kamal, 2012:400). However, each qualitative characteristic cannot be equally important to all stakeholders. Thirdly, a content analysis study, by its very nature does not provide precise data as the resulting data is merely indicative of the quality of environmental reports and not an absolute (Hibbit, 2004:479). Therefore the methodology may be unsuitable for further statistical analysis (Campbell, 2001).

Fourthly, the study provides a snap shot of the quality of environmental reports produced by listed companies, as only one year's environmental reports were analysed. Accordingly, the results reported may neither be representative of the quality of disclosures in other years, nor reflect the emerging trends in the quality of environmental reports analysed. Lastly, the current study only focused on three media types used for environmental reporting, whereas there are various other alternative media that a company could possibly use, such as brochures, live broadcast, promotional leaflets, press releases and so on (Kamal, 2012:20). With such a focus, there is a possibility that some environmental disclosures may have been missed, where alternative media was used.

8.10.2 Limitations of the questionnaire survey phase of the study

One key limitation that is inherent with self-administered questionnaire surveys is the existence of non-response bias which arises when only the targeted respondents with a particular interest in the subject respond to the questionnaire (De Villiers & Van Staden, 2010a:237). Non-response bias could also arise when some subjects choose not to respond at all, or fail to respond to some particular questions, due to their differences in some way from those who do respond (Vogt, 2005:210). Non-response bias thus diminishes the randomness of the sample (Deegan & Rankin, 1997:571). If the sample is biased and no longer random, it lacks the potential to be representative of the larger population from which the sample was drawn, thereby limiting the study's external validity (Vogt, 2005:210).

Another limitation inherent with a questionnaire survey is the inability of the researcher to probe responses and seek clarification for ambiguous answers (Nachmias & Nachmias, 1992; Al-Mubarak, 1997:181). In addition, the researcher cannot ascertain whether the questionnaire was completed by the appropriate respondent for whom the questionnaire was intended as it is common for senior personnel to hand over questionnaires to their juniors to complete (Nachmias & Nachmias, 1992; Al-Mubarak, 1997:181).

Apart from the above generic inherent limitations of questionnaire surveys, there were some limitations that were specific to this study. One of the limitations arose from the fact that only three user groups, namely; ethical investment funds, environmental NGOs, and accounting researchers were invited to participate in the questionnaire survey. Given that potential users include many other stakeholder groups, the perceptions of the three groups invited may not be representative of the perceptions of all stakeholder groups. In addition, there is a possibility that the population frame employed in the current study could be incomplete, and thus some potential users may have been excluded from the study.

Another limitation specific to this study is that one of the sampled user groups, namely, environmental NGOs, by its very nature has vested interest in answering questions in a particular way, to influence public opinion towards its objectives. Accordingly this group may have answered the questionnaire in a manner that supports its existing prejudices. Yet another possible limitation of a questionnaire survey such as this one that focuses on perceptions on environmental

reports is the probability that users may have provided socially desirable answers that do not represent their true perceptions, given the pressure that prejudice them to conform to socially desirable norms.

Besides the above-mentioned limitations, the results of the current study contribute significantly to the understanding of users' perceptions on decision-usefulness of environmental reports. Therefore, the limitations of this study should be weighed against the contribution made by the study, in this neglected area of research. Besides, as elaborated in Chapter 5, various measures were undertaken to ameliorate the above limitations.

8.11 SUGGESTIONS FOR FURTHER RESEARCH

8.11.1 Suggestions emanating from limitations of content analysis phase of the study

Given that construction of disclosure indices is susceptible to subjectivity or bias, further research is required that replicates the current study, using similar control lists and judgement scales in order to validate the current study's findings. In addition, as opposed to the current study which arrived at the overall decision-usefulness score by attaching an equal weighting to five qualitative characteristics (Kamal, 2012:400), future studies could attach different levels of weights to the qualitative characteristics to reflect the qualities perceived as important by specific stakeholder groups of interest.

Further research could also conduct a statistical analysis to determine if, for example, there is a correlation between the various qualitative characteristics. In addition, a correlational analysis could be conducted to determine if indeed there is a relationship between the overall decision-usefulness score of a company and the size of a company or the sector in which a company belongs.

The current study only provides a snap shot of the decision-usefulness of environmental reports produced by top 100 listed companies, as only one year's environmental reports were analysed. Future studies could analyse the content of environmental reports for a period of more than one year, to provide a more representative picture of the decision-usefulness of environmental reports over several years and provide the emerging trends in the decision-usefulness of environmental

reports produced.

One of the limitations cited above is that the current study only focused on three media used for environmental reporting, namely; IARs, SSRs and company websites. Given that South African companies employ many other alternative media, future research could analyse the decision-usefulness of the environmental information in the alternative media, and compare the results to those of the current study.

Given that the sample selected in this study comprised only the JSE top 100 listed operating companies, the work of this study could be extended by future studies by evaluating the decision-usefulness of environmental reports of listed companies below the top 100 companies. Likewise, the future studies could evaluate the decision-usefulness of environmental reports of unlisted companies such as private companies, closed corporations and public entities to provide a more holistic view of decision-usefulness of environmental reporting practice in South Africa. Future studies could also expand the evaluation of decision-usefulness to other forms of non-financial disclosures such as employee disclosures, social-economic disclosures and corporate governance disclosures, to provide a more an all rounded view of decision-usefulness of non-financial reporting practice of South African companies. In addition, the future studies could focus on decision-usefulness of specific environmental disclosures such as climate change disclosures.

The comprehensive framework developed in this study to evaluate the quality of environmental reports is an initial step in the direction of examining decision-usefulness of environmental reports. The content analysis instruments alongside the decision-usefulness theory employed in this study to gauge and explain the decision-usefulness of environmental reports, could be utilised and even expanded to investigate the decision-usefulness of non-financial reports in other countries, perhaps in form of a comparative analysis, with a view to identify similarities, differences and the best practice worth emulating. Alternatively, future research could evaluate other qualitative characteristics of environmental reports apart from the ones mentioned in this study, or even just focus on just one qualitative characteristic discussed in this study such as reliability and analyse it comprehensively to provide a deeper insight. Another possible avenue that could be pursued by future research could be in form of a more detailed content analysis of environmental reports of companies in specific sectors, particularly those known to have a direct or indirect significant impact on the environment.

8.11.2 Suggestions emanating from limitations of questionnaire survey phase of the study

Although various measures were undertaken to minimise non-response bias, still, there is a possibility that non-response bias could have impacted the results of the study given the small sample number of users and preparers selected to participate in the current study in relation to the entire possible population of users and preparers. Future studies could further attempt to reduce non-response bias and increase the generalisability of their findings by using a larger and more diverse sample of users and preparers. The sampling of diverse users will also minimise the influence of responses of prejudiced groups.

A questionnaire survey that elicits the perceptions of other user groups, other than those included in this study is also necessary to determine whether there is some consistency in the desired qualitative characteristics of environmental reports. The findings of such a questionnaire survey could be compared to those of the current study to ascertain if a framework for a report that is decision-useful to all user groups can be developed, or whether the needs of different user groups are just too incompatible.

Given the inability of the researcher to probe responses and seek clarification for ambiguous answers in a questionnaire survey such as this one, future studies could employ interviews to mitigate these limitations (Nachmias & Nachmias, 1992; Al-Mubarak, 1997:181). The use of interviews in the future studies will allow researchers an opportunity to assess a respondent's understanding and interpretation of questions and to clarify any confusion that arises about the meaning of the question or the response. In so doing, the interviews can provide a more useful and richer insight into the decision-usefulness of environmental reports, particularly if the views and perspectives of acknowledged experts on decision-usefulness of environmental reporting practices are sought.

Given that questionnaire surveys do not provide answers to “why” questions, future studies could use interviews to probe in detail why users read environmental reports, why they perceived certain attributes of environmental reports to be more important than others, why certain possible users did not read environmental reports, and why certain methods of reading environmental reports or media are preferred. In addition, interviews could be used to investigate why the reports are used more for some purposes than for others, why users find environmental reports to be useful yet

they are dissatisfied by the reports and why they perceive the reports to be more important than financial reports/statements and other reports. The interviews may also be in form of case studies meant to provide a richer and deeper understanding of decision-usefulness of environmental reports produced by the best reporting companies. This could entail asking questions why and how the companies produce more decision-useful reports than other companies, with a view to establish the best practice that can be emulated by others.

In addition, interviews can be used to deal with situations that pose challenges for mail-out questionnaires, such as eliciting responses from respondents lacking in reading and writing skills or when sensitive information is sought. Using face-to-face interviews in future studies can ensure that only appropriate respondents participate in the study, and that they are encouraged to provide candid responses with a degree of choice and free will, as opposed to providing responses perceived to be socially desirable. An alternative method through that future studies could ensure that respondents responses are candid is by using experiments as opposed to questionnaire surveys.

The current study's results reveal that the most popular way of increasing users' satisfaction with the decision-usefulness of environmental reports is by independent assurance of the reports. Yet when users are asked to rank various statements according to their perceived importance, they rank a statement on usage of an assurance statement much lower than other statements that enhance decision-usefulness of the reports. Such a contradicting result suggests a need for further research, perhaps using a bigger and more diverse sample, to ascertain users perceptions on assurance statements.

The decision-usefulness of environmental reports to three user groups was ascertained in the current study, as if the groups and as if environmental disclosures in reports were homogenous. The study could be extended further by ascertaining the types and attributes of environmental reports' disclosures that are decision-useful to specific user groups. Likewise, the current study elicited the views of users in a snapshot. An empirical study that examines the perceptions of users and preparers over a period of several years may add value to literature as individuals view on decision-usefulness of environmental reports are bound to change with the passage of time.

8.11.3 Other suggestions for further research

As suggested earlier, the government and standard setters/guideline developers may wish to take into consideration the findings of this study when revising legislation and accounting standards/guidelines, or when formulating new ones. Further research could investigate whether legislation or standards/guidelines are the most appropriate or feasible way to enhance the decision-usefulness of environmental reports, or whether other disclosure enforcement mechanisms such as listing requirements, environmental awards are more appropriate. If legislation or standards/guidelines are found to be appropriate and feasible, subsequent research could further investigate the willingness of the government and standard setters/guideline developers to introduce new legislations or standards/guidelines that require reporting of decision-useful environmental information.

8.12 FINAL CONCLUDING REMARKS

The overall conclusion of the thesis is that the environmental reports produced by top 100 listed South African companies are not only decision-useful, but also that the users of those reports perceive them to be decision-useful. Accordingly the hypothesis posited in the first chapter that users of environmental reports prepared by South African companies do not find those reports to be useful for decision-making is rejected.

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APPENDIX A

RELEVANCE												
CONTROL LIST					JUDGEMENT SCALE							
			Questions	Categories	Not disclosed	Disclosed as Narrative	Disclosed as quantitative but non monetary	Disclosed as monetary	Time (Futuristic)	Specificity	Total points awarded	Maximum points awardable
CATEGORY	NO	QUESTION			0	1	2	3	1 additional point	1 additional point		
Selection of stakeholders for engagement	1	Does the report identify the stakeholders of the company for engagement purposes?	1	1								2
	1.1	If the stakeholders are identified, is an indication provided of the stakeholders relative importance?	2									2
Methods of engagement of stakeholders	2	Does the report disclose the approaches/ methods of engagement employed to engage with stakeholders?	3	2								2
	2.1	If the approaches/methods used in engagement are disclosed, are different methods employed to engage different stakeholders?	4									2
Engagement process and outcome	3	Does the report describe the process of engagement with stakeholders?	5	3								2
	3.1	If the process of engagement is described, is mention made of whether the engagement initiatives are quantified using a consistent metric to measure their effectiveness in terms of impacts and outcomes?	6									3
	3.2	If the process of engagement is described, is mention made of whether any of the engagement was undertaken specifically as part of the report preparation process?	7									2
	3.3	If the process of engagement is described, is mention made of the outcomes of stakeholder engagement /dialogues such as key topics and concerns raised through engagement?	8									2

APPENDIX B

RELIABILITY/VERIFIABILITY												
CONTROL LIST												
		JUDGEMENT SCALE										
		Questions	Categories	Not disclosed	Disclosed as Narrative	Disclosed as quantitative but non monetary	Disclosed as monetary	Time (Futuristic)	Specificity	Total Points Awarded	Maximum points awardable	
CATEGORY	NO	QUESTION			0	1	2	3	1 additional point	1 additional point		
Statement from the most senior decision-maker of the company	1	Does the report disclose a statement from the top management?	1	1							2	
	1.1	If a statement is disclosed, does it provide a candid disclosure of current environmental successes and failures in the reporting period, current and future challenges ?	2								2	
	1.2	If a statement is disclosed, does it include a commitment by top management to address current and future challenges within specific time frames to improve the environmental performance?	3								3	
	1.3	If a statement is disclosed, does it describe top management's involvement in implementation of the company's environmental principles, values policies, and strategies, or even provide implications of environmental responsibility on future business strategy?	5								3	
	1.4	If a statement is disclosed, does it refer to key elements of the report, thus sets the tone for the rest of the report?	6								2	
	1.5	If a statement is disclosed, does it contain a declaration from the top management of a commitment to address the key concerns raised by the stakeholders and invite the stakeholders to provide feedback on the report?	7								3	
	1.6	If a statement is disclosed, does it include broader trends in environmental performance, and progress on targets?	8								3	
Organisation structure/governance	2	Does the report contain a description of the organisation's structures that are in place on various levels to deal with environmental matters?	9	2							2	
	2.1	If the organisation structure is disclosed, does it indicate whether the oversight of environmental issues is done at the board level?	10								1	
	2.2	If the organisation structure is disclosed, is mention made of membership, principal functions, roles and responsibilities of environmental steering committees, teams, personnel or departments responsible for environmental issues at various levels of the company?	11								2	
	2.3	If the organisation structure is disclosed, does it mention the person who/or committee that bears ultimate responsibility for environmental issues?	12								1	
Initiatives undertaken to mitigate the environmental impacts	3	Does the report describe in general the initiatives undertaken by the company to mitigate the environmental impacts of its activities, products, services such as green house emissions, materials use, water use, effluents, noise, dust, waste, transport impacts and land disturbance(the extent of mitigation of impacts)?	13	3							2	
External recognition and involvements	4	Does the report disclose any external recognition of the company's environmental performance or involvement with external parties to better the environment?	14	4							2	
	4.1	If external recognition is disclosed, is mention made of awards recieved?	15								2	
	4.2	If involvement with external parties is disclosed, is it in form of initiatives aimed at establishing measurement procedures and benchmarks such as GRI, GHG protocol and other sector initiatives?	16								2	
	4.3	If involvement with external parties is disclosed, is it in form of membership in environmental associations, industry associations, national and international associations in which the company holds leadership positions or participates in projects or committees?	17								2	

APPENDIX C

UNDERSTANDABILITY/CLARITY												
CONTROL LIST			JUDGEMENT SCALE									
					Not disclosed	Disclosed as Narrative	Disclosed as quantitative but non monetary	Disclosed as monetary	Time (Futuristic)	Specificity	Total Points awarded	Maximum points awardable
CATEGORY	NO	QUESTION	Questions	Categories	0	1	2	3	1 additional point	1 additional point		
Company's profile	1	Does the report disclose any information that provides the company's profile?	1	1								1
	1.1	If the report discloses information that provide a company's profile, does it mention the company's primary brands, products, or services to indicate the nature of the company's operations?	2									2
	1.2	If the report discloses information that provide a company's profile, does it mention the operational structure of the company, main divisions, operating companies, subsidiaries, and joint ventures, or sites of major operations as well as provide a description of the operations, processes, or activities undertaken?	3									2
Scale of operation	2	Does the report indicate the scale of operation of the company ?	4	2								1
	2.1	If the report indicates the scale of operation of the company, does it mention the number of employees, or geographical area covered or volume of products or number of services rendered, net sales or total assets employed?	5									5
	2.2	If the report indicates the scale of operation of the company, does it disclose major changes in organisational context (organisation size, structure, ownership, capital structure and activities, mergers, divestments, spin-offs, expansion, openings and closings, as well as changes in operations) since last report?	6									5
Scope/boundary	3	Does the report indicate its scope/ boundary?	7	3								1
	3.1	If the report indicates its scope/ boundary, does it define the parts of the company (and related boundaries) to which the described aspects, activities and performance refer?	8									2
	3.2	If the report indicates its scope/ boundary, does it specify the activities, plants, business units, or sites covered in relation to the entire organisation (e.g. as percentage of turnover, number of employees or production volume, etc.)?	9									3
	3.3	If the report indicates its scope/ boundary, does it provide boundaries and limitations in form of restrictions or exclusions to scope?	10									2
Summary of performance indicators	4	Does the report provide the trends of Key performance indicators in summary tables, fact sheet, charts or graphs, for a reader to follow the emerging patterns and capture the most important messages of the report within a short period of time?	11	4								5
	4.1	If summary tables, charts or graphs of key performance indicators are provided, are they accompanied by commentary or interpretation that make information understandable to the readers?	12									2

APPENDIX D

TIMELINESS												
CONTROL LIST												
JUDGEMENT SCALE												
			Questions	Categories	Not disclosed	Disclosed as a narrative	Disclosed as quantitative but non monetary	Disclosed as monetary	Time (Futuristic)	Specificity	Total Points awarded	Maximum Points awardable
CATEGORY	NO	QUESTION			0	1	2	3	1 additional point	1 additional point		
Frequency	1	Does the report indicate the frequency of reporting?	1	1								1
	1.1	If the frequency of reporting is disclosed, does the report indicate the reporting period covered (fiscal/calendar year) by the information provided?	2									2
	1.2	If the frequency of reporting is disclosed, does the report also indicate the date (year) of the immediately preceding report (if any)?	3									2
	1.3	If the frequency of reporting is disclosed, is the reporting cycle annual or more frequent than annual?	4									1
Reports posted on the website	2	Does the report disclose the currency of the environmental information disclosed ?	5	2								2
	2.1	If the currency of the environmental information is disclosed, is mention made of when the web page was last updated?	6									2
	2.2	If the currency of the environmental information is disclosed, is the last update at least four months from the date the website is examined by the researcher?	7									1
	2.3	If the currency of the environmental information is disclosed, does the company use webcasts to broadcast new environmental information or provide real time information?	8									2
	2.4	Does the company alert readers when new environmental information is placed on its website (for example using email alerts)?	9									2
	2.5	Does the company employ Rich Site Summary (RSS) feeds, a format used to publish frequently updated works?	10									
TOTALS			10	2							XX	15
									PERCENTAGE SCORE			%

APPENDIX E

COMPARABILITY													
PERFORMANCE INDICATORS													
CONTROL LIST					JUDGEMENT SCALE								
CATEGORY /SYMBOL	NO	QUESTION	Questions	Categories	Not disclosed	Disclosed	Disclosed relative to prior periods	Disclosed relative to targets	Disclosed relative to peers or industry averages	Total points awarded	Maximum points awardable		
Points					0	1	2	3	4		4		
Materials				1									
EN1	1	Does the report disclose materials used by weight or volume?	1								4		
EN2	2	Does the report disclose the percentage of the materials used that are recycled input materials?	2								4		
Energy				2									
EN3	3	Does the report disclose direct energy consumption of primary energy source in joules or multiples ?	3								4		
	3.1	If direct energy consumption of primary energy source is disclosed, is mention made of the energy consumed that is non-renewable?	4								4		
	3.2	If direct energy consumption of primary energy source is disclosed, is mention made of the energy consumed that is renewable?	5								4		

EN4	4	Does the report disclose indirect energy consumption (Electricity)?	6								4
	4.1	If indirect energy consumption is disclosed, is mention made of the indirect energy consumed that is non-renewable ?	7								4
	4.2	If indirect energy consumption is disclosed, is mention made of the indirect energy consumed that is renewable ?	8								4
EN5	5	Does the report disclose the total energy saved in joules or multiples due to conservation and efficiency improvements such as process redesign, conversion, retrofitting of equipment, or changes in personnel behaviour?	9								4
EN6	6	Does the report disclose quantified reductions in the energy requirements as a result of initiatives to produce energy efficient products and services (or renewable energy based products and services) achieved during the reporting period?	10								4
EN7	7	Does the report disclose the extent to which indirect energy use has been reduced during the reporting period with regard to the use of energy-intensive materials, subcontracted production, business-related travel and employee commuting?	11								4
Water					3						
EN8	8	withdrawn directly by the reporting organisation or through intermediaries such as water utilities; by source type including surface water, ground water, rain water, waste water, municipal water or water from other utilities?	12								4
EN10	10	Does the report disclose the total volume of water recycled and reused by the company in m3 per year?	13								4

Biodiversity				4									
EN11	11	Does the report disclose operational sites owned, leased, managed, located in, adjacent to, or that contain protected areas and areas of high biodiversity value outside protected areas, by: size of operational site in km2 (land under management)?	14										4
	11.1	If the land under management is disclosed, is the land disturbed by a company's activities also disclosed?	15										4
EN13	13	Does the report disclose the size of all habitat protected areas and/or restored areas in hectares (land rehabilitated)?	16										4
EN15	15	Does the report disclose the number of species in habitats identified as affected by the reporting organization, indicating one of the following levels of extinction risk: critically endangered; endangered; vulnerable; near threatened and least concern?	17										4
Emmissions, Effluents, and Waste				5									
EN16	16	Does the report disclose the greenhouse gas emissions as the sum of direct and indirect emissions in tonnes of CO2 equivalent (scope 1 and 2)?	18										4
EN17	17	Does the report disclose the sum of indirect GHG emissions identified in tonnes of CO2 equivalent (scope 3)?	19										4
EN18	18	Does the report disclose the extent of greenhouse gas emissions reductions achieved during the reporting period as a direct result of the initiative(s) in tonnes of CO2 equivalent?	20										4
EN19	19	Does the report disclose the emissions of specific ozone-depleting substances in tonnes and tonnes of CFC-11 equivalent?	21										4

EN20	20	Does the report disclose the total air emissions by weight?	22									4
	20.1	If the total air emissions by weight are disclosed, is mention made of the weight of significant air emissions (in kilograms or multiples such as tonnes) for Nitrogen oxide (Nox)?	23									4
	20.2	If the total air emissions by weight are disclosed, is mention made of the weight of significant air emissions (in kilograms or multiples such as tonnes) for Sulphur oxide (Sox)?	24									4
	20.3	If the total air emissions by weight are disclosed, is mention made of the weight of other significant air emissions such as persistent organic pollutants (POP);volatile organic compounds (VOC); hazardous air pollutants (HAP); stack and fugitive emissions; particulate matter (PM) ?	25									4
EN21	21	Does the report disclose the total water discharge by quality and destination?	26									4
	21.1	If the total water discharge by quality and destination is disclosed, does the report distinguish between the volume of planned and unplanned (accidental and non-accidental) water discharges in cubic meters per year by destination?	27									4
	21.2	If the total water discharge by quality and destination is disclosed, does the report distinguish between the total volume of planned and unplanned water discharges in cubic meters per year by treatment method?	28									4
	21.3	If the total water discharge by quality and destination is disclosed, does the report distinguish between the total volume of planned and unplanned water discharges in cubic meters per year by whether it was reused by another organisation (third party)?	29									4

	30.3	If the environmental protection expenditures and investments by type are disclosed, is mention made of the total environmental protection expenditures broken down by remediation costs?	47								4
	30.4	If the environmental protection expenditures and investments by type are disclosed, is mention made of the total environmental protection expenditures broken down by prevention costs?	48								4
	30.5	If the environmental protection expenditures and investments by type are disclosed, is mention made of total environmental protection expenditures broken down by environmental management costs?	49								4
On-line reports					10						
	31	Where a website is used, are reports for multiple years archived?	50								3
TOTALS			<u>50</u>		<u>10</u>					<u>XX</u>	<u>200</u>
										PERCENTAGE SCORED	%

APPENDIX F

INVITATION TO PARTICIPATE IN AN ACADEMIC RESEARCH STUDY

1 July 2013

Dear respondent

You are invited to participate in a research study titled “decision-usefulness of corporate environmental reporting in South Africa”. This study is being conducted by Mr Peter Kamala, a doctoral student in financial accounting under the supervision of Professor HC Wingard and Professor CJ Cronjé of the college of accounting sciences, University of South Africa (UNISA).

The purpose of this study is to determine whether the stakeholders of South African companies find environmental reports to be useful for making decisions. Because you are a stakeholder of a South African company or are involved in preparation of your company's environmental report, your opinions are very valuable for this study. Your participation in this study is voluntary and you are free to withdraw your participation at any time without obligation. The survey should take only Ten minutes to complete.

This survey has been approved by the Research Ethics Committee in the College of Economic and Management Sciences, at UNISA. There are no risks associated with participating in this study. The information from all respondents will at all times be treated as confidential and will not be made available to any entity or third party. Neither your name nor that of your organisation will be linked to any responses as the responses will be captured anonymously. The information obtained from the questionnaires will be used for academic research purposes only. Although you will not receive any compensation for participating, the information collected in this study may benefit the accounting profession by providing a better understanding of the quality of environmental information that is useful for decision-making. By completing and submitting this survey, you are indicating your consent to participate in the study. Your participation is appreciated.

Please click on the survey link below and complete the questionnaire no later than 31 August, 2013

<http://www.....com/Survey/U2L.....YM>

If you have any questions or concerns about completing the questionnaire or about participating in this study, please contact Mr Peter Kamala on cell number 0732533605; E-mail-kamalap@cput.ac.za or his supervisor Professor Christa Wingard E-mail-wingahc@unisa.ac.za

Thank you for taking time to assist me in my educational endeavours. If you would like an electronic copy of the findings of this research please contact me on the email address provided above.

Sincerely,
Peter Kamala
Doctoral Candidate
Department of Financial Accounting, College of accounting Sciences, UNISA

APPENDIX G

QUESTIONNAIRE FOR USERS OF ENVIRONMENTAL REPORTS

SECTION A: BACKGROUND INFORMATION

Answer the following questions by crossing (x) in the appropriate box

1. What is your gender?

Male	
Female	

2. What is your age group?

Under 25	
Between 26 and 35	
Between 36 and 45	
Between 46 and 55	
Between 56 and 65	
Over 65	

3. What is your highest educational qualification?

(a)	No matric	
(b)	Matric	
(c)	Post matric Certificate or Diploma	
(d)	Baccalaureate Degree(s)	
(e)	Post- Graduate Degree(s)	

4. What is your main occupation?

(a)	A representative of an environmental group	
(b)	An academic/researcher	
(c)	A representative of an ethical investor	
(d)	Other (please specify)	

SECTION B : USERS' ENVIRONMENTAL INFORMATION NEEDS

This section of the questionnaire aims to determine whether you have read an environmental report in the past 12 months, as well as your perception on how an environmental report should be.

5. Did you read at least one environmental report in the past 12 months? (Indicate your response by crossing (x) in the appropriate box).

(a)	Yes	
(b)	No	

If you answered **no** to question 5, please answer question 6 only. If you answered **yes** to question 5, please skip question 6 and continue from question 7.

6. Which of the following explains why you did not read any environmental report in the past 12 months?

For question 6 above, rank the options provided according to your perception of their importance in explaining why you did not read any environmental report in the past 12 months. The most important reason should be ranked as 1, the second most important reason should be ranked as 2 and so on. The least important reason should be ranked as 7. Allocate each rank once only.

(a)	Environmental reports are not relevant	
(b)	Environmental reports are not reliable	
(c)	Environmental reports are not understandable	
(d)	Environmental reports are not timely	
(e)	Environmental reports are not comparable	
(f)	Environmental reports are not verifiable	
(g)	Other (please specify)	

7. How important to you are the following statements about environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=Not important at all, 2=Slightly important, 3=Fairly important, 4=Very important, 5=Extremely important]

Environmental reports should:

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(i)	Identify and address key stakeholders and their concerns and challenges					
(ii)	Identify and describe key relevant issues (significant aspects)					
(iii)	Be readily accessible via multiple media (annual reports and Internet)					
(iv)	Provide contacts for feedback and further information					

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(v)	Be interactive					
(vi)	Include stakeholders' voices					
(vii)	Provide future oriented information					
(viii)	Demonstrate top management commitment to environmental issues					
(ix)	Be specific and contain accurate information					
(x)	Include an assurance statement from an independent third party					
(xi)	Include organisation structures that deal with environmental matters					
(xii)	Disclose both negative and positive aspects in a balanced manner					
(xiii)	Adhere to well established international reporting guidelines					
(xiv)	Provide quantitative/monetary disclosure of significant outputs/impacts					
(xv)	Compare quantitative outputs/impacts against best practice/industry standards					
(xvi)	Show trends					
(xvii)	Provide targets					
(xviii)	Include interpretation and benchmarks to provide context					
(xix)	Enhance readability using multiple languages, pictures, charts, explanations					

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(xx)	Enhance accessibility of information using navigation tools					
(xxi)	Allow for quick reading using an executive summary and key indicators					
(xxii)	Describe the management system					
(xxiii)	Demonstrate the integration of environmental issues into business processes					
(xxiv)	Indicate whether the environmental management systems have been certified					
(xxv)	Indicate whether internal auditing is extended to environmental systems					
(xxvi)	Be produced annually					
(xxvii)	Be produced quarterly or bi-annually					
(xxviii)	Be produced on a real time basis					

SECTION C: EXTENT TO WHICH ENVIRONMENTAL REPORTS ARE READ AND HOW THEY ARE USED

This section of the questionnaire aims to determine the extent to which you read environmental reports and whether you use the reports to make decisions.

8. How often do you employ the following reading techniques when reading an environmental report?

Indicate your response by crossing (x) in the appropriate box [1=never, 2=rarely, 3=sometimes, 4=often, 5=almost always]

		Never	Rarely	Sometimes	Often	Almost Always
(a)	Scanning (to locate specific pieces of information)					
(b)	Skimming (rapid reading of headings, topic sentence to get the main idea)					
(c)	Exploratory reading (to get a fairly accurate picture of the entire report)					
(d)	Study reading (to get a maximum understanding of the main ideas)					
(e)	Critical reading (questioning, analysing and evaluating the text)					

9. How often do you read environmental reports in the following media?

Indicate your response by crossing (x) in the appropriate box [1=never, 2=rarely, 3=sometimes, 4=often, 5=almost always]

		Never	Rarely	Sometimes	Often	Almost Always
(a)	Printed annual reports (Integrated Annual reports)					
(b)	Printed separate sustainability report					
(c)	Companies' websites HTML format of annual reports (Integrated annual reports)					
(d)	Companies' websites HTML format of sustainability reports					
(e)	Companies' websites PDF format of annual reports (Integrated annual reports)					

		Never	Rarely	Sometimes	Often	Almost Always
(f)	Companies' websites PDF format of sustainability reports					

10. To what extent do you agree with each of the following statements about how you use environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree]

I use environmental reports:

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(a)	For education or research					
(b)	To hold a company accountable					
(c)	To decide whether to buy a company's products or not					
(d)	To decide whether to invest or disinvest from a company					
(e)	To decide whether to support or launch action against a company					
(f)	To decide whether to partner with a company					
(g)	For my own knowledge					

11. How useful are the environmental reports for the purpose for which you used the environmental report? Answer by crossing (x) in the appropriate box

Not useful at all	Not very useful	Neutral	Useful	Very useful

SECTION D: LEVEL OF SATISFACTION WITH THE REPORTS

This section of the questionnaire aims to determine your level of satisfaction with the quality of the environmental reports that you read in the past 12 months.

12. To what extent do you agree with each of the following statements about the general quality of the environmental reports that you read in the past 12 months?

Indicate your response by crossing (x) in the appropriate box [1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree]

I found the environmental reports to be:

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
(a)	Relevant					
(b)	Reliable					
(c)	Comparable					
(d)	Understandable					
(e)	Timely					
(f)	Verifiable					

13. In general, how satisfied are you with the following quality attributes of the environmental reports that you read in the past 12 months?

Indicate your response by crossing (x) in the appropriate space [1=Not satisfied at all, 2=Slightly satisfied, 3=Moderately satisfied, 4=Very satisfied, 5=Extremely satisfied]

		Not satisfied at all	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
(a)	Relevance					
(b)	Reliability					
(c)	Comparability					
(d)	Understandability					
(e)	Timeliness					
(f)	Verifiability					

14. Can you suggest how the quality (decision-usefulness) of the environmental reports that you read in the past 12 months should be improved?

SECTION E: RELATIVE IMPORTANCE OF THE ENVIRONMENTAL REPORTS

This section of the questionnaire aims to determine how you rank environmental information relative to other types of information such as financial and social responsibility information.

15. How important are the following types of information to you?

Indicate your response by crossing (x) in the appropriate box [1=Not at all important, 2=Slightly important, 3=Fairly important, 4=Very important, 5=Extremely important]

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(a)	Comprehensive statement of financial position (Balance sheet)					
(b)	Comprehensive statement of income and expenditure (Income statement)					
3(c)	Statement of cash flows					
(d)	Statement of changes in equity					
(e)	Environmental report					
(f)	Corporate governance report					
(g)	Employee report					
(h)	Community engagement report					

APPENDIX H

QUESTIONNAIRE FOR PREPARERS OF ENVIRONMENTAL/SUSTAINABILITY REPORTS

SECTION A: BACKGROUND INFORMATION

The aim of this section is to provide some background information about yourself that is useful for the analysis of the results of this survey. Note that the information provided will be used for this study only.

Answer the following questions by crossing (x) the relevant box

1. What is your gender?

Male	
Female	

2. What is your age group?

Under 25	
Between 26 and 35	
Between 36 and 45	
Between 46 and 55	
Between 56 and 65	
Over 65	

3. What is your highest educational qualification?

(a)	No matric	
-----	-----------	--

(b)	Matric	
(c)	Post matric Certificate or Diploma	
(d)	Baccalaureate Degree(s)	
(e)	Post- Graduate Degree(s)	

4. What is your main occupation?

(a)	Accountant in a listed company	
(b)	Other (please specify)	

SECTION B: THE INFORMATION NEEDS OF READERS OF ENVIRONMENTAL REPORTS

This section of the questionnaire aims to determine your perception of the information needs of readers of environmental reports produced by South African companies.

5. Do you have a way of determining whether or not your intended readers actually read your last environmental report? (Answer by crossing (x) the relevant box).

(a)	Yes	
(b)	No	

6. To what extent has your company undertaken the following measures to convert the non-readers of your environmental reports to future readers?

Indicate your response by crossing (x) in the appropriate box [1=No extent, 2=Lesser extent, 3=Moderate extent, 4=Great extent, 5=Very great extent]

My company has undertaken measures to make the environmental reports more

		No extent	Lesser extent	Moderate extent	Great extent	Very great extent
(a)	Relevant	1	2	3	4	5
(b)	Reliable	1	2	3	4	5
(c)	Comparable	1	2	3	4	5
(d)	Understandable	1	2	3	4	5
(e)	Timely	1	2	3	4	5
(f)	Verifiable	1	2	3	4	5

7. How important to you are the following statements about what your company's environmental reports should do or should be?

Indicate your response by crossing (x) in the appropriate box [1=Not important at all, 2=Slightly important, 3=Fairly important, 4=Very important, 5=Extremely important].

My company's environmental reports should:

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(i)	Identify and address key stakeholders and their concerns and challenges	1	2	3	4	5
(ii)	Identify and describe key relevant issues (significant aspects)	1	2	3	4	5
(iii)	Be readily accessible via multiple media (annual reports and Internet)	1	2	3	4	5
(iv)	Provide contacts for feedback and further information	1	2	3	4	5
(v)	Be interactive	1	2	3	4	5

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(vi)	Include stakeholders' voices	1	2	3	4	5
(vii)	Provide future oriented information	1	2	3	4	5
(viii)	Demonstrate top management commitment to environmental issues	1	2	3	4	5
(ix)	Be specific and contain accurate information	1	2	3	4	5
(x)	Include an assurance statement from an independent third party	1	2	3	4	5
(xi)	Include organisation structures that deal with environmental matters	1	2	3	4	5
(xii)	Disclose both negative and positive aspects in a balanced manner	1	2	3	4	5
(xiii)	Adhere to well established international reporting guidelines	1	2	3	4	5
(xiv)	Provide quantitative/monetary disclosure of significant outputs/impacts	1	2	3	4	5
(xv)	Compare quantitative outputs/impacts against best practice/industry standards	1	2	3	4	5
(xvi)	Show trends	1	2	3	4	5
(xvii)	Provide targets	1	2	3	4	5
(xviii)	Include interpretation and benchmarks to provide context	1	2	3	4	5
(xix)	Enhance readability using multiple languages, pictures, charts, explanations	1	2	3	4	5
(xx)	Enhance accessibility of information using navigation	1	2	3	4	5

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
	tools					
(xxi)	Allow for quick reading using an executive summary and key indicators	1	2	3	4	5
(xxii)	Describe the management system	1	2	3	4	5
(xxiii)	Demonstrate the integration of environmental issues into business processes	1	2	3	4	5
(xxiv)	Indicate whether the environmental management systems have been certified	1	2	3	4	5
(xxv)	Indicate whether internal auditing is extended to environmental systems	1	2	3	4	5
(xxvi)	Be produced annually	1	2	3	4	5
(xxvii)	Be produced quarterly or bi-annually	1	2	3	4	5
(xxviii)	Be produced on a real time basis	1	2	3	4	5

SECTION C: EXTENT OF TO WHICH ENVIRONMENTAL REPORTS ARE READ AND HOW THEY ARE USED

This section of the questionnaire aims to determine your perception of the extent to which your company's environmental reports are read and whether they are used to make decisions.

8. In your opinion, how often do the readers of your environmental reports employ the following reading techniques when reading your company's environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=never, 2=rarely, 3=sometimes, 4=often, 5=almost always]

		Never	Rarely	Sometimes	Often	Almost Always
(a)	Scanning (to locate specific pieces of information)	1	2	3	4	5
(b)	Skimming (rapid reading of headings, topic sentence to get the main idea)	1	2	3	4	5
(c)	Exploratory reading (to get a fairly accurate picture of the entire report)	1	2	3	4	5
(d)	Study reading (to get a maximum understanding of the main ideas)	1	2	3	4	5
(e)	Critical reading (questioning, analysing and evaluating the text)	1	2	3	4	5

9. How often does your company employ the following reporting media for disseminating its environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Almost always]

		Never	Rarely	Sometimes	Often	Almost Always
(a)	Printed annual report (integrated annual report)	1	2	3	4	5
(b)	Printed separate sustainability report	1	2	3	4	5
(c)	Company's website HTML format of annual report (integrated annual reports)	1	2	3	4	5
(d)	Company's website HTML format of sustainability report	1	2	3	4	5
(e)	Company's website PDF format of annual report (integrated annual report)	1	2	3	4	5
(f)	Company's website PDF format of sustainability report	1	2	3	4	5

10. To what extent do you agree with the following statements regarding the purpose for which the readers of your environmental reports use the reports?

Indicate your response by crossing (x) in the appropriate space [1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree]

Readers use the environmental reports:

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
(a)	For education or research purpose	1	2	3	4	5
(b)	To hold a company accountable	1	2	3	4	5
(c)	To decide whether to buy a company's products or not	1	2	3	4	5
(d)	To decide whether to invest or divest from a company	1	2	3	4	5
(e)	To decide whether to support or launch action against a company	1	2	3	4	5
(f)	To decide whether to partner with a company	1	2	3	4	5
(g)	For their own knowledge	1	2	3	4	5

11. In your opinion, how useful are your company's environmental reports to the users for the following purposes?

Indicate your response by crossing (x) in the appropriate box [1=Not useful at all, 2=Not very useful, 3=Neutral, 4=Useful, 5=Very useful]

		Not useful at all	Not very useful	Neutral	Useful	Very useful
(a)	For education or research purpose	1	2	3	4	5
(b)	To hold a company accountable	1	2	3	4	5

		Not useful at all	Not very useful	Neutral	Useful	Very useful
(c)	To decide whether to buy a company's products or not	1	2	3	4	5
(d)	To decide whether to invest or divest from a company	1	2	3	4	5
(e)	To decide whether to support or launch action against a company	1	2	3	4	5
(f)	To decide whether to partner with a company	1	2	3	4	5
(g)	For their own knowledge	1	2	3	4	5

SECTION D: LEVEL OF SATISFACTION WITH THE REPORTS

This section of the questionnaire aims to determine your perception of the level of satisfaction of your readers with the quality of your company's environmental reports.

12. To what extent do you agree with each of the following statements about your readers' perception of the quality of your company's environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree]

The readers perceive my company's environmental reports to be:

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
(a)	Relevant	1	2	3	4	5
(b)	Reliable	1	2	3	4	5
(c)	Comparable	1	2	3	4	5
(d)	Understandable	1	2	3	4	5
(e)	Timely	1	2	3	4	5

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
(f)	Verifiable	1	2	3	4	5

13. In your opinion, how satisfied were your readers with the following quality attributes of the last environmental report that your company published?

Indicate your response by crossing (x) in the appropriate box [1=Not satisfied at all, 2=Slightly satisfied, 3=Moderately satisfied, 4=Very satisfied, 5=Extremely satisfied]

		Not satisfied at all	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
(a)	Relevance	1	2	3	4	5
(b)	Reliability	1	2	3	4	5
(c)	Comparability	1	2	3	4	5
(d)	Understandability	1	2	3	4	5
(e)	Timeliness	1	2	3	4	5
(f)	Verifiability	1	2	3	4	5

14. Can you suggest how the quality (decision-usefulness) of the last environmental report that your company published should be improved?

SECTION E: RANKING OF RELATIVE IMPORTANCE OF THE ENVIRONMENTAL REPORTS

This section of the questionnaire aims to determine your perception of how the readers of your company's environmental reports rank environmental information relative to other types of information such as financial and social responsibility information.

15. In your opinion, how important are the following types of information to the readers of your company's environmental reports?

Indicate your response by crossing (x) in the appropriate box [1=Not important at all, 2=Slightly important, 3=Fairly important, 4=Very important, 5=Extremely important]

		Not important at all	Slightly important	Fairly important	Very important	Extremely important
(a)	Comprehensive statement of financial position (Balance sheet)	1	2	3	4	5
(b)	Comprehensive statement of income and expenditure (Income statement)	1	2	3	4	5
(c)	Statement of cash flows	1	2	3	4	5
(d)	Statement of changes in equity	1	2	3	4	5
(e)	Environmental report	1	2	3	4	5
(f)	Corporate governance report	1	2	3	4	5
(g)	Employee report	1	2	3	4	5
(h)	Community engagement report	1	2	3	4	5

APPENDIX I

JSE TOP 100 COMPANIES BY MARKET CAPITALISATION: 2013/01/01

Number	Full Name	Market Capitalisation
1	British American Tobacco public limited company	1105430301727
2	SabMiller public limited company	834888296500
3	BHP Billiton public limited company	612657988207
4	Compagnie Fin Richemont SA	451530000000
5	MTN group limited	333100660218
6	Anglo American public limited company	325814304231
7	Naspers limited	301266687775
8	Sasol limited	284569710064
9	Standard Bank group limited	177162743809
10	Vodacom group limited	166055666400
11	Kumba Iron Ore limited	159274735002
12	FirstRand limited	159271852714
13	Old Mutual public limited company	148375037680
14	Absa group limited	103350425187
15	Sanlam limited	98847000000
16	Shoprite holdings limited	97283797930
17	Remgro limited	91410210300
18	Aspen Pharmacare holdings limited	91146857000
19	Nedbank group limited	89285765975
20	Anglo American Platinum corporation limited	84612691732
21	The Bidvest group limited	83801821345
22	Anglogold Ashanti limited	69682689788
23	Impala Platinum holdings limited	63929507589
24	Woolworths holdings limited	60448769014
25	Mediclinic International	57159290304
26	Tiger Brands limited	56596366794
27	Exxaro Resources limited	54677460792
28	RMB holdings limited	53136509125
29	Nbkioexstub10	49402800000
30	Intuprop	49143190965
31	Discovery holdings limited	47882476351
32	Mondi public limited company pre	47487908494
33	Nbnpnr268.50cii	46674000000
34	Growthpoint Properties limited	45681133621
35	Assore limited	45521654490
36	Steinhoff International holdings limited	44857247008
37	Gold Fields limited	44839800094
38	Imperial holdings limited	42626186910

39	Investec public limited company	41962072791
40	Massmart holdings limited	41456678794
41	Truworths International limited	39345587525
42	Reinet Investments SCA	38600433342
43	Capital & Counties property public limited company	37068950463
44	African Rainbow Minerals	36930567477
45	Life Healthcare group holdings limited	36529451737
46	MMI holdings limited	36482237988
47	Npnnih	35638000000
48	Rand Merch Insurance holdings limited	35582235886
49	Liberty holdings limited	35202891879
50	Netcare limited	33674745199
51	Mr Price group limited	32478074003
52	Sabnii	31218000000
53	Tsogo Sun holdings limited	29569149700
54	Nb sab r234.57cij	28525000000
55	Redefine Properties limited	28475109209
56	Kionif	26644000000
57	Nb kior245.75cih1	26038000000
58	Nbsolr194.00cij	25978000000
59	Uranium One Incorporated	24950843808
60	Distell	24934536617
61	Lonmin public limited company	24282954665
62	Nampak	23923692625
63	The Foschini group limited	23535318823
64	Kiostf	21518000000
65	Coronation Fund Managers limited	21267785401
66	Santam limited	21255596867
67	Capitec bank holdings limited	20918651638
68	New gold issuer limited	20538261289
69	Solnii	20287000000
70	The spar group limited	20043094220
71	Barloworld limited	19759584973
72	Investec limited	19574741480
73	AVI limited	19185706204
74	Pick n Pay Stores limited	18990106099
75	Pretoria Portland Cement company limited	18797038070
76	Pioneer Foods group limited	18516073867
77	Brait S.A.	18364404492
78	Btista	18304000000
79	Harmony Gold Mining Company limited	18080604484
80	Hyprop Investments limited	17236723682
81	Kionnb	17078000000
82	Nb solr281.32cnf	16704000000
83	Nbbilr132.14cij1	16643000000
84	Nb tbs r133.5cii 1	16619000000
85	Capital Property Fund limited	16310910731

86	Illovo Sugar limited	16051198351
87	Clicks group limited	16045745180
88	Hosken Consolidated Investments limited	15964625351
89	Tbsnih	15917000000
90	Nbbvtr103.85cii1	15531000000
91	Mondi limited	15321530262
92	Resilient Property Income Fund limited	14905728723
93	Bilnii	14806000000
94	A E C I limited	14247590654
95	Reunert limited	13873414965
96	Tongaat Hulett limited	13462536507
97	Northam Platinum limited	13176264939
98	Bvtnih	13058000000
99	Solnne	13020000000
100	Arcelormittal SA limited	13015962254

APPENDIX J

SAMPLED JSE TOP 100 COMPANIES INCLUDING SECTOR

Number	Full Name	Sector
1	British American Tobacco public limited company	Industrial and consumption
2	Sabmiller public limited company	Industrial and consumption
3	BHP Billiton Public Limited Company	Mining and Resources
4	Compagnie Fin Richemont SA	Retail and Services
5	MTN group limited	Information and Communication Technologies (ICT)
6	Anglo American public limited company	Mining and Resources
7	Naspers limited	Retail and Services
8	Sasol limited	Industrial and consumption
9	Standard Bank Group limited	Financial
10	Vodacom Group limited	Information and Communication Technologies (ICT)
11	Kumba Iron Ore limited	Mining and Resources
12	Firststrand limited	Financial
13	Old Mutual public limited company	Financial
14	Absa Group limited	Financial
15	Sanlam limited	Financial
16	Shoprite holdings limited	Retail and Services
17	Remgro limited	Industrial and consumption
18	Aspen Pharmacare holdings limited	Retail and Services
19	Nedbank group limited	Financial
20	Anglo American Platinum corporation limited	Mining and Resources
21	The Bidvest Group limited	Retail and Services
22	Anglogold Ashanti limited	Mining and Resources
23	Impala Platinum holdings limited	Mining and Resources
24	Woolworths holdings limited	Retail and Services
25	Mediclinic international	Retail and Services
26	Tiger brands limited	Retail and Services
27	Exxaro resources limited	Mining and Resources
28	Discovery holdings limited	Financial
29	Mondi public limited company pre	Industrial and consumption
30	Growthpoint properties limited	Real estate
31	Assore limited	Mining and Resources
32	Steinhoff International holdings limited	Retail and Services
33	Gold fields limited	Mining and Resources
34	Imperial holdings limited	Retail and Services
35	Massmart holdings limited	Retail and Services
36	Truworths International limited	Retail and Services

37	African Rainbow Minerals	Mining and Resources
38	Life Healthcare group holdings limited	Retail and Services
39	MMI holdings limited	Retail and Services
40	Netcare limited	Retail and Services
41	Mr Price group limited	Retail and Services
42	Tsogo Sun holdings limited	Retail and Services
43	Redefine Properties limited	Real estate
44	Distell group limited	Industrial and consumption
45	Lonmin public limited company	Mining and Resources
46	Nampak limited	Industrial and consumption
47	The Foschini group limited	Retail and Services
48	Capitec bank holdings limited	Financial
49	The Spar group limited	Retail and Services
50	Barloworld limited	Industrial and consumption
51	Investec limited	Financial
52	AVI limited	Retail and Services
53	Pick n Pay Stores limited	Retail and Services
54	Pretoria Portland Cement company limited	Industrial and consumption
55	Pioneer Foods group limited	Retail and Services
56	Harmony Gold Mining company limited	Mining and Resources
57	Hyprop Investments limited	Real estate
58	Capital Property Fund	Real estate
59	Illovo Sugar limited	Retail and Services
60	Clicks group limited	Retail and Services
61	Resilient Property Income Fund	Real estate
62	A E C I limited	Industrial and consumption
63	Reunert limited	Industrial and consumption
64	Tongaat Hulett limited	Retail and Services
65	Northam Platinum limited	Mining and Resources
66	Arcelormittal SA limited	Industrial and consumption

APPENDIX K

DECISION RULES FOR ENVIRONMENTAL DISCLOSURE QUALITY

- All disclosures must be explicitly stated, they cannot be implied meanings.
- All disclosures that fit within the categories or respond to an interrogation question must be included regardless of whether they are self-praising.
- All disclosures that fit within the categories or respond to an interrogation question must be included regardless of their format, including financial statements, narratives, pictures, photographs, charts and graphical representations.
- Disclosures having more than one possible classification or containing two or more information items are classified under the category that yields the highest points.
- Repeated disclosures are not recorded, disclosures containing the same information item are only considered once.
- A disclosure item containing a combination of different types of information such as monetary quantitative, non-monetary quantitative and declarative information is classified as comprising the type of disclosure with the highest points.
- A disclosure item containing a combination of general and specific information will be recorded as having specific information.
- A disclosure item containing a combination of historical and futuristic information will be recorded as having futuristic information.
- A disclosure item is classified as comprising verifiable information if at least one of three situations exists: 1) the disclosure is found in one of the externally audited sections of the annual report; 2) an independent auditor' report explicitly states that the environmental report is wholly audited; 3) an independent auditor' report explicitly identifies the item as audited. Otherwise the disclosure is considered non-verifiable.

APPENDIX L

Ref#: 2013/CEMS/SAS/0006

RESEARCH ETHICS REVIEW COMMITTEE:
SCHOOL OF ACCOUNTING SCIENCES

Mr. PN Kamala (student number 46408843)

Supervisor: HC Wingard (staff number 1100017)

This is to certify that the application for ethics clearance submitted by

PN Kamala (46408843)

for the study

The decision-usefulness of corporate environmental reports in South Africa

submitted for Ethics Clearance in the fulfillment of the

Degree of DCom (Accounting)

has been approved.

The application for ethics clearance for the abovementioned research was reviewed by the SAS Research Ethics Review Committee on 5 June 2013 in compliance with the Unisa Policy on Research Ethics. Ethical clearance has been granted. Please be advised that the research ethics review committee needs to be informed should any part of the research methodology as outlined in the Ethics Application (Ref. Nr.: 2013/CEMS/SAS/0006), change in any way.

The Research Ethics Review Committee wishes you all the best with this research undertaking.

Kind regards,



Prof HC Wingard, Chair of the SAS Research Ethics Review Committee

Department of Financial Accounting, Unisa

wingahc@unisa.ac.za

19 June 2013

