AN ANALYSIS ON INTERNET-SUPPORTED ENVIRONMENTAL REPORT USING THE APPROACH OF MEDIA RICHNESS THEORY
(Study on Mining Companies Registered in BEI)

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ABSTRACT

Mining industries are business entities that are highly sensitive towards environmental issues. The industries are expected to communicate the corporate environmental information to general stakeholders. The industries use internet as a medium for corporate communication. This study is aimed to find out the extent of the potentials of the internet utilization as a communication media for environmental report conducted by public mining companies in Indonesia. The study uses qualitative research method by conducting a media richness theory analysis.

The findings of this study indicate that currently, the potential of the web is not fully utilised by companies for environmental communication. Beneficial features of the internet to enhance the quality of corporate environmental communication process are still not been used by companies. Websites are more focused in maximizing internet features to communicate financial information to shareholders.

Keywords: Mining, Communication, Environmental, Internet

I. INTRODUCTION

The rapid development of information and communication technology for the past decade has opened up many new opportunities towards business development. Since it was first introduced, internet has becoming a popular medium of communication used widely across the globe. Internet is utilized by companies to disseminate various information about the company to stakeholders. As Supke et al.(2009) stated that companies are entering a new transitional stage of online reporting due to cross media availability and other innovative
opportunities offered by the internet. One of the information disclosed by companies in their official website is the sustainability report.

Before the emergence of the internet, companies used to report their sustainability performance in a traditional printed version. Companies had to spend more budget for printing purpose of the report and it had limited scope to disseminate widely. During the development of printed sustainability report, companies were having a challenge to satisfy many information requirements of their various stakeholders (Herzig and Godemann, 2010). By using the printed version, the company had tougher challenge because it had limited number of pages which only provide a snapshot of a given point of time. However the internet covers those disadvantages from the printed version where it is relatively cost lower, provide a large database of information, and other countless possibilities for sustainability reporting matter (Herzig and Godemann, 2010).

One of the fundamental activities of accounting is communication. Accounting is responsible to communicate the company’s financial or non-financial information to attract users (Weygandt and Kieso, 2010:5). As a communication medium, internet provides a more interactive, cross media, and other innovative possibilities to communicate and disseminate information (Supke et. al., 2007). To conceptualize the benefits offered by the web for environmental communication purposes, the Media Richness Theory can be utilised (Lodhia, 2006). The theory is the most widely applied theories of media use (Dennis et al, 1998).

Indonesia is a country that is rich for its natural resources that contribute to the national income. Mining commodities are produced in many areas around the nation. The main mining commodities that are being produced in Indonesian land include coal, copper, bauxite, nickel, iron ore, gold, etc. The mining industries benefit Indonesia. Besides, it contributes to the national economy in terms of GDP, also helps the development of rural areas where the mines are located (PWC, 2013). Since mining companies have strong influence especially towards the environment, they are expected to be responsible and accountable for their activities. Those, it is important to find out how companies in Indonesia maximize the potentials provided by internet in communicating environmental report with the approach of Media Richness Theory.

II. LITERATURE REVIEW

Environmental Reporting

There are various forms of corporate environmental reporting conducted by companies. The form can be included inside the sustainability report which is
combined with economic and social aspects, or stand-alone as one different report particularly discussing about the environmental aspect. Although the stand alone type of environmental report is quite distinctive with the sustainability report in term of the content, they both have the same principles and benefits.

In Indonesia, regulations have been made to protect the sustainability of the environment. UU No. 32 2009 on natural environmental protection and management stated about the environmental responsibilities of companies. Business entities are only given the permission to operate when they are not negatively effecting the natural environment. The Regulation of Natural Environment Minister No. 5 2011 is about Assesment Program of Company Performance Rating in Natural Environmental Management. In order to be assessed, companies need to conduct environmental report.

The corporate environmental communication provides evidence that companies are accountable for their activities and the resultant impact on the environment (Lodhia, 2006). As environmental issues are becoming more commonly discussed, stakeholder pressure acts upon companies in a couple of different forms (Schaltegger and Burritt, 2000 in Jose and Mei Lee, 2007). The first is the expectation for the effective management of the company’s environmental performance. Companies who wish to gain trust of their stakeholders must concern toward environmental friendly business. The second pressure is the expectation for the companies to be more accountable for the environmental performance. Accountability is the key factor in order to have the comprehensive understanding about the company’s performance.

According to Jose and Mei Lee (2007), there were two problems occurred in the past regarding corporate environmental communication. The first problem was that there is no standardization or uniformity of environmental reporting. There is still no concrete official standard which can guide companies to make such kind of report. This problem was resolved by the emergence of various guidelines of reporting which were published by various organizational bodies (e.g. GRI). The second problem was the issue on the limited scope of report dissemination. Companies have different types of stakeholders each of which have different interest towards the entity. It was difficult then to freely distribute the report to all stakeholders. But it is no longer a problem as the internet is being used as communication medium for companies.

**Internet Supported Environmental Reporting**

The emergence of the internet and the development of world wide web has been marked as the icon of 21st century’s modern technology. Since it has been
first introduced, the internet has provided many opportunities for people to communicate to each other and also to access nearly unlimited amount of information. The fact that it still keeps developing rapidly, internet will bring more advanced features that people have never expected in the past.

Over the past decade, companies have been utilizing the internet to communicate various information regarding the organization. The information that is put into the company’s official website are usually about company’s profile, company’s news, and also for reporting purpose to stakeholders. It is a common practice for companies today to provide either mandatory or voluntary company disclosure. One of the voluntary disclosure is the environmental report of the company.

Before the emergence of the internet, companies do their reporting activities in the traditional printed version. There were some limitations in using the printed reporting version the examples of this are the high cost to produce such report, the rigid monologue communication process, limited amount of information presentation, and other weaknesses.

According to Lodhia (2006), the internet provide four kinds of benefit for corporate communication. The first is about timing which refers to the information delivery in real time by the company. The second is the ability to provide easy access both for the company and stakeholders who use the report. The third benefit is the increase of accessibility as the internet have the ability to do mass communication. The fourth benefit is the better presentation and organization provided by the internet as it has the ability to provide multimedia such as video and audio.

The internet supported version of corporate reporting covers all the disadvantages that the traditional printed version has. The main characteristic of the internet as a medium of investor relations is that almost every element of investor relations can participate within this medium (Budi and Almilia, 2008). It is not surprising that corporations use internet technology within their investor relation activitie. Although the internet serves new unlimited possibilities in corporate reporting, most companies employ rather conventional web presentation same with the printed presentation (Davey and Homkajohn, 2004 in Budi and Almilia, 2008).

**Quality Measurement of Internet-based Environmental Reporting**

Although the practice becomes more common in the business world, corporate internet reporting is a voluntary type of disclosure and it is unregulated
by any professional bodies in many countries (Budi and Almilia, 2008). There are no clear guidelines on how companies should report their environmental performances using internet-based media. Existing guidelines (e.g. GRI), focus more on guiding the content of the report instead of the medium of reporting. The focus on the use of particular medium emphasizes the potential on enhancing corporate communication (Lodhia, 2006).

Over the years, there has been some number of researchs which tries to measure the quality of internet supported sustainability reporting. Herzig and Godemann (2007) who analyze internet sustainability reporting of German DAX 30 companies, has developed a framework for the comparison and criteria-based content analysis based on internet communication effectiveness. The criterias include provision of information, accessibility of information, comprehensibility of information and dialogue.

Budi and Almilia (2010) which conduct the research in Indonesia Banking and LQ45 companies, developed a sustainability reporting index which concerns more on the importance of technology rather than the content of information statements. Four main category of criterias in the index include the web content, timeliness, technology, and user support.

Lodhia (2006) which specify the research on examining internet supported environmental reports by Australian mining companies, develop a framework for comparison, the criteria is based on the content analysis of internet supported environmental report by using the approach of Media Richness Theory. The theory assess the quality of media usage to communicate effectively. Since it has close relevancy with this study about mining companies in Indonesia, the study uses this theory as a base to assess how well mining companies in Indonesia maximize the potential of the internet to communicate environmental report.

**Media Richness Theory**

The media richness theory was first introduced by Richard L. Daft and Robert H. Lengel in 1984 through their journal entitled “Information Richness: A New Approach to Managerial Behaviour and Organization Design”. It was originally developed primarily to describe and evaluate communication mediums within organizations. The goal of media richness theory is to cope with communication challenges facing organizations, such as unclear or confusing messages, or conflicting interpretations of messages.

Media richness theory is the quality assessment of media usage to communicate certain messages. Communications that can overcome different
frames of reference and clarify ambiguous issues to promote understanding in a timely manner are considered as richer. Communications that take a longer time to convey understanding are less rich. Daft and Lengel (1984) stated that the more information received and understood that can be deliver by a medium, the richer the medium that is being used. Theory states that all communication media vary in their ability to enable users to communicate and change understanding - their "richness". In general, media richness theory is used to determine the best medium to communicate a message.

There are four criterias for assessing the richness of a medium (Daft and Lengel, 1984, 1986 in Lodhia, 2006):

a. Immediacy: Refers to the ability of a media to provide information in the relevant timely manner. A “rich” media is considered to have the ability to communicate certain information in fastest way.

b. Multiple Cues: The capability to communicate messages through differing approaches, such as body language, voice and tones. Refers to the flexibility of ways in disseminating information.

c. Language Variety: The use of different kind of words to increase understanding. It refers to the adjustable prociding method and usage of the medium so users have better comprehension about the information.

d. Personal Source: The power of a medium to provide users expressions of feelings and emotions. Users will have great satisfaction in using such kind of medium.

Sproul (1991) and Valacich et al (1993) in Lodhia (2006) expanded the concept to put it more relevant to the development of media technology. Those researches add four other criterias of The Media Richness Theory:

a. Multiple Addressibility: The ability for a medium to deliver information simultaneously to multiple users. The information is able to be spreaded to many users without having the problem of time and place differences.

b. Externally Recordable: The ability for a medium to provide a record of the communication, to document and also to modify the communication process. The record is compiled into the archives, which is a storage system to save all information.

c. Computer Processable Memory: Refers to the electronically or digitally manageable information that is being communicated. This modern information management has less risk of being lost or damaged it. Enables users to search certain information more easily and faster.
Concurrency: The ability to facilitate interaction with multiple users in the same time. By using the medium, users can have interactive communication with other users in real time.

The media richness theory is the tool used for assessing the quality of a medium in delivering message. The internet is also a communication medium. In fact, in 2013 there are 2,756,198,420 people in the world who are using the internet for various purpose (www.internetlivestats.com). The “richness” of a certain communication medium can be specified by relating the media richness criterias to a certain task. These criterias are possible to be implemented to internet supported Environmental Reporting (Lodhia, 2006).

As it has already been explained before that the internet provides wide range of benefits in environmental reporting, the media richness framework can be used as a comparison tool between print media and internet media for corporate communication. Print media is considered as less rich than the web media because of the advantages provided in internet technology. The benefit of timeliness, interaction, accessibility, also presentation and organization are related with the criterias in media richness theory. This study uses the framework of media richness theory for internet supported corporate environmental reporting.

III. RESEARCH METHODOLOGY

This research is conducted by using qualitative descriptive research method as it describes and analyzes the internet usage of environmental reporting. Greener (2008) defines qualitative method as an inductive approach to generate theory by using a model of interpretation that allows for a variety of subjective perspectives and construct knowledge rather than seeking to find the facts in existence. Descriptive research according to Nazir (2005) is the method which focus on the problems as they are currently conducted research and are aimed to gain objective exposure.

The study uses secondary data as the main data source to be analyzed. Secondary data referred in this study are official websites of mining companies that are registered in BEI which are use to deliver environmental report. Websites are analyzed in real time, observed the actual condition that exists when the study took place. Websites from mining industry companies are chosen for analysis because companies in mining industry have extensive environmental impacts as a result of their operations and extensively communicate environmental information to their stakeholders to provide evidence of their commitment to environmental protection. Mining companies that are registered in Indonesia Stock Exchange is also choosen in consideration that public companies are required to be more
accountable to stakeholders. Then, the study used a research instrument in the form of criteria checklists. Firstly the researcher needs to find out the availability of environmental information on the company’s website. Also finding out what environmental aspects based on the GRI standard of environmental reporting that are explained by the company. Then the researcher will find out about the media richness of each companies’ website by using the checklist of Media Richness Theory.

IV. RESULTS AND DISCUSSIONS

Availability

After each companies’ websites were analyzed, there were findings that not all thirty five Indonesian public mining companies present about environmental information on their websites. There were twenty eight websites which found to have environmental information of the company. Seven other websites either have information about other sustainability aspects but not mentioning about the environmental aspect or does not even provide any form of information concerning corporate sustainability. For companies that are operating in the mining industry, environmental issues should be one of the major concern as the industry relates directly to the environment.

<table>
<thead>
<tr>
<th>Availability</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The availability of Environmental Information on the website</td>
<td>28</td>
<td>80%</td>
</tr>
</tbody>
</table>

Environmental Aspects Disclosed

It can be seen from the analysis result that the most discussed aspect of environmental information on companies’s websites is biodiversity (77%). In the process of mineral extracting, mining companies oftenly decrease the quantity and quality of living organism’s habitat in the mining surroundings. Companies are responsible to restore the area which has been used in the mining activities. Post mining land reclamation and rehabilitation are the most informed activities that were conducted by companies. Some companies also informed about the activity of animal and plant concervations.
Table 4.2
Environmental Aspects Analysis

<table>
<thead>
<tr>
<th>Environmental Aspects</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>6</td>
<td>17%</td>
</tr>
<tr>
<td>Energy</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>Water</td>
<td>15</td>
<td>43%</td>
</tr>
<tr>
<td>Transport</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Compliance</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>27</td>
<td>77%</td>
</tr>
<tr>
<td>Emission</td>
<td>10</td>
<td>29%</td>
</tr>
<tr>
<td>Effluents and waste</td>
<td>14</td>
<td>40%</td>
</tr>
<tr>
<td>Product and services</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Overall</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>Supplier assessment</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Immediacy

Table 4.3
Immediacy Analysis

<table>
<thead>
<tr>
<th>Immediacy</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely information available?</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>Details of last updated info?</td>
<td>5</td>
<td>14%</td>
</tr>
<tr>
<td>Hyperlink to show new update?</td>
<td>29</td>
<td>83%</td>
</tr>
<tr>
<td>Webcast?</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

The internet is the media for companies to deliver information in the most timely manner as possible. From the analysis, it shows that most mining companies in Indonesia have not optimally utilize the benefit of the website to update information about environmental activities. With only nine companies that are found to have high recency of environmental information updates. The rest either have high recency on other corporate information other than environmental information (mostly financial updates), or did not provide any information updates at all.

Multiple Cues

All of the companies use graphics in the form of pictures to show about their environmental activities. Flash picture slideshow is also popular to be used in the company’s homepage. Most websites put environmental related pictures or
photos to be presented in the picture slideshow. Putting those pictures in the homepage gives the idea that the company took high notice to the environment while doing business activities. Building the image that environmental issues are being the major concern for the companies in conducting their business activities. Other than photos and images, general visual theme of the website such as the use of main color also.

Table 4.4
Multiple Cues Analysis

<table>
<thead>
<tr>
<th>Multiple Cues</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia content</td>
<td>4</td>
<td>11%</td>
</tr>
<tr>
<td>Visual graphic</td>
<td>35</td>
<td>100%</td>
</tr>
</tbody>
</table>

Language Variety

All companies use internal hyperlinks, and only nine companies include external hyperlinks in their websites. Most companies (80%) add the features of pop-up and pull down menu that can be used by visitors to choose the relevant information they want to get. Companies can put a compact amount of information in their websites without cluttering the entire page because the lists are hidden when readers don’t need them. Environmental information usually becomes a sub-category under CSR or sustainability category.

Nearly all companies (94%) use hyperlinks or menus to distinguish between summarised and detailed information. Many provide headline updates that only consist of information title or brief amount of the information in the website’s homepage. There are certain links to direct readers to gain more comprehensive information. Most websites use ‘read more’ link following the headline or just clicking the title for stakeholders to find more about the entire information. Summarized information is also presented as a graphic content in some websites, usually picture that tells message in the homepage.

Table 4.5
Language Variety Analysis

<table>
<thead>
<tr>
<th>Language Variety</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperlinks:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Internal</td>
<td>35</td>
<td>100%</td>
</tr>
<tr>
<td>-External</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>Pop-up / pull-down menu</td>
<td>28</td>
<td>80%</td>
</tr>
<tr>
<td>Hyperlinks/menus available to choose level of detail?</td>
<td>33</td>
<td>94%</td>
</tr>
<tr>
<td>Integration of information through key hyperlinks</td>
<td>31</td>
<td>89%</td>
</tr>
<tr>
<td>File format used:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Variety</td>
<td>Companies</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>HTML</td>
<td>30</td>
<td>86%</td>
</tr>
<tr>
<td>PDF</td>
<td>30</td>
<td>86%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Different languages?</td>
<td>14</td>
<td>40%</td>
</tr>
<tr>
<td>Presented as web portal?</td>
<td>7</td>
<td>20%</td>
</tr>
<tr>
<td>Responsive web?</td>
<td>3</td>
<td>9%</td>
</tr>
</tbody>
</table>

There are thirty one companies using hyperlinks to integrate different types of information. There are also companies that integrate environmental management information under Quality, Health, Safety, and Environment (QHSE) section in the website. This integration of information gives the idea that websites are used in organizing information for various types of stakeholders.

Only eight companies presented the environmental reporting as a web portal where comprehensive information is delivered into more than one webpage. Environmental information is divided into different categories that are composed into different pages. So, the web portal has the lists of hyperlinks of those different pages. It also directly provides a link to access the sustainability report and other supporting data in PDF format.

There are fourteen companies offering different languages to choose by stakeholders in the website. All provide both Bahasa and English as the language of the information given by the company. The rest only use single language either in English or Bahasa.

Responsive web design is still not commonly used by companies. With only three websites applying the responsive web design, most companies have in fact not notice the importance of it in today’s technological trend. The current development of smartphones and other portable devices has made people be able to access internet easily from their palms. Corporate websites that are high in media richness are those that are adjustable with any devices used by any stakeholders.

### Personal Source

Personal source relates to the power of a medium to provide user’s expressions of feelings and emotions. The major personal source advantage in the internet is the variety of features to provide information for different stakeholders. Rather than the limitation of printed format of communication medium where the information is fixed toward general audiences, the analysis result of Personal Source Features Used on Websites can be seen in table 4.6.
Environmental information was not tailored for the need of different stakeholders through the use of hyperlinks or menus. It appeared that most information on websites is generally intended for all stakeholders and attempts were not made to organize this information based on the needs of specific stakeholders. There are some websites which use hyperlinks to focus on financial information specifically for shareholders. There are hyperlinks or menus that are named ‘For Our Shareholders’ or other similar title.

**Multiple Addressability**

<table>
<thead>
<tr>
<th>Multiple Addressability</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible to all stakeholders</td>
<td>34</td>
<td>97%</td>
</tr>
</tbody>
</table>

Multiple addressability is the ability for a medium to deliver information simultaneously to multiple users. The information is able to be spread to many users without being troubled by time and place differences. In this context, multiple addressability refers to the accessibility of the environmental information for all type of stakeholders.

All but one websites deliver environmental information that are accessible to stakeholders. In that case, mass communication of environmental information could be enabled through the use of websites. It can be pointed out that companies have well utilized the multiple addressability benefit of the website to give environmental information to stakeholders. Visitors don’t need to login with password required to access environmental information of the company or any other corporate information provided in websites. There are few companies that have intranet login tools only for the company’s internal purposes. The intranet is usually accessible by the company’s employees only.

**Externally Recordable**

“Externally recordable” refers to the ability for a medium to provide a record of the communication, to document, and to modify the communication process. The record is compiled into the archive, i.e. a storage system to save all
information. Information of multiple years can be archived on the website. Dynamic nature of websites enables changes to be made easily. Other features are hit counter, i.e. the ability to download and print the information. It is important for websites have external recordable characteristics in order to be media “rich”. Stakeholders are able to download and print the information from all thirty five websites, with some of them provide printer friendly versions of their webpages.

Table 4.8
Externally Recordable Analysis

<table>
<thead>
<tr>
<th>Externally Recordable</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit counter / guestbook to track stakeholder access</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>Archived information</td>
<td>28</td>
<td>80%</td>
</tr>
<tr>
<td>Download / print</td>
<td>35</td>
<td>100%</td>
</tr>
</tbody>
</table>

Archived information of environmental report from multiple time periods is available for stakeholders on most websites (80%). By having this feature in the website, stakeholders can search for contents published in the past. By searching information through the archive, stakeholders are able to track the company’s environmental performance from the past until recent time. Evaluation can be made whether the company is consistent in applying their environmental commitments.

Only three websites provide hit counter tool to view how many stakeholders have visited the websites. The companies are Atlas Resources, Garda Tujuh Buana, and SMR Utama, which provide information about the number of visitors who looked up their websites. But from all three of the websites, hit counter tool is not used to specifically indicate how many visitors that have gained access to the environmental information.

Computer Processable Memory

Table 4.9
Computer Processable Memory Analysis

<table>
<thead>
<tr>
<th>Computer Processable Memory</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Search engine</td>
<td>23</td>
<td>66%</td>
</tr>
<tr>
<td>-Sitemap</td>
<td>33</td>
<td>94%</td>
</tr>
<tr>
<td>-Menu based content list</td>
<td>5</td>
<td>14%</td>
</tr>
<tr>
<td>-Other navigational tools</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>Analytical tools</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>
Computer processable memory refers to the electronically or digitally manageable information that is being communicated. This modern information management has less risk of being lost or damaged. It enables users to search certain information. Companies made navigational tools in their websites in order that stakeholders can easily find the relevant information they are looking for, which could also be environmental information. More than half (66%) of the total websites use search engine tool to enable stakeholders search for certain information by typing keywords. If a stakeholder wishes to search for environmental information that the company reports, he/she can input keywords in the search engine field that are related to environment. It is effective and efficient for stakeholders as they don’t need to search manually throughout the company’s website. Navigation and management of information on website is possible through the features of menus, hyperlinks, and search engines.

The use of sitemaps is not very popular as only seventeen websites use the feature. A sitemap consists of the hyperlinked list of web pages that the website has users can click one of the lists and it will lead them directly to the page that they wish. It is like list of contents in a conventional book.

**Concurrency**

Concurrency refers to the ability to facilitate interaction with multiple users at the same time. By using the medium, users can build interactive communication with other users in real time. Concurrency in corporate websites is related with the features used to provide interaction between the users with the company itself, or between a user with other users accessing the website. It allows two way interaction through discussion forums, emails, and social media. The analysis result of concurrency features used in companies’ websites can be seen on table 4.10.

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Concurrency</th>
<th>Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Automatic feedback form</td>
<td>21</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>-Email provision</td>
<td>24</td>
<td>69%</td>
<td></td>
</tr>
<tr>
<td>-Discussion forums</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>-Bulletin boards/blog</td>
<td>1</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>-Chatrooms</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>-Other interactional tool</td>
<td>4</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Social networking service</td>
<td>5</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>
A website has high media richness when it enables interaction between stakeholder with the company or amongst stakeholders. From the analysis, the study shows that interactivity in the websites is still low. Twenty one websites use automatic feedback forms that fostered easy interaction from the stakeholders to the company. Most of the websites use this tool for general inquiries rather than having it for especially environmental issues.

Twenty-four websites provide email addresses which stakeholders can contact. However, none provided email address which is directly specifically related to environmental/sustainability information inquiries. Most of them only provide it for general purposes. Only one website provides updated blog feature in the website, i.e. Adaro’s website. The blog feature enables stakeholders to directly give comment to a blog post and discuss to it. Although the blog is used to inform various types of information, there is also environmental information found in the blog archive. None of the websites use discussion forums or chatrooms.

There are other interaction tools used by four websites. These companies, besides providing tools for automatic feedback that will go directly to the management, provide tools that enable users to report any violations or fraudulent activities conducted by the companies.

Another disappointing result shown by the analysis is that most companies have not realized the opportunity of corporate interaction via social networking services such as Twitter, Facebook, etc. Only five companies are found to utilize social networking services integrated with the company’s website, i.e. PT. Adaro Resources, PT. Samindo Resources, PT. Bukit Asam, PT. Aneka Tambang, PT. Vale Indonesia, and PT. Timah. Although these companies use them to deliver general information to public, some postings unrelated to environmental issues are still commonly found.

It appears from the above discussion that companies did have some features available on their websites for enabling engagement with stakeholders but these were generalised in nature. They did not have specific focus towards environmental issues. Nevertheless, the potential for stakeholder engagement through the use of the Web did exist.

V. CONCLUSION AND SUGGESTION

Conclusion

Companies that operate in the mining industry have great direct impact towards the environment. The mining industry is often considered as one of the most sensitive business when it is related to environmental issues. Therefore, mining companies are expected to report their environmental sustainability performance towards stakeholders in order to maintain their reputation. Corporate
information nowadays is disseminated by the media of internet which have several benefits compared to the printed ones. These benefits were conceptualised through Media Richness Theory and applied in the context of internet based environmental communication practices of companies in the Indonesian Mining Industry.

The results show that out of thirty five Indonesian mining companies, not each of them has provided environmental information on the websites. Seven companies were found not conducting environmental communication through the medium of internet. These companies are considered to be non-sustainable or non-responsible companies because environmental issues are sensitive towards the mining industry. However, not every companies that communicate their environmental information provide comprehensive information in order for stakeholders to fully understand the information.

Environmental information is provided by companies on the websites as webpages are mostly covering the company’s commitment and plan towards environmental concerns. More comprehensive information and report of the environmental activities that have been conducted throughout the year are informed on the Annual Report integrated with other information under corporate social responsibility or QHSE, as well as on the sustainability report. Only seven companies provide comprehensive sustainability report, and five of them use GRI as the guideline of reporting. Biodiversity is the most disclosed environmental aspect informed by Indonesian public mining companies. Post-mining activities such as mining land reclamation and rehabilitation are popularly discussed by companies through their websites.

Mining companies in Indonesia has not fully utilized the potential benefits of the internet as a communication medium on environmental reporting. Although several companies have maximized the features of media richness theory on the website, the result is poor when it is seen from the overall view of the whole industry. There is limited use of the Immediacy, Personal Source, and Concurrency abilities of the web. Companies focused primarily on organizing environmental information through their websites through the Multiple Cues, Language Variety, Externally Recordable, Computer Processable Memory features and making this accessible to their numerous stakeholders through the Multiple Addressability benefits. Moreover, it was clearly seen from this analysis that companies provided general features for websites, rather than having specific features for individual sections of websites.

Another interesting finding is that there are few companies which do not even provide any form of environmental information on their website. As companies which operate in the industry that have direct impact towards the environment, they have shown that they do not have sufficient commitment towards environmental sustainability. The analysis shows that the websites are
used by Indonesian mining companies to mainly focus on the dissemination of corporate financial information. In other words, most companies use the internet to focus only in giving corporate information to the shareholder rather than stakeholders in general.

**Suggestion**

Companies that conduct their business in mining industry should pay high attention in sustaining the environment as they give direct impact on it. In order that stakeholders can to evaluate the performance, companies need to transparently report about their commitment and actions. Any mining companies should provide comprehensive environmental information and report by publishing sustainability report. GRI should also be applied as the guideline so that environmental performances of the company are comprehensively measured.

The quality of the company’s information presentation, reflect the quality of its environmental commitment. Internet is on of the media which have high advantages in providing the information. Companies should apply the Media Richness theory on their websites to make corporate communication more effective through the internet. The previous chapter also mentioned some examples of websites that have applied the criteria of Media Richness Theory. The study suggests for future study to find the influence between the extent of internet usage as a corporate communication medium with the corporate financial performance. In this way, there will be clear measurement whether a company gains economic benefits or not from using internet to provide information about environmental reporting.

**Limitations**

The limitations of this study is it only use secondary data which are sourced from the companies’ websites. Future study relating to this topic should consider the method of survey and interview as primary data. It could be held with mining practitioners to comprehend the findings of this study and seek their views on web based environmental communication.
References


