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Performance Indicators disclosure in Sustainability Reports – Lessons from Ghanaian large Mining Companies

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This study examines the extent of Global Reporting Initiative performance indicators disclosed in Sustainability Reports of mining companies in Ghana to see the content and trend development. Case study approach to 20 reports (in 2008 and 2012) of 10 large scale mining companies in Ghana was used and analysed using content analysis methods. The findings suggest there has been a wider and increasing trend in the disclosure of performance indicators in sustainability report in accordance with Global Reporting Initiative (GRI) guidelines. The findings suggest that mining companies in Ghana have made good progress in voluntary adoption of the GRI guidelines to increase transparency, credibility and comparability in sustainability reporting.

Keywords: sustainability reporting, performance indicators, Global Reporting Initiative, environmental issues, mining companies, Ghana.

1. Introduction

Sustainability issues are increasingly gaining attentions among corporations and their stakeholders in the world over the last three decades, as more corporations have been preparing their sustainability reports (SRs) (Papasolomou, 2007; Roca and Searcy, 2012). Despite the proliferation of these reports, the kinds of performance indicators (PIs) that should be disclosed and as well as structure of SR remain controversial (Davis and Searcy, 2010; Roca and Searcy, 2012). This is mainly due to the fact that the preparation of SR in most countries is on a voluntary basis (GRI, 2006; Roca and Searcy, 2012), and Ghana is of no exception. However, it is argued that some sectors such as mining and energy industries bear more pressures than to prepare SR to show their social responsibilities to the society in order to compensate the environmental damages from these polluting industries (Dashwood, 2012). In Ghana, mining industry is regulated by Minerals and Mining Act of 2006 (Act 703). Mining companies make

significant contributions to the economic development of Ghana through the payment of taxes, provision of employment, and social amenities amongst others. The mining sector is plagued with many challenges such as increasing presence of small scale mining operations on company concessions, substantial land compensation, pollution and other chemicals used in processing in operations.

Studies on SRs comparatively focus on their structure and contents (Slater, 2008; Beloe et al., 2006; KPMG, 2008; Adams and Frost, 2008) but less attention is paid on extent of disclosure PI especially in developing countries. Over the last decade, national level studies of SRs have been carried out in many countries including Austria, Bangladesh, Greece, Norway, Sweden, Switzerland, Thailand, and Canadian (Roca and Searcy, 2012). Moreover, recent studies on GRI indicators have focused on the industries which contribute more environmental problems, such as the petrochemical, the forestry, mining and other polluting industries (Clarkson et al., 2008; Alazzani and Wan-Hussin, 2013). In contrast, little research is carried out in African countries including Ghana in this respect hence the justification for this study. Using content analysis observed in other studies (for example Barako et al., 2006), the paper aims to examine the extent and the trend of disclosure of PIs in the SRs of ten mining companies in Ghana (MCGs). The findings suggest that mining companies in Ghana have made good progress in voluntary adoption of the GRI guidelines to increase transparency, credibility and comparability in sustainability reporting. The rest of the article is organized as follows. Section 2 presents sustainability reporting. Section 3 discusses performance indicators using GRI framework. Section 4 sets out research methods. Section 5 presents results with Section 6 facilitates the discussion. The conclusion and implications are presented in Section 7.

2. Sustainability Reporting

Corporations worldwide have increasingly adopted SR in the last decade (Lozano and Huisinigh, 2011; Lozano, 2013) to effectively communicate CSR activities to stakeholders (Du et al., 2010; Hse et al., 2013). Corporate sustainability is defined by Van Marrewijk (2003) as the demonstration of social and environmental concerns in business operations and interactions with stakeholders (Roca and Searcy, 2012). Sustainability report is a report which must contain qualitative and quantitative information on the extent to which the company has managed to improve its economic, environmental and social effectiveness and efficiency in the reporting period and integrate these aspects in a sustainability management system (Daub, 2007). World Business Council for Sustainable Development (WBCSD) treats SR as public reports by

companies to provide internal and external stakeholders with a picture of the corporate position and activities on economic, environmental and social dimensions (WBCSD, 2002). Therefore SR has become a systematic means of managing sustainability issues (Park and Brorson, 2005) and is now embraced as a corporate communication instrument primarily aimed at influencing the public perception of a company and enhancing a company's corporate image or reputation (Hooghiemstra, 2000; Daub, 2007).

Although it has been seen a number of theories underpinning SR, including resource-based (Barney, 1991), institutional (DiMaggio and Powell, 1983), legitimacy theory (Suchman, 1995) and Stakeholder theory (Freeman 1984), factors influence corporate sustainability (see Hart, 1995; Jennings and Zandbergen, 1995; Bansal, 2005; Roca and Searcy, 2012), stakeholder theory and legitimacy theory are widely used to explain many perspectives of SR. For example, one of the major risks in SR is that preparers publish only what they consider important information for themselves rather than stakeholders (Morgan, 1999), while stakeholder theory (created by Freeman, 1984) holds the view that corporations have obligations to a number of individuals and groups who has different priorities and should be treated equally regardless of their relative power (Deegan et al., 2000). In view of this, SR should disclose different indicators and report on materiality which widely met the requirements of all stakeholders including those who have legitimate stakes in the activities of the company, but lack the power to exercise their stakes (Mitchell et al., 1997). Furthermore, Legitimacy theory states that corporations are a part of larger society and they must operate within the bounds set by that society (Suchman, 1995). In view of this theory, SR should be viewed as a part of strategy of organisations to build and maintain its legitimacy in the society (Ratanajongkol et al., 2006). It is also argued that more legitimacy and regulations of reporting SRs should be applied to industries and companies which are main contributors of environmental pollution (e.g. mining) because some of these companies are reluctant to disclose negative information in SRs. For instance, a study by Murguía and Böhling (2013) of SRs on large-scale mining conflicts concluded that such SR portrays low quality or lack of data on negative issues, although they claimed that their SR provides a balanced view and credible data on their performance toward sustainability.

According to Lighterigen and Zadek (2005), there are more than 300 international standards and guidelines which are currently providing accepted reference standards for corporate sustainability reporting in measuring social and environmental performance required by

stakeholders. Among them, GRI has received global recognition as a framework of organisations' Sustainability and CSR reports and currently applied in 50 countries (Roca and Searcy, 2012). In next section, we will review GRI's performance indicators and argue it is appropriate benchmark to be used in reporting firm sustainability performance in mining industry in Ghana, the focus of this paper.

3. Performance indicators using GRI framework

The GRI, founded in 1997 by the Coalition for Environmentally Responsible Economies (CERES) and the United Nations Environmental Programme (UNEP), is one of the frameworks widely adopted in preparing companies' SR (e.g., Joseph, 2012; Isaksson and Steimle, 2009). GRI guidelines specifically have the main principle to achieve transparency with the complete disclosure of information on indicators required to reflect impacts and enable stakeholders to make decisions (Joseph, 2012). As compared to other guidelines, GRI provides detailed guidelines on "how to report," defining overall goal and content using principles and guidance, and "what to report" or determining content using standard disclosures and sector supplements (Joseph, 2012). In another perspective, GRI extends the traditional accounting lens into the stakeholder theory with more latitude and the development of measures to provide companies opportunity to be aware of their role in locality without seriously examining areas of ambiguities or the necessity for sustainability.

In GRI framework, there are three different types of disclosures in a SR namely Strategy and Profile (SP), Management Approach (MA) and Performance Indicators (PI) but the study will concentrate on PIs. The main question asked in this paper is what kind of PIs are being reported in spite of the voluntary nature of reporting by the MCGs in relation to GRI guidelines? To answer this question, evaluation of the SR practices of MCGs against GRI, guidelines issued in 2011 (also known as 'G3.1'), is made. The G3.1 guidelines outline a list of 84 PIs made-up of 9 economic indicators, 30 environmental indicators, and 45 social indicators that have been further categorized into labour practices & decent work, human rights, society, and product responsibility (version 3.1, GRI, 2011b; Joseph, 2012).

Many studies also revealed that sustainable PIs such as jobs, water usage, pollutant emissions, solid wastes, rehabilitation and land use, energy source and consumption, and health and safety are relevant for mining industry reporting (Byrne et al., 2002; Hilson and Basu, 2003; Azapagic, 2004; van Berkel and Bossilkov, 2004). A study by Gallego (2006) also found that

the most frequently reported environmental indicators were related to energy, water, biodiversity and emissions, effluents and waste while the most frequently reported social indicators were related to labour practices & decent work, strategy and management, non-discrimination, freedom of association, child labour and forced and compulsory labour (Gallego, 2006). All of these indicators are relevant to mining industry. Furthermore, due to the fact that different corporations are subject to different expectations from society, they may find it necessary to report different PIs in their SR so as to be perceived as legitimate. In view of above discussion, the MCGs are expected in their SRs, not only to show their abilities to communicate satisfactorily to their stakeholders since they must obtain the social licence to operate, to comply with relevant legitimacy required, but also to adopt practices followed a standard reporting framework and performance indicators such as GRI. Therefore exploring the actual PIs of MCGs will also help to strengthen such assertions. In next section, we therefore tend to discuss sample selection and data analysis methods and provide justification for the methods used.

4. Research Methods

Sample selection

To achieve the objective of the study, 20 SRs of a total of 10 large scale mining companies in MCGs are selected (see appendix for sample demographic information) in the year 2008 and 2012. The main reason selecting large mining companies is that they have larger share of responsibility for economic, social and environmental problems compared to small-to-medium-sized companies, and as such they are normally under intense pressure by their stakeholders to behave well (Santos, 2001, 2003; Daub, 2007). Being subsidiaries of multinational companies, these large corporations normally publish comparatively standard SRs and have record track on financial and non-financial reports which can be used for data analysis and result discussions. Considering data availability and comparability (Alazzani and Wan-Hussin, 2013) and the adoption of International Financial Reporting Standard (IFRS) in 2009 by Ghana, our data coverage from 2008 and 2012 was chosen to ensure a period before and after IFRS adoption included.

Analysis methods

Content analysis is a mature technique to make inferences objectively and identify specified characteristics of messages systematically (Holsti, 1969; Alazzani and Wan-Hussin, 2013) was used to analyse the data. In order to minimise issues associated with content analysis such as

counting of words or sentences and how to deal with charts and pictures, this study uses a disclosure index to reveal the amount of PIs disclosure (Barako et al., 2006). A disclosure index involves the researcher identifying whether MCG does or does not disclose a PI according to the GRI guideline list (Barako et al., 2006). Therefore in assessing the extent to which MCGs followed the GRI guidelines in this study, SRs were considered as a single construct in which companies perform CSR activities and disclose such activities (Alazzani and Wan-Hussin, 2013). To identify the PIs reported, a total of 20 sustainability reports (5 each company's SR of 2008 and 2012) have been read and recorded. Therefore, the presence (1) or absence (0) of certain words and concepts in texts covering corporate disclosures within SR were detected using GRI guidelines (Alazzani and Wan-Hussin, 2013). The results are presented in the next section.

5. Results

The following subsections present the assessment of the ten mining companies' sustainability reports against the GRI indicators. For better understanding of exploration of the PIs, the SR activities were looked at in terms of the most and least commonly practiced by the MCGs. The disclosure of corporate sustainability performance indicators of the mining companies in Ghana has been presented under the management approach themes: (i) economic performance indicator disclosure (EC), (ii) environmental performance indicator disclosure (EN), (iii) human right performance indicators (HR), (iv) labour practice & decent work performance indicators (LA), (v) product responsibility performance indicators (PR) and (vi) society performance indicator disclosure (SO). According to GRI (2011), social dimension of sustainability is related to the impact of an organization on the social systems within which it operates. Descriptive statistics are shown in Table 1 for mean, standard deviation, and median values of the six types of PIs disclosure. Mean disclosures are calculated as the number of items disclosed divided by the number of MCGs. An analysis of Table 1 reveals that the amount of PI disclosure is relatively small; it varies from a low value of 1.8 for HR to a high value of 8.7 for EN in 2008 and 4.6 for LA and PR with EC being the highest value of 8.0 according to 2012. However, there is some variability in the amount of information on PIs; the standard deviation figures are low relative to their mean values.

Table 1 around here

Economic Performance Indicators (EC)

Corporate economic sustainability is used to measure the economic outcomes of an organization's activities and the impact on their stakeholders (GRI, 2006; Sobhani et al., 2012). The economic performance of an organization is fundamental to understanding the organization and its basis for sustainability due to the fact that an organization may be financially viable, but may have been achieved by creating significant externalities that impact other stakeholders (Sobhani et al., 2012). It can be seen from Table 2 that the frequency of use of the EC by the MCGs depicts a disclosure indices of 80 percent of the research instrument items in the SR. This means that majority of EC have been disclosed by the MCGs during that period. For example, it can be seen from Table 3 that in 2012 all the MCGs reported on EC1. It can also be seen that about half of the MCGs reported on EC7 as the least reported indicator in their SR.

Environmental Performance Indicators (EN)

Environmental performance indicators concern with organization's impact on living and non-living natural systems, including ecosystems, land, air, and water as well as covering performance related to input (e.g., material, energy, water) and output (e.g., emissions, effluents, waste) (Sobhani et al., 2012). The EN are very important indicators for mining companies is by the concern of its operation consequences to environment damage. The frequency of use of the EN by MCGs can be seen in Table 4. The EN that are fully disclosed in the SRs are EN1, EN2, EN3, EN16 and EN17. The least frequently disclosed EN by 2 MCGs is EN24 in 2012.

Table 2 and Table 3 around here

Human Rights Performance Indicators (HR)

The HR require organisations to report on the extent to which processes have been followed on incident of human rights violations and changes in the stakeholders' ability to enjoy and exercise their human right, occurring during the period (GRI, 2011). According to GRI, the HR aspect comprises of Investment and Procurement Practices, Non-discrimination, Freedom of Association and Collective Bargaining, Child Labour, Forced and Compulsory Labour, Security Practices, Indigenous Rights, Assessment and Remediation. From Table 4 HR1, as well as on HR2 are the only two indicators reported by all the MCGs in 2012. Only 2 companies' SRs are found to have reported both HR10 and HR11 as of 2012.

Table 4 around here

Labour Practices & Decent Work Performance Indicators (LA)

The LA addresses the broad issues on Employment, Labour/Management Relations, Occupational Health and Safety, Training and Education, Diversity and Equal Opportunity and Equal Remuneration for Women and Men (GRI, 2011). Table 5 shows that all sample companies have disclosed items such as employee compensation, welfare and donation, executive profile, in-house training arrangement for the employees, and appreciating and motivating employees for their efforts in SR. From a total of 150 items relating to LA disclosure, 30 and 94 items were disclosed in the SRs by MCGs in 2008 and 2012 respectively. The LA indices for MCGs indicate that 55 percent items of LA issues were disclosed in the sustainability reports. It can be seen from Table 5 that about nine companies reported on LA2 and LA10 with only one MCG reporting on LA15.

Table 5 around here

Product Responsibility Performance Indicators (PR)

The PR which comprises of Customer Health and Safety, Product and Service Labelling, Marketing Communications, Customer Privacy, and Compliance, address the aspects of reporting organisation's product and services that affect customers in that respect (GRI, 2011). Out of total of 90 PIs, 23 and 46 PIs were disclosed in 2008 and 2012 SRs respectively (see Table 6). The disclosure indices for PR show that 21 and 51 percent in 2008 and 2012 SRs respectively. Nine companies reported PR1 in their SRs, PR5 were reported by two companies whilst no company reported on PR10.

Table 6 around here

Society Performance Indicators (SO)

The SO looks at issues such as local communities, corruption, public policy, anti-competitive behaviour and compliance issues (GRI, 2011). It looks at the impacts of the organisations' activities on local communities in which they operate by disclosing how the risks that may occur from their interactions are managed. The SO disclosure indices indicate that 43 and 66 percent of items pertaining to society issues were disclosed in the SR in 2008 and 2012 respectively. According to Table 7 all sampled MCGs reported on indicators SO1 and SO2

with only one company reporting on SO6. Most have a separate department for performing CSR activities e.g. sponsoring sports and cultural functions, patronizing general and technical education, poverty alleviation programmes, undertaking low cost housing projects, creating job opportunities for unemployed youth and other community issues. Interestingly SO4 which deals with corruption were only reported by two companies.

Table 7 around here

Corporate Sustainability performance indicator disclosure

It can be seen from Table 8 that Corporate sustainability performance indicator disclosure index (CSPDI) is calculated by dividing the number of items disclosed by the number of items on the score-sheet (expected disclosure). The total items disclosed by each disclosure theme as designated in the research instrument were identified. It can be seen from Table 8 that the expected indicators disclosure of performance indicators is 840. The actual PIs for 2008 and 2012 are 235 and 533 (disclosure index of 0.28 and 0.63) were disclosed respectively. This suggests that the disclosure have increased by 126.8 percent within the five years and this is consistent with the study by KPMG (2008). Almost all the indicators had a substantial increase with the HR (the highest) and SO (the lowest) respectively with an increase of 236.8 and 53.5 respectively within the periods. The reason might be attributed to the fact that there is much awareness of human rights issues as a result of improved communication systems, for example the vibrant radio stations in Ghana.

Table 8 also shows that all MCGs disclosed substantial sustainability information in 2008 and 2010 in the annual reports to show a trend. As expected economic performance indicators disclosure index were 39% and 73% for 2008 and 2012 respectively. The environmental performance indicator index also is seen to be moderate (29% in 2008 and 66% in 2012). This is attributed to the fact that mining companies are expected to disclose more information due to the nature of their activities in recent times. Interestingly, social performance indicators disclosure index (HR, LA, PR and SO) represent 26% and 60% for 2008 and 2012. These increases in indices from 2008 to 2012 further confirm the fact that there has been an increment of transparency as a result of expectation of many stakeholders for companies to provide more information in their SR. Our results suggest that all mining companies in MCGs have disclosed one or more items of sustainability information in SRs. Economic performance indicator disclosures received more attention than environmental sustainability issues in disclosure

despite it is expected that mining companies should pay more attentions to environmental issues (Belal, 2007). However PIs related to the environmental dimension of sustainability were represented in higher proportion than social dimensions by the MCGs and this result is consistent with the study by Sobhani et al. (2009).

Table 8 around here

6. Discussion

The results show that PIs are widely disclosed by mining companies in Ghana's sustainability reports and that there has been an increasing trend within the period. About 20 SRs of the 10 MCGs studied suggest that all three main areas of sustainability were not only widely addressed but there has been an increase in disclosure within the surveyed period. Comparing the results with other previous studies several similarities and differences can be seen. In the first instant, GRI guidelines were followed and reported by all companies which conform to Brown et al.'s (2009a) argument that the GRI is becoming an established institution since its inception in 2006. Furthermore, all of the most common types of indicators reported by Greek (Skouloudis and Evangelinos, 2009), Spanish (Gallego, 2006) and Canadian (Roca and Searcy, 2012) companies were also reported by the mining companies in the study. This is attributed to the fact that all these companies are subsidiaries to multinational companies.

One of the areas of similarity is the economic performance indicators focusing on sales and benefits, environmental performance indicators focusing on energy and water and social performance indicators focusing on donations, labour practices, and the breakdown of the workforce were also reported by mining companies in the study. The increasing trend from the result is also confirmed by the studies of Gurvitsh and Sidorova (2012) where they indicated a growing uptrend in the world SR. This development attributed to new audiences for sustainability information, like investors and regulators, who are now calling for more and better performance data (GRI, 2010; Gurvitsh and Sidorova, 2012; KPMG, 2008; Brown et al., 2009a). The voluntary nature has accounted for the wide differences and several authors have noted that the broad nature of GRI can lead to differences in indicator disclosure (Moneva et al., 2006). Deegan and Gordon (1996) highlighted that industries with particularly high impact on the environment may disclose more information on social responsibility than other industries. Therefore, as indicated by several authors, corporate sustainability initiatives and

approaches must be tailored to suit local circumstances (Van Marrewijk, 2003, Steurer et al., 2005).

There are a many possible theoretical explanations for the results in terms of wide volume of indicators disclosed and the increasing trend but the two relevant perspectives are provided by stakeholder theory and legitimacy theory. Stakeholder theory holds that corporations have obligations to a number of individuals and groups who have different needs. Therefore, in the absence of mandatory reporting requirements, if different corporations have different priorities for different stakeholders, it is reasonable to assume that SRs would disclose wide variety of indicators. In the view of Deegan et al. (2000) all stakeholders should be treated equally, regardless of their relative power (Roca and Searcy, 2012). In a similar vein, legitimacy theory holds that corporations are a part of larger society and must operate within the bounds set by that society (Suchman, 1995). On the other hand in the view of Mitchell et al. (1997) the legitimacy, urgency, and power of a corporation's stakeholders are continuously changing (Roca and Searcy, 2012). Since different corporations may be subject to different expectations from society, they may find it necessary to report wide variety of indicators to satisfy the increasing needs of stakeholders in order to be perceived as legitimate. Using a perspective framed by legitimacy theory, SR may be viewed as a part of a corporation's overall strategy to build and maintain its legitimacy (Ratanajongkol et al., 2006) by disclosing more and more PIs from time to time.

7. Conclusion and implication

This study provided insight into the extent and trends of PIs in SRs of mining companies in Ghana. The research showed that the indicators disclosed were relatively evenly distributed along the GRI guidelines of SR. The research also revealed an incredible increase in the indicators reported within the five years. The voluntary adoption of the GRI guidelines has increases transparency, credibility and comparability in sustainability reporting. It is anticipated that the results of this research will find several applications among organisations in Ghana and for that matter many developing countries. The research also yielded further insight into the actual disclosure of the GRI indicators, which may provide a basis for further refinement in the use of the guidelines and will facilitate the development of sector specific indicators. This is important given the continued growth in the application of the GRI guidelines. It is recommended that Government of Ghana and professional bodies should support the adoption of these standards to add value or credibility to SR. There are numerous possibilities for future research in this area. For example, future research could go beyond content analysis of stand-alone SR to include corporate websites, annual reports, and in other

medium where sustainability information is disclosed. Questionnaires could be used to explore in greater depth how the usefulness of reporting according to the GRI guidelines indicator. Interviews can also be used to explore the use of PIs beyond corporations or in other jurisdictions such as the use of indicators in the public and private sectors could be compared and how they intend to report in the future in Ghana.

Appendix

Large scale mining companies in Ghana investigated

MCGs	Type of Mineral
AngloGold Ashanti	Gold
Chirano Gold Mine	Gold
Golden Star Resources	Gold
Newmont Ghana Limited	Gold
Tarkwa Goldfields Limited	Gold
Ghana Manganese Company	Manganese
Ghana Bauxite Company Ltd	Bauxite
Endeavour Mining Resources	Gold
Noble Mineral Resources	Gold
Persues Mining Ltd.	Gold

References

- Adams, C.A. and Frost, G.R. (2008), "Integrating sustainability reporting into management practices", *Accounting Forum*, Vol. 32, pp. 288-302.
- Azapagic, A. (2004), "Developing a framework for sustainable development indicators for the mining and minerals industry", *Journal of Cleaner Production* Vol. 12 No. 6, pp. 639-662.
- Bansal, P. and Roth, K. (2000), "Why companies go green: a model of ecological responsiveness", *Academy of Management Journal*, Vol. 43 No. 4, pp. 717-736.
- Bansal, P., (2005), "Evolving sustainably: a longitudinal study of corporate sustainable development", *Strategic Management Journal*, Vol. 26 No. 3, pp. 197-218.
- Barako, D. G., Hancock, P. and Izan, H. Y. (2006), "Factors Influencing Voluntary Corporate Disclosure by Kenyan Companies", *Corporate Governance*, Vol. 14 No. 2, pp. 107-125.
- Barney, J., (1991), "Firm resources and sustainable competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.

Belal, A. and Owen, D. (2007), "The View of Corporate Managers on the Current State of, and Future Prospects for Social Reporting in Bangladesh", *Accounting, Auditing and Accountability Journal*, Vol. 20 No. 3, pp. 472-494.

Beloe, S., Elkington, J., Hester, K.F., Loose, M. and Zollinger, P. (2006), *Tomorrow's Value: The Global Reporters 2006 Survey of Corporate Sustainability Reporting*. SustainAbility, London.

Bouten, L. P., Everaert, L., Van Liedekerke, L., De Moor and Christiaens, J. (2011), "Corporate Social Responsibility Reporting: A Comprehensive Picture", *Accounting Forum*, Vol. 35 No. 3, pp. 187–204.

Brown, H.S., de Jong, M., Levy, D.L. (2009a), "Building institutions based on information disclosure: lessons from GRI's sustainability reporting", *Journal of Cleaner Production*, Vol. 17 No. 6, pp. 571-580.

Clarkson, P. M., Li, Y., Richardson, G. D., and Vasvari, F. P. (2008), "Revisiting the relation between environmental performance and environmental disclosure: an empirical analysis", *Accounting, Organizations and Society*, Vol. 33 No. 4/5, pp. 303-327.

Dashwood, H.S. (2012), "CSR norms and organizational learning in the mining sector", *Corporate Governance: The international journal of business in society*, Vol. 12 No. 1 pp. 118 – 138.

Daub, C. H. (2007), "Assessing the quality of sustainability reporting: an alternative methodological approach", *Journal of Cleaner Production*, Vol. 15, pp. 75-85.

Davis, G. and Searcy, C. (2010), "A review of Canadian corporate sustainable development reports", *Journal of Global Responsibility*, Vol. 1 No. 2, pp. 316-329.

Deegan C. and Rankin, M. and Voght, P. (2000), "Firm's disclosure reactions to major social incidents: Australian evidence", *Accounting Forum*, Vol. 24 No. 1, pp. 101-130.

Deegan, C., Gordon, B., (1996), "A study of the environmental disclosure practices of Australian corporations", *Accounting and Business Research*, Vol. 26 No. 3, pp. 187-199.

Freeman, R. E. (1984), *Strategic management: A stakeholder approach*, Boston: Pitman Publishing.

Gallego, I. (2006), "The use of economic, social and environmental indicators as a measure of sustainable development in Spain", *Corporate Social Responsibility and Environmental Management*, Vol. 13 pp. 78-97.

Global Reporting Initiative (GRI), (2006, 2010) Sustainability Reporting Guidelines Version 3.0. GRI, Amsterdam.

Global Reporting Initiative (GRI), (2011a), What is GRI? Available from: <http://www.globalreporting.org/AboutGRI/WhatIsGRI/> [Accessed June 17, 2014].

Global Reporting Initiative (GRI), (2011b), Sustainability Reporting Guidelines: Version 3.1. GRI, Amsterdam.

Greenwood, R., and Meyer, R. E. (2008), "Influencing ideas: A celebration of DiMaggio and Powell (1983)", *Journal of Management Inquiry*, Vol. 17, pp. 258-264.

Hart, S.L., (1995), A natural-resource-based view of the firm, *Academy of Management*.

Holsti, O. R. (1969), *Content Analysis for the Social Sciences and Humanities*, London: Addison-Wesley.

Hooghiemstra, R. (2000), "Corporate communication and impression management-New perspectives why companies engage in Corporate social Reporting", *Journal of Business Ethics*, Vol. 27, pp. 55-68.

Hossain, M. and Hammami, H (2009), "Voluntary disclosure in the annual reports of an emerging country: The case of Qatar". *Advances in Accounting, incorporating Advances in International Accounting*, Vol. 25, pp. 255–265.

Hossain, M., Perera, M. H. B. and Rahman, A. R. (1995), "Voluntary Disclosure in the Annual Reports of New Zealand Companies", *Journal of International Financial Management & Accounting*, Vol. 6, pp. 69–87.

Isaksson, R., and Steimle, U. (2009), "What does GRI-reporting tell us about corporate sustainability?", *The TQM Journal*, Vol. 21, No. 2, pp. 168-181.

Jennings, P.D., Zandbergen, P.A., (1995), "Ecologically sustainable organizations: an institutional approach", *Academy of Management Review*, Vol. 20 No. 4, pp. 1015-1052.

Joseph, G. (2012), "Ambiguous but tethered: An accounting basis for sustainability Reporting". *Critical Perspectives on Accounting*, Vol. 23 pp. 93–106.

KPMG (2008), *International Survey of Corporate Sustainability Reporting*, Amsterdam: KPMG.

Lozano, R. and Huisingh, D. (2011), "Inter-linking issues and dimensions in sustainability reporting", *Journal of Cleaner Production*, Vol. 19, No. 2/3, pp. 99-107.

Matten, D., Moon, J., (2008), "Implicit and explicit CSR: a conceptual framework for a comparative understanding of corporate social responsibility". *Academy of Management Review*, Vol. 33 No. 2, pp, 404-424.

Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997), "Towards a theory of stakeholder identification and salience: defining the principle of who and what really counts", *Academy of Management Review*, Vol. 22 No. 4, pp. 853-886.

Moneva, J.M., Archel, P., Correa, C., (2006), GRI and the camouflaging of corporate unsustainability. *Accounting Forum* Vol. 30, pp. 121-137.

Morhardt, J. E., Baird, S., and Freeman, K. (2002), "Scoring corporate environmental and sustainability reports using GRI 2000, ISO 14031 and other criteria". *Corporate Social Responsibility and Environmental Management*, Vol. 9 No. 4, pp. 215-233.

Papasolomou, S.O., (2007),"Are the corporate social responsibility matters based on good intentions or false pretences? An empirical study of the motivations behind the issuing of CSR reports by UK companies", *Corporate Governance: The international journal of business in society*, Vol. 7 No. 2 pp. 136 – 147.

Ratanajongkol, S., Davey, H., Low, M., (2006), "Corporate social reporting in Thailand: the news is all good and increasing", *Qualitative Research in Accounting and Management*, Vol. 3 No. 1, 67/83, pp. 986-1014.

Roca, L. C. and C. Searcy (2012), "An analysis of indicators disclosed in corporate sustainability reports", *Journal of Cleaner Production*, Vol. 20 pp. 103-118.

Skouloudis, A., Evangelinos, K., Kourmoussis, F., (2010), "Assessing non-financial reports according to the Global Reporting Initiative guidelines: evidence from Greece", *Journal of Cleaner Production*, Vol. 18 No.5, pp. 426-438.

Slater, A. (2008), *KPMG International Survey of Corporate Responsibility Reporting 2008*. KPMG Global Sustainability Services, The Netherlands.

Sobhani, F.A., Amran, A., and Zainuddin, Y. (2009), "Revisiting the practices of corporate social and environmental disclosure in Bangladesh", *Corporate Social Responsibility and Environmental Management*, Vol. 16, pp. 167-183.

Steurer, R. (2005), "Mapping stakeholder theory anew: from the 'stakeholder theory of the firm' to three perspectives on business-society relations", *Business Strategy and the Environment*, Vol. 15 No. 1, pp. 55-69.

Stratos, (2008), *Canadian Corporate Sustainability Reporting: Best Practices 2008*, Stratos, Toronto.

Suchman, M.C. (1995), "Managing legitimacy: strategic and institutional approaches", *Academy of Management Review*, Vol. 20 No. 3, pp. 571-610.

Van Berkel, R. (2007), "Cleaner production and eco-efficiency initiatives in Western Australia 1996-2004", *Journal of Cleaner Production*, Vol. 15 No. 8, pp. 741-755.

Van Marrewijk, M. (2003), "Concepts and definitions of CSR and corporate sustainability: Between agency and communion", *Journal of Business Ethics*, Vol. 44 No. 2/3, pp. 95-105.

World Business Council for Sustainable Development, WBCSD. (2002), *Sustainable development reporting: striking the balance*. Hertfordshire: Earth print.

World Commission on Environment and Development (WCED), (1987) **Our Common Future**. Oxford University Press, Oxford, UK.

Tables

Table 1 Descriptive statistics

Themes of Disclosure	Mean of DI		St. Deviation of DI		Median of DI	
	2008	2012	2008	2012	2008	2012
EC	3.5	8.0	1.27	2.28	3.5	9.0
EN	8.7	6.6	4.35	2.26	6.5	22.5
HR	1.8	5.5	1.47	2.99	1.5	6.0
LA	3.0	4.6	2.05	2.94	2.5	9.0
PR	2.1	4.6	1.45	2.88	2.0	5.0
SO	4.4	7.2	1.26	2.76	4.5	11.0

Note: EC = Economic performance indicator disclosure, EN= Environmental performance indicator, HR= Human right performance indicator, LA=Labour practice & decent work performance indicator, PR= Product responsibility performance indicator and SO =Society performance indicator.

Table 2 Disclosures of Economic performance indicators

	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total		
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	
EC1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	10
EC2	0	1	1	1	0	1	0	1	0	1	0	1	1	1	0	1	0	1	1	0	3	9	
EC3	0	1	1	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	2	9	
EC4	0	1	0	1	0	1	0	1	1	1	0	1	0	1	0	1	0	1	0	1	1	10	
EC5	1	1	0	1	1	1	1	1	1	1	0	1	0	1	0	1	0	1	0	0	4	9	
EC6	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	1	9	
EC7	1	0	1	0	0	0	1	1	0	1	0	1	1	0	1	0	1	1	1	1	7	5	
EC8	1	1	0	1	0	0	1	1	1	1	1	0	0	1	0	0	0	1	0	1	4	7	
EC9	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	0	0	0	1	4	8	
EC PDI	5	8	5	8	3	7	5	9	4	9	2	7	4	8	2	7	2	8	3	5	35	66	

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL=Newmont, TGF=Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour Mineral Resources, NMR = Noble Minerals Resources, AMR = Persues Minerals Resource

Table 3 Disclosures of Environmental performance indicators

	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total		
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	
EN1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	0	1	1	1	1	6	10
EN2	0	1	0	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	4	10
EN3	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	6	10	
EN4	1	1	0	1	0	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	2	6	
EN5	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
EN6	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	4	
EN7	0	0	0	1	1	1	1	1	0	1	0	1	0	0	1	0	0	0	0	1	2	6	
EN8	0	0	1	1	1	0	1	1	0	1	0	1	0	1	0	1	0	0	0	0	3	5	
EN9	0	0	0	1	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	1	4	
EN10	0	0	0	1	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	1	4	
EN11	1	1	1	1	0	0	0	1	0	1	0	1	0	1	1	1	0	1	0	1	3	9	
EN12	1	1	1	1	0	1	1	1	0	1	0	1	1	1	0	1	0	0	0	1	4	9	
EN13	1	0	0	1	1	1	1	1	0	1	0	1	0	0	1	0	0	0	1	3	6		
EN14	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	3	
EN15	0	0	1	1	0	0	1	1	0	1	0	1	0	0	0	1	0	1	0	1	2	5	
EN16	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	7	10	
EN17	0	1	0	1	1	1	0	1	0	1	0	1	0	1	1	1	0	1	0	1	2	10	
EN18	0	0	1	1	0	0	1	1	0	1	0	1	0	0	1	0	0	0	1	2	5		
EN19	0	1	1	1	0	0	0	1	0	1	0	1	0	1	0	1	0	1	1	1	2	8	
EN20	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	1	1	8	
EN21	0	1	0	1	0	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	4	8	
EN22	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	1	0	1	1	7	8	
EN23	1	1	0	1	1	1	0	1	1	1	0	1	0	1	0	0	0	0	0	0	3	6	
EN24	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	2	
EN25	0	0	0	0	0	0	1	1	0	1	0	1	0	0	1	0	0	0	1	1	1	4	
EN26	0	1	1	1	0	1	1	1	1	0	1	0	0	1	0	0	1	0	1	4	8		
EN27	0	1	1	1	0	0	0	1	0	0	1	0	1	1	1	0	0	1	1	1	5	7	
EN28	1	1	1	0	0	0	1	1	0	1	0	1	0	1	1	0	1	0	1	4	7		
EN29	1	0	1	1	1	1	1	1	0	1	0	1	0	0	1	0	1	0	0	4	7		
EN30	1	0	1	1	0	0	0	1	1	1	0	1	0	0	1	0	0	0	0	3	5		
ENPDI	12	15	14	27	10	14	17	30	6	27	6	27	5	17	7	17	4	13	6	20	87	197	

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL = Newmont, TGF = Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour, NMR = Noble, AMR = Persues

Table 4 Disclosures of Human rights performance indicators

	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total	
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12
HR1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	7	10
HR2	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0	1	0	1	5	10
HR3	0	0	0	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	4
HR4	0	1	1	1	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	1	2	7
HR5	0	1	0	1	0	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	1	6
HR6	0	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	1	0	0	0	1	8
HR7	0	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	0	1	0	0	1	8
HR8	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	3
HR9	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	4
HR10	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
HR11	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	2
HRPDI	2	6	3	8	2	6	3	9	5	11	1	5	1	6	0	4	1	5	0	4	19	64

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL=Newmont, TGF =Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour, NMR = Noble, AMR = Persues

Table 5 Disclosures of Labour practices & decent work performance indicators

	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total	
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12
LA1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	0	6	8
LA2	0	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	0	1	1	0	5	9
LA3	0	0	0	1	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1	1	5
LA4	0	1	0	1	0	0	1	1	0	1	1	1	1	1	0	0	0	0	1	3	7	
LA5	0	1	0	1	0	0	1	1	0	1	0	1	1	1	0	0	1	0	0	2	7	
LA6	0	0	0	1	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	5
LA7	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	1	0	0	0	0	2	8
LA8	1	1	0	1	0	0	0	1	1	1	0	1	0	1	0	0	1	0	0	2	7	
LA9	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	5
LA10	0	1	1	1	0	1	1	1	0	1	0	1	0	1	0	0	1	0	1	2	9	
LA11	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0	1	1	6	
LA12	0	0	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	2	3	
LA13	0	1	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	6	
LA14	1	1	1	1	0	0	1	1	1	1	0	1	0	1	0	1	0	0	1	4	8	
LA15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
LAPDI	4	9	5	14	1	5	5	14	7	14	2	10	3	9	1	5	1	6	1	6	30	94

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL=Newmont, TGF =Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour, NMR = Noble, AMR = Persues

Table 6 Disclosures of G3 Product responsibility performance indicators

PIs	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total		
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	
PR1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	7	9
PR2	0	1	1	1	0	1	1	1	0	0	0	0	0	1	1	0	1	0	1	0	1	3	7
PR3	1	1	1	1	0	0	0	1	0	0	0	0	0	1	1	1	1	1	0	1	4	7	
PR4	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	3	
PR5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
PR6	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	1	1	1	2	
PR7	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	1	1	4	
PR8	0	0	0	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0	1	0	2	5	
PR9	0	1	1	1	1	1	0	1	0	1	0	0	1	0	1	0	0	0	0	0	2	7	
PRPDI	2	5	4	9	3	5	2	9	0	1	0	2	1	4	4	6	2	5	3	6	21	46	

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL=Newmont, TGF =Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour, NMR = Noble, AMR = Persues

Table 7 Disclosures of Society performance indicators

PIs	AGA		CHI		GSR		NGL		TGF		GMC		GBL		EML		NMR		AMR		Total		
	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	08	12	
SO1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	10
SO2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10
SO3	0	1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	6	9
SO4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	
SO5	0	1	1	1	1	1	1	1	0	1	0	0	1	1	0	0	0	0	0	1	4	7	
SO6	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	
SO7	0	1	1	1	0	0	1	1	0	1	0	0	0	0	0	1	1	0	0	0	3	5	
SO8	1	1	0	0	0	0	0	1	1	0	1	0	1	1	1	0	1	0	1	0	3	8	
SO9	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	3	6	
SO10	1	1	0	1	0	1	0	1	1	1	0	0	0	1	0	1	0	1	0	0	2	8	
SOPDI	5	9	4	7	3	5	5	5	6	9	3	4	5	6	4	5	5	8	3	4	43	66	

Notes: AGA = AngloGold Ashanti, CHI = Chirano, GSR = Golden Star Resources, NGL=Newmont, TGF =Goldfields, GMC = Ghana Manganese Company, GBL = Bauxite, EML = Endeavour, NMR = Noble, AMR = Persues

Table 8 Corporate Sustainability performance indicator disclosure index

Themes of Disclosure	Expected Disclosure	PIs Disclosed		% Change From	Disclosure Index	
		2008	2012		2008	2012
	PIs	2008	2012	2008 to 2012	2008	2012
EC	90	35	66	88.6	0.39	0.73
EN	300	87	197	126.4	0.29	0.66
HR	110	19	64	236.8	0.17	0.58
LA	150	30	94	213.3	0.20	0.63
PR	90	21	46	119.0	0.23	0.51
SO	100	43	66	53.5	0.43	0.66
CSPDI	840	235	533	126.8	0.28	0.63

Note: CSPDI = Corporate Sustainability performance indicator disclosure index,
 EC = Economic performance indicator, EN= Environmental performance indicator,
 HR= Human right performance indicator, LI=Labour practice & decent work performance indicator,
 PR= Product responsibility performance indicator and SO =Society performance indicator

