COMMUNICATING SUSTAINABLITY: A WEB CONTENT ANALYSIS OF NORTH AMERICAN, ASIAN AND EUROPEAN FIRMS

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INTRODUCTION

As part of the stakeholder management process, there is increased attention concerning sustainability, attributable to its strategic importance for organisations operating in the contemporary marketplace (Simmons & Becker-Olsen 2004; Frederick 2006; Sahlin-Andersson 2006). The increased focus on sustainability is largely a result of pressures from multi-stakeholder groups (Kolk 2008) for more organisational accountability and transparency across a range of corporate behavioural issues. As such, companies have extended the breadth of their corporate reporting to voluntarily include information on sustainability issues (Adams and Frost 2008) and information on their activities towards continuing economic growth, as well as the direct and indirect impacts of their activities on the environment, and efforts towards social responsibility (Bernhart and Slater 2007).

Engaging in sustainability reporting that is matched with stakeholder needs can provide firm benefits. When this congruence occurs, benefits that may ensue include positive consumer opinions (Verschoor 2006), enhanced stakeholder trust (Dean 2003), higher employee satisfaction (Dean 2003), community support (Gray 2001; Dean 2003), access into new countries (Anderson and Bieniaszewska 2005), image differentiation (Gray 2001; Dean 2003) and importantly, it can assist with corporate brand management (Bernhart and Slater 2007; Bunting and Lipski 2000). To create these benefits, a strategic effort to present stakeholders with a value added brand identity is required (Alessandri 2001). That is, the brand becomes the face of the company and communicates corporate qualities, values and promises to its stakeholders (Lewis 2003) thereby assisting firms with the ultimate goal of a positive corporate reputation (Bernhart and Slater 2007). Therefore, an understanding of how and what firms are communicating to their stakeholder groups regarding their brand is of interest, as is a consideration of how sustainability reporting varies according to geographical variation (Guthrie and Parker 1990; Gray et al 1995; Raar 2002). As such, there is a need for a geographical perspective regarding sustainability reporting

Sustainability is recognised as the basis for corporate social responsibility (CSR) (Korhonen, 2003) which refers broadly "to the level of contribution a company makes towards the betterment of society" (Uhlaner et al 2004:186). The concept of corporate social responsibility takes into the account the transparency of firms as well as stakeholder expectations (Juholin 2004) and supports the notion that firms function better when they fuse together not only their business interests but also the interests of their stakeholders (Takala, 2000; Somerville 2001). CSR studies have typically seen firms analysed according to environmental and social dimensions as per the definition of CSR according to the Commission of the European Communities (2001). However, a noteworthy addition to this field is that increasingly firms that measure sustainability are doing so through a simultaneous focus on economic, social and environmental indicators (Wheeler & Elkington 2001). These indicators embody triple bottom line (TBL) reporting (Elkington 1999; Hedberg & Malmborg 2003; Korhonen 2003; Colman 2004; Hopkins 2004; Schafer 2005; Colbert & Kurucz 2007). The concept of TBL recognises that for a firm to be sustainable it should conform to societal expectations and minimise or eliminate any negative environmental impacts without any financial detriment to the firm (Bridges & Wilhelm 2008; Juholin 2004). According to KPMG (2005), 68 percent of the top 250 global Fortune 500 companies have now embraced TBL reporting (Colbert & Kurucz 2007).

The major benefit of TBL reporting is its use as a device for reputation management due to increased public scrutiny (Rice 2004). Increased scrutiny of a firm has been simplified for interested stakeholders due to the propagation of technology and electronic information sources. Given the current plethora of electronic sources, and the speed with which a stakeholder can investigate a firm, comprehensive and truthful reporting is vital for a firm to manage their corporate reputation. Firms must pay attention to the composition of their websites given that international research suggests that the two most common ways that consumers learn about a firms' commitment to sustainability is through electronic sources such as Internet search engines and websites (Fleishman and Hillard 2006). The ease of access that stakeholders have to such electronic information sources indicates that it would be unwise for a firm to mislead stakeholders over their TBL disclosures, particularly as there are internet websites that provide 'corporate watch dog' assistance to expose public relations spin and propaganda (Kampf 2007). Indeed, a firm's disclosures must accurately reflect real actions, rather than rhetoric or bias. An organisation that is honest and avoids biased reporting will gain greater credibility and retain legitimacy (Kolk & Walhain 2001). As such firms must ensure their disclosures are a reflection of accurate behaviour and not merely a legitimacy device.

Specifically, the research question for this study is; to what extent, if any, are there differences in the level and type of TBL disclosure reporting on corporate websites of North American, European and Asian firms' across economic, environmental and social indicators?

The following section assesses the literature on corporate disclosures across the three specified geographical regions and concludes with a brief review of World Wide Web literature as a communication tool for disclosure activity. We have not imposed strict boundaries on the review of TBL-specific literature, but have also reviewed CSR literature, due to the strong links between the bodies of knowledge. Following the literature review, is an outline of the research method, an analysis of the data with its accompanying discussion of the results and practical implications of the findings and future research directions.

Corporate Disclosure Reporting in North America, Europe and Asia

According to Robins (2006), the speed and geographical spread of TBL reporting is notable with steady growth evident across both the number and type of organizations embracing the reporting mechanism. However, it is likely that levels of corporate disclosures will vary depending on the region and/or country of operation, due in part, to economic and environmental differences as well as social and cultural conditions and national legislative requirements (Adams et al, 1998; Jamali and Mirshak 2006)

In terms of corporate social responsibility reporting, in 2004, Fortune Magazine found that 90 percent of the top 500 North American corporations had specific CSR initiatives in place (Kotler and Lee 2005). In contrast, a report by KPMG (2002) found that only 30-40 percent of organizations in North America as well as Western Europe disclosed their TBL activities. Similarly, a survey conducted by The Centre for Corporate Citizenship at Boston College found that 41 percent of large companies in the US report on TBL information (Merrifield 2003). While similar levels of disclosure activity across North America and European firms have been reported, for example, KPMG (2002), Rowe (2006) suggests that North America now lags significantly behind European countries as well as India and Japan in their corporate disclosure reporting. Support for differences between disclosure reporting activity between the United States and Europe have also been found in several other studies, e.g., Habisch, Jonker, Wegner & Schmidpeter (2004); Maignan & Rolston (2002), Matten & Moon (2004).

In Asia, corporate disclosure studies remain comparatively scarce in comparison to North America, Australasia, Europe and Japan because, conventionally, corporate social responsibility has been viewed as a predominantly Western trend (Kemp 2001; Birch and Moon 2004; Chapple & Moon 2005). This is supported by Ho and Taylor (2007) who state that few empirical studies on corporate social/environmental reporting are reported from an Asian perspective. According to Kemp (2001) corporate social responsibility by firms in developing countries is harder to achieve than in Western countries due to the institutions, standards and appeals systems which give life to CSR. This is supported by KPMG (2005) and Welford (2004) who suggest the differences in region and/or country corporate disclosure reporting can be linked to levels of development, resources and awareness. Conversely, Chapple & Moon (2005) and Matten & Moon (2004) suggest that corporate responsibility reporting is a function of differences in national business systems and culture rather than development levels per se.

Irrespective of delineating the precise reasons why CSR practices and reporting levels differ in some countries and regions, there is certainly enough evidence to suggest that Western countries are more advanced in their sustainability activities than in many Asian countries. However, with multinational corporations in Asia being placed under more scrutiny by corporate watchdogs such as NGOs, the rise of ethical investment organizations and Asian consumers exhibiting signs of social responsibility (Davies 2000). Further impetus is being created by numerous Western organisations increasing their operations in Asia and thereby positively influencing regional firms in their CSR activities and reporting (Chapple and Moon 2005).

Communicating TBL Disclosures via the World Wide Web

Regardless of a firm's geographic location, traditionally it is largely positive information that companies communicate to their stakeholders, while negative facts are often ignored (Lantos 2002; Wheeler & Elkington 2001). Increasing access to information resulting from online technology advancements (Fleishman & Hillard 2006) has seen stakeholders become more empowered and informed due to the increased propagation of the internet (Verschoor 2006). The increased access and connectivity to information has led to new stakeholder demands for enhanced transparency (Jamali and Mirshak 2007), and has created greater firm involvement in relation to corporate responsibility activities relevant to their stakeholder groups (Lewis 2003).

With both the Internet and World Wide Web being acknowledged by firms as important for communicating their sustainability activities, in many cases, there is confusion over what and

how to report the information (Colman 2004; Colman 2005). While communication technologies have improved interactivity between firms and their stakeholders and allow for "living documents", disclosures often fail to engage all stakeholder groups, such as employees, customers, investors, suppliers and local communities. Firms must disseminate information that relates to all stakeholder groups for disclosures via the World Wide Web to be effective (Wheeler and Elkington 2001). Furthermore, despite the trend towards reporting using electronic media, research has yet to adopt methodologies that embody measurement of electronic sustainability reporting via the World Wide Web and Internet. That is, methodologies continue to focus on corporate disclosures based on hard copy corporate reports, (Collison, Lorraine et al. 2003; Jenkins 2004; McMurtrie 2005), using subjective terms and often inadequate sample frames (Collison, Lorraine et al. 2003; Jenkins 2004).

METHODOLOGY

In order to measure a firm's sustainability reporting, we benchmarked specified European, North American and Asian firms against the Global Reporting Initiative (GRI). The GRI provides guidelines to firms in reporting on economic, environmental, and social aspects of their activities, products and services and is the internationally accepted standard for TBL reporting (Colman, 2004; Hopkins, 2004; Colman, 2005). The GRI is unique in that it is the only consensus-based public reporting guidelines that covers multi-stakeholder interests at an international level (Richards and Dickson 2007).

The process for this study involved compiling terms (consisting of single or multiple words) from the GRI 2006 guidelines according to the three TBL indicators: environmental, economic and social. Each TBL indicator consists of numerous concept systems that are represented by hundreds of terms. For example, the EN18 concept system pertains to the elimination of greenhouse gases and is represented by terms including 'greenhouse gases', 'environmental impacts' and 'environmental regulations'. To ensure validity of the terms, four independent coders created an initial pool of 1200 terms representing the three TBL indicators and then refined the list. Terms that were considered either too general (ambiguous) or redundant were omitted depending on agreement of at least three of the four independent coders. The final list totalled 71 concept systems comprising 543 terms in the economic, environmental and social indicators.

Context

The Oil and Gas (OG) industry was selected for this study, as the importance of communicating TBL activities has been recognised by the industry as a significant aspect of both creating and enhancing stakeholder relationships (Lantos 2002). Furthermore, the explorative nature of the oil and gas industry has led to continual stakeholder scrutiny (Anderson & Bieniaszewska 2005) which has, according to Tilt and Symes (2000), resulted in the industry adopting a 'pro-active' approach to enhancing communications with stakeholders. Evidence of oil and gas firms increasing their reporting activities between 1996 and 1999 was shown by KPMG who found that sectors showing the most activity in environmental reporting were those in high risks areas, including oil and gas (Wheeler and Elkington 2001). More recently, Corporate Register.com, an online directory of CSR activities indicates that 99 oil and gas companies reported on their activities in 2006 compared with 26 firms in 1996 (Dittrick, 2007).

The 30 oil and gas websites used in this study were obtained from the Global Fortune 500 2006 list (Global Fortune 500, 2006). The websites were divided into three geographical regions: North America (represented by 11 US and Canadian websites), Asia (8 websites from China, Thailand, Malaysia and India) and Europe (11 websites from Russia, France, Spain, the United Kingdom, Italy and the Netherlands). The websites were categorised geographically according to where each headoffice is located, for example, North America included the firms Chevron and Conoco Phillips; Asia included Petronas and Bharat Petroleum and Royal Dutch Shell Group and BP comprised part of the European sample.

Attention and Attitude towards TBL Indicators

In order to capture electronic reporting of TBL disclosures via firm's websites, this study used an automated Web mining toolset called "webLyzard" (www.weblyzard.com). Continuously refined for nearly ten years, webLyzard is an academic project that currently gathers Web content from more than 10,000 websites in weekly or monthly intervals. The content is then pre-processed and aggregated to enable automated content analysis for revealing patterns and trends in online media coverage.

For the purposes of this research, webLyzard measured the relative term frequencies to assess the relationship between aggregate term frequencies per concept system and the total number of words in the sample. Relative term frequencies are a good indicator of the attention that a certain topic receives. For example, webLyzard measured the number of times the term "greenhouse gases" appeared on websites relative to the total number of terms on the websites. Furthermore, we were able to ascertain the context in which the terms were being used on the oil and gas Web sites by looking at the sentence data from which the terms were extracted by webLyzard.

In order to measure the extent of TBL disclosures, a case-insensitive pattern-matching algorithm processed 543 regular expression queries on each of the 1.5 million sentences. In the category 'waste', for example, the list of regular expressions includes *^waste densit(?:y|ies)$, ^waste generation$, ^waste minimization strateg(?:y|ies)$,* and *^waste waters?$.* Question marks instruct the pattern matching algorithm to treat characters optionally, thus enabling the analyst to query for singular and plural form simultaneously. Overall, 408 of the 543 TBL terms were identified at least once across the Web sites in the sample. However, frequencies are not enough to give an accurate picture of the context in which the information is presented, that is, whether the context is positive or negative. Therefore, we also measured the semantic orientation of each concept to determine the direction of sentiment (attitude) toward the concept. The computationally intensive process measured the co-occurrence of negative or positive words with terms belonging to one of the three key indicators. The numerical balance of negative and positive attributes of each concept is a measure of attitudinal direction or bias (Krippendorff 2004).

Automated Content Analysis

Automated content analysis has a number of benefits over the manual content analysis methods, which have typically been used for analysing web site content. Manual coding is often a lengthy process which can lead to coder fatigue, misapplication of coding rules and potential disagreement between coders on particular attribute values (Potter and Levine-Donnerstein 1999). webLyzard acts as an automated coding system which is not only speedy but removes subjective interpretations and will apply the given rules consistently over the specified data avoiding the problems of manual intra-coder and inter-coder reliability. The system also ad-

dresses criticisms of time lags and failures to analyse full sets of available documents as it can capture (download) documents in large quantities in a very short period of time (Krippendorff 2004). The speed of automated content analysis also assists in overcoming problems related to gaining accurate representation of quickly changing data when manual processes can slow the process down (Wallman 1995).

RESULTS

Based on a sample of 30 oil and gas web sites, Tables 1 and 2 present an overall summary of TBL information across firms in Europe, North America and Asia. The tables show the number of terms constituting each TBL indicator and the number of terms within each indicator as a percentage of the total number of terms (or words) across each of the three indicators. For example, the environmental indicator constitutes 258 terms, which represents 47.5% of the total number of terms across all three indicators. Table 1 also shows the frequency count of terms relating to each indicator. That is, the terms are calculated by counting the frequency of GRI terms that were reported on websites. For example, the environmental indicator recorded a frequency count of 69,491 terms across all of the mirrored websites. Term frequency counts are also reported for each indicator as a percentage of the total frequency count across the three indicators.

Take in Table 1 about here

Based on the data presented in Table 1, it is evident that the environmental indicator has the largest percentage number of terms (47 percent) and highest term frequency count (47.5 percent) of the TBL indicators. The term count frequencies for the economic and social indicators are 30 and 22.5 percent respectively. However the social indicator has a higher percentage number of terms (35.5 percent) than the economic indicator (17 percent) indicating that firms place a more concentrated reporting effort on fewer economic concept systems than the social indicator. Overall, firms appear to place the most emphasis on environmental reporting, followed by economic and then social reporting. The social indicator is represented by subindicators and is constituted by labour, society, human resources and product responsibilities. Table 2 shows the term count frequencies and number of terms within each indicator as a percentage of the total number of terms across each of the four subindicators.

Take in Table 2 about here

The three TBL indicators are represented by 71 concept systems advocated by the GRI as representing comprehensive reporting and yet almost 60 percent of the total term counts are represented by only 9 concept systems. This is consistent across all geographical regions. Several concept systems revealed a distinct lack of reporting and include the EC8 concept system which outlines investments in infrastructure and services for public benefit, EN18 which delineates initiatives to reduce greenhouse gases and LA2 that indicates employee turn over by age, gender and region.

Overall, the three most reported concept systems within each of the environmental, economic and social indicators across the three sampled geographic regions are shown in Table 3. A brief description of each concept system as per the Global Reporting Initiative (2006), the term count for each concept system and the term count frequencies for the corresponding concept system are also shown in the same table. For example, the concept system EN3 had the highest overall term frequency counts (30,731 counts) of all 71 concept systems. Five terms, 'crude oil', 'natural gas', 'gasoline', 'diesel' and 'coal' (28,257 terms) constituted 92 percent of the total term count for EN3. Reported below in Table 4 (Environment), Table 5 (Economic) and Table 6 (Social) are comparisons of the average term count frequencies, highest term frequencies and their associated average term counts between North America, Asia and Europe for their disclosures according to the top 9 concept systems. Average term count frequencies and average term counts were calculated as the Asian sample consisted of 8 websites where as both North America and Europe constituted 11 websites each.

Environmental responsibility was represented in the GRI Index by 30 concept systems (258 terms). The top three concept systems as indicated by the term count frequencies were EN3, EN29 and EN12. In their energy consumption reporting (EN3), firms from the three regions focused on disclosing information pertaining to 'natural gas', 'crude oil' 'gasoline' and 'diesel'. This emphasis on fuel reporting across the three regions is also demonstrated by EN29 references to types of fuels used, enhanced fuel proposition programs and the future of fuel. While North American oil and gas firms are the most prolific discloses of the top 2 most commonly reported on environmental concept systems, European firms are the most prominent disclosers of the EN 12 concept system which relates to biodiversity.

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Take in Table 4 about here

The economic indicator was represented in the GRI Index by 9 concept systems (92 terms) of which EC1, EC4 and EC3 displayed the highest term count frequencies respectively. Results show that North American firms also dominate economic reporting. In particular, North American firms tripled the reporting by European and Asian firms in relation to stock based awards, award wages and conditions, employee recognition awards as well as executive compensation, as well as information pertaining to type of research projects the firm is involved in. North American firms' sustainability reporting for this indicator is supported by literature which recognises the geographic location for their high disclosures of economic information and suggests they provide a benchmark for other countries (Berner, 2005; Lichenstein et al 2004; Merrifield, 2003).

Take in Table 5 about here

Social responsibility was represented in total by 40 concept systems (193 terms) which consisted of four subindicators: society, labour, human resources and product responsibility. The top three concept systems as indicated by their frequency counts are SO7, LA9 and LA27.

In terms of social responsibility reporting, the findings are interesting with European firms dominating disclosures in this indicator for both the LA13 and LA9 concept systems. However, overall, European firms were the most prevalent reporters regarding their social conduct. Specifically, their focus was on training and education pertaining to 'employee training', 'training and career development', 'training teams' and 'training centres', as well as information about their board of directors mainly related to their responsibilities as well board of direct approvals and meetings. Asian firms recorded the lowest term count frequencies across the top three most reported on social concept systems.

Take in Table 6 about here

Semantic Orientation

The semantic orientation of a word is an important element to examine due to the conceptual connection between words and their written context (Deegan & Rankin 1996). Scharl et al (2003) describes semantic orientation as assigning a positive or negative rating to a word. The rating is achieved through measuring the distance (in words) between a predefined list of words, which have either positive or negative connotations, and the word in question. In order to determine the attitude of oil and gas firms' TBL reporting, an analysis of the 9 top concepts systems was undertaken. The semantic orientation of all terms subsumed under each of the nine concepts systems was averaged to conclude the nature in which OG firms' disclosed their TBL responsibilities for each of the geographic locations (see Table 7). A score greater then zero indicates a positive attitude, while a score less then zero equates to a negative semantic orientation. The results indicate that oil and gas firms report their TBL activities in a positive manner as each of the nine top concept systems across the three geographical regions displayed semantic orientation scores of greater than zero. Interestingly, Asian firms in particular are the most positive reporters across the three geographic regions with the highest semantic orientation scores evident for five of the nine concept systems. European firms showed the highest semantic orientation scores for the three of nine concept systems while North America only recorded the highest score for one concept system.

Take in Table 7 about here

DISCUSSION AND CONCLUSIONS

This study uses automated web content technology to identify TBL sustainability disclosures across North American, Asian and European oil and gas firms. Overall, sustainability reporting on corporate websites is common across the three geographical regions, with North America being the most prevalent discloser and Asia lagging somewhat behind. These findings are in contrast to Kolk (2008) who suggest that European firms are the most active in sustainability reporting. The lack of reporting by Asian firms is likely due to cultural, development and institutional differences (Kemp 2001). However, it is estimated that CSR as a 'fringe issue' will likely move higher on the agenda for some Asian companies as they attempt to differentiate themselves from their competitors and strengthen their brand profiles globally. This movement

is also being influenced by Western multinational companies increasing their operations in Asia and thereby encouraging Asian companies to also take a proactive approach to CSR and sustainability issues in order to build a profile that demonstrates their commitment to all their stakeholders (Lines 2004).

Overall, firms reporting on the three indicators is imbalanced where organizations in all geographical regions focused largely on environmental indicators followed by economic and then social indicators. Similarities exist with research from Collision and Lorraine (2003) who evaluated corporate responsibility reporting and noted the lack of direction and substance across TBL indicators. The challenge of collecting and providing sustainability information in a format suitable for multiple audiences has been noted by industry reports (Greenall and Yachnin 2001). Specifically, firms note that providing completeness of information is tied to accurate measurement and management, and the use of metrics to demonstrate performance. These capabilities, are of course, a long term process and as such, organisations may shy away from reporting across indicators that are more challenging to measure.

Furthermore, there is also regional variation in reporting within environmental, economic and social indicators. For example, when reporting on environmental actions, North American firms focus on environmental fuel consumption while European firm focus on biodiversity. We also see this variation within the social indicator which is dominated by European firms. North American firms lead the economic reporting and focus on internal stakeholders and shareholders rather than external stakeholders. However, understanding why the variation exists across these regions and the generalisability of the trends across industries is of interest. Do these reporting differences exist due to regional differences in political and regulatory standards where publication may be mandatory versus voluntary for some of the indicators and key concept systems?

Overall, questions regarding sustainability reporting relate to whether the reporting focus is driven by industry stakeholder expectation, more general regional stakeholder expectations, or whether these patterns in reporting are industry specific. From this study, a pattern emerged where shareholders and internal employee stakeholders are the focus of much organisational reporting. That is, economic and social reporting both relate largely to employee benefits and employment standards, but does not focus on providing information broadly to community

stakeholders including non government organisations, the general public, customers, and suppliers despite economic and social information being of interest. Environmental reporting has a broader focus, albeit it does relate to multiple stakeholder groups such as intermediaries, non government organisations, and the general public. The nuances that exist across regions must be noted when interpreting the overall results of the term count frequencies together with the contextual nature of how the terms are discussed.

Furthermore, it should be noted that care should be taken when interpreting the overall results of the term count frequencies due to the contextual nature of how the terms are discussed, as is evident from the sentence data analysis. For example, firms have frequently reported on the different types of fuels used in their organisational activities, more so than the environmental impacts of transporting fuel which is fundamental to the EN29 concept system. Therefore, while oil and gas firms may be displaying more awareness regarding some of the issues pertinent to TBL reporting, there are not necessarily reporting (or practicing) in a manner which truly demonstrates a sustainability focus.

In addition to the type of TBL disclosures, is the issue of transparency and credibility in reporting. It was noted in this research that Asian firms are using positive bias in their reporting, with perhaps, the likely intent of persuading stakeholders of their sustainabiltiy efforts. It should be noted however that the objective of communication need not always be persuasive. As suggested by Duncan and Moriarty (1998), communication has a role in relationship building that is beyond persuasion, and relates to objectives such as informing, answering and listening. Companies interested in building relationships with stakeholders are urged to focus on communication rather than just persuasion which is typically motivated with the intent of enhancing reputation (Pleon 2005). While attempts for transparency are not without challenges (see von Furstenberg 2001 for a review) reporting honest TBL information rather than persuasive or biased TBL information can improve relationships with stakeholders.

The World Wide Web can obviously facilitate sustainability reporting. The role of technology and electronic information sources have been noted as important tools in the corporate communications arsenal as it provides firms with the opportunity to circulate topical information to multiple stakeholders, to engage stakeholders in an interactive dialogue and assists in the creation and maintenance of a positive corporate reputation with the ultimate goal of a more sus-

tainable future. Successful management of this corporate image is however contingent on a firms ability to communicate with stakeholders in a trustworthy manner where a firms must be active in communicating for the purposes of disclosure rather than persuasion (Duncan & Moriarty 1998). The access that stakeholders have to these electronic information sources indicates that it would be unwise for a firm to mislead stakeholders over their TBL disclosures, particularly as there are internet websites that provide 'corporate watch dog' assistance to expose public relations spin and propaganda (Kampf 2007). Balanced reporting may be perceived more positively by stakeholders and have flow on benefits for credibility and legitimacy (Kolk & Walhain 2001). As such, disclosures that reflect accurate behaviour and guide stakeholders towards a holistic understanding of the firm's actions, and not merely communicating for legitimacy benefits alone are advocated (Deegan et al 2002; O'Donovan 2002).

Limitations of the Study and Future Research Directions

While our research findings provide an insight into an understanding of oil and gas firms TBL disclosures on corporate websites, there are limitations to the research. Most notably of the limitations is the impact of firms' TBL disclosures. Future research would benefit from linking firms' TBL reporting with their performance to establish if firms that have a greater willingness to disclose their TBL activities also exhibit higher performance. The results also indicate that oil and gas firms are disclosing positively biased information about their TBL commitments. It would be interesting to establish whether there were differences between firm reporting and media reports on sustainability disclosures. Therefore future research could also examine how the media are reporting firms' TBL activities.

Limitations also exist due to the lack of generalisability of the findings across different industries and other countries. Clearly, interest in sustainability disclosures is not limited to only one industry or countries specific to this study. Charles (2005) states that it is an international issue with industry reports suggesting that from a survey across 21 countries, 21 percent of people had looked at, or read a social responsibility report (Charles 2005). To assess TBL disclosure from a more generic perspective, future research could include other industries in the sample frame and also seek to determine differences in TBL disclosures across different countries. Lastly, it is important to note that the website content is not solely dedicated to sustainability reporting. Website content includes information referring to the annual report (balance sheet,

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profit and loss account, and notes to the annual accounts), information for shareholders and investors, economic–financial information, information for suppliers and clients, corporate government, dividends and other aspects. Therefore, determining relative term frequency counts across the 1.5 million sentences are impacted given that dedicated sustainability reporting is not the sole objective of website content.

REFERENCE LIST

Adams, C.A. and Frost, G.R. (2006). "Accessibility and Functionality of the Corporate Web Site: Implications for Sustainability Reporting", *Business Strategy and the Environment* 15:275-287

Adams, C.A., Hill, C.Y. and Roberts, C.B. (1998). "Corporate Social Reporting Practices in Western Europe: Legitimating Corporate Behaviour", *British Accounting Review* 30:1:21

Anderson, C. L. and Bieniaszewska, R.L. (2005). "The Role of Corporate Social Responsibility in an Oil Company's Expansion into New Territories", *Corporate Social Responsibility and Environmental Management* 12(1) 1-9.

Alessandri, S.W. (2001). "Modelling Corporate Identity: A Concept Explication and Theoretical Explanation", *Corporate Communications* 6(4): 173-182

Berner, R. (2005). "Smarter Corporate Giving", *Business Week* 11: 68-76.

Bernhart, M. and Slater, A. (2007). "How Sustainable is your Business?", *Communication World* November-December 18:21

Birch, D. and Moon, J. (Eds). (2004). "CSR in Asia [Special Issue]", *Journal of Corporate Citizenship* 13-19:23.

Bridges, C.M. and Wilhelm, W.B. (2008). "Going Beyond Green: The Why and How of Integrating Sustainability into the Marketing Curriculum", *Journal of Marketing Education* 30(33): 33-46

Bunting, M. and R. Lipski (2000). "Drowned Out? Rethinking Corporate Reputation Management for the Internet", *Journal of Communication Management* 5(2): 170-178.

Chapple, W. and Moon, J. (2005). "Corporate Social Responsibility in Asia: A Seven Country Study of CS Website Reporting", *Business and Society* 4(4): 415-441.

Charles, E. (2005). "The Power of 3", <u>Intheblack</u> 75(7): 30-35.

Colbert, B.A., Kurucz, E.C. (2007). "Three Conceptions of Triple Bottom Line Business Sustainability and the Role for HRM", *HR Human Resource Planning* 30(1): 21-29

Gill, D., Dickinson, S. and Scharl, A. (2008). "Communicating Sustainability: A Web Content Analysis of North American, European and Asian Firms", *Journal of Communication Management,* 12(3): 243-262.

Collison, D. and N. Lorraine. (2003). "An Exploration of Corporate Attitudes to the Significance of Environmental Information for Stakeholders", *Corporate Social Responsibility and Environmental Management* 10: 199-211.

Colman, R. (2004). "Satisfied Stakeholders", *CMA Management* 78(1): 22-25.

Colman, R. (2005). "Corporate Social Responsibility: Where do we really stand", *CMA Management* 78(9): 28-33.

Commission of the European Communities (2001). Green Paper: Promoting a European Framework for Corporate Social Responsibility 366. Brussels. Retrieved March 7 2007, from http://europa.eu.int

Davies, R. (2000). "Why Asian Business has to Care about Poverty", Retrieved March 2, 2007, from http://pwblf.org/csr/csrwebassist.nsf/webprintview/fld2b3u4html

Dean, D. H. (2003). "Consumer Perception of Corporate Donations: Effects of Company Reputation for Social Responsibility and Type of Donation", Journal of Advertising 32(4): 91-102.

Deegan, C. and Rankin, M. (1996). "Do Australian Companies Report Environmental News Objectively? An Analysis of Environmental Disclosures by Firms Prosecuted Successfully by the Environmental Protection Authority", *Accounting, Auditing & Accountability Journal 9*(2), 50-67.

Dittrick, P. (2007). "Sustainability Reports Answer Growing Calls for Information", *Oil and Gas Journal* October-20:22

Duncan, T. and S.E. Moriarty (1998). "A Communication-Based Marketing Model for Managing Relationships", *Journal of Marketing, 62(2), 1-13.*

Elkington, J. 1997. "Cannibals with Pickforks: The Triple Bottom Line of 21st Century Business", Capstone Publishing, Oxford.

Elkington, J. (1999). "Triple Bottom-line Reporting: Looking for Balance", *Australian CPA* 69(2): 18-21.

Fleishman and Hillard (2006). "Rethinking Corporate Social Responsibility." Fleishman & Hillard International Communications, pp. 111-. *Fortune Magazine*, Global Fortune 500 (2006)

Frederick, W, (2006). *"Corporation, Be Good! The Story of Corporate Social Responsibility*", Dog Ear Publishing, Indianapolis

Global Reporting Initiative. (2007). "Performance Indicators."   Retrieved 24 January 2007, from http://www.globalreporting.org/ReportingFramework/G3Online/PerformanceIndicators/.

Gray, R., Kouhy, R., Lavers, S. (1995)."Corporate Social and Environmental Reporting: a review of the literature and a longitudinal study for UK disclosure". *Accounting, Auditing and Accountability Journal*. 2: 78-101

Gray, R. (2001). "Responsibility up the Agenda." *Marketing* London (May 3).

Gill, D., Dickinson, S. and Scharl, A. (2008). "Communicating Sustainability: A Web Content Analysis of North American, European and Asian Firms", *Journal of Communication Management,* 12(3): 243-262.

Greenall, D., and R. Yachnin (2001) "Reporting on Corporate Social Responsibility Peformance: Results of a survey of Canadian companies", Canadian Centre for Business and Community. Conference Board of Canada http://strategis.ic.gc.ca/pics/sd/csrreporteng.pdf

Guthrie, J. and Parker, L. (1999). "Corporate Social Disclosure Practice: a comparative international analysis", *Advances in Public Interest Accounting* 3: 159-176

Habisch, A., Jonker, J., Wegner, M. and Schmidpeter, R. (Eds). (2004). *CSR across Europe.* Berlin, Germany:Springer-Verlag

Hedberg, C. and F. von Malmborg. (2003). "The Global Reporting Initiative and Corporate Sustainability Reporting in Swedish Companies", *Corporate Social Responsibility and Environmental Management* 10: 153-164.

Ho, L.J. and Taylor, M.E. (2007). "An Empirical Analysis of Triple Bottom-Line Reporting and its Determinants: Evidence from the United States and Japan", *Journal of International Financial Management and Accounting* 18(2):123-150

Hopkins, M. (2004). "*Corporate Social Responsibility: An issues paper*", Policy Integration Department World Commission on the Social Dimension of Globalisation International Labour Office.

Jamali, D. and Mirshak, R. (2007). "Corporate Social Responsibility (CSR) Theory and Practice in a Developing Country Context", *Journal of Business Ethics* 72:243-262.

Jenkins, H. (2004). "Corporate Social Responsibility and the Mining Industry: Conflicts and Constructs", *Corporate Social Responsibility and Environmental Management* 11: 23-34.

Juholin, E. (2004). "For Business or the Good of All? A Finnish Approach to Corporate Social Responsibility", *Corporate Governance* 4(3):20-31

Kampf, K. (2007). "Corporate Social Responsibility: WalMart, Maersk and the Cultural Bounds of Representation in Corporate Web Sites", *Corporate Communications: An International Journal* 12(1): 41-57.

Kemp, M. (2001). "*Corporate Social Responsibility in Indonesia: Quixotic Dream or Confident Expectation*?", United Nations Research Institute for Social Development, Geneva

Kolk, A. (2008). "Sustainability, Accountability and Corporate Governance: Exploring Multinationals' Reporting Practices", *Business Strategy and the Environment* 18:1-15

Kolk, A. and Walhain, S. et al. (2001). "Environmental Reporting by the Fortune Global 250: Exploring the Influence of Nationality and Sector", *Business Strategy and the Environment* 10(1): 15-28.

Korhonen, J. (2003). "Should we Measure Corporate Social Responsibility", *Corporate Social Responsibility and Environment Management* 10(1): 25-40.

Kotler, P. and Lee, N. (2005). *Corporate Social Responsibility: Doing the Most Good for Your Company and Your Cause*, John Wiley & Sons Inc, Hoboken, New Jersey.

Gill, D., Dickinson, S. and Scharl, A. (2008). "Communicating Sustainability: A Web Content Analysis of North American, European and Asian Firms", *Journal of Communication Management,* 12(3): 243-262.

KPMG. (2002). *KPMG International Survey of Corporate Responsibility Reporting 2002.* De Meern. The Netherlands. June 24

KPMG. (2005). *KPMG International Survey of Corporate Responsibility Reporting 2005.* Amsterdam. The Netherlands: KMPG Global Sustainability Services.

Krippendorff, K. (2004). *Content Analysis: An Introduction to Its Methodology*, Sage Publications: Beverly Hills, CA.

Lantos, G. P. (2002). "The Ethicality of Altruistic Corporate Social Responsibility", *Journal of Consumer Marketing* 19(3): 205-232.

Lichtenstein, D., Drumwright, M. and Bridgette,M. (2004). "The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits", *Journal of Marketing* (68): 16-32

Lines, V.L. (2004). "Corporate Reputation in Asia : Looking Beyond Bottom-Line Performance", *Journal of Communication Management* 8(3): 233-245

Lewis, S. (2003). "Reputation and Corporate Responsibility", *Journal of Communication Management* 7(4): 356-364

Maignan, I. and Ralston, D. (2002). "Corporate Social Responsibility in Europe and the US: insights from businesses' self presentations", *Journal of International Business Studies* 33(3): 497-514

Matten, D. and Moon, J. (2004). "Implicit and Explicit CSR: A conceptual framework for understanding CSR in Europe", In A. Habisch, J. Jonker, M. Wegner & R Schmidpeter (Eds). *CSR across Europe* 335:356. Berlin, Germany: Springer-Verlag

McMurtrie, T. (2005). "Factors Influencing the Publication of Social Performance Information: An Australian Case Study", *Corporate Social Responsibility and Environmental Management* 12: 129-143.

Merrifield, M. (2003). "Corporate America's Latest Act: Juggling Corporate Social Responsibility", *Baylor Business Review* 21(1):2. Retrieved March 15, 2007, from ABI/INFORM Global.

Pleon. (2005). "Accounting for Good: The global stakeholder report 2005: The second world wide survey on stakeholder attitudes towards CSR reporting." from http://www.pleon.com/fileadmin/downloads/Pleon_GSR05_en.pdf.

Potter, W. J. and D. Levine-Donnerstein (1999). "Rethinking validity and reliability in content analysis", *Journal of Applied Communication Research* 27(3): 258+.

Raar, J. (2002). "Environmental Initiatives: Towards Triple Bottom Line Reporting", *Corporate Communications* (7)3: 169-183

Gill, D., Dickinson, S. and Scharl, A. (2008). "Communicating Sustainability: A Web Content Analysis of North American, European and Asian Firms", *Journal of Communication Management,* 12(3): 243-262.

Rice, M. (2004). "Bottoming Out," CPA Australia. November 16, http://www.cpaaustralia.com/au/cps/rde/xchg/, accessed January 18 2005

Richards, T. and Dickson, D. (2007). "Guidelines by Stakeholders, for Stakeholders. Is it Worth the Effort". *The Journal of Corporate Citizenship,* Spring, 25: 19-21

Rowe, M. (2006). "Reputation Relationships and Risk: A CSR Primer for Ethics Officers", *Business and Society Review* 111(4): 441-455.

Sahlin-Andersson, K. (2006). "Corporate Social Responsibility: A Trend and a Movement, but of what and for what?", *Emerald Group Publishing Limited* 6(5): 595-608.

Schafer, H. (2005). "International Corporate Social Responsibility Rating Systems", *The Journal of Corporate Citizenship* Winter: 107-120

Scharl, A., Pollach, I. and Bauer, C. (2003). *Determining the Semantic Orientation of Web Based Corpora*. Springer.

Simmons, C. and Becker-Olsen, K. (2004). "When Do Social Sponsorship Enhance or Dilute Equity : Fit, Message Source and the Persistence of Effect", Working Paper. Retrieved March 13, 2007

Somerville, I. (2001), *Business Ethics, Public Relations and Corporate Social Responsibility in Theater*, A. (Ed), The Public Relations Handbook, Routledge, London

Takala, T. (1999), Ownership, Responsibility and Leadership - A Historical Perspective", *International Journal of Social Economics* 26(6):742-751

Tilt, C. A. and Symes, C.F. (2000). "Environmental Disclosure by Australian Mining Companies: Environmental conscience or commercial reality", *Accounting Forum* 23(2): 137-154.

Uhlaner, L.M., van Goor-Balk, H.J.M and Masurel, E. (2004). "Family Business and Corporate Social Responsibility in a Sample of Dutch firms", *Journal of Small Business and Enterprise Development* 11(2) 186-194

Verschoor, C. C. (2006). "Consumers Consider the Importance of Corporate Social Responsibility", *Strategic Finance* 88(2), 20-22.

von Furstenberg, G.M. (2001), 'Hopes and delusions of transparency', *North American Journal of Economics and Finance*, 12, 105-20

Wallman, S. M. H. (1995). "The Future of Accounting and Disclosure in an Evolving World: Need for dramatic change Part I", *Accounting Horizons* September: 81-91.

Welford.R. (2004). "Corporate Social Responsibility in Europe and Asia: Critical elements and best practice", *Journal of Corporate Citizenship* 13:31-47

Wheeler, D. and Elkington, J. (2001). "The End of the Corporate Environmental Report? Or the Advent of Cybernetic Sustainability Reporting and Communication", *Business Strategy and the Environment* (10): 1-14.

Gill, D., Dickinson, S. and Scharl, A. (2008). "Communicating Sustainability: A Web Content Analysis of North American, European and Asian Firms", *Journal of Communication Management,* 12(3): 243-262.

Table 1: Overall Number of Terms and Term Count Frequencies for TBL Indicators

Category	No. of Terms	% of No. of Terms	Term Count Frequency	% of Term Count Frequency
Environmental	258	47.5%	69,491.00	47.5%
Economic	92	17%	44,417.00	30%
Social	193	35.5%	32,941.00	22.5%
TOTAL	**543**	**100%**	**146,849.00**	**100%**

Table 2: Social Indicator Number of Terms and Frequency Counts

Category	No. of Terms	% of No. of Terms	Term Count Frequency	% of Term Count Frequency
Labour	87	45%	13,955.00	45%
Society	40	20%	12,215.00	37%
HR	30	15.5%	4,753.00	17%
Product	36	19.5%	667.00	2%
TOTAL	**193**	**100%**	**31,590.00**	**100%**

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Table 3: Top Three Environmental, Economic and Social Concept Systems Reported

CONCEPT SYSTEM	Overall Term Count	Highest Term Frequency	Term Count
ENVIRONMENTAL INDICATOR			
EN3 – core Organisation's consumption of direct primary energy sources	30,731	crude oil natural gas gasoline coal diesel	9,561 9,039 3,639 3,019 2,999 **Total : 28,257**
EN29 – additional Environmental impacts of transporting products, goods and materials used in the organization's operations as well as transporting members of the workforce	9,973	Fuel	8,518 **Total : 8,518**
EN12 – core Significant impacts of organisations on biodiversity in protected areas and high biodiversity value outside protected areas	5,286	construction pollution	4,009 540 **Total : 4,549**
ECONOMIC INDICATOR			
ECI – core The creation and distribution of economic value and how the organisation has created wealth for stakeholders	15,040	dividends revenues	5,707 5,883 **Total : 11,590**
EC4 – core The host government's contributions to the reporting organization	12,380	Awards compensation research	5,193 4,033 2,542 **Total : 11,768**
EC3 – core Organisation's defined benefit plan obligations	5,801	retirement pensions	2093 1,278 **Total : 3,821**
SOCIAL INDICATOR			
SO7 – additional Anti-competitive behaviour concept system	10,203	acquisitions mergers	6,373 3,128 **Total : 9,501**
LA13 The composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership and other indicators of diversity	5,018	board of directors	4,593 **Total : 4,593**
LA9 – additional The extent that the workforce is actively involved in formal, labor management agreements that determine health and safety management arrangements"	4,016	Training education	2,337 1,617 **Total : 3,954**

Table 4: Geographic Locations and Environmental Concept Systems Reported

Geographic Location	Concept System	Term Count Frequency	Average Term Count Frequency	Highest Term Frequency	Term Count	Average Term Count
Europe	EN3	8,997	817	Crude Oil	3,188	290
				Natural Gas	1,398	127
				Gasoline	471	43
				Diesel	913	83
				Coal	2,428	221
Asia	EN3	5,420	677	Crude Oil	1,491	186
				Natural Gas	1,742	218
				Gasoline	425	53
				Diesel	1,004	126
				Coal	252	32
North America	EN3	16,314	1483	Crude Oil	4,882	444
				Natural Gas	5,899	536
				Gasoline	2,743	249
				Diesel	1,082	98
				Greenhouse Gas	360	33
Total		**30,731**			**28,278**	
Europe	EN29	3,010	274	Fuel	2,573	233
Asia	EN29	2,460	307	Fuel	2,051	256
North America	EN29	4,503	409	Fuel	4,030	366
Total		**9,973**			**8,654**	
Europe	EN12	2,253	204	Construction	1,599	145
				Mines	271	24
Asia	EN12	1,017	127	Construction	815	101
				Pollution	121	15
North America	EN12	2,016	183	Construction	1,595	145
				Pollution	211	19
Total		**5,286**			**4,612**	

Table 5: Geographic Locations and Economic Concept Systems Reported

Geographic Location	Concept System	Term Count Frequency	Average Term Count Frequency	Highest Term Frequency	Term Count	Average Term Count
Europe	EC1	6,674	606	Dividends	2,378	216
				Revenues	1,900	172
Asia	EC1	2,306	288	Dividends	1,030	128
				Revenues	931	116
North America	EC1	6,983	634	Dividends	2,299	209
				Revenues	3,052	277
Total		**15,963**			**11,590**	
Europe	EC4	2,753	250	Awards	670	60
				Compensation	683	62
				Research	753	68
Asia	EC4	2,046	255	Awards	1,148	143
				Compensation	111	13
				Research	631	78
North America	EC4	7,865	715	Awards	3,375	306
				Compensation	3,239	294
				Research	1,158	105
Total		**12,664**			**11,768**	
Europe	EC3	2,148	195	Retirement	562	51
				Pension	798	72
Asia	EC3	753	94	Retirement	146	18
				Pension	94	11
North America	EC3	3,083	280	Retirement	1,385	125
				Pension	836	76
Total		**5,984**			**3,821**	

Table 6: Geographic Locations and Social Concept Systems Reported

Geographic Location	Concept System	Term Count Frequency	Average Term Count Frequency	Highest Term Frequency	Term Count	Term Count Average
Europe	SO7	3,339	303	Acquisitions	2561	232
				Mergers	235	21
Asia	SO7	1,173	146	Acquisitions	794	99
				Mergers	321	40
North America	SO7	6,445	585	Acquisitions	3464	314
				Mergers	2810	255
Total		**10,957**			**10185**	
Europe	LA13	2,560	232	Board of Directors	2357	214
Asia	LA13	434	54	Board of Directors	448	56
North America	LA13	2,024	184	Board of Directors	1961	178
Total		**5,018**			**4766**	
Europe	LA9	2,116	192	Training	1262	114
				Education	811	73
Asia	LA9	1,417	177	Training	926	115
				Education	469	58
North America	LA9	1,459	132	Training	816	74
				Education	625	56
Total		**4,992**			**4,909**	

Table 7: Semantic Orientation of Top Three Concept Systems for each TBL Indicator

Semantic Orientation for Top 9 Concept Systems			
	Europe	**Asia**	**Nth America**
EN3	0.185	0.246*	0.163
EN29	0.265	0.357*	0.166
EN12	0.205*	0.185	0.171
EC1	0.265*	0.260	0.211
EC4	0.243	0.331*	0.257
EC3	0.416	0.380	0.432*
SO7	0.270*	0.242	0.203
LA9	0.386	0.555*	0.456
LA13	0.306	0.377*	0.318