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Corporate Environmental Reporting on the WWW by Australian Corporations: an application of stakeholder-accountability framework

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Abstract

This paper documents a research study on World Wide Web (WWW) environmental reporting in Australia. The research focuses on the concept of accountability to all stakeholders and suggests how the WWW could be used to facilitate this. Accordingly, a theoretical framework entitled "stakeholder accountability" is developed and applied in the context of WWW environmental reporting. Embedded within this framework are the notions of provision of an account (transparency and attestation) and being held to account (stakeholder engagement and regulatory intervention). The research then applies the notion of stakeholder-accountability to WWW environmental reporting in Australia. This involves an analysis of the WWW reporting practices of those companies in Australia that prepare a public environmental report. It is found that companies are not using the full potential of the WWW to extend accountability to numerous external stakeholders. Reasons for this status quo are ascertained and future research directions are postulated.

Keywords

Environmental reporting, Accountability, WWW, Stakeholders

INTRODUCTION

Research into environmental accounting[1] has been in existence for over a decade now. Over the years, such research has grown from strength to strength and has been globally accepted as a vital sphere of academic advancement. Developments in the practice are also increasing with numerous recommendations and guidelines being postulated to facilitate the transition of the environmental agenda into business (see for instance GRI, 2000; EC, 2001). In essence, environmental accounting is more widely accepted now than in the early days of its inception (see Gray, 2001a; Gray and Bebbington, 2001 for example).

Corporate environmental reporting (CER), which is a component of environmental accounting, is the predominant concern in this paper. It is an approach that tries to ensure that organisations are accountable for their activities and the resultant impact on the environment. CER is concerned with identifying to stakeholders how the company's activities relate to the environment through:

- Its consumption of energy and raw materials.

- Its business activities and operations.

- Its wastes, products, and by-products.

(Fayers, 1998:75)

The annual report has in the past been used as a communication tool for disseminating information to stakeholders in relation to a company's financial position. It has also been regarded as a medium of communication for portraying environmental information (see Bebbington and Gray, 2000; Gray and Bebbington, 2001 for example). However, other communication media such as stand-alone environmental reports are available (see Bebbington and Gray, 2000; ACCA, 2001a; Gray and Bebbington, 2001; Tilt, 2001, for example). Advertisements and brochures may also be useful in disclosing environmental

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[1] Environmental accounting is defined as the accountant's response towards environmental issues in organizations. It consists of an internal mechanism called environmental management accounting as well as the external reporting of environmental accounting information (referred to as corporate environmental reporting).

information (Neu *et al.*, 1998; Bebbington and Gray, 2000; Tilt, 2001). Recent developments have seen an emergence of environmental reporting on the WWW (see for instance, Craven and Otsmani, 1999; Jones *et al.*, 1998; 1999; Jones and Walton, 1999; UNEP, 1999; 2001; Williams and Pei, 2000; ACCA, 2001a; 2001b; Gray and Bebbington, 2001).

It has been claimed that environmental reporting, primarily through the medium of the corporate annual report has failed to address the accountability issue (see for instance Neu *et al.*, 1998; Gray, 2001a; Gray and Bebbington, 2001). Rather than extending accountability to numerous stakeholders, environmental disclosure has been used to legitimise business insensitivity towards the environment by focusing only on positive aspects of corporations' interaction with the environment. It is evident from international studies that environmental disclosure is limited, inconsistent and public relations based (*ibid*).

Further support for the unsatisfactory nature of environmental reporting can be found in studies, such as that by Deegan and Rankin (1999), that indicate an environmental reporting expectations gap, whereby the supply of environmental information is limited in the face of an increasing demand from stakeholders. Moreover, some authors have questioned the reliability of the attestation of environmental information (Ball *et al.*, 2000; Gray, 2000; 2001a; 2001b), suggesting that even supposedly independently verified environmental information may be problematic.

The rationale for the persistence of such a deplorable situation is difficult to comprehend, taking into account the various initiatives and guidelines promulgated by numerous accounting institutes and related international organisations. Thus, a vacuum exists between theoretical developments in environmental accounting and the actual practice of disclosure, predominantly in corporate annual reports.

This paper investigates whether a change in the communication medium for disclosing environmental information could enhance accountability by corporations and provide useful information to stakeholders. An interactive, speedy and accessible medium for portraying environmental information is envisaged in order to overcome deficiencies of reporting through the corporate annual report. It is in this regard that information technology could be utilised to improve the present form of reporting.

Information technology, especially the phenomenal growth of the Internet, has transformed business activity and the society at large (see for instance Thornburg, 1995; De Maeyer, 1997; Doost, 1999). It has converted our planet into a global village and allows numerous benefits such as ease of use, better visual presentations, faster communication and interaction. The World Wide Web protocol of the Internet is being used for corporate reporting (see for instance Lymer, 1997; Lymer and Tallberg, 1997; Ashbaugh *et al.*, 1999; Craven and Marston, 1999; Gowthrope and Amat, 1999; Lymer *et al*, 1999; FASB, 2000; Craig *et al.*, 2001). There is also evidence of the disclosure of social and environmental information in corporate websites (see for instance Jones *et al.*, 1998; 1999; Craven and Otsmani, 1999; Jones and Walton, 1999; UNEP, 1999; 2001; Williams and Pei, 2000; ACCA, 2001b).

In light of the prior discussion, this paper will focus on environmental reporting but consider it within the broader aspect of accountability. This study tries to ascertain whether a change in the reporting media could improve environmental disclosure and assist in providing accountability to external stakeholders with regard to dissemination of information on a company's environmental performance.

RESEARCH PROBLEM AND MOTIVATION

The central research issue to be investigated is whether environmental reporting through the medium of the WWW could be used to enhance accountability to external stakeholders. Specific research questions that need to be addressed are as follows:

- What potential does WWW environmental reporting offer for accountability purposes over conventional print media?

- Does the current practice of environmental reporting via the WWW in Australia utilise the potential of the WWW in extending accountability to external stakeholders?

Environmental issues, though often controversial, are important as they concern the survival of species on this planet. This study suggests a mechanism (WWW environmental reporting) that could be used to promote sustainable business practices and is essential in encouraging environmental sensitivity in organisations.

There is limited published evidence on how environmental information is disclosed on the WWW in Australia or on how such disclosure could improve accountability. It fills this research gap by indicating the current status of the practice. It is an initial investigation that could encourage further studies on environmental reporting media. This study is an attempt to develop a theory for the local WWW environmental reporting practice that could be compared with international studies and used as a benchmark for further studies on environmental reporting on the WWW.

Moreover, it is notable that two of the prominent developments in environmental reporting in Australia, namely the National Pollutant Inventory and Public Environmental Reporting (see Burritt, 2001 for instance) relate to the Internet, thereby suggesting some use of the WWW for reporting environmental information in Australia. However, there is a need to establish whether such reporting is existent through corporate websites and more importantly, whether it extends accountability to stakeholders.

THEORETICAL FRAMEWORK

A need arises for a mechanism that could hold organisations accountable and consequently influence what is accounted for. This is possible through stakeholder accountability framework[2] that takes into account the needs of both an organisation and its stakeholders. Embedded within the stakeholder-accountability framework are the processes of providing an account and being held to account as illustrated by Figure 1. These processes overlap and accountability constitutes the compromise reached by both the organisation (proving an account) and stakeholders (holding to account).
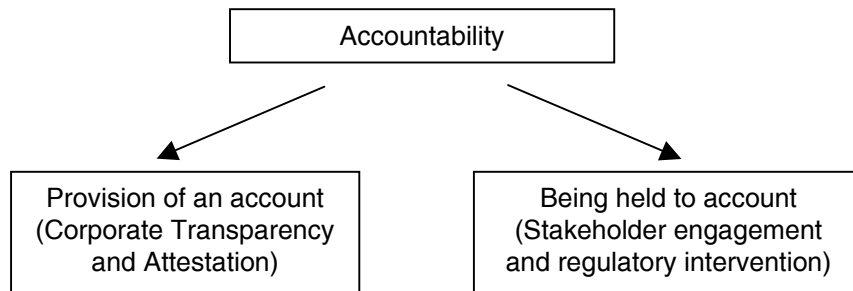

Figure 1: Components of stakeholder-accountability framework

The demand for environmental information by various stakeholders could be formalised by holding the organisation to account. This could be possible through stakeholder engagement and regulation. Stakeholder engagement is needed in order to identify specific needs of each stakeholder. Improvement in regulation requiring specific environmental disclosure could also improve the demand for environmental information. Beyond this, supply of environmental information could be enhanced through a transparent environmental reporting practice that could attempt to provide information based on both the organisation and stakeholder needs, and independently verify such information through the attestation process.

Given the power asymmetry between corporations and stakeholders proponents, democracy is needed in order to ensure that accountability is transparent rather than a public relations exercise. Issues such as the future of our planet are so complex that we cannot leave such decisions with the capitalist corporation (see Gray and Bebbington, 2000). A need arises for a participative form of democracy, one where stakeholders have a say. Such engagement

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[2] This framework is derived from the normative stakeholder theory (see for instance, Donaldson and Preston, 1995) that focuses on accountability. However, existing theories have not clearly defined what accountability would comprise of – it is an elusive concept that could mean different things to different people. Accordingly, this paper tries to fill the research gap by precisely identifying the elements of accountability.

(UNEP/ Sustainability, 1996) could be facilitated through stakeholder dialogue (see Owen *et al.*, 1997; Gray *et al.*, 1997; ACCA, 2000; Environment Australia, 2000; WBCSD, 2001; AA2000, 2001). This does not necessarily mean that stakeholders take over the environmental agenda of the company. This would not be possible due to their diverse needs. On the contrary, their views are taken into account and some compromise would be involved before the corporation decides upon an environmental agenda that would be reflective of not only business needs but also stakeholder needs.

Similarly, Gray (2001a) states that the accounting profession on its own cannot guarantee environmental sensitivity but governments and stakeholders with democratic power could. Political involvement in the form of legislation coupled with regulation from accountancy bodies is essential. Gray (2001a:11) remarks: "*Accountability is a quintessentially democratic notion that is about society deciding on the world – and the business – it wishes to aspire to.*"

Governments would impose corporate and environmental legislation, accountancy institutes could promulgate standards for reporting environmental information and stakeholders may exert their influence on the corporation to facilitate a minimum level of accountability. However, the impetus also lies on corporations to provide useful environmental information (provision of an account) to stakeholders and extend accountability beyond statutory obligations. They need to be transparent in regard to their interaction with the environment and be responsive of the needs of stakeholders.

Transparency is believed to be an open and honest approach towards reporting by corporations (see for instance, Owen *et al.*, 1997; Gray 2001a; Gray and Bebbington, 2001). Gray (2001a) suggests that in the absence of regulation and given the difficulty in complying with aspects such as sustainability, corporations should fulfil their moral responsibilities by acknowledging existing limitations. They could be proactive and highlight the incompleteness of their reporting or the deficiencies in adhering to sustainability criteria rather than manipulating such information to advance their capitalist pursuits (see also GRI, 2000). Stating whether it has been prepared according to voluntary guidelines can enhance the authenticity of information supplied.

Attestation of environmental information would enhance the credibility of the reporting process (see for instance, Ball *et al.*, 2000; Gray, 2000; 2001a; 2001b; AA2000, 2001). Such independent assurance would suggest to external stakeholders that the reporting process is transparent and is not subject to manipulation by management. Even "in-house" attestation such as internal audits could assist in making environmental reporting more credible.

ENTER WWW REPORTING

The WWW has numerous benefits for environmental reporting over conventional print media. Its mass communication (see for instance, Lymer, 1997; 1999; Lymer *et al.*, 1999; Ashbaugh *et al.*, 1999; Ettredge *et al.*, 2001) and global reach abilities (see for instance Trites, 1999; Lymer, 1999; Lymer *et al.*, 1999; UNEP, 1999) allow information to be disseminated to a wide range of stakeholders. The WWW facilitates two-way interaction and feedback through discussion forums, bulletin boards and email lists (see for instance Gowthorpe and Amat, 1999; Jones and Walton, 1999; Lymer *et al.*, 1999; Trites, 1999; UNEP, 1999; FASB, 2000; Williams and Pei, 2000; ACCA, 2001; Isenmann and Lenz, 2001; Wheeler and Elkington, 2001).

Another important benefit offered by the WWW is its timely dimension (see for instance Lymer, 1997; 1999; Ashbaugh *et al.*, 1999; Lymer *et al.*, 1999; Trites, 1999; UNEP, 1999; FASB, 2000; Williams and Pei, 2000; ACCA, 2001; Ettredge *et al.*, 2001; Isenmann and Lenz, 2001; Wheeler and Elkington, 2001). Similarly, improved presentation and navigation through graphics, hyperlinks and search facilities is possible through the WWW (see for instance Ashbaugh *et al.*, 1999; Lymer *et al.*, 1999; UNEP, 1999; Jones and Walton, 1999; FASB, 2000; ACCA, 2001). The WWW also allows an increased information flow (see for instance Lymer, 1997; 1999; Ashbaugh *et al.*, 1999; FASB, 2000; ACCA, 2001; Williams and Pei, 2000; Ettredge *et al.*, 2001) and has a low cost of information dissemination (see for instance Lymer, 1997; 1999; Ashbaugh *et al*, 1999; Lymer *et al.*, 1999; Trites, 1999; Williams and Pei, 2000; FASB, 2000; Ettredge *et al.*, 2001).

The WWW could allow a company to integrate all aspects of corporate communication (UNEP, 2001). For instance, triple bottom line (financial, social and environmental) information could be provided on a website and liked together by utilisation of hyperlinks. On the other hand, Isenmann and Lenz (2001) indicate that even though the WWW allows users to pull information (pull based technology), push based technology could also be used to disseminate information. This could be feasible through utilisation of email lists and alerts (see for instance FASB, 2000), which would provide timely information to stakeholders.

While the downside of such reporting may lead to disparities between large and small size companies or developed and developing countries (UNEP, 1999), increase costs for website expertise and maintenance (Jones and Walton, 1999; UNEP, 2001), cause information overload (see for instance Lymer *et al.*, 1999; Trites, 1999) and lead to security risks (Ashbaugh *et al.*, 1999; Trites, 1999; UNEP, 1999) and authentication problems (see for instance Ashbaugh *et al.*, 1999; Gowthrope and Amat, 1999; Trites, 1999; FASB, 2000; Ettredge *et al.*, 2001), its potential development should not be restricted by these. On the contrary, it is hoped that should such a practice become functional, such limitations would be alleviated through improvements in technology (and the associated cost reduction) and improved reporting dimensions (concentrating on relevant and reliable information). Furthermore, companies will need to have a responsibility to provide information to external stakeholders on the website through extensive site promotion and also train users in the use of WWW technology (ACCA, 2001).

The problems associated with information dissemination via the WWW in terms of regulation and attestation are less severe for environmental reporting. This because the contemporary environmental reporting practices in most countries is largely voluntary. However, this is not to say that regulation governing dissemination of environmental accounting information via the WWW is not desirable. Regulation and attestation of such information would enhance accountability extended to stakeholders. Moreover, reporting through the WWW allows companies to reduce their consumption of paper (ACCA, 2001).

WWW environmental reporting using stakeholder-accountability framework

A comparison of the potential offered by the WWW over conventional print media for extending environmental accountability to stakeholders is illustrated in Table 1. As evident from the table, the WWW enhances the process of the corporation being held to account through increased accessibility and interaction with all stakeholders (stakeholder engagement). Similarly, the process of providing an account to stakeholders could be improved through increased and timely information, and better presentation and navigation (corporate transparency). However, the lack of regulation and attestation could restrict WWW environmental reporting.

	Print Media	WWW
Held to account		
Stakeholder engagement		
Accessibility to stakeholders	Usually "powerful" stakeholders	All stakeholders
Interaction	One way interaction	Two way interaction
Regulatory intervention	Only for financial information, voluntary guidelines for environmental reporting	Not existent at the moment
Provision of an account		
Transparency		
Information and its availability	Generalised and periodical	Detailed and often instantaneous, analytical and downloadable, further information could be provided through hyperlinks
Presentation	Limited features, could vary	Improved through technological tools

	Print Media	WWW
Navigation	Structure and table of contents guide users	Various search tools are available
Attestation	Often for financial information, limited for environmental reporting	Limited

Table 1: The potential of the WWW for enhancing accountability to stakeholders

Transparency in reporting from organisations providing an account through the WWW could be envisaged through open, informative and creative (using the benefits offered by the WWW) reporting whereby limitations of the present practice in the absence of legislation (governing content of websites) and attestation are acknowledged. Some of the ways in which corporations could use the WWW to provide an account to stakeholders are identified below. These cannot be efficiently undertaken through conventional print media.

A company could indicate the extent to which its activities are impacting the environment. Disclosure of the company's corporate environmental policy and information related to ecological impacts such as the National Pollutant Inventory (NPI) is also possible through the WWW. Environmental reports could be made available as well. While these are also possible through conventional print media, the WWW could allow stakeholders the benefit of increased accessibility and timely information (which could be easily downloaded). Stakeholders could also choose the level of detail they require through hyperlinks. For example, generalised versus summarised information could be made available, or multiple file formats (HTML, PDF, DOC, etc.) and language versions of environmental reports could be made available. Stakeholders could also use search engines to access information specific to their needs. The above illustrates that the WWW allows corporations to provide an account to stakeholders based on the specific needs of various stakeholders without having to compile such information separately for each stakeholder. WWW technology allows companies to increase the amount of information they disclose to stakeholders on a timely basis and assist in organising the information relevant to stakeholders in a meaningful manner. These can be undertaken at a reasonable cost when compared to conventional print media.

Presentation tools available through the WWW could also assist organisations in providing an account to stakeholders. Graphics, animation, analytical tools and multimedia could be used to provide visual and useful presentations. However, caution should be exercised in the use of such mechanisms so that these do not impede the access speed of the website or lead to other possible difficulties.

References to financial, social and other relevant information in regard to the environment could be possible through hyperlinks to such information within a website. Stakeholders could be able to access links to the financial web page that would display information on matters such as environmental costs, provisions, contingencies and liabilities. The social implication of environmental issues could also be appropriate linked. Links to other sites that may have information on the environment could be used as well to disseminate environmental awareness. Such references through hyperlinks would allow an organisation to provide an account to stakeholders on the basis of the existing information that is available to it.

A statement on whether environmental information presented on the website has been subject to attestation could be provided by organisations in order to further enhance the credibility of the account that they are seeking to provide. Similarly, a company should identify the extent to which it is complying with existing environmental legislation.

The WWW could also allow the process of a corporation being held to account by facilitating the notion of participative democracy. Participative democracy through stakeholder engagement could assist in reducing the environmental reporting expectations gap (Deegan and Rankin, 1999) something that the contemporary environmental reporting practice through print media is devoid of. Such participation is open to all stakeholders as the WWW is "freely" available to anyone who has access to technology. Thus, the WWW allows all stakeholders to have equal rights to information.

A discussion forum or bulletin board on the website could be used to facilitate stakeholder engagement enabling all stakeholders to have a "voice". Such participative democracy could enable stakeholders to play a key role in shaping the company's environmental agenda Stakeholders could also be able to provide feedback through automatic feedback forms or make queries by emailing the company directly. Push based mechanisms such as email alerts are feasible as well.

It is hoped that developments in WWW environmental reporting are furthered through democratic government intervention in the form of appropriate code of conduct for Internet content. Regulation through imposition of disclosure requirements for WWW reporting by accountancy institutes would also be ideal. While acknowledging that such a process does not exist at this stage but is desirable, one must realise that contemporary environmental reporting is largely unregulated with limited guidelines.

RESEARCH METHODS

Most website evaluation studies have focussed on the use of the website for commercial purposes. This involves assessing the use of website in undertaking online business (see for instance Liu *et al.*, 1997; Lin, 1999; Cheung and Huang, 2000; Elliot *et al.*, 2001), the display of financial information on corporate websites (Lymer, 1997; Lymer and Tallberg, 1997; Lymer *et al.*, 1999; Ashbaugh *et al.*, 1999; Craven and Marston, 1999; Gowthorpe and Amat, 1999; Pirchegger and Wagenhofer, 1999; FASB, 2000; Ettredge *et al.*, 2001) or the use of rhetoric on specific corporate websites (see for instance Craig *et al.*, 2001). Very few studies have looked at social and environmental reporting on the WWW (see for instance Jones *et al.*, 1999; UNEP, 1999; 2001; Craven and Otsmani, 1999; Williams and Pei, 2000).

Li and Huang (2000) propose a matrix of possible research methods for website assessment (refer to Table 2). The qualitative approach involves either randomly assessing websites in terms of its nature (objective approach) or focusing on specific companies based on identified attributes (subjective approach). Conversely, web data mining entails assessing the behaviour of users accessing websites while subjective, quantitative evaluation uses statistics to analyse properties of websites.

	Objective	Subjective
Qualitative	Website random sampling	Web surveying on identified attributes
Quantitative	Web data mining	Using statistics with a predefined framework

Table 2: Possible research methods for website evaluation (adapted from Li and Huang, 2000:375)

	Objective	Subjective
Qualitative	Lymer (1997) Lymer and Tallberg (1997) Lymer *et al.* (1999) Gowthorpe and Amat (1999) FASB (2000)	UNEP (1999; 2001) Jones *et al.* (1999) Craig *et al.* (2000)
Quantitative		Cravern and Marston (1999) Cravern and Otsmani (1999) Ashbaugh *et al.* (1999) Williams and Pei (2000) Pirchegger and Wagenhofer (1999) Ettredge *et al.* (2001)

Table 3: Research methods used in website evaluation for business as well as social and environmental reporting

Does the organisation have a separate environmental section?

<u>Provide an account</u>
Is timely information available and is there regular updating of information?

Stakeholder ease:

Are hyperlinks available allowing stakeholders to choose the level of detail – summarised versus detailed information?

Are multiple file formats and different language versions of environmental reports available?

Can stakeholders download environmental reports?

Are search engines available?

Is a hit counter available that could be used to ascertain how many stakeholders access the company's website?

Is presentation improved through graphics, animation, multimedia or analytical tools?

Are links to financial and social information within the website available?

Are there links to other information that stakeholders may find useful – for example, links to specific environmental websites?

Are there indications of the reliability of the information such as reference to attestation or other independent credibility processes?

<u>Held to account</u>
Is the website accessible to all stakeholders?

Are mechanisms for stakeholder engagement such as discussion forums, bulletin boards, feedback forms or email provisions available?

Is information provided on compliance with existing regulation relating to the environment?

Figure 2: Checklist of questions for website evaluation

The emphasis in this research is in identifying whether environmental reporting through the WWW by Australian corporations utilises its potential to extend accountability to various stakeholders. The research is qualitative in nature, attempting to examine practices of the companies rather than merely seeking to ascertain whether Australian companies disclose environmental information through their websites. Thus, a subjective qualitative approach is best suited for investigating the research problem in this paper. Data will be collected based on a checklist that identifies the potential of the WWW for extending accountability to stakeholders. Current practices will be studied in the context of this checklist, which is derived from the principles of stakeholder-accountability framework (see Figure 2).

Data Collection

The companies that were selected for analysis are those that produce public environmental reports. Such reports are available electronically on the Environment Australia website, which indicates that these companies would use their corporate websites to at least disclose their environmental reports. It is also believed that these companies would be the leaders in environmental reporting. However, evaluation is in regard to whether these companies use the potential of the WWW to enhance accountability to stakeholders rather than just a review of the public environmental reports. Table 4 lists the proportion of companies in each industrial sector.

Industrial sector	No of companies
Utilities (Electricity, Gas and Water Supply)	16
Manufacturing	4
Mining	23
Transport and Storage	1

Industrial sector	No of companies
Communication Services	3
Industry Association	2
Agriculture	1
Finance and Insurance	1
Construction	1
Service (environment)	1

Table 4: Proportion of companies undertaking public environmental reporting according to their industrial sector

The websites of these companies were analysed through the use of the checklist. There were two companies in the mining sector whose websites could not be accessed and thus, these are eliminated from the analysis. Between 30-45 minutes were spent on each website. The research was carried out within a two-week period in April 2002.

FINDINGS

Most organisations did have a separate section on their website dedicated to the environment. In fact, some organisations even used titles such as sustainability and also integrated their social and community issues with the environment. Companies in the mining and utilities sector seemed to report more on their environmental performance relative to companies in other sectors. There seemed very few instances where companies would merely have an environmental report in Portable Document Format (PDF) format on the website.

Provision of an account

A rather disappointing feature of most websites seemed the apparent lack of details on the timeliness of the information presented. It was indeed difficult to ascertain how often the information was updated or when the information was last updated. Thus, the recency of information on these websites can be severely questioned.

Most organisations did make use of extensive hyperlinks to disclose environmental information on the website. General search engines were also available on most websites that users could use to search for specific information.

Many companies did have their environmental reports (sometimes referred to as health and safety, community, social or sustainability reports) available for download. However, most of these were in the PDF format, thus limiting user choice as to the appropriate format of the report. These reports were in English. The use of a hit counter on the website which could be used to ascertain how many stakeholders accessed the company's environmental information was also glaringly absent from most corporate websites.

Numerous websites did not seem to sufficiently utilise the capabilities of the WWW to disclose environmental information. Many companies failed to make use of graphics, animation, multimedia or analytical tools in displaying information on the website. Hence, it seems that the only advantage that the use of the website offered to these companies over conventional print media for disclosing environmental information was its mass communication and global reach benefits coupled with the ability to appropriately organise the information.

Most websites did not integrate the environment information with financial information. However, social information was often linked to environmental information. Such a situation does indicate that companies are not adequately equipped to handle triple bottom line reporting[3]. There were also very few websites that provided links to other environmental

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[3] A concept that refers to integrated reporting of economical, social and environmental information (see for instance Elkington, 1997).

information that stakeholders could find useful. Links to information such as the National Pollutant Inventory (NPI) data were absent.

Finally, the primary weakness of the websites analysed was the lack of information on attestation. Statements on whether the environmental information displayed on the website is independently verified were non-existent. This places doubt on the credibility of environmental information displayed on the websites, given the fact that there is presently no legislation to guide disclosure on websites.

Held to Account

All websites were accessible to all stakeholders who had access to the Internet. However, the underlying process of holding a corporation to account was fundamentally weak. Discussion forums and bulletin boards were not available. Only one company in the communication services sector provide a feedback form for stakeholders with regard to its environmental performance. In effect, nearly half of the total companies failed to provide a contact email address on their websites. Thus, the process of stakeholder engagement is not supported through the use of the WWW.

Another issue that was prominently absent from most websites was the lack of detail on compliance with existing legislation. Only one company mentioned that it was adhering to the specific clause of Australian corporations law that required companies to report on their environmental performance. Apart from this, information on compliance with both mandatory and voluntary environmental initiatives was not provided.

DISCUSSION

An analysis of the websites of Australian corporations involved in public environmental reporting suggests that the ideal notion of stakeholder accountability is non-existent in the reporting of environmental information. Companies are not utilising the full potential of the WWW to disclose environmental information. The provision of an account by companies is ad-hoc and could be handled easily through conventional print media. The WWW features are also not used to facilitate the process of holding a corporation to account.

It seems that companies are largely unaware of how the WWW could enhance the process of accountability to external stakeholders. Alternatively, it could be inferred that companies are reluctant to use the WWW for accountability purposes. Both these suggestions have merit and provide scope for future research. Surveys or interviews could be conducted to ascertain whether companies are aware of the potential of the WWW for disclosing environmental information and to seek the impediments to the reporting of environmental information through the WWW.

This research posits an alternative to the reporting of environmental information through utilisation of the WWW. It has theoretical, practical and policy implications. Theoretically, this initial study postulates the stakeholder accountability framework coupled with establishment of a local theory for environmental reporting on the WWW. This could provide a benchmark for further studies in this area. At the practical level, it could provide appropriate guidelines to corporations for disclosing corporate as well as environmental information on the WWW. Furthermore, the study provides an indication of the current status of CER on the WWW in Australia. Policy issues such as Internet codes of conduct, the digital divide and security concerns are also an integral part of this paper.

REFERENCES

ACCA (2001a) *An Introduction to Environmental Reporting* The Certified Accountants Educational Trust, London

ACCA (2001b) Environmental, Social and Sustainability Reporting on the World Wide Web: A guide to best practice The Certified Accountants Educational Trust, London

AA2000 (2001) *AA2000 Consultation briefing 1*: *Accountability Management* Institute of Social and Ethical Accountability, London, UK.

Ashbaugh, H, Johnstone, K.M and Warfield, T.D (1999) "Corporate Reporting on the Internet" Accounting Horizons Vol. 13, No. 3, pp. 241-257

Ball A., Owen, D.L and Gray, R.H. (2000) "External transparency or internal capture? The role of third party statements in adding value to corporate environmental reports" *Business Strategy and the Environment* Vol. 9 No. 1 pp.1-23

Bebbington, J and Gray, R.H (2000) "Accounts of Sustainable Development: The construction of meaning within environmental reporting" *Working Paper 00-18 Aberdeen Papers in Accountancy, Finance and Management*

Burritt, R.L (2001) "Environmental reporting in Australia: Current practice and issues for future" *Green reporting Global trends and challenges for the Asia Pacific Countries seminar*, Management Research Institute, Chung-Ang University, South Korea, November 30th

Cheung, W.M and Huang, W (2000) "An objective assessment of commercial usage of the World Wide Web" Proceedings of 4th Pacific Asia Conference on Information Systems (PACIS 2000), Hong Kong, June pp. 115-125

Craig, R, Garrott, L and Amernic, J (2001) " A "close reading" protocol to identify perception-fashioning rhetoric in web site financial reporting: The case of Microsoft" *Accounting and the Public Interest* Vol. 1, No. 1, pp. 1-16

Craven, B.M and Marston, C.L (1999) "Financial reporting on the Internet by leading UK companies" *European Accounting Review* Vol. 8, No. 2, pp. 321-333

Craven, B.M and Otsmani, B (1999) "Social and environmental reporting on the Internet by leading UK companies" *Paper presented at the European Accounting Association (EAA) Annual Conference, Birmingham*

Deegan, C. and Rankin, M (1999) "The environmental reporting expectations gap: Australian evidence" British Accounting Review Vol. 31, pp. 313-346

De Maeyer, D (1997) " Internet's information superhighway potential" *Internet Research: Electronic networking applications and policy* Vol. 7, No. 4, pp. 287-300

Donaldson, T and Preston, L.E (1995) "The Stakeholder Theory of the Corporation: Concepts, Evidence and Implications" *The Academy of Management Review* Vol. 20, No. 1, pp. 65-91

Doost, R. K (1999) "Advances in accounting and communication – a historical review" *Managerial Auditing Journal* Vol. 14, No. 8, pp. 438-441

Elkington, J (1997) Cannibals with Forks: The Triple Bottom Line of 21st century business UNEP/Sustainability

Elliot, S.R, Morup-Petersen, A.S, and Andersen, N.B (2001) "Towards a framework for evaluation of commercial website" *Proceedings of Electronic Commerce : The End of Beginning*, 13th international Bled E-Commerce, Solvenia, June.

Environment Australia (2000) A Framework for Public Environmental Reporting: An Australian Approach Commonwealth of Australia

Ettredge, M, Richardson, V.J and Scholz, S (2001) "The presentation of financial information at corporate Web sites" International Journal of Accounting Information Systems Vol. 2, pp. 149-168

European Commission (EC) (2001) Commission Recommendation of 30 May 2001 on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies, Official Journal of the European Communities

Fayers, C (1998) "Environmental Reporting and Changing Corporate Environmental Performance" *Accounting Forum* Vol. 22 No. 1 June. pp. 74-94

Financial Accounting Standards Board (FASB) (2000) Business Reporting Research Project: Electronic Distribution of Business Reporting Information Steering Committee Report Series

Global Reporting Initiative (GRI) (2000) Sustainability Reporting Guidelines on Economic, Environmental and Social Performance Interim Secretariat GRI Boston, MA, USA

Gowthorpe, C and Amat, O (1999) "External reporting of accounting and financial information via the internet in Spain" *European Accounting Review* Vol. 8, No. 2, pp. 365-371

Gray, R.H (2000) "Current developments and trends in social and environmental auditing, reporting and attestation: A review and comment", *International Journal of Auditing*, Vol. 4, No. 3, pp. 247-268

Gray, R.H (2001b) "Thirty years of social accounting, reporting and auditing: what (if anything) have we learnt?" *Business Ethics*: *A European review* Vol. 10, No. 1, pp. 9-15

Gray, R.H and Bebbington, K. J (2001) *Accounting for the environment* 2ⁿᵈ edition Sage London.

Gray, R.H and Bebbington, K.J (2000) "Environmental accounting, managerialism and sustainability: Is the planet safe in the hands of business and accounting?" *Advances in Environmental Accounting and Management*, Vol. 1 No. 1 p. 1-44

Gray, R.H. (2001a) "Social and environmental responsibility, sustainability and accountability: Can the corporate sector deliver" *Paper for presentation at the CPA Australia and Accounting and Finance Research Unit of Victoria university seminar on 9 July, 2001 in Melbourne, Australia.*

Gray, R.H; Dey, C; Owen, D.L; Evans R and Zadek, S; (1997) "Struggling with the praxis of Social Accounting: Stakeholders, Accountability, Audits, and Procedures" *Accounting, Auditing, and Accountability Journal*, Vol. 10, No.3, pp. 325-365

Isenmann, R and Lenz, C (2001) "Customized Corporate Environmental Reporting by Internet-Based Push and Pull Technologies" *Eco-Management and Auditing* Vol. 8, pp. 100-110

Jones, K and Walton, J "Internet-Based Environmental Reporting: Key Components" in Bennett, M, James, P and Klinkers, L eds (1999) *Sustainable Measures*: *Evaluation and Reporting of Environmental and Social Performance* Greenleaf Publishing UK.

Jones, K, Alabaster, T and Hetherington, K (1998) "Virtual environments for environmental reporting" *Greener Management International* Vol. 21, Spring, pp. 121-137

Jones, K, Alabaster, T and Hetherington, K (1999) "Internet-Based Environmental Reporting: Current Trends" *Greener Management International* Vol. 26, Summer, pp. 69-90

Li, X and Huang, W (2001) "On the assessment of Commercial Website – An Expert Systems Approach" *Proceedings of the Twelfth Australasian Conference on Information Systems* pp. 369-379

Lin, X (1999) "Efficiently computing frequent tree-like topology patterns in a web environment" Proceedings of the 31 IEEE International conference on technology of object-oriented languages and system TOOLS31) pp. 440-447

Liu, C, Arnett, K.P, Capella, L.M and Beatty, R.C (1997) "Websites of the Fortune 500 companies : Facing customers through homepages" *Information and management,* Vol. 31, No. 6pp. 335-345

Lymer, A, Debreceny, R, Gray, G.L and Rahman, A (1999) *Business Reporting on the Internet* A Report Prepared for the International Accounting Standards Committee

Lymer, A.M (1997) "The use of the Internet for corporate reporting – a discussion of the issues and survey of current usage in the UK" *Journal of Financial Information Systems*

Lymer, A.M (1999) "The internet and the future of corporate reporting in Europe" *The European Accounting Review* Vol. 8, No.2, pp. 289-301

Lymer, A.M and Tallberg, A (1997) "Corporate reporting and the Internet – a survey and commentary on the use of the WWW in corporate reporting in the UK and Finland" *Paper presented at the European Accounting Conference (EAA), Graz, Austria, April 23ʳᵈ to 25ᵗʰ*

Neu, D; Pedley, R.V; and Warsame, H (1998) "Managing Public Impressions: Environmental Disclosures in Annual Reports" *Accounting Organizations and Society* Vol. 23 No. 3 pp. 265- 282

Owen, D.L, Gray, R and Bebbington, J (1997) "Green Relevance: Cosmetic Irrelevance or Radical Agenda for Change?" *Asia Pacific Journal of Accounting* Vol. 4, No. 2, pp. 175-198

Pirchegger, B and Wagenhofer, A (1999) "Financial Information on the Internet: a survey of the homepages of Austrian companies" *European Accounting Review* Vol. 8, No. 2, pp. 383-395

Tilt, C.A (2001) "Environmental disclosures by Australian Companies: what is happening outside the annual report" *Proceedings of the Asia Pacific Interdisciplinary Research in Accounting (APIRA) Conference July 15th-17th*.

Thornburg, D. D (1995) "Welcome to the communication age" Internet Research: Electronic networking applications and policy Vol. 5, No. 1, pp.64-70

Trites, G.D (1999) "Issues in Electronic On-line Financial and Business Reporting" Paper presented at the 28th Annual Atlantic Schools of Business Conference October 30 – November 1

UNEP/Sustainability (1999) *The Internet Reporting Report* Engaging Stakeholder Series UNEP

UNEP/Sustainability (2001) *Virtual Sustainability* Engaging Stakeholder Series UNEP

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* Vol. 10, pp. 1-14

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* Vol. 10, pp. 1-14

Williams, S.M and Pei, C.H.W (2000) "Corporate Social Disclosure by Listed companies on their web sites: An international comparison" *International Journal of Accounting* Vol. 34, No. 3, pp. 389-419

World Business Council for Sustainable Development (WBCSD) (2001) "Stakeholder Dialogue : The WBCSD's approach to engagement" WBSCD

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