US Resource Company Environmental Disclosure
Practices: What, Where And How?

Abdul Razeed¹, Greg Tower², Phil Hancock³ and Ross Taplin⁴

Abstract
This study examines the voluntary environmental reporting practices of US companies over five mediums namely, hard copy annual reports, hard copy environmental reports, internet annual reports, internet environmental reports and additional environmental disclosures on the Internet of 135 US resource companies listed on the New York Stock Exchange over the 1999-2000 fiscal year. These resource companies were chosen on the basis of their operations having a very large impact on the environment.

The results of this study indicate that US resource companies on average disclose low levels of environmental information in all mediums examined. The majority of US resource companies primarily adopt hard copy annual reports and internet-based annual reports to report environmental disclosures and hence fail to exploit the power of other mediums for environmental disclosures. This study attributes the conservative levels of environmental disclosure on different motivations that US resource companies have in disclosing in different mediums.

1. Introduction
Many studies (see for example, Guthrie and Parker, 1989; Jaffar, Mohd. Iskandar and Nordin Muhamad, 2002) have noted the growing popularity and importance of Environmental Reporting. Voluntary environmental reporting is one way to communicate effectively with stakeholders and also in building trust and loyalty and thereby contributing to business performance (Wheeler and Sillanpaa, 1998). Environmental information may be produced in annual reports, as separate environmental reports or disclosed on the Internet.

Traditionally hard copy reports have been used to disseminate the environmental performance of companies but many companies are realizing that simply using pa-

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per-based environmental and social reports do not build sufficient ‘value’ with key stakeholders (Ball, Owen and Gray, 2000). This sentiment was echoed by Tilt (2001) who noted that there is no evidence that the annual report is the most appropriate medium for environmental disclosure. Prior studies (such as Patten, 1992; Environment Resources Management Malaysia, 2002) have focused solely in hard copy environmental report and hard copy annual report disclosures. This is despite several studies (such as Isenmann and Lenz, 2001) noting that different mediums reach different stakeholders. They argue that a variety of communication vehicles are necessary and not a single report. The study addresses the following research question: “What explains the environmental disclosure practices of US resource companies”?

This study is important for several reasons. Jones and Xiao (2003) reported that the majority of the experts were of a view that the Internet will become increasingly important in disseminating corporate information in the near future. Secondly, this study provides an analysis of the state of environmental disclosure prior to the introduction of the Securities and Exchange Commission mandated online reporting in 2003 and examines whether such mandated regulation is necessary. Thirdly, Wheeler and Sillanpaa (1998) noted that effective communication with stakeholders is a powerful way of building trust and loyalty and thereby contributing to business performance. This study provides evidence as to the nature of environmental information shown on selected US company’s websites. The findings of the study will both update the conclusions of extant literature and will serve to provide a better understanding of the choice of disclosure medium for the dissemination of environmental information. Fourthly, environmental information may be produced by companies in annual reports, environmental reports and/or on the Internet. This study provides an analysis of the extent of disclosure of environmental information in different media. Finally, several studies (see for example, Ward, 2000a, 2000b; Friedman and Miles, 2001) have noted that the mainstream financial community is becoming more interested in corporate environmental and social reporting. This study thus provides evidence on the extent of environmental information disclosed by companies.

2. Literature Review

2.1 Stakeholder theory

This study adopts stakeholder theory as its theoretical framework. Stakeholder theory is an organisation-centred theory (Roberts, 1992). This theoretical perspective considers corporations to have a number of different stakeholders, defined as "groups and individuals who can affect and are affected by the achievement of an organisation's mission" (Freeman, 1983, p.38). Organisations are thus responsible to
these stakeholders and rely upon their continued approval to maintain a successful operating environment (Roberts, 1992). Stakeholder theory concentrates upon defining factors influencing the continued existence of corporations.

2.2 Corporate social disclosure and voluntary environmental reporting

Corporate Social Reporting includes disclosure on corporate social and environmental activities by organisations themselves; in any medium; and in the form of financial, non-financial, quantitative and qualitative information (Gray, Kouhy and Lavers, 1995). Much of the prior studies have looked more broadly at Corporate Social Reporting. This includes human resource, energy, health/safety and product disclosures. Thus environmental disclosures are only a subset (Williams, 1998). This study focuses on the latter by examining the environmental disclosure practices of 135 US resource companies. Prior US studies had noted that resource companies disclose higher levels of environmental information than companies in other industries. However, the medium of observation has been confined primarily to annual report and environmental report disclosures. This is despite prior studies (see for example, Brignall and Modell, 2000; Cerin, 2002) noting that companies are showing differing environmental information in different mediums; and that stakeholders prefer corporate information disclosures in several mediums. This study expands this analysis by studying the environmental disclosures in several mediums. A selection of prior literature is discussed below.

The common thread amongst prior studies was that resource companies had provided greater levels of disclosure although the findings were confined mostly to annual report disclosures. This study looks at several mediums and aims to better understand the environmental practices of US resource companies.

2.3 Internet disclosure

Despite the vast advantages that the Internet provides, there is “an obvious lack of effort to conceptualize Internet use for corporate environmental reporting” (Isenmann and Lenz, 2001, p.188). This is echoed by Ashbaugh, Johnston and Warfield (1999) who noted that little is known about how firms use the Internet to disseminate corporate information. Other studies have noted that a growing number of companies are using the Internet for communicating corporate information. However, these studies also highlight that there has been little progress in online reporting. The online corporate reports are mainly replicas of hard copy annual reports in electronic format (see, for example, Debreceny, Gray and Rahman, 2002). This study fill this gap in extant literature by studying the environmental disclosure prac-
Allam and Lymer (2002) examined the type of information available on the Internet from 50 companies from 5 countries, namely, USA, UK, Canada, Australia and Hong Kong. Of particular relevance to this study are the findings of USA and Australian Companies’ websites. Of the 50 companies surveyed, 23 (46%) of US companies’ websites had environmental information. These are interesting albeit relatively low results despite Debreceny, Gray and Rahman (2002) noting that there are more Internet users in the US. We explore the environmental disclosure practices of US resource companies in different mediums rather than focusing on annual reports and on the Internet as examined by prior studies.

3. **Research Approach**

This study provides an analysis of the environmental reporting practices of US resource companies in hard copy and on the Internet. To facilitate this examination, we selected a sample of US companies that: (i) were listed on New York Stock Exchange; (ii) belong to an environmentally sensitive industry classified as chemical, mining and petroleum, and energy and utilities in this study; and (iii) have a functioning website. A total of 300 companies were first randomly chosen and of these 300 companies, 135 companies met the criteria described above. This is consistent with many studies that have adopted such an approach (see for example, Neu, Warsame and Pedwell, 1998). Addresses of companies selected from the above process were then obtained from hard copy business directories as well as from the World Wide Web Sources. Each company was then sent a letter of request for the English version of their annual reports of fiscal year-end 1999-2000 for US Companies. A further follow-up letter and e-mail was sent three weeks after the initial contact to canvass the annual reports of companies that had not responded to the first request.

3.1 **Disclosure Index**

Table 1 presents the environmental disclosure index used in this study to examine the environmental disclosure practices of US and Australian resource companies. The index was developed through careful analysis of a number of key studies (CERES, 1998; KPMG, 2002; UN CTC ISAR, 1991, 1992, 1994; BS-7750, 1996; Commonwealth EPA (Australia), 1996). Based on the environmental index in Table 1, a disclosure score-sheet was developed. Environmental disclosure in the different medium was then scrutinised for the disclosure/non-disclosure of the above items. Companies were rated '1' for disclosure and '0' for non-disclosure of the above information. A final overall ‘level of environmental disclosure' score was derived by aggregating the 20 individual items. Descriptive analysis and regression analysis are
undertaken to examine the environmental disclosure practices of US resource companies.

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<tbody>
<tr>
<td>1</td>
<td>Statement / Existence / Disclosure of Environmental Concern</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Steps taken to monitor compliance with policy statement</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3</td>
<td>Environmental Targets / Standards</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Performance against environmental targets</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>Structural and responsibility changes undertaken in the organisation to develop environmental sensitivity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Environmental Awareness Training</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Recognition of Government Regulations</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Presence of Environmental Department and Personnel</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Acknowledgement of impact of activities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Presence of Environmental Management System (EMS)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Environmental programs - Restoration / Rehabilitation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
4. Descriptive statistics

Table 2 below presents selected company characteristics of US resource companies. Of the 135 companies in this study, 21.5% (29) of US resource companies are involved in the Chemical Industry, 22.2% (30) are in the Mining and Petroleum industry whereas 56.3% (76) of US companies are classified as Energy and Utilities Companies. Companies in these environmentally sensitive industries have been found by prior studies (see for example Patten, 1992; Joshi and Al-Modhahki, 2003) to disclose higher levels of environmental disclosure. This study has thus chosen environmentally sensitive US companies to observe the environmental disclosures in different mediums.
<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets (million)</td>
<td>$65</td>
<td>$40,777</td>
<td>$9,075</td>
<td>$9,415</td>
</tr>
<tr>
<td>Economic Performance (%)</td>
<td>-28.0</td>
<td>81.0</td>
<td>8.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Leverage (%)</td>
<td>1.0</td>
<td>64.0</td>
<td>28.0</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Table 2: Selected characteristics of US Companies

Economic performance is measured through obtaining the ratio of Operating Profit (before interest and tax) and average total assets. The average US company has $9,075 million of total assets, economic performance of 8.9% and leverage of 28.0%. Further scrutiny of the data revealed that five US resource companies made a loss with average loss totaling -10.9%. Many of the listed US resource companies were also Fortune 500 companies and hence are larger in size than the average US company (Patten, 1992; Louwers, Pasewark and Typpo, 1996). This helps explain the noted characteristics.

Of the 135 US resource companies, 77.3% (101 companies) had not provided a separate environmental report. Of the 34 US (22.7%) companies that had provided a separate environmental report, nine companies had provided Internet-based environmental reports while 28 companies had provided hard-copy environmental reports. All nine Internet environmental reports were in PDF Format only. Three US resource companies (2.2%) provided both hard copy environmental reports and Internet environmental reports. It should also be noted that these three pairs of reports were replicas of each other. The small number of US resource companies providing separate environmental reports were also noted by recent studies such as Ljungdahl (1999), KPMG (2002), Branfeldt (2000); New Economics Foundation (2000). These studies noted a large drop in companies producing separate environmental reports in the US and England. Kolk (2001) calculated that 35% of the largest 25 Fortune 500 companies were producing environmental reports and an additional 32% disseminated environmental brochures or had environmental sections in their annual reports. Holland and Boon Foo (2003) found that only 39% of US companies had provided separate environmental reports. The latter study argued that the US companies were simply reporting on the mandated environmental disclosures and hence have not had the need to produce a separate environmental report whereas in the UK, 58% of companies produce environmental reports in a voluntary
environmental regime. The following section more closely examines the environmental disclosure of US resource companies.

5. Environmental disclosure practices

5.1 Environmental disclosure in hard copy reports

Figure 1 shows the regions of environmental disclosure in hard copy reports, namely environmental disclosure in: (i) annual report only (Region 1); (ii) environmental report only (Region 2); (iii) environmental report and annual report (Region 3); and (iv) no environmental disclosures (Region 4).

As mentioned in the previous section, of the 135 US resource companies, all companies have provided hard copy annual reports (Group 1); 28 US resource companies had provided both hard copy annual and environmental reports (Group 2); and 107 US resource companies had provided only hard copy annual reports and not environmental reports (Group 3). Table 3 below provides the disclosure levels of these groups of companies.
Figure 1 Environmental disclosure in hard copy reports

Table 3: Breakdown of environmental disclosure in hard copy reports

<table>
<thead>
<tr>
<th>Disclosed in hard copy annual reports only (Region 1) (%)</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>All US Resource Companies (n=135)</td>
<td>47.0</td>
<td>24.0</td>
<td>53.0</td>
</tr>
<tr>
<td>US resource companies that have provided hard copy annual and environmental reports (n=28)</td>
<td>6.7</td>
<td>32.2</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>US resource companies that have provided only hard copy annual reports (n=107)</td>
<td>4.5</td>
<td>21.8</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>total environmental disclosure (total of Regions 1, 2 and 3) (%)</td>
<td>58.2</td>
<td>78.0</td>
<td>53.0</td>
</tr>
</tbody>
</table>
It can be seen that on average US resource companies (Group 1 companies) had disclosed more environmental information in hard copy annual reports than in hard copy environmental reports. Of those companies that had provided environmental reports (Group 2), more environmental disclosure has been made in hard copy environmental reports (32.2%) than in hard copy annual reports (24%) alone. This was echoed by studies such as Gray, Kouhy and Lavers (1995) and Hedberg and Malmborg (2003). However what is perhaps worrying is that only 28 companies had provided separate hard copy environmental report for environmental disclosure. Wilmshurst and Frost (2000) noted that the annual report is a statutory report incorporating both statutory and voluntary disclosures. It is evident that more US companies have used this medium for environmental disclosure rather than producing costly separate environmental reports for dissemination of their environmental responsibility.

On average, US resource companies have provided only 58.2% of environmental disclosures. This is despite the fact that the environmental items examined in this study have been highlighted as crucial environmental disclosures by prior studies (such as CERES, 1998; KPMG, 2002; UN CTC ISAR, 1991, 1992, 1994; BS-7750, 1996; Commonwealth EPA (Australia), 1996; Bullough and Johnston, 1995). Such relatively low levels of environmental disclosure was also noted by several studies including KPMG (2002), Stanwick and Stanwick (2000) and Holland and Boon Foo (2003). These studies have noted disclosure levels of just over 50% by US resource companies.

5.2 Environmental Disclosure on the Internet

Figure 2 shows the number of companies disclosing environmental information on the Internet. Internet disclosure comprises of environmental disclosure in: (i) Annual Report Only (Region 1); (ii) Environmental Report only (Region 2); (iii) Internet Only (Region 3); (iv) All Internet (Region 4); (v) Annual Report and Environmental Report (Region 5); (vi) Annual Report and Internet Only (Region 6); vii) Environmental Report and Internet Only (Region 7); and viii) No environmental disclosure (Region 8).

Of the 135 US resource companies: all US resource companies have a functioning website (Group 1); 129 US resource companies had placed an Internet version of annual report online (Group 2); and 9 companies had provided an Internet version of the environmental report (Group 3). Table 4 provides the breakdown of companies disclosing on the Internet. Observing Table 4, a similar story to that of hard copy reports emerges. Nine companies (Group 3) that had provided both Internet Environmental and Annual Reports had provided the highest levels of environmental disclosure (79.4%). What is perhaps more interesting is that where companies have
provided annual reports online (Group 2), 42% of environmental disclosures were made in the annual report while a mere 1.5% and 5.7% of environmental disclosures were made in Internet Environmental Reports and on the Internet (other than in online annual or environment reports) respectively. This behaviour is consistent with hard copy report disclosures where the majority of disclosures are made in hard copy annual reports. A further point of interest is that while 28 resource companies provide hard copy environmental reports, only nine US resource companies make this report available on the Internet.

Figure 2: Environmental disclosure on the Internet
<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>All US Resource Companies</td>
<td>40.1</td>
<td>42.0</td>
<td>21.7</td>
</tr>
<tr>
<td>Disclosed in Internet annual reports only (Region 1) (%)</td>
<td>1.4</td>
<td>1.5</td>
<td>21.1</td>
</tr>
<tr>
<td>Disclosed on the Internet only (Region 3) (%)</td>
<td>5.9</td>
<td>5.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Disclosed in Internet annual reports, environmental reports and on the Internet (Region 4) (%)</td>
<td>0.5</td>
<td>0.6</td>
<td>7.8</td>
</tr>
<tr>
<td>Disclosed in both Internet Annual and Environmental Reports Only (Region 5) (%)</td>
<td>1.4</td>
<td>1.4</td>
<td>20.0</td>
</tr>
<tr>
<td>Disclosed in both Internet Annual Report and Internet only (Region 6) (%)</td>
<td>7.8</td>
<td>8.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Disclosed in both Internet Environmental Report and Internet only (Region 7) (%)</td>
<td>0.5</td>
<td>0.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Not disclosed on the Internet (Region 8) (%)</td>
<td>42.4</td>
<td>40.1</td>
<td>20.5</td>
</tr>
<tr>
<td>Total Environmental Disclosure (total of Regions 1, 2, 3, 4, 5, 6 and 7) (%)</td>
<td>57.6</td>
<td>59.9</td>
<td>79.5</td>
</tr>
</tbody>
</table>

Table 4: Breakdown of environmental disclosure on the Internet

With 72.9% of annual reports online available in the unfriendly PDF formats, it can be argued that users of online environmental information are indeed being short-changed by the US resource companies. A possible explanation for this disclosure behaviour may be that the companies are not fully exploiting the capabilities of the Internet. This has been noted by prior studies such as Debreceny et.al. (2002) and Stanwick and Stanwick (2000). Another possible reason for this behaviour may be due to the increased political visibility witnessed by US resource companies online. Internet provides a wider reach and hence provides access to a wider group of stakeholders than traditional hard copy reports that are often provided on request (Razeed and Tower, 2000; Lim and McKinnon, 1993). Companies are managing
this increased political visibility by providing less accessible environmental information online. Lymer and Tallberg (1997) noted that there is a fear of legal liability in online information disclosed due to its wider reach of stakeholders. It may that companies are disclosing in traditional reports (annual and environmental reports) for fear of persecution if information is shown outside these verifiable reports.

US resource companies are on average showing 57.6% of environmental disclosures on the Internet. This compares with 58.2% of environmental information shown in hard copy reports. These levels are not significantly different as environmental disclosures in hard copy annual reports and Internet-based annual reports account for much of the disclosures. However, these low levels of environmental disclosure are a worrying sign and as argued earlier by studies such as SustainAbility and UNEP (1996) and KPMG (2002), it may be US resource companies have indeed reached a bottleneck in their levels of environmental information and hence do not disclose higher levels of environmental information.

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