

Building CSR Reporting Practice in China: Evidence from China's Mining and Minerals Industry

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ABSTRACT

Corporate Social Responsibility (CSR) reporting has been developing at unprecedented rate in China since the mid-2000s. However, little systematic research is available about the achievements and problems of Chinese companies in adopting CSR reporting practice, particularly in highly sensitive industries such as mining and mineral industry. This paper makes a first attempt to address this issue. We analyzed 352 annual and CSR reports produced by all mining and minerals companies listed on Shanghai and Shenzhen Stock Exchanges during 2007 and 2010, and benchmarked the quality of CSR information against ‘Chinese CSR Report Preparation Guide (CASS-CSR 1.0)’, a Chinese version of CSR guidelines equivalent to Global Reporting Initiative. The study identifies a dramatic increase since 2008 in the number of mining companies disclosing CSR information and the quantity of CSR information disclosed. However, the evidence obtained shows that the quality of CSR disclosure remains poor. Annual reports are the most commonly used means for reporting on CSR issues, but the increase of quantity and quality of disclosure in annual reports is slower than in standalone CSR reports since 2008. This suggests CSR reports have increasing potential as the future key information source. The paper concludes that current CSR practice in China’s mining and minerals industry is characterized as demonstrating a high level of concern with the form of CSR reporting practice but a low level of engagement with improving the substance. The mining industry is not ready for but has a high potential to play a leading role in CSR disclosure.

Keywords: China, Mining, CSR Reporting, Content Analysis, Benchmarking

1. INTRODUCTION

A key component in the landscape of ‘building a harmonious society’ advanced by China’s Central Government is the increasing momentum for improving Corporate Social Responsibility (CSR) since the mid-2000s. The Central Government, as the highest level of government authority in China, has enacted a series of policy documents and guidelines, encouraging Chinese companies, particularly state owned enterprises (SOEs) to disclose CSR information and regularly issue CSR reports. These include, ‘Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities’ released in 2008 and ‘Improve social responsibility reporting system and strengthen information disclosure and responsibility communication’ released in 2009 (Guo et al., 2009). In response to the Central Government’s call for ‘harmonious society’, Provincial Governments, particularly in the coastal regions, have established local legislation, standards and assessment systems to promote CSR management programs (Guo et al., 2009). The Shanghai and Shenzhen stock exchanges in China have encouraged listed companies to improve CSR performance and reporting practice and, in particular, to follow the ‘Guidelines on Listed Companies’ Social Responsibility’, such as ‘Guidelines on Environmental Information Disclosure for Companies Listed on the Shanghai Stock Exchange’ and the ‘Notice on Strengthening Social Responsibility of Listed Companies’ on both exchanges.

Regulations and guidelines released during 2007 and 2008 have triggered a rapid increase in CSR disclosure by Chinese companies. According to KPMG (2011), the number of CSR reports by listed Chinese companies has increased from 32 in 2006, to 98 in 2007, 169 in 2008, 631 in 2009 and 663 in 2010, an almost fourfold increase since 2008. Situ and Tilt (2012) argue that the soaring number of CSR reports since 2008 was predominantly because of regulatory pressure from the Chinese Central Government. A study by the Chinese Academy of Social Science (CASS) (2010) shows that, based on CSR performance and the richness of data disclosed, top Chinese companies can be categorized into five disclosure categories, namely *Best Practice*, *Leader*, *Follower*, *Starter* and *Bystander*. In spite of the soaring number of reports issued, CASS (2010) finds that 80% of top listed companies are still classified as Bystanders, the lowest category in terms of disclosure quality.

Major responsibility for this lack of quality and engagement in CSR reporting is in the hands of socially and environmentally sensitive industries and they could play a major role in leading change. As perhaps one of the most socially and environmentally sensitive industries, the mining and minerals industry is often seen as one of the leading sectors in reporting social and environmental performance information because of its impact through non-replacement of environmental resources (e.g. Dierkes and Preston 1977; Adams et al., 1998; Kolk et al., 2001; Frost et al., 2005). Indeed, in a recent study by Deloitte (2012), the mining industry has been recognized as the best in adopting, streamlining and improving CSR reporting practice to meet spiralling stakeholder demands in the global context. However, in the Chinese context, it is not known whether the mining industry is, or is ready for, playing a leading role in CSR disclosure.

The China WTO Tribune (2011) recently provided a cross-sectoral analysis of CSR reports released in mainland China between 1 January and 31 October 2011 to shed light on the latest developments in CSR reporting in China. The mining and minerals industry represented 4.9% of total sample companies releasing CSR reports, lagging banking (9.4), utilities (5.9%) and transportation (6.2%) sectors. Nevertheless, mining companies did obtain highest scores in reporting product (49.3%), environment (37.7%), and supply chain (28.6%) indicators. In terms of reporting structure and credibility of information disclosed, mining and minerals industry came second to the utility industry. Given the importance of the mining and minerals industry to the Chinese economy, the significant social and environmental concerns, and the sparse literature focusing on CSR practice in this important industry, the need for further insight into how Chinese mining companies interpret the CSR concept, work to improve CSR performance, and contribute to the goal of sustainable development through open, transparent information production and dissemination seems clear.

The paper is structured as follows: Section 2 provides a brief overview of relevant literature on CSR reporting practice in the mining and minerals industry from a global perspective – in particular, literature which focuses on the Chinese context is reviewed. Section 3 outlines the research methods adopted, including the sample selection and study period; the choice of a reporting framework; and development of a disclosure quality index. Results from the analysis are then presented in Section 4 and discussion and concluding comments made in Section 5.

2. LITERATURE REVIEW

CSR Reporting in the Mining and Minerals Industry: A Global Perspective

The extraction and depletion of non-renewable resources in the mining and minerals industry has long been a major concern in debates about sustainable development (Cowell et al., 1999; MMSD 2002). At the United Nations Conference on Sustainable Development, Rio+20, the mining sector was called on to promote the continuous improvement of accountability and transparency, in the interest of sustainable development (UN 2012). Many previous studies find that the mining and mineral industry has been a leading player in CSR reporting practice, particularly in developed countries. The recent work by Cowan et al., (2010) investigated environmental reporting practice by the five largest US companies in each of 26 industrial sectors and revealed that 87% of companies engaged in oil and gas operations had the most comprehensive environmental sustainability programs. Roca and Searcy (2012) provided a cross-sectoral analysis of indicators disclosed in Canadian corporate CSR reports and identified that heavy industry, such as oil and gas and mining, used both a high number of and diversity in reported indicators. The oil and gas, and mining companies presented an advantage for the environmental dimensions. Indicators, such as ‘emissions per pollutant’ and ‘H&S’ (health and safety) were well presented in these industries. In the case of mining companies, ‘employees’, ‘H&S’ and ‘emissions and effluents’ indicators were well-represented. The ‘lost time injury frequency’ and ‘all injury frequency number’ were also highlighted in mining company reports. Although the mining and minerals industry has made great strides in reporting environmental or social information, a quantity-quality discrepancy is revealed. According to Guenther et al., (2007), although on average, mining company environmental reports cover approximately 31% of Global Reporting Initiatives (GRI) indicators, only one indicator, ‘total water use’, is reported by more than 50% of the companies.

A number of international surveys, particularly the triennial surveys by KPMG (2008; 2011), have traced the development of CSR reporting practice at the global level, in the process shedding light on the mining and minerals industry. As shown in Table 1, mining and oil and gas companies have all increased their commitment to assurance since 2005, jumping from 50% to 100% of mining companies, and 42% to 59% of oil and gas companies respectively. According to KPMG (2011), overall, mining, oil and gas companies can be classified into the ‘Leading the Pack’ group of companies, which achieve top scores in terms of professionalism of their internal systems, external accountability and the quality of communications. Breaking down CSR reporting practice by country reveals the diversity of practices across different countries. The Global Mining Reporting Survey by KPMG (2006) indicates that 60% of mining companies at the global level presented CSR information in a detailed manner, disclosing performance data and achievement against relevant targets, compared with only 43% of mining companies from BRICs providing detailed CSR disclosure.

Table 1: Percentage of Global 250 (G250), National Top 100 (N100), Mining and Oil and Gas Companies Issuing CSR Reports during 1999 – 2011

Year	1999	2002	2005	2006	2008	2011
No of Countries included	11	19	16	9	22	34
Companies from BRICs ¹	n.a	n.a	n.a	yes	yes	yes
G250 (Cross-sector)	35%	45%	52%	n.a	79%	95%
Mining (G250)	100%	100%	n.a	59%	100% ²	84%
Oil and Gas (G250)	63%	58%	80%	n.a	76%	69%
N 100 (Cross-sector)	24%	23%	33%	n.a	45%	64%
Mining (N100)	47%	33%	52%	n.a	43% ³	n.a
Oil and Gas (N100)	53%	38%	52%	n.a	53%	n.a

The Roberts Environment Centre of Claremont McKenna College in the USA (2010) investigated CSR reporting by the largest companies on the Fortune Global 500 and Fortune 500 Mining, Crude-Oil Production sector lists, shedding light on the diversity of mining companies' reporting practice across different countries. The study identified that overall, mining companies from Switzerland, Brazil, and Australia led CSR reporting while the Chinese mining companies obtained the lowest scores. Compared with western countries, Chinese mining companies lagged in disclosures of both environmental and social performance. However, the result may be misrepresentative as only one Chinese company was included in the sample.

CSR Reporting in China's Mining and Minerals Industry

As noted, CSR reporting practice by Chinese companies is still at an early stage and empirical studies which focus on the Chinese context are also in their infancy (Gao 2009; Wang et al., 2010; Kolk et al., 2010). CSR reporting by particular industries has not so far received systematic attention in China (Noronha et al., 2012). As Mining, Minerals and Sustainable Development (MMSD) (2002) concludes, disclosure issues are acute in the mining sector, particularly in the developing world where the mining sector faces its biggest test – applying the same standards of practice and performance, of ethics and behavior as the international norms.

As one of the world's largest mining countries, China's mining and minerals industry contributes significant economic and social development to the country but causes negative social and environmental impacts. Indeed, China's mining and minerals industry is associated with an historical legacy of social and environmental problems (World Bank 2008). In 2011 China became the largest greenhouse gas emissions (GHGs) country, accounting for 23% of the global total (Chinaneews.com 2011), with coal mining being criticized as the most dangerous in the world for employees, placing the industry under intense international scrutiny (Li 2007).

It has been acknowledged that a chronic lack of information combined with poor statistical measures leads to an underestimation of the severity of challenges in China's mining and minerals industry, and impedes stakeholder evaluation of sustainable corporate performance (Tu 2007). Therefore, in pursuing sustainable development at both the national and international levels, it is imperative for China's mining and minerals industry to reduce environmental pollution, coordinate overall development of industry, economy and society, and improve information transparency and accountability (World Bank 2008). All of these need the industry to lead in CSR reporting practice. The question is to what extent the mining industry is changing over the past few years when CSR reporting is becoming a de facto for all businesses (KPMG 2008).

¹ Companies from BRIC countries are included in sample.

² The percentage of companies within G250 addresses the business risks of climate change in their sustainability reports.

³ Percentage of companies within N100 addresses the business risks of climate change in their sustainability reports.

3. RESEARCH METHOD

Selection of Sample and Study Period

This research analyzed 352 annual and CSR reports produced by all mining and minerals companies listed on Shanghai and Shenzhen Stock Exchanges during 2007 and 2010. The time period chosen is CSR reporting practice of Chinese mining companies during the four year period 2007 to 2010. This period is selected because it coincides with increasing CSR reporting by Chinese companies and the release of several guidelines from Chinese governments, industry associations and stock exchanges in 2007 and 2008 promoting CSR reporting. Annual reports and CSR reports up to 31 December 2010 are included in the sample data.

Content Analysis and the Choice of Reporting Framework

Content analysis was employed to analyze all reports obtained. Content analysis has been widely used in previous studies of corporate disclosures, particularly disclosures of CSR information. Neuendorf (2002 p.10) describes content analysis as systematic, objective, quantitative analysis of message characteristics. As a technique for gathering data, content analysis, involves codifying qualitative and quantitative information into pre-defined categories in order to derive patterns in the presentation and reporting of information (Guthrie et al., 2004). Application of content analysis requires data to be extracted from corporate reports to obtain the level and content of disclosures based on existing reporting frameworks; and then the current state of reporting practice is characterized in terms of quantity and quality by counting the number of CSR disclosures in sentences and the development of a quality scoring index (e.g. Skouloudis et al., 2012, Roca and Searcy 2012). In the context of the mining and minerals industry, previous studies employ different industrial reporting frameworks in order to capture the characteristics of disclosures by mining and minerals companies (e.g. Azapagic 2004; Dong and Burritt 2010). However, a major limitation is the potential lack of applicability in the context of developing countries (Belal and Momin 2009).

According to the Research Centre of Corporate Social Responsibility of the Chinese Academy of Social Science, the development of Chinese CSR needs a CSR system suitable for Chinese companies (Chinese Academy of Social Science 2009). Based on this recommendation, in December 2009, the 'Chinese CSR Report Preparation Guide (1.0)' was released by the Chinese Academy of Social Science as the first full-coverage CSR reporting guidebook in China. This is regarded as a Chinese version of CSR guidelines equivalent to GRI. The Guide is viewed as a cornerstone of Chinese CSR reporting systems and information disclosure and could provide China with leadership in the international CSR field (Chinese Academy of Social Science 2009). The provision is that the 'Chinese CSR Report Preparation Guide (1.0)' is to be adopted as the reporting benchmark to classify the CSR disclosures made by Chinese companies as a basis for assessment. Any tension between international indicators and conflicts with indicators reflecting Chinese culture and laws can be overcome. The classification scheme developed based on the Guide is shown in the Appendix.

Unit of Analysis

Identification of units for coding is of importance in content analysis (Neuendorf 2002) as selection of the unit is a matter of judgment (Krippendorff 2004). Consistent with rehearsed arguments put forward in previous studies, sentences are used here for the coding and the measurement units to help produce complete, reliable and meaningful data for analysis (Milne and Adler 1999; Unerman 2000). Reliable identification of a specific disclosure requires understanding of the meaning of a sentence and, as a basis for coding. It has been argued that use of the sentence is far more reliable than any other unit for conveying meanings and contextualization (Gray et al., 1995b; Unerman 2000; Rair 2002; Bouten et al., 2011). As a measurement unit, number of sentences can be quantified with less judgement and thus less measurement error than measuring by, for example, proportions of a page (Unerman 2000). Use of sentences also removes the need to account for or standardize the number of words and overcomes the problem of using pages when print size, column size and page sizes may

differ from one report to another (Hackston and Milne 1996). Therefore, use of the sentence as the unit allows more specific analysis of specific issues and themes (Deegan et al., 2002). The procedure for content analysis then consists of two dimensions: (1) identification of meaning and content, which enables grouping of the sentences into appropriate categories based on the Chinese CSR Report Preparation Guide (CASS-CSR 1.0); and (2) quantity and information type, which facilitates measuring the quantity and quality of disclosures based on the number and types of sentences.

Measurement of Disclosure Quantity and Quality

Disclosure Quantity

A number of prior studies have measured the presence/absence of disclosure items (e.g. Haniffa and Cooke 2005; Frost et al., 2005; Cormier et al., 2005; Guenther et al., 2007; Jose and Lee 2007; Brammer and Pavelin 2006, 2008; Branco & Rodrigues 2008). Such measurement based on existence/non-existence distinguishes in a dichotomous fashion between those firms that make some form of disclosure, however minimal, and those that make none (Brammer and Pavelin 2006). Yet, the simple existence/non-existence approach can be misleading in the sense that ‘it treats companies making one sentence of disclosure as being equal to one that makes fifty’ (Hackston and Milne 1996, p.89). However, the number of sentences could be the absolute level of measurement of disclosure quantity, indicating how much emphasis a firm gives to a particular disclosure area (Bouten et al., 2011). For this reason, the quantity of disclosures is measured by the number of sentences relating to CSR over the period 2007 – 2010.

Disclosure Quality

It is generally recognized that the quantity of disclosure does not indicate what is actually being disclosed. Therefore, sole emphasis on disclosure quantity could result in information loss and be mitigated by examining the quality and type of data communicated (Guthrie et al., 2004). A number of previous studies have developed a disclosure quality index to quantify a firm’s disclosures based on the type of information - whether disclosures are measured by monetary, non-monetary, declarative (narrative) information, or a combination of all three (e.g. Wiseman 1982; Zeghal and Ahmed 1990; Jones and Alabaster 1999; Raar 2002; Cormier et al., 2003; Douglas et al., 2004; Guthrie et al., 2008; Dong and Burritt 2010). However, the disclosure quality index: cannot capture the contextualization of CSR disclosure; lacks specificity in the disclosed information, indicating that CSR reporting is typically vague; and is impossible to use to judge whether companies mainly elaborate on aims and intentions or on real actions taken (Bouten et al., 2011). Therefore, revisions to the previous quality index were made in order to address these limitations. A distinction was made between two types of disclosure: general categories of disclosure and disclosures made on performance indicators. The quality of general disclosures was assessed based on different types of information (narrative; non-monetary; monetary) and substance of information (value and commitment; initiatives and policies; performance and achievement). The disclosures of performance indicators were rated based on the scheme developed by Clarkston et al., (2008). As shown in the classification scheme developed based on the ‘Chinese CSR Report Preparation Guide’ (Appendix), a total 14 items were included as general categories of disclosures and in addition, 61 performance indicators were included. For each category of disclosure, a maximum score 6 was assigned. Hence, the overall maximum score for the disclosure index was 450. The Disclosure Quality Index is shown in Table 2, which combines different types of information which Bouten et al. (2011) argue can be used as a valuable tool for assessing overall quality of a company’s reporting practice.

Table 2: Disclosure Quality Index

Categories of Disclosures	Types of Information	Score Assigned
General Categories		Max score 6
Types of information	Not disclosed	0
	Disclosed as narrative	1
	Disclosed as non-monetary	2
	Disclosed as monetary	3
Substance of information	Disclosed as Value and Commitment	1
	Disclosed as Initiatives and Policies	2
	Disclosed as Performance and Achievement	3
Performance Indicators	Not disclosed	0
	Disclosed	1
	Disclosed relative to peers/rivals or industry	2
	Disclosed relative to previous period	3
	Disclosed in absolute and normalized form	4
	Disclosed relative to target	5
	Disclosed at disaggregated level (i.e., plant, business unit, geographic segment).	6

4. RESULTS

Overall Reporting Trend in Mining and Minerals Industry

The reporting trend for CSR disclosures is represented by the number of reporting companies (Table 3). In general, there is a dramatic increase in reporting companies during 2007 – 2010, particularly since 2008. In 2007, 44% of total companies made CSR disclosures in their *annual reports*. This percentage soared to 71% in 2008 and continued in 2009 and 2010. The peak for reporting in 2008 could be the active response to the promotion of CSR and CSR reporting by the Chinese government and stock exchanges that year. By 2010, 98% of listed mining companies reporting CSR information in their annual reports with 100% being achieved on the Shanghai exchange.

However, for standalone *CSR reports*, the pattern of change is relatively stagnant after 2008. In 2007, about 9% of companies released separate CSR reports. This percentage jumped to 37% in 2008, but remained at a similar level during 2009 (46%) and 2010 (44%). The results seem to suggest that for Chinese businesses, annual reports are still the most commonly used reporting means on CSR issues while standalone CSR reports have not become the major reporting medium. This may indicate the immature stage of CSR reporting in China, as separate CSR reports have become a norm in most developed economies.

Table 3: The Number of Disclosing Companies during 2007-2010

Year	<i>Annual Report</i>				<i>CSR Report</i>			
	2007	2008	2009	2010	2007	2008	2009	2010
Shanghai (SSE)	16	23	26	27	4	14	13	13
% of Total SSE	59.3%	85.2%	96.3%	100%	15%	51.2%	48.1%	48.1%
Shenzhen (SZ)	4	10	14	18	0	3	8	8
% of Total SZ	21%	52.6%	73.6%	94.7%	0	15.8%	42.1%	42.1%
Total Disclosing	20	33	40	45	4	17	21	20
% of Total Sample	44%	71%	87%	98%	9%	37%	46%	44%

Disclosure Quantity

Results of overall disclosure quantity measured by volume of relevant sentences are presented in Table 4 Panel A, with further analysis of disclosure quantity by individual years in Panel B. At the aggregate level, the average amount of CSR disclosure in both annual reports and stand-alone CSR

reports is 53 sentences, ranging from the minimum of 2 sentences to the maximum 369 sentences. By looking at the annual reports and CSR reports separately, the results tend to show a different picture. The average amount of disclosures in annual reports is 16 sentences, ranging from 1 to 47 while the average amount of disclosures in CSR reports is 86 sentences, ranging from the minimum of 12 to the maximum 352 sentences. Therefore, the results reveal that although annual reports are the most commonly used information medium for Chinese mining companies to communicate CSR performance, the extent of CSR information provided in annual reports is still poor. Therefore although more companies disclose CSR information in annual reports such reports are found to be less informative than CSR reports in communicating CSR performance because annual reports are still used as a major disclosure medium to communicate the vision and strategy of the company, profile, financial performance and corporate governance structure for shareholders.

As shown in Panel B, overall the total volume of CSR disclosure increases from 918 to 2953 sentences between 2007 and 2010, again with the peak occurring in 2008. In the annual reports, the volume of CSR disclosures increases from 574 to 705 sentences, at a rate of 23% while in standalone CSR reports, the length of CSR information increases from 344 to 2248 sentences, an increase of over 553%. Also the results indicate that over the period 2007-2010, there is a 123% increase in the number of disclosing companies through annual reports while there is a 388 % increase in the number of disclosing companies through stand-alone CSR reports. These findings reveal that although in annual reports an increasing number of companies adopt reporting about CSR (123%), the quantity of such disclosures only increases slowly (23%). In contrast, there is a significant increase in the quantity of CSR information in standalone CSR reports (553%), indicating the growing potential of CSR reports as the future key information medium.

Table 4: Disclosure Quantity of CSR reporting

<i>Panel A: Overall Quantity of Disclosure during 2007 – 2010</i>			
No of Sentences	Total Disclosure Quantity	Annual Report Quantity	CSR Report Quantity
Mean	53	16	86
Median	25	14	55
Minimum	2	1	12
Maximum	369	47	352
<i>Panel B: Quantity of Disclosure by Year</i>			
Year	Total Disclosure Quantity	Annual Report Quantity	CSR Report Quantity
2007			
Total	918	574	344
Mean	20.87	13.05	7.82
Minimum	0	0	0
Maximum	156	33	123
2008			
Total	1922	615	1307
Mean	43.68	13.98	29.7
Minimum	0	0	0
Maximum	275	44	231
2009			
Total	2606	638	1968
Mean	59.23	14.5	44.73
Minimum	0	0	0
Maximum	326	35	291
2010			
Total	2953	705	2248
Mean	67.11	16.02	51.09
Minimum	1	1	0
Maximum	399	47	352

Disclosure Quality

The excellence of a CSR report does not simply depend on the amount of data disclosed, but rather on the quality of the information disclosed (Guo et al., 2009). The results of disclosure quality scores, benchmarked against CASS-CSR 1.0, are presented in Table 5, with breakdown disclosure quality by years in Panel B. Overall, the quality score of CSR disclosures in both annual reports and stand-alone CSR reports ranges from the minimum 2 to the maximum 194. In annual reports, quality ranges from 2 to 54 while in separate CSR reports, the quality score ranges from 8 to 180. The results indicate great variation in the reporting quality both in total and in different reporting media. The CSR reports have greater qualitative information than annual reports in communicating CSR.

As shown in Panel B, overall the average quality score of CSR disclosure increases from 12.65 to 36.01 between 2007 and 2010, indicating an increasing trend of CSR disclosure quality for Chinese companies. In the annual reports, the average quality of CSR disclosures increases from 18.27 to 22.39, at a rate of 22.5% while in standalone CSR reports, the average quality of CSR information increases from 7.02 to 49.64, a six times increases during the period. However, on average, the quality score for CSR disclosure made by Chinese mining companies is only 13.33%, indicating incomplete information disclosure and displays obvious examples of selective disclosure.

Table 5: Disclosure Quality of CSR reporting

<i>Panel A: Overall Disclosure Quality</i>			
	Total Disclosure Quality Score	Annual Report Quality Score	CSR Report Quality Score
Mean	61	23	89
Median	38	21	79
Minimum	2	2	8
Maximum	194	54	180
<i>Panel B: Quality of Disclosure by Year</i>			
Year	Total Disclosure Quality	Annual Report Quality	CSR Report Quality
2007			
Total	1113	804	309
Mean	12.65	18.27	7.02
Minimum	0	0	0
Maximum	142	54	142
2008			
Total	2379	887	1492
Mean	27.03	20.16	33.9
Minimum	0	0	0
Maximum	136	48	136
2009			
Total	2951	901	2050
Mean	33.53	20.47	46.59
Minimum	0	0	0
Maximum	180	52	180
2010			
Total	3169	985	2184
Mean	36.01	22.39	49.64
Minimum	0	2	0
Maximum	168	48	169

Quantity Increase vs. Quality Increase

Further analysis was made to observe the differences between disclosure quantity and quality changes during the study period. Table 6 provides the results of such quantity and quality comparisons. Panel A of Table 6 compares rate increases of disclosure quantity and quality, Panel B presents the *t*-tests of differences between quantity and quality and Panel C presents Tukey's HSD tests of the differences between years. As shown in Panel A, in terms of disclosure quantity as measured by number of sentences, the overall rate increase is 2.22, while the quality of CSR disclosures made by mining companies increased 1.8 times, relatively slower than the increase of quantities. The results of increases in annual reports show that the quality increase is minimal (0.04 times) compared with the quantity increase (0.23 times), confirming a quantity-quality gap of CSR reporting in annual reports, as suggested by Guenther et al., (2007). However, the results in CSR reports reveal a similar pace of increase in both disclosure quantity (5.53 times) and quality (5.6 times).

Table 6: Comparisons of Disclosure Quantity and Quality changes

<i>Panel A: Comparing Increase rates</i>					
Quantity increase					
	Total		Annual Report		CSR Report
	2.22		0.23		5.53
Quality increase					
	Total		Annual Report		CSR Report
	1.80		0.04		5.60
<i>Panel B: T-test of differences between Disclosure Quantity and Quality</i>					
		Mean	Std. Dev.	<i>t</i>	<i>p</i> -value
Overall quantity vs. quality		0.349	0.500	8.690	0.000***
Quantity vs. quality in annual reports		1.676	0.379	55.178	0.000***
Quantity vs. quality in CSR reports		0.262	0.475	4.479	0.000***
<i>Panel C: Tukey's HSD test of differences between Disclosure Quantity and Quality by years</i>					
Year	Quantity			Quality	
		Mean Diff.	<i>p</i> -value	Mean Diff.	<i>p</i> -value
2007	2008	-.585	.124	-.525	.104
	2009	-.861	.006***	-.799	.003***
	2010	-.773	.015**	-.638	.023**
2008	2009	-.277	.704	-.274	.061
	2010	-.188	.877	-.113	.955
2009	2010	.088	.984	.162	.876

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Panel B of Table 6 shows that quantity and quality gap is significant in all instances (all *p*-values = 0.000), including overall gap and the gap in different reporting media. Further comparison was made for disclosures by different years in Panel C. According to Coakes and Steed (2007), Tukey's HSD test can determine where the significance lies over different time periods. By using the HSD tests, the results confirm that there is a significant improvement in both quantity and quality of disclosures after 2008 (i.e. 2009 and 2010) compared with before 2008 (i.e. 2007), which means a turning point for Chinese companies' increasing adoption of CSR reporting practice in 2008. However, none of the changes reported in Panel C are significant since then.

General Reporting Content

Table 7 presents the detailed content of CSR disclosures made by Chinese mining companies during 2007-2010. Overall, six main categories of information are disclosed. They are *Visions and Strategy*,

Governance and CSR Management, Stakeholder Engagement, Market Performance, Social Performance and Environmental Performance. Two main categories - *Social Performance* and *Visions and Strategy*, are the mostly reported themes by Chinese mining companies, accounting for 35.71% and 20.05% of the total disclosures respectively, followed by 15.81% of environmental performance disclosures. In total, *Strategy, Governance and CSR Management* account for 27.82% of total disclosures. The greater level of disclosures of strategy and governance structure may be explained by the release of *the Code of Corporate Governance* by the China Securities Regulatory Commission (CSRC) in 2002. In terms of quality of each reporting category, a slightly different pattern is shown. As indicated by Table 7, the social performance category still obtains the highest score, which accounts for 30.61% of the total quality of disclosures, followed by market performance (19.78%), which includes the specific items reported of investors, customers and products, research and development and supply chain. A comparison between the quantity and quality of disclosure content reaffirms the quantity-quality discrepancy. Market performance accounts for 14.44% and 19.78% of total disclosure quantity and quality scores respectively. Disclosure of strategy, CSR management and environmental performance lags in terms of information quality. Disclosures about stakeholder engagement are limited in terms of both quantity and quality.

Table 7: General Reporting Category

<i>Category</i>	<i>% of Total Disclosure Quantity</i>	<i>% of Total Disclosure Quality</i>
Vision and Strategy	20.05	15.14
Governance and CSR Management	7.77	8.8
Stakeholder Engagement	6.22	6.33
Market Performance	14.44	19.78
Social Performance	35.71	30.61
Environmental Performance	15.81	19.25
Total	100	100

Specific Reporting Content

A closer look was undertaken to examine the specific reporting content that reflects main themes of CSR disclosure chosen by Chinese mining companies. Table 8 reports the results of specific content analysis.

Visions, Strategy and Governance

Panel A presents the specific items disclosed with the broad category of *Visions, Strategy and Governance*. Chinese mining companies disclose large amounts of information about the value/mission statement and CSR management, such as the establishment of a CSR committee, a safety supervisory committee and governance body, and subscribe to international or domestic standards/initiatives. The development of comprehensive and mature governance structures and CSR management systems, such as ISO 14000 and ISO 9001, have been recognized as most progressive CSR movement in Chinese companies (The Chinese Academy of Social Science 2010, p.35). This could be reflected in the CSR disclosures of sample companies, although the information is largely disclosed as narrative and in value statements. Results indicate that Chinese companies have started to integrate CSR into their corporate governance. The least reported area - stakeholder engagement accounts for 6.22% of the total disclosures, implying the lack of stakeholder consultations and public participation regarding the social and environmental matters in this industry (e.g. Li 2007; Dong and Burritt 2010).

Table 8: Specific Reporting Content

<i>Panel A: Vision, Strategy, Governance and CSR Management</i>		
	% of Total Quantity	% of Total Quality
Value/Vision	38.68	21.47
Sustainability Analysis	15.67	12.94
Summary of Key Performance	9.11	12.12
Award	8.6	13.41
Governance and CSR Management	27.94	33.9
<i>Panel B: Disclosure of Social Performance</i>		
	% of Total Quantity	% of Total Quality
Production Safety	38.24	28.37
Government	34.31	39.42
Employee	18.11	27.52
Community	9.34	4.69
<i>Panel C: Environmental Performance Disclosures</i>		
	% of Total Quantity	% of Total Quality
Environmental Policy	22.51	18.65
Energy Savings	22.22	20.22
Emissions	18.80	18.50
Circular Economy	10.77	8.49
Water, Dust and Waste	13.32	17.19
Environmental Investment	3.39	7.08
Clean Energy	2.86	2.27
Biodiversity	2.23	2.11
Reclamation and Rehabilitation	1.66	2.54
EIA	1.36	2.16
Land	0.6	0.8

Social Performance and Government

The social dimension of sustainability concerns an organization's impacts on the social systems that it operates (GRI 2006). According to the Chinese CSR Report Preparation Guide (CASS-CSR 1.0), production safety, employees, community and government are included in the category of social performance. As shown in Table 7, disclosure of social performance obtains the highest score in terms of quantity and quality and account for 35.71% and 30.61% of total disclosures respectively. As revealed in Table 8 Panel B, the dominant disclosure in the social performance category is production safety, accounting for 38.24% of the total followed by information disclosed to governments. An insight into the disclosure of production safety indicates that the mining companies disclose comprehensive information related to the concept of safety, goal of 'zero fatality', implementation of safety management system, safety culture, education and training. Such a pattern could be attributed to the fact that China's mining accident rates in comparison with other countries around the world attract international scrutiny (Li 2007; Tu 2007; Homer 2009). However, Chinese mining companies tend to focus on reporting the existence and objectives of such systems with less emphasis on reporting how the system is implemented and integrated into operations. The central government is declared to be the most important stakeholder by the mining companies. More than 80% of companies direct their goals, strategies or operational targets towards governmental policies, such as the 12th five-year plan (2011-2015). The new national development program emphasizes development of a green and sustainable mining industry, building of safe mines, improvement of resource savings, rationalization of resource usage, acceleration of mine reclamation and rehabilitation (China Daily 2011). However, most companies only focus on reporting one of these aspects as suggested by the 12th five-year plan rather than explaining how to integrate the plan into overall governance and long term strategies.

Environmental Performance

Table 8 Panel C provides the results of specific environmental items disclosed by Chinese mining and minerals companies. The top three items disclosed by the mining and minerals companies are environmental management and policy, emissions reduction, and energy saving. The disclosures of environmental management and policies achieve the highest scores in comparison to the disclosures of GHG emissions and other climate change issues, indicating the current lack of sufficient understanding and ‘know-how’ of disclosures of such issues by Chinese companies (Guo et al., 2009). Although the Chinese government has developed a series of environmental measures for sustainable development of the coal mining sector, such as compensation and restoration schemes, water resource protection and improved governance of coal mining waste, the measures do not explicitly mention GHG emissions reduction (World Bank 2008 p.14). This is reflected in the content analysis, which reveals limited and sporadic GHG emissions disclosures by Chinese companies. Most GHG information is disclosed as narrative statements about values and goals rather than the total weight of emissions and reduction achieved in terms of total CO₂ equivalent and individual types of emissions.

Since the early 1980s, a legal framework has emerged in China concerned with environmental protection (Guo 2005). It requires enterprises to report environmental information to the government when pollution occurs, where projects have negative environmental impacts, or where any operating change that affects the environment arises. However, voluntary corporate environmental reporting to the general public through CSR reporting is a relatively recent event. Overall, environmental disclosures account for 15.81% and 19.25% of the total disclosures in terms of quantity and quality, indicating that that public reporting of environmental information appears to be marginal.

5. DISCUSSION AND CONCLUSION

This study investigates the current status of CSR reporting practice by Chinese listed mining and minerals companies based on content analysis of all available reports from these companies during 2007 and 2010. Through benchmarking against the domestic CSR reporting framework - ‘Chinese CSR Report Preparation Guide (CASS-CSR 1.0)’, the results highlight that, overall, Chinese companies have made continuous improvement in CSR awareness and have adopted an increasing level of CSR reporting in practice. However, the quality and comprehensiveness of disclosures leave much to be desired. The evidence obtained shows that the quality of CSR disclosure remains poor. Annual reports are the most commonly used means for reporting on CSR issues, but the increase of quantity and quality of disclosure in annual reports is slower than in standalone CSR reports since 2008. This suggests CSR reports have increasing potential as the future key information source.

This study reveals both convergence and divergence in CSR reporting practice of Chinese companies, in comparison with international studies. The highly disclosed information relating to *Vision, Strategy and Governance* structure, including the establishment of the CSR management system, may well reflect the increasing integration, or mainstreaming, of the concept of CSR into corporate governance structures by Chinese companies, following global practice (Kolk 2008). Contrary to previous evidence in western countries (e.g. Dong and Burritt 2010), the mining and minerals companies in China are keen to disclose information in relation to production safety and social impacts rather than environmental impacts despite the fact that China’s mining and minerals industry is criticized as being the most highly polluting industry (Tu 2007). The reason may be that mining accident rates increase sharply in recent years in contrast with other countries around the world, and now those rates are subject to high international scrutiny (Li 2007; Homer 2009). Therefore, mining companies tend to disclose greater levels of information regarding safety, demonstrating good mining practice in line with international standards thereby trying to maintain the legitimacy of their operations.

Some unique items are reported in the Chinese context, including items, such as ‘support of government policies’, ‘sustainability fund’, and ‘circular economy’ policy. In terms of quality, the results indicate that overall, the companies sampled mainly confirm the above aspects and cover most areas of disclosure. However, some information is disclosed in a selective and partial way. In

response to the question raised in Introduction as to the leading role of Chinese mining companies for CSR reporting, this paper concludes that Chinese mining industry is not ready for but has a high potential to play a leading role in CSR disclosure. Based on the Chinese Academy of Social Science's classification criteria presented in Table 9 and the analysis made for this study, Chinese mining and minerals companies can be classified in the middle stage of 'Leader' and 'Follower' indicating relatively better performance than the Top100 Chinese companies⁴ in pursuing CSR reporting practice but there is still much needed in order to achieve 'best practice'.

Table 9: Classification of CSR Reporting Status in China's Mining and Minerals Industry

Status	Characteristics	Status
Best Practice	Most socially responsible companies with comprehensive CSR management system and highest level of CSR information disclosure	
Leader	Leading companies with continuously improved CSR management system and comprehensive CSR information disclosure	
Follower	Companies that began pursuing CSR practices and disclose substantial CSR information.	← Mining Industry
Starter	Companies that have not yet established completed CSR management system and disclose certain CSR information, with substantial gap with leaders and followers	
Bystander	Companies with lowest level of CSR information disclosure	← 80% of Top 100 Chinese Companies

The current achievements of CSR reporting practice in China's mining and minerals industry could be characterized as a high level concern with the issue but a low level engagement with improving reporting performance. The results confirm previous studies, such as Guo et al., (2009), which suggest that the imbalance between information quantity and quality has been recognized as a chronic problem in CSR reporting in China. In the institutional context of China during 2007 – 2010, CSR disclosures are largely used by Chinese companies as a way of maintaining legitimacy and responding to institutional pressures, particularly the central government. However, there is still low engagement with improving the substance and quality particularly among stakeholders at the lower level, such as the Provincial government. Tensions between the central government and Provincial government are highlighted where the former has desire to construct a harmonious society and broader policies for pushing responsible behavior of Chinese companies through adopting CSR disclosures while the latter are more concerned about the cost of reporting. Hence, to improve the comprehensiveness and usefulness of CSR reporting, the lower-level stakeholders, Provincial governments, which act as the state's agents, local communities, and other internal organizational factors, such as corporate governance procedures, supervisory board, managers' attitudes and corporate resources, should play complementary roles.

The study contributes to understanding CSR reporting practice in a developing country context and a particular industry but one limitation is the use of corporate self-reporting practice focusing on secondary data – corporate annual reports and CSR reports. In further research, the relationship between CSR reporting and actual CSR performance could be investigated to identify the extent to

⁴ The list of the top 100 Chinese companies is released by the China Enterprise Confederation (2009), including cross-sectional listed and unlisted companies and it is selected as the sample by the China Academy of Social Science (2010).

which public reporting practice could move China's mining and minerals industry towards a more equitable, open, harmonious and greener sector.

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APPENDIX: The Classification Scheme Developed Based on ‘Chinese CSR Report Preparation Guide (CASS-CSR 1.0)’

CASS-CSR Disclosure Category	Map to G3	Items Reported In Chinese Context
GENERAL CATEGORIES STRATEGY AND ANALYSIS		
Statement from the most senior decision maker of the organization (e.g. CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy	2.1.1 Statement from management	
Value/Mission/Goal	2.1.1; 4.8	
Awards received in the reporting period	2.2.10 Award	
Summary of key performance	2.1.2 Description of key impacts, risks and opportunities	
GOVERNANCE AND MANAGEMENT		
CSR Management Procedures and progress of governance body for overseeing the organization's identification and management of economic, environmental and social performance	4.9	
CSR management system (e.g. CSR department, personnel, certification, implementation)	4.8; 4.12	
Subscription to international standards; initiatives	4.13	
Membership in associations (e.g. industry association, national and international advocacy organization)		
CSR training and education (e.g. CSR seminars, conferences, courses, programs, etc)		√
Internal control and risk management system	core S02-4 corruption	
Explanation of the precautionary approach	4.11	
Non-compliance: significant fines and non-monetary sanctions for non-compliance with laws and regulations	EN28, S08 PR9	
STAKEHOLDER ENGAGEMENT		

Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to, including through its reporting	4.17	
Approach to (internal and external) stakeholder engagement	4.16	
Senior management participation		√
PERFORMANCE INDICATORS MARKET PERFORMANCE (M)		
M1 Investor		
M1.1 Management system of investor relations	Management approach	
M1.2 Growth capability (e.g. sales, growth rate)	EC1 Direct economic value generated and distributed	
M1.3 Profitability (e.g. profit, percentage of growth)		
M1.4 Financial health (e.g. debt/equity ratio)		
M2 Customer and Product		
M2.1 Policy / Management of customer relations	Management approach	√
M2.2 After sales service system		√
M2.3 Customer complaint solved		√
M2.4 Practice related to customer satisfaction, including results of surveys measuring customer satisfaction	PR5 Customer satisfaction	
M2.5 Management system/Certifications of product quality	Management approach	
M2.6 Non-compliance/negative information concerning product quality and safety	PR2 Non-compliance concerning health and safety of product and service	
M2.7 Research and Development (e.g. innovative product, personnel, investment)		√
M3 Supply Chain		
M3.1 Strategies for anti-monopoly	S07 Action for anti-competitive behavior anti-trust, anti-monopoly	
M3.2 Strategies for anti-trust	S07	
M3.3 Strategies for anti-competitive	S07	
M3.4 Policies for responsible purchasing		√
M3.5 Rate of responsible purchasing		√
M3.6 Policies for green purchasing		√
SOCIAL PERFORMANCE (S)		
S1 Government		
S1.1 Responding to governmental policies		√
S1.2 Payment to government (Tax contribution)	EC1	

S1.3 Support employment		√
S2 Employee		
S2.1 Compliance with employment contract		√
S2.2 Social pension provided		√
S2.3 Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	LA13	
S2.4 Ratio of basic salary of men to women by employee category	LA14	
S2.5 Employee turnover	LA2	
S2.6 Employee training and education for career development	LA10-12	
S2.7 Employee communication and feedback	4.4	
S2.8 Employee satisfaction		
S3 Production Safety		
S3.1 Education, training, counseling, prevention, and risk-control programs in place regarding occupational health and safety	LA8	
S3.2 Rates of injury, occupational diseases, lost days, and absenteeism, and number of work related fatalities by region	LA7	
S3.3 Contractor safety		√
S4 Community		
S4.1 Impact of nature, scope, and effectiveness of any programs on community	S01 Community	
S4.2 Local hiring	EC7 Market presence	
S4.3 Local based supplier	EC6 Market presence	
S4.4 Charity and donation	EC1 Economic performance	

ENVIRONMENTAL PERFORMANCE (E)

E1 Environmental management		
E1.1 Environmental management system	Management approach	
E1.2 Training and awareness	Management approach	
E1.3 Environmental impact assessment		√
E1.4 Environmentally friendly production and product (e.g. R&D, equipment, technology)	EN26	
E1.5 Total environmental protection expenditures and investment	EN30	
E1.6 Biodiversity protection	EN12; MM2	
E1.7 Land use	MM1	
E1.8 Reclamation and Rehabilitation		
E2 Energy saving		
E2.1 Energy saving policies, initiatives and technologies	Management approach	

E2.2 Energy consumption/saving	EN3-5	
E2.3 Water consumption/saving	EN8	
E 2.4 Usage of renewable energy	EN6	
E2.5 Circular economy policy		√
E2.6 Research on new energy and clean production		√
E3 Emission		
E3.1 Policies, initiatives and technologies of reducing greenhouse gas emissions and reduction achieved	EN18	
E3.2 Policies, initiatives and technologies of reducing other air emission waste	EN16-17	
E3.3 Total weight of other air emission and reduction achieved		
E3.4 Policies, initiatives and technologies of water discharge	EN20	
E3.5 Total water discharge		
E3.6 Policies, initiatives and technologies of waste disposal	EN21	
E3.7 Total weight of waste (by type and disposal method)		
E3.8 Waste recycled	EN22	
E3.9 Noise	EN26	
