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**Corporate Perceptions of Web Based Environmental  
Communication: An Exploratory Study into Companies in the  
Australian Minerals Industry**

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# **Corporate Perceptions of Web Based Environmental Communication: An Exploratory Study into Companies in the Australian Minerals Industry**

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## **Abstract**

*This study seeks the views of environmental and communication managers in three mining companies on the use of the World Wide Web (Web from this point onwards) for environmental communication. Prior literature on web based environmental communication has a primary emphasis on the content of environmental disclosure on websites. It is highlighted in this paper that one must move beyond merely analysing websites for environmental information in order to gain an in-depth understanding of the practice of web based environmental communication. However, very few studies to date have sought the opinions of corporate executives on the web based environmental communication practice of their companies. This study addresses this gap in the literature by obtaining “first hand knowledge” of web based environmental communication in Australia’s minerals industry through its interviews.*

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## **Introduction**

Environmental issues have risen to prominence over the last decade (see for instance, Moore et al, 1996, Theodore and Theodore, 1996, Steffen et al, 2004). Companies have acknowledged the importance of managing environmental impacts and communicating with their stakeholders in relation to environmental issues (Gray 2001, Gray and Bebbington,

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2001). Consequently, environmental accounting is an integral component of business processes, with an emphasis on environmental management as well as environmental communication (see for instance, Schaltegger and Burritt, 2000, Gray and Bebbington, 2001).

In parallel with the increasing importance of corporate environmental issues, information and communication technology has also had a fundamental role in corporate activity (Brynjolsson and Hitt, 2000, Gregor et al, 2004). This has been accompanied more recently by an increase in the use of the Internet, especially its World Wide Web feature (see for instance, Applegate et al, 1996, Feher and Towell, 1997). In addition to its electronic business potential (Applegate et al, 1996, Zwass, 1996, Earl and Khan, 2001), the Web provides potential to businesses for enhancing the communication process (De Maeyer, 1997)

Organizations have moved from providing a single paragraph summary of environmental issues in annual reports to preparing detailed environmental reports and communicating through electronic media such as the Web. Guidelines such as the global reporting initiative have been developed to encourage companies to communicate environmental issues (GRI, 2002). These indicate that environmental communication is now a critical component of a business's corporate communication process. In recent times, companies have recognised the benefits of communicating through the Web, leading to its increased use for environmental communication (UNEP, 1999, 2001, ACCA, 2001). Literature has also emerged examining the content of environmental disclosure on websites. However, as evident in the next section, an in-depth understanding of the use of the web by companies is lacking. This study seeks to address this gap in the literature by focusing on the web based environmental communication practice of specific companies in a particular industry, the Australian minerals industry. Focus is on corporate perceptions of web based environmental communication rather than examining environmental disclosure content on websites. Before describing this study in detail, the next section highlights the extent to which the current study contributes to the web based environmental communication literature.

## **Prior Literature**

There is immense literature on web based environmental communication. A majority of these studies are general in that they focus on a large number of companies in a range of industries, and have focused primarily on environmental disclosure on corporate websites. Moreover, there is limited literature on corporate perceptions of web based environmental communication. The "earlier" literature on web based environmental communication such as Craven and Otsmani (1999), UNEP (1999) and Williams and Pei (2000) indicated that the

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larger companies and those operating in developed countries are more likely to use the web for environmental communication. More recent literature has looked specifically at larger companies operating in the developed world. These studies include UNEP (2001), Patten (2002), Rikhardsson et al (2002), Patten and Crampton (2003) and Andrew (2003). The common finding to most of these studies is that companies are not fully utilising the web extensively for environmental communication.

Unerman and Bennett (2004) is a study which has indicated that in addition to environmental reporting, companies can also use the web for enabling stakeholder dialogue. The authors examined Shell's global stakeholder dialogue which was enabled through its discussion forum feature on its website. They indicate that the Web does enable stakeholders to engage in democratic debates with companies.

Jones et al (1999) carried out an extensive study of the web based environmental practice of global companies. This involved an analysis of the websites of 275 companies as well a survey of 100 environmental managers, seeking their views on the use of their website for environmental communication. Their findings suggested that companies were not fully utilising the Web for environmental communication.

Adams and Frost (2004) undertook a comprehensive study of web based environmental communication in Australia, United Kingdom (UK) and Germany. They analysed websites, sent surveys to corporate managers and also held interviews at specific companies. The authors suggested that there was limited use of websites for environmental communication, companies did not have strategic considerations for the use of the Web as a communication medium and website development was restricted. Several suggestions were put forward to improve web based environmental communication.

An analysis of the prior studies on web based environmental communication indicates that there are several gaps existing in current literature. Apart from the Unerman and Bennet (2004) study, most of these studies are general and provide aggregated results. A specific understanding has not been developed of web based environmental communication in a particular context. The situation in a particular industry may differ from the general findings of prior literature. Studies of a particular context have the potential to expand our understanding of present practices, providing useful analytical generalizations (Yin, 2003) that a case study approach seeks to provide<sup>1</sup>.

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<sup>1</sup> Further discussion on the use of case study as the research strategy for this study is provided later in the paper.

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Most prior literature on web based environmental communication has also focused primarily on environmental disclosure on websites. There is a need to go further than this and to explore the corporate perceptions of web based environmental communication. This can provide an in-depth understanding of corporate intentions of the use of the web as well as their experiences in relation to this practice.

It is also clear from the discussion of prior literature here that most web based environmental communication literature does not have a theoretical foundation, largely due to the “newness” of this area. However, legitimacy theory has been used in most prior literature on environmental reporting (Deegan, 2002). This study will attempt to seek whether the findings of this research subscribe to this theory and whether the use of a particular medium to facilitate environmental reporting requires an expansion to current level of theorization.

## **The current study**

### **Overview**

This study extends prior research on web based environmental communication by seeking the views of corporate managers on web based environmental communication in an environmentally sensitive industry, the Australian minerals industry. It focuses on three companies in this industry which were found to be extensively utilising the web for environmental communication. The intention is to gain an in-depth understanding of the use of the web by companies in an industry which could benefit significantly from utilising the web for environmental communication.

The selection of companies in the minerals industry for this study is based on their highly visible environmental impacts, which often leads to an increasing need to communicate with stakeholders in relation to environmental issues (Christopher et al, 1998, IIED, 2002, MMSD, 2002, Peck and Sinding, 2003). Therefore, the critical importance of environmental communication in this industry suggests that companies can benefit from an efficient environmental communication process. As previously discussed elsewhere, the Web has the ability to facilitate an efficient environmental communication process, largely due to its capabilities such as timeliness, accessibility, improved presentation and organization, and interaction (Lodhia, 2004). Therefore, it is of both academic and practitioner interest to explore the use of the Web in an industry which has an increasing need to efficiently communicate with its stakeholders in relation to environmental issues. The views of the communications and environmental managers of three companies in the Australian minerals industry were obtained in order to gain “first hand” knowledge of current practices.

As the emphasis of this study is on gaining an in-depth understanding of the web based environmental communication practice of specific companies, the case study approach (Yin, 2003) was the most viable research strategy for this project. It is the analytical generalizations that can be derived from this research that are important and thus, the study focuses on the practices of specific companies rather than attempting to establish general findings. Thus, the research focused on analytical generalisations as opposed to statistical generalizations (Ibid), justifying the choice of a limited “sample” of companies for this research. Environmental disclosure on websites was used in the first place to identify specific companies for this research. The websites of companies in the Australian minerals industry were examined over a period of time and it was found that there were six companies that seemed to be utilising their websites extensively for environmental communication. Two of these companies are multinational corporations (MNCs) which had their headquarters in foreign countries. They were eliminated from the study because emphasis was on those companies which had their key decisions being made within Australia and which had mainly “Australian based” content on their websites. One other company was in voluntary administration at the time of this research and was also eliminated from this study. This left the research to three companies which are referred to as Companies A, B and C in order to protect their identity. Their details are provided in Table 1. As evident from the table, the study covers three very different companies; a local company, a former local company and a local multinational. Thus, selection of these companies enables a range of different views to be obtained for this research, providing useful insights into current practices in a particular context.

**Table 1: An overview of companies used for the case studies**

Company	Details
A	<ul style="list-style-type: none"> <li>• A local company that has been the leader in environmental reporting in Australia.</li> <li>• Has its own website and its headquarters is based in Australia.</li> </ul>
B	<ul style="list-style-type: none"> <li>• A former local Australian company which was recently taken over by a US corporation. While it is regarded as a local branch of this company, it still retains its Australian management and a lot of its environmental communication processes have remained the same.</li> <li>• Has its own Australian website, which is also linked to its parent company’s global website.</li> </ul>
C	<ul style="list-style-type: none"> <li>• A former Australian MNC, which merged with a foreign MNC recently. It has its headquarters in Australia.</li> <li>• Has a global website with an extensive Australian representation on this.</li> </ul>

Semi-structured interviews were held with appropriate personnel in the three companies. The responsibilities of each interviewee towards web based environmental communication in their organization are outlined in Table 2.

**Table 2: Profile of Interviewees**

<b>Interviewee</b>	<b>Position</b>	<b>Job responsibilities in relation to environmental communication</b>
A1	General Manager – Environment, Health, Safety and Social Development	Manages the web based environmental practice of the company
A2	Public Affairs Manager	Assists the environmental staff in web based environmental communication by placing information on the website and managing their website.
B1	Manager – Communications	Used to coordinate the public environmental reporting process. Now has to liaise with headquarters.
B2	Manager Environment	Assists the general manager environment with environmental reporting
B3	General Manager – Environment	Provides environmental information for reporting purposes.
C1	Vice-President – Sustainable Development	Has the overall responsibility for environmental communication in web based and hard copy form.
C2	Web Content Manager	Places environmental information on websites and manages the corporate website.

Interviews were initially held with the environmental/sustainable development manager of each company (Interviewees A1, B2 and C1). In the case of company B, an interview was also held with the communication manager, due to her critical role in the company's environmental communication practice. These interviews primarily sought to gain an understanding of the role of the corporate website in the company's overall communication process.



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The second phase of the interviews involved the same individuals from the initial phase as well as communication personnel. Communications staff were identified in the initial interviews as “other” key personnel involved in a company’s web based environmental communication practice. These interviews sought to obtain an in-depth understanding of the current web based environmental communication of the three companies.

This study provides initial insights into three major themes; the web based environmental communication practice of the companies; the benefits and challenges to use of the web for environmental communication when compared to use of print media; and the socio-political context for web based environmental communication.

## **Findings**

### *Web based environmental communication practice*

The web based environmental communication practice of the three companies was analysed by ascertaining the role of the corporate website for environmental communication and identifying the personnel involved in this practice. Details are also provided on web based environmental communication processes and the impact this form of communication had on the overall environmental communication practice of the company.

### **Role of Corporate Website in Environmental Communication**

All these companies utilise the Web for their environmental communication but they are at different stages of web based communication. Company A appears to be the leader with a focus entirely on web based environmental communication in future (a brief summary of environmental performance will be available in annual reports due to the legislative requirement of section 299(f) of Corporations Law). On the other hand, company B sees the website as a vehicle for hosting documents and providing other general environmental information. Company C lies between these extremes, and utilises the website for providing detailed environmental information and having summary information in hardcopy form.

It appears that Company A was seeking to utilize the benefits provided by the web for environmental communication. The interviewees indicated that they perceive the web as an effective tool for gaining an understanding of the way stakeholders were utilizing the environmental information communicated to them. This provided an indication of the use of specialist software by the company for assessing trends in the use of the web for environmental communication. Moreover, the interviewees were also wary of the ability of the web to provide timely information, with the company expected to undertake continuous

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reporting in future. Indeed, a few weeks after the first interview, Company A moved to a web portal approach for its environmental communication with emphasis being on providing “live” environmental information on its website.

Interviewee A1 mentioned that the company had a leadership role in relation to environmental communication. Being one of the first companies in Australia to undertake environmental reporting, the company was expected to also play a leading role in the next wave of environmental reporting; web based environmental communication. Therefore, the company realized the potential of the web for environmental communication and aspired to set an example to other companies in the industry by undertaking a web based continuous environmental reporting strategy.

Company B perceived the potential of the web in relation to its accessibility benefits. Its environmental communication is primarily through its periodic sustainability reports and the website merely hosts these documents as well as providing limited additional environmental information. Interviewee B2 remarked that even though the web was a useful medium for environmental communication, it was not the only medium. It seems that personnel at company B were conscious of possible limitations associated with web based technology and were therefore reluctant to move to a primary web based environmental communication strategy.

Company C is cognisant of the changing nature of environmental communication and is seeking to incorporate the use of the Web into its communication activities. The company also realizes that other companies in the industry are moving towards such a form of communication. Its strategy in relation to the use of the web is to provide detailed environmental information on a web portal and to have a summary hardcopy report mailed to stakeholders. Therefore, the website stores extensive environmental information for those stakeholders that may require further details on their environmental performance.

### **Personnel Involved in Web Based Environmental Communication**

Web based environmental communication is a multi-disciplinary approach. The key personnel involved are the environmental (or sustainability) staff, together with the corporate communications staff. Environmental personnel include those at both the site level as well as those at the corporate level who aggregate the environmental information. Staff involved in corporate communications are usually those who are competent in website design as well as those involved in general communications. They ensure that the information to be

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communicated is in a form that is understood by all stakeholders. In addition to these parties, the legal team plays a role in relation to the vetting of information. For periodic reporting, the board of directors may also be involved in signing off the information to be communicated.

As Company B is a branch of a multinational, the information to be communicated on the website has to go through the headquarters in US where similar processes are involved before information can be released on the website.

In Company A, Interviewee A1 in his position as the environmental manager was in charge of the overall web based environmental communication process while Interviewee C1 as the vice-president, sustainable development was involved in overseeing environmental communication through the Web. For company B, Interviewee B1, the corporate communications manager played a vital role in the web based environmental communication practice, a role that extended beyond merely providing support to the environmental manager. She actually coordinates the environmental communication practice. These are the personnel who have the authority to approve ad-hoc changes to the environmental content on websites.

### **Web Based Environmental Communication Processes**

The use of the Web for environmental communication within an organization involves a formal process. Environmental and communications sections of a company play a vital role in this regard. The corporate environmental personnel need to create environmental information for communication purposes and this involves liaising with environmental managers at the various sites. This information needs to be passed to corporate communications where staff are involved in converting this information for communication purposes. Consideration is also given to how the Web can be used to communicate this information and this could involve consultation between the environmental/sustainability manager and the communications manager. Internal approvals and a vetting process follow these processes. These are likely to be more stringent for periodic reporting while for ad-hoc reporting, these processes could be expedited with the environmental manager having authority to authorise information changes on websites in relation to environmental issues.

For Company A, given its decision to undertake continuous reporting, the processes and guidelines for what has to be reported are in development stages. The personnel are aware of the need to regularly communicate environmental information and to update this, but given the fact that such reporting is no longer ad-hoc, there is a need to clearly delineate and codify the actual activities involved in web based environmental communication. There is also the issue of verification of information on the websites and the company is exploring ways in

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which verification for continuous reporting can be undertaken. A possible avenue that they have considered is to “freeze information on the Web portal” at the end of the year and verify this information. Thus, web based environmental communication is a learning process for Company A, being one of the early adopters of continuous web based environmental communication.

For Company B, in addition to the routine processes for web based environmental communication, the headquarters in US plays an instrumental role in relation to what appears on the website. Information to be communicated on websites is referred to their sustainability section and goes through a vetting process as well. This issue has been clearly articulated by Interviewee B3:

*“There is a strong push from (headquarters) to stop regional offices from having their own websites and to have their own reporting. Part of why this has happened is that with the takeover, we are a global company and have single set of values and culture.”*

(Note that the location of the headquarters of the parent company has been withheld)

In Company C, the preparation of the web based portal for its annual sustainability report involves a project team which includes the environmental personnel, communications staff as well as outside contractors who are in charge of designing this portal. The vice-president sustainable development (Interviewee C1) coordinates the process of preparing this report and the team agrees upon the way in which the information should be communicated on the Web portal. For ad-hoc reporting, all requests for environmental information to be put on the website goes through Interviewee C1 who initiates changes on the website and instructs the Web content manager (Interviewee C2) to upload environmental information on the corporate website.

### **The Web and Environmental Communication**

All interviewees contended that the Web had changed the process of environmental communication. They saw the Web as an efficient medium for communicating their environmental performance. There was also mention of the fact that companies had amended their existing environmental communication practice to take advantage of this phenomenal technology for information dissemination. Interviewees perceived that the Internet would rise to prominence in the future and most companies will utilise this mechanism. Some of these views are expressed in the following quotes:

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*“It has changed the format and it has allowed us to fundamentally change our point in time reporting to continuous reporting. For example, indicators on non-compliance on a daily basis, injury data on a quarterly basis, etc.*

*I think our experience with web based reporting is similar to text based reporting in the 1990s where we were learning what do with it and how to do it. This is similar to financial reporting on the Web.*

*A lot of companies have merely posted reports on websites. They haven’t taken the next step about what is it about the Internet and what special features does it have that we could report better. But this will happen soon – be it 2 years or 10 years.”*  
(Interviewee A2)

*“ I think there is much more information reported nowadays because it is easier, cheaper and more dynamic to put information on the Web than to print a hardcopy.*

*And I think it is also because of the Internet that people’s demand for information is greater. Now they expect more information. Previously, they were happy with a single paragraph in an annual report but with the Web, there are no limitations of space.”*  
(Interviewee B1)

*“Yes, it has. We now present most of our information on the Web and the summary in hardcopy so that is a significant change.”*  
(Interviewee C1)

#### *Benefits and challenges to web based environmental communication*

The benefits of the use of the Web for environmental communication over print media focused primarily on its accessibility features (mass communication), its timeliness, and its presentation and organization tools. Terms such as ability to reach a wider group of people, updateability and flexibility were frequently cited. Mention was also made of Web tools such as log analysis software and multimedia. In addition to these technological benefits, non-technological benefits were mentioned. It was stated that the Web was a cost effective approach towards environmental communication in the long run when compared to print media.

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Whilst the interviewees acknowledged the various features of the Web that enable efficient environmental communication, the interactive capabilities of the Web was not mentioned. It seems that companies are either not aware of ways in which the Web can facilitate interaction with stakeholders or they are reluctant to interact with stakeholders electronically.

Interviewees at all the companies did mention that access to the website was an issue that concerned them and that print media was in some instances more accessible to certain stakeholders. They were concerned with the digital divide and acknowledged that it was an issue that needed to be managed if web based environmental communication was to realize its “full” potential.

Most of the interviewees also mentioned that print media was also a preferable tool for some stakeholders. Interviewee A1 however stated that such limitations were not always critical, given that the distinction between the Web and print media is not as rigid. Documents from the Web can be easily printed.

Security of websites and authenticity of information on them was another issue that concerned companies. However, two of the companies did mention that they have stringent procedures in place to deal with these issues and therefore, these did not impede their web based environmental communication practice.

Use of the Web versus conventional print media depended on balancing the benefits of Web usage with its access and preference limitations. The Web was also seen as a useful medium for communication to a range of general audiences. Interviewees acknowledged that web based environmental communication was a totally new phenomenon and that its use for communication was a gradual learning process for them. They were optimistic that the problems associated with the Web could be overcome in time to come. Thus, all three companies were keen to utilise the Web for environmental communication but as indicated earlier, their actual usage varied extensively between them.

#### *Socio-political context for web based environmental communication*

It was ascertained from the interviews that web based environmental communication is not merely a technological issue. This practice has a socio-political context in addition to its technological perspective. Companies have specific socio-political motivations in relation to web based environmental communication.

The motivations for the use of the Web for environmental communication for all three companies centered on the technological benefits provided by the Web as a communication

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medium and its cost beneficial advantage. These have already been discussed in the previous section. Moreover, a critical issue that emerged from the interviews was that the Web allowed companies to gain support of stakeholders by communicating environmental information efficiently through websites. Terms such as being transparent, a beyond compliance approach, reputation and the social license to operate were widely used throughout the interviews. This suggests that the technological benefits provided by the web can be used by companies to communicate to their stakeholders that they are being environmentally conscious. Thus, even though the technology (Web) is an enabler for the environmental communication process, web based environmental communication is driven by the socio-political context. Stakeholders influence the web based environmental communication practice of companies.

Interviewee A1 indicated that the company seeks the support of opinion leaders, environmental groups and shareholders by communicating through the Web. Opinion leaders such as social responsibility analysts were also identified as having an important impact on the company's environmental communication. These provide advice to potential shareholders who may be interested in ethical investments. Thus, these analysts require detailed information on environmental issues associated with the company, and by having an extensive representation of environmental information on websites, Company A is able to portray itself as an environmentally conscious company. Similarly, the company targets its shareholders and environmental groups through its Web disclosure, seeking their support for their continuing "license to operate".

Company B relies on its hardcopy reports for stakeholders to choose the level of detail they require. General environmental issues are provided in the overview document while reports on individual sites are available to those with specific interests in the environmental performance of mine sites. As mentioned earlier, the website merely hosts these documents.

Interviewee C1 indicated that the company carried out a survey of its stakeholders in 2003 in relation to its annual sustainability report, and found support to a move towards web based communication from stakeholders. The company's 2003 social and environmental report also mentioned this. This led to the company's present approach towards environmental communication. It regards the summary hardcopy report as being directed to "general stakeholders" while those who are concerned with specific environmental information can refer to their website. For instance, social responsibility investment analysts are sent a printout of the entire report. Other stakeholders can also email the company and ask for a printout of the Web portal to be mailed to them.

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## Discussion

These initial findings provide useful insights into the current web based environmental communication practice of specific companies in the Australian minerals industry. They have implications for both research and practice, providing an improved understanding of web based environmental communication.

It appears from these findings that web based environmental communication is a learning process for companies and its rise at the turn of the century closely resembles the prominence of environmental reporting in the early 1990s. Web based environmental communication has resulted in organizational change. Companies are looking at ways in which they can utilise the Web for an efficient environmental communication process. They have incorporated most of its benefits into their environmental communication process. These include making their environmental information accessible to a wide range of stakeholders, improving the presentation and organization of existing environmental information communicated on websites, and in the case of company A, undertaking continuous reporting. However, even though these companies use their websites for tracking stakeholders and getting feedback from stakeholders, the interactive capabilities of the web are not fully utilised. It is these capabilities of the web that enable environmental communication as opposed to environmental reporting. The interviews have highlighted that the technological benefits of the web enable companies to gain the support of their stakeholders through an efficient environmental communication process. Thus, the socio-political context for web based environmental communication is as critical as the technological benefits provided by the Web.

Company A's experience in relation to web based environmental communication provides useful insights to other companies that may seek to use the web extensively for environmental communication. The company has decided to use the web strategically for environmental communication and undertake continuous reporting. It now relies primarily on the web for its environmental communication. On the other hand, Company C also relies extensively on the use of the web for environmental communication but uses the web as a complement to print media for environmental communication.

The findings from the interviews at Company B provides insights into an issue that has not been discussed in prior literature. It is clear that the takeover of the Australian company by a US company has had an impact on its environmental communication. As websites are global, a multinational needs to ensure that environmental communication for the entire group is consistent. The downside to this is that local companies will not have the



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flexibility in environmental communication that they previously enjoyed. Local stakeholders may not enjoy the same level of communication that they previously had with the company. Global environmental communication differs from local communication and therefore, global representations may not be of any value to those stakeholders who are affected by the local operations.

There are certain challenges that the three companies face and these are critical issues that need to be addressed in practice if the full potential of the web is to be realized for environmental communication. While the web is accessible to a lot of stakeholders, there may also be certain stakeholders that do not have access to it. This is particularly the case for local communities at mining sites. Therefore, the accessibility of the web to everyone and alternative means of communicating with those in remote locations need to be considered. The information technology literacy of stakeholders and their preference for the form of communication also needs to be considered. Moreover, authenticity of information on websites can always be questioned due to security issues and the lack of regulation governing the Internet.

The present study does suggest that companies are utilising the web for environmental communication in order to appear legitimate to their stakeholders. However, it is the medium that is the facilitator for environmental communication and therefore, there is need to extend the current theorization of environmental communication processes. Theories that focus on the use of particular medium are needed to provide a broader understanding of present environmental communication processes. Essentially, one must consider that web based environmental communication is a socio-technical process, and therefore theories should focus on the technological (medium) as well as the socio- political context for environmental communication.

This study suggests that companies are slowly moving towards utilising the web extensively for environmental communication. The web could play fundamental role in an organization's corporate environmental communication process, changing existing communication processes. Therefore, we need to move beyond annual report studies and consider the medium for environmental communication. Furthermore, there is also a need to go further than merely analysing environmental disclosure in reports or websites. Interviews with corporate executives could provide useful insights into corporate strategies for environmental communication.

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