

**Article Title:** An Assessment of CSR Reporting Practice in China's Mining and Minerals Industry

**Author Details**

Author 1 Name: Shidi Dong

Department: Centre of Accounting, Governance and Sustainability (CAGS), School of Commerce,  
Division of Business

University/Institution: University of South Australia

Town/City: Adelaide

State (US only):

Country: Australia

Author 2 Name: Roger Burritt

Department: Centre of Accounting, Governance and Sustainability (CAGS), School of Commerce,  
Division of Business

University/Institution: University of South Australia

Town/City: Adelaide

State (US only):

Country: Australia

Author 3 Name: Wei Qian

Department: Centre of Accounting, Governance and Sustainability (CAGS), School of Commerce,  
Division of Business

University/Institution: University of South Australia

Town/City: Adelaide

State (US only):

Country: Australia

**Corresponding author:** Shidi Dong

**Corresponding Author's Email:** shidi.dong@unisa.edu.au

**Acknowledgments (if applicable):**

The author wishes to thank Professor. Roger Burritt and Dr. Wei Qian at the University of South Australia for their valuable and constructive comments on this paper.

# **An Assessment of CSR Reporting Practice in China's Mining and Minerals Industry**

## **ABSTRACT**

**Purpose** - This study assesses the current status of CSR reporting practice in China's mining and minerals industry during 2007 – 2010.

**Design/methodology/approach** - A sample of 176 mining and minerals companies listed on China's domestic stock exchanges – Shanghai and Shenzhen stock exchanges is selected. Content analysis has been conducted to extract disclosure quantity, quality and contents from both corporate annual reports and CSR reports. The corporate reports are then assessed against the domestic CSR reporting framework – 'Chinese CSR Report Preparation Guide (CASS-CSR 1.0)'.

**Findings** - The study identifies that there is a dramatic increase in the number of reporting companies; disclosure quantity; and quality in China's mining and minerals industry. The result is well coincident with the phase in historical development of CSR reporting in China – the rapid development of CSR reporting practice during the period of 'building a harmonious society' (mid 2000s – 2010). However, the disclosure quantity and quality still need considerable improvement.

**Originality/value** – This study adds to empirical evidence about the status of CSR reporting practice in the context of a developing country and an environmentally sensitive industry in particular, using an indigenous reporting guidance. The study supports that the current CSR reporting practice in China's mining and minerals industry can be characterized as a high level concern with the issue but a low level engagement with improving the reporting substance. Therefore, the usefulness of ascertained level of disclosures for various stakeholders' information demands and decision-making is in doubt.

**Keywords:** China, Mining and Minerals Industry, CSR Reporting, Content Analysis, Reporting Framework, CASS-CSR 1.0

**Article Classification:** Research Paper

## 1. INTRODUCTION

The extraction and depletion of non-renewable resources in the mining and minerals industry has been a major concern in debates about sustainability development due to the finite nature of non-renewable, and negative social and environmental legacies within the industry (Cowell et al., 1999; MMSD 2002). To secure the long-term financial viability and the ‘social license’ to operate, mining companies yearn to be recognized as ‘sustainable’ by measuring, assessing their sustainability performance, and demonstrating continuous improvement over the long term (Azapagic 2004; Jenkins 2004). In the global context, mining companies are approaching sustainability initiatives with greater rigour than in the past, leading to streamlining and improving CSR reporting practice to meet spiralling stakeholder demands (Deloitte 2012). The industry-specific information is perceived to be more relevant to stakeholders assessing sustainable performance in a specific industry (Dong and Burritt 2010).

In the last decade, one of the most important developments in the global mining industry has been the rapid development of China by virtue of the sheer volume of minerals it is using, importing, and exporting to meet its massive demand for resources (MMSD 2002). China’s mining and minerals industry contributes significantly to the national economy, people’s livelihood and helps shape the mining industry globally for investment, acquisitions, fund-raising and other major strategic initiatives (KPMG 2006). However, the industry fuels various social and environmental issues. The industry is associated with historical legacy of environmental degradation, the restoration of abandoned mine sites, waste tips, polluted water courses and subsided land (World Bank 2008). In 2011 China has become the largest GHGs country, accounting for 23% of the global amount (ChinaNews.com 2011). The coal mining, in particular, is criticized as the most dangerous worldwide, placing the industry under international scrutiny (Li 2007; China Mining Report 2010). A chronic lack of transparent information combined with poor statistical measures probably underestimates the severity of challenges in China’s mining and minerals industry, and impedes stakeholders’ evaluation of corporate performance in a sustainable manner (Tu 2007; China Mining Report 2011).

In pursuing long-term sustainable development, the industry is required to improve utilization rate of resources, reduce environmental pollution, coordinate overall development of employees, industry, economy and society, and improve information transparency and accountability (World Bank 2008). Hence, an in-depth investigation of CSR reporting practice in this particular industry is expected to provide important insight into how China's mining and minerals industry discharges its social responsibilities, improves its social and environmental performance, and contributes to the goal of sustainable development through open, transparent information production and dissemination. As a high environmentally sensitive industry, the mining and minerals industry has been studied frequently in CSR literature in western countries and examined in a number of international surveys. However none of the studies has provided a comprehensive investigation into the context of developing countries.

Given China's different culture and history from the west, the distinctive roles for government and regulation and its recent integration into the global economy, contextually anchored country specific research on CSR reporting practice is advocated by a number of researchers (Gao 2009; Belal and Momin 2009; Moon and Shen 2010; Noronha et al., 2012; de Abreu et al., 2012). It is, therefore, the motivation of this study to add substantially to the existing literature by extending the investigation of CSR reporting practice into China. The principal objective of this study is to provide an assessment of the status of CSR reporting practice in China's mining and minerals industry over the period 2007 – 2010. A sample of 176 mining and minerals companies listed on China's domestic stock exchanges – Shanghai and Shenzhen stock exchanges is selected. The 'Chinese CSR Report Preparation Guide (CASS-CSR 1.0)', which is developed by the Chinese Academy of Social Science in 2009 as the first full-coverage CSR reporting guidebook for Chinese companies and the cornerstone of the CSR reporting system in China, is adopted as a reporting framework (The Chinese Academy of Social Science 2009)<sup>1</sup>. It is generally recognized that CSR issues in developing countries need to be carefully examined as the use of CSR categorization for developed countries might not reflect the specific

---

<sup>1</sup> A revised and upgraded version 'Chinese CSR Report Preparation Guide (CASS-CSR 2.0)' is released by the Chinese Academy Social Science in Oct 2011.

socio-cultural and political context (Belal and Momin 2009). By adopting a domestic CSR reporting framework capturing the Chinese context, this study could shed light on what unique items are reported by Chinese companies. Hence, the main objective of the study is examined in following research questions:

- To examine the overall trend of CSR reporting in China's mining and minerals industry
- To assess the disclosure quantity, quality and specific reporting content in both corporate annual reports and CSR reports, content analysis against the reporting framework – 'Chinese CSR Report Preparation Guide (CASS-CSR 1.0)'

The next section proceeds to a brief overview of relevant literature on CSR reporting practice in the mining and minerals industry from a global perspective. The literature which focuses on the Chinese context is reviewed in particular. Section 3 outlines the research methods, including the selection of sample and study period; the choice of a reporting framework; and development of disclosure quality index. The results of analysis are then presented in section 4 and the concluding comments are made in section 5.

## **2. LITERATURE REVIEW**

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

The industry the company belongs to has been identified as a significant influential corporate characteristic over CSR reporting practice. Companies in different industries tend to report different information which is pertinent to the particular industry and stakeholders. Therefore, to assess a company's social and environmental performance, concerns and issues which are prevalent in the specific industry context should be considered (Guthrie et al., 2008). As a high environmentally sensitive industry, the mining and minerals industry has been identified as one of the leading sectors in reporting either environmental performance or sustainability (e.g. Dierkes and Preston 1977;

Adams et al., 1998; Kolk et al., 2001; Frost et al., 2005). 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 the oil and gas and mining, used a high number and diversity of indicators in their reports. The oil and gas, and mining companies presented an advantage for the environmental dimensions. Indicators, such as 'emissions per pollutant', 'H&S' 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 the mining companies' reports. Although the mining and minerals industry has made great efforts in reporting environmental information or sustainability issues, a quantity-quality discrepancy is revealed. Guenther et al., (2007) analyzed the current status quo of environmental reporting of mining and oil and gas industries for 2005, employing 35 environmental indicators proposed by the Global Reporting Initiative (GRI) as a reporting framework. The study identified that on average, the companies' environmental reports covered approximately 31% of GRI indicators. However, amongst the indicators disclosed, only one indicator, 'total water use' was reported completely by more than 50% of the companies.

As shown by previous studies, the mining and mineral industry has been a leading player in CSR reporting practice and focus in social and environmental accounting research for years, particularly in developed countries. However as MMSD (2002) conclude, disclosures 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 according to the international norms. As one of the world's largest mining countries, China's mining and minerals industry has contributed significant economic and social development to the country but cause negative social and environmental impacts. Given China's increasingly influence in the global mining industry and the industry's important role in China's sustainable development, an investigation of CSR reporting

practice in this particular industry is important to provide insight into how China's mining and minerals industry commits to socially responsible business practices and embraces the same values of transparency, ethic and accountability as their overseas counterparts.

## *2.2 CSR Reporting in China's Mining and Minerals Industry*

A number of international surveys, particularly the triennial surveys by KPMG, have traced the development of CSR reporting practice at the global level, shedding light on the mining and minerals industry in particular. As shown in Table 1, both mining and oil and gas companies have significantly 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. Global Mining Reporting Survey (2006) indicated that in total, 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.

INSERT TABLE 1 HERE

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, the mining companies from Switzerland, Brazil, and Australia led CSR reporting while the Chinese mining company obtained the lowest score. Compared with western countries, Chinese mining companies lagged others in disclosures of both

environmental and social performance. However, the result may be incomplete as only one Chinese company was included in the sample.

The China WTO Tribune (2011) provided a cross-sectoral analysis of CSR reports released in mainland China from January 1st to October 31st of 2011 to shed light on the latest development of CSR reporting in China. 4.9% of total sample companies which release CSR reports belong to the mining and minerals industry, lagging behind banking (9.4), utility (5.9%) and transportation (6.2%) sectors. Mining companies obtained 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 achieved a leading position, only lagging behind utility industry. However, the study China WTO Tribune has a cross-sectoral focus, giving limited consideration to peculiarities of particular industry. Therefore, the results cannot reveal a complete picture for the overall mining and minerals industry in China.

As the key components in the landscape of ‘building a harmonious society’ advanced by the Chinese government, a dramatic increase in CSR reporting and reinforcement of the CSR concept among Chinese companies has been seen in the last decade (China WTO Tribune 2011, p.4). However compared with the western counterparts, 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). Moreover, the current reporting guidance issued by Chinese stock exchanges and studies are not giving consideration to the particularity of each industry (Noronha et al., 2012). This paper aims to extend the investigation into the Chinese context, specifically China’s mining and minerals industry, documenting key factors influencing its CSR reporting practice in terms of quantity and quality. Therefore, given China’s different institutional context from the west, an assessment of CSR reporting practice in Chinese companies could provide insight into how China companies interpret CSR concept, improve sustainability performance, and contribute to the goal of sustainable development through open, transparent information production and dissemination.

### **3. METHODOLOGY**

#### *3.1 Selection of Sample and Study Period*

This study encompasses all the mining and minerals companies listed on Shanghai and Shenzhen stock exchanges by the end of 31 Dec 2010, comprising 176 firm-year observations in total. The time period chosen depends on study objective and data availability. This study focuses on examining the CSR reporting practice of Chinese mining companies over the period 2007 – 2010, which coincides with increasing CSR reporting by Chinese companies and the release of several guidelines promoting CSR reporting by Chinese governments, industry associations and stock exchanges. Therefore, the latest annual reports and CSR reports written in English by the end of 31 Dec 2010 are included.

#### *3.2 Content Analysis and the Choice of Reporting Framework*

To assess both quantity and quality of CSR disclosures, content analysis is applied. 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). Content analysis has been widely employed in previous studies on corporate disclosures, particularly the disclosures of CSR information. Through content analysis, the disclosure data are extracted from corporate reports according to existing reporting frameworks, such as G3 framework, to obtain the level and content of disclosures; and then characterize the current state of reporting practice in terms of both quantity and quality (e.g. Skouloudis et al., 2012, Roca and Searcy 2012). In the context of the mining and minerals industry, previous studies had employed different industrial reporting frameworks in order to capture the characteristics of disclosures by companies in this particular industry (e.g. Azapagic 2004; Dong and Burritt 2010). However, a major common limitation is the potential lack of applicability to the context of developing countries. In the context of western economies there is a danger from using western

reporting categories 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). With this recommendation, in December 2009, the '*Chinese CSR Report Preparation Guide (1.0)*'<sup>2</sup> was released by the Chinese Academy of Social Science as the first full-coverage CSR reporting guidebook in China, consisting of a general-purpose indicator system and 37 industry-specific indicator systems. It focuses on market, social and environmental responsibilities and emphasizes the need for greater management responsibility. As the director general of Research Bureau of State-Owned Assets Supervision and Administration Commission, Huagang Peng states, the publication of Supervision and Administration Commission plays an important guiding role in practice of Chinese CSR information disclosure. It is viewed as a cornerstone of the practice of Chinese CSR information disclosure CSR reporting system and could help China to gain discourse power in the international CSR field (Chinese Academy of Social Science 2009). Therefore, in this study, the '*Chinese CSR Report Preparation Guide (1.0)*' is adopted as the reporting framework to assess and classify the content of sustainability disclosures made by Chinese companies. By employing the guide, the actual situation of Chinese companies can be captured and issue exists in some international indicators that they conflict with Chinese culture and laws can be overcome. The classification scheme developed based on the Guide is shown in Appendix.

### *3.3 Unit of Analysis*

The identification of codable units is of great importance in content analysis (Neuenforf 2002). There is debate about the 'unit' that should be used in content analysis. Selection of the unit of analysis is a matter of judgment and individual researchers must exercise a subjective choice in selecting units of

---

<sup>2</sup> 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). With 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. It focuses on market, social and environmental responsibilities and emphasizes the need for greater management responsibility. It is viewed as a cornerstone of the practice of Chinese CSR information disclosure CSR reporting system and could help China to gain discourse power in the international CSR field.

analysis (Krippendorff 2004). Consistent with previous studies, this study uses sentences for both the coding and measurement units to produce complete, reliable and meaningful data for further analysis (Milne and Adler 1999; Unerman 2000). The reliable identification of a disclosure requires understanding of the meaning of each disclosure and hence as a basis for coding, the sentence is far more reliable than any other unit of analysis because meanings and contextualization of disclosures can be conveyed by sentences (Gray et al., 1995b; Unerman 2000; Raar 2002; Bouten et al., 2011). As a measurement unit, sentences can be quantified with less judgement and thus less measurement error than measuring by proportions of a page (Unerman 2000). Use of sentences removes the need to account for or standardize the number of words and overcomes the problem of pages when print size, column size and page sizes may differ from one report to another (Hackston and Milne 1996). Therefore, using the sentence as the unit for analysis allows more specific analysis of specific issues and themes (Deegan et al., 2002). The procedures of content analysis then consist of two dimensions: (1) 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.

### *3.4 Measurement of Disclosure Quantity and Quality*

#### *3.4.1 Disclosure Quantity*

A number of prior studies have measured the presence/absence of 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). However, 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 companies that make none (Brammer and Pavelin 2006). The simple existence/non-existence approach is misleading in the sense 'it treats companies making one sentence of disclosure as equal to one that makes fifty' (Hackston and Milne 1996, p.89).

The number of sentences could be an 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 over the period 2007 – 2010.

### *3.4.2 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 qualify a firm's disclosures based on the type of information - whether disclosures are measured by monetary, non-monetary, declarative 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., 2006; Dong and Burritt 2010). However, the disclosure quality index which is based on whether an item is disclosed as narrative, non-monetary, or monetary information 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, in this study, revisions to the previous quality index were made in order to address the limitations. A distinction was made between 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). For each category of disclosure, a maximum score 6 was assigned. 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. Therefore the overall maximum score for the disclosure index was equal to 450. The Disclosure Quality Index is shown in Table 2, which combines different types

of information and could be used as a valuable tool for assessing overall quality of a company's reporting practice (Bouten et al., 2011).

INSERT TABLE 2 HERE

## **4. RESULTS**

### *4.1 Overall Reporting Trend*

The trend of reporting is presented as the number of reporting companies (Table 3) and different reporting medium used (Table 4). At aggregate, there is a dramatic increase of reporting companies during 2007 – 2010. In 2007, 44% of total companies made CSR disclosures in annual reports, increasing to 98% of companies in 2010. Year 2008 was a peak for the adoption of CSR reporting practice by Chinese companies, with the number of companies publishing CSR reports increasing from 9% in 2007 to 37% in 2008. The peak for reporting in 2008 could be because of the active promotion of CSR and CSR reporting by the Chinese government and stock exchanges in 2008.

In terms of the CSR reports, 9% of companies released CSR reports in 2007, compared with 44% in 2010. The results are further presented by different reporting media (annual reports *vs* CSR reports) and companies listed on different stock exchanges (Shanghai *vs* Shenzhen Stock Exchange). As shown in Table 3, 59.3% of companies listed on Shanghai Stock Exchange made CSR disclosures in the annual report in 2007, compared to 100% in 2010. While in 2007, 15% of SSE companies published CSR reports, increasing to 48.1% in 2010. For companies listed on Shenzhen, the number of companies publishing CSR reports increased from zero in 2007 to 42.1% in 2010. As indicated by Table 4, 98% of Chinese mining companies disclosed CSR reporting practices through annual reports during 2007 – 2010, while 44% of companies used CSR reports. The results reveal that in the Chinese context, traditional annual reports are still the most commonly used reporting means on CSR issues.

The CSR reports have not become the major stream, indicating the immature stage of CSR reporting in China.

INSERT TABLE 3 AND TABLE 4 HERE

#### *4.2 Disclosure Quantity*

The results for the disclosure quantity as shown by the absolute measurement of sentences are presented in Table 5. According to ‘Chinese CSR Report Preparation Guide (CASS-CSR 1.0)’, five main categories of information, including Visions and Strategy, Governance and CSR Management, Stakeholder Engagement, Market Performance, Social Performance and Environmental Performance, considered as CSR disclosures. At the aggregate level, the average amount of CSR disclosures 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 media for Chinese mining companies to communicate CSR performance. The extent of CSR information provided in annual reports is much lower than in the CSR reports. Therefore annual reports are found to be less informative than CSR reports in communicating CSR performance in China’s mining and minerals industry because for Chinese companies, 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.

INSERT TABLE 5 HERE

### 4.3 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 are presented in Table 6. 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 variations 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. On average, quality score for CSR disclosure made by Chinese mining companies is only 13.33%<sup>3</sup>, indicating incomplete information disclosure and display obvious examples of selective disclosure. Table 7 provides a comparison between the percentage of increase of disclosure quantity and quality during the period 2007-2010. In terms of disclosure *quantity* as measured by number of sentences, the overall increase in rate is 2.22, while the *quality* of CSR disclosures made by the mining companies increased by 1.8 times. The results indicate that the rate of disclosure quality increase is much slower than that of disclosure quantity, confirming a quantity-quality gap, as described by Guenther et al., (2007).

INSERT TABLE 6 AND TABLE 7 HERE

### 4.4 General Reporting Content

Table 8 presents the detailed contents of CSR disclosures made by Chinese mining companies during the 2007-2010. Overall, five main categories of information are disclosed, *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 themes most reported by Chinese mining companies, accounting for

---

<sup>3</sup> The figure is calculated as: average quality score 60/average maximum quality score in total 450 = 13.3%

35.71% and 20.05% of the total disclosures respectively followed by environmental performance at 15.81%. In total, *Strategy, Governance and CSR Management* account for 27.82% of total disclosures. The greater level of disclosures of strategy and governance structure could be caused 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 different picture is shown. As indicated by Table 8, the social performance category also 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 disclosures sheds light on the quantity-quality discrepancy within the disclosure categories. Although market performance accounts for 44% of the total disclosure, it obtains a higher quality score, implying more monetary information is provided in this category. The disclosure of strategy, CSR management and environmental performance lag in terms of information quality. The disclosures about stakeholder engagement reveal low scores in terms of quantity and quality.

INSERT TABLE 8 HERE

#### *4.5 Specific Reporting Content*

##### *4.5.1 Visions, Strategy and Governance*

Table 9 presents the specific items disclosed with the broad category of *Visions, Strategy and Governance*. Chinese mining companies disclose large amount 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 indigenous standards/initiatives. The development of comprehensive and mature governance structures and CSR management systems, such as ISO 1400 and ISO 9001, has been recognized as the latest progress of the CSR movement in Chinese companies (The Chinese Academy of Social Science 2010, p.35). This could be reflected in

the CSR disclosures made by the sample companies, although the information is largely disclosed as narrative and as value statements. The results indicate that Chinese companies started integrating CSR into their corporate governance. The least reported area - stakeholder engagement accounts for 6.22% of the total disclosures, implying the lack of stakeholders' consultations and public participation regarding the social and environmental matters of in this industry (e.g. Li 2007; Dong and Burritt 2010).

INSERT TABLE 9 HERE

#### *4.5.2 Social Performance*

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 8, the disclosures of social performance obtain the highest score in terms of quantity and quality, which account for 35.71% and 30.61% of total disclosures respectively. As revealed in Table 10, the dominant disclosure in the social performance category is production safety, accounting for 38.24% of total disclosures followed by information disclosed to the 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 picture 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; China Mining Report 2010). 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. Table 11 provides a summary of information disclosed by the mining companies to governmental bodies over the study period. The State Government is declared to be the most important stakeholder by the mining companies. More than 80% of the total companies address their

goals, strategies or operational targets towards governmental policies, such as the 12th five-year plan (2011-2015). The new national development programme emphasizes the development of a green and sustainable mining industry, the building of safe mines, the improvement of resource saving and the rationalization of resource usage, acceleration of mine reclamation and rehabilitation (China Daily 2011). However, most companies only focus on reporting one of the aspects as suggested by the 12th five-year plan rather than explaining how to integrate the plan into overall governance and long term strategies.

INSERT TABLE 10 AND TABLE 11 HERE

#### *4.5.3 Environmental Performance*

Table 12 provides the descriptive results of specific environmental items disclosed by Chinese mining and minerals companies. The top three such items disclosed by the mining and minerals companies are environmental management and policy, emission 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 the 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 the limited and sporadic GHG emissions disclosures by Chinese companies. Although some reports contain information on GHG emissions, most of this information is disclosed as narrative statements about values and goals rather than the total weight of emissions and reduction achieved in terms of total CO<sub>2</sub> equivalent and individual types of emissions. Since the early 1980s, a legal framework has emerged in China, concerning with environmental protection and requiring 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 occurs (Guo 2005). However, the voluntary corporate environmental reporting to the general public through CSR reporting/CSR reporting is a relatively recent event in China. 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 (Table 8).

INSERT TABLE 12 HERE

#### *4.6 Classification of CSR Reporting Status of China's Mining and Minerals Industry*

Section 4.1 – 4.5 have provided a comprehensive examination of the current status of CSR reporting by companies in China's mining and minerals industry. Content analysis has been conducted in accordance with the Chinese CSR Report Preparation Guide (CASS-CSR 1.0), published by the Chinese Academy of Social Science in 2009. The descriptive analyses reveal both convergence and divergence of Chinese companies' CSR reporting practice, compared with international studies. Two main categories of disclosure – *Vision, Strategy, and Governance*, and *Social Performance* are identified as the most reported areas by Chinese mining and minerals companies, accounting for 35.71% and 27.82 % of the total disclosures respectively. This is followed by disclosures of Environmental Performance, accounting for 15.81% of total disclosures (Table 8). The highly disclosed information relating to vision, strategy and governance structure, including the establishment of the CSR management system, could well reflect the increasing integration, or mainstreaming, of the concept of CSR into corporate governance structures by Chinese companies, following global practice (Kolk 2008). Moreover, to improve long-term environmental performance, a number of large mining and minerals companies have adopted environmental management system ISO 14001 to meet international standard, such as China Coal Energy, PetroChina, and China Shenhua Energy. Contrary to previous evidence in western countries (e.g. Dong and Burritt 2010), the mining and minerals companies in China provide comprehensive disclosures related to production

safety, taking the absolutely dominant position in overall disclosures about sustainability. Such a difference could be attributable to the fact that China's mining and minerals industry is criticized as being the most highly polluting industry (Tu 2007). Mining accident rates sharply contrast with those of other countries around the world, and are subject to international scrutiny (Li 2007; Homer 2009; China Mining Report 2010). Therefore, those companies tend to disclose greater levels of information regarding safety, demonstrating good mining practice with international standards and thereby maintaining 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 disclosure quality, the results indicate that overall, the companies sampled mainly demonstrate the above aspects and cover the most of areas of disclosure, as suggested by the Chinese CSR Report Preparation Guide. However, some information is only disclosed in a selective and partial way, with an average quality score of 13.33% (compared with the maximum quality score). The Chinese Academy of Social Science (2010) has classified the top Chinese companies into four groups based on their CSR performance and the richness of data disclosed, including Best Practice, Leader, Follower, Starter and Bystander (Table 13). Based on the Chinese Academy of Social Science's classification criteria and descriptive results presented in section 4, the mining and minerals companies can be classified into the stage of 'Leader', indicating its relatively better performance than the Top100 Chinese companies<sup>4</sup> in pursuing CSR reporting practice.

INSERT TABLE 13 HERE

## **5. CONCLUSIONS AND RECOMMENDATIONS**

This study provides an assessment of Chinese listed mining and minerals companies' CSR reporting by using content analysis against an indigenous and industry reporting framework - 'Chinese CSR Report Preparation Guide (CASS-CSR 1.0)'. Within the background of Chinese state government's

---

<sup>4</sup> 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).

advocacy of CSR as the key component of constructing a 'harmonious society' and the country's entry into the world economic market, the current institutional environment in China, the results highlights Chinese companies' improvement of awareness and the high level of engagement with adopting CSR reporting practice. However the quality and comprehensiveness of disclosures still require considerable improvement. Therefore the current 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 the reporting performance. The results are consistent with previous studies, such as Guo et al., (2009) who conclude that the imbalance between information quantity and quality has been recognized as a chronic problem in CSR reporting in China.

In the current institutional context of China, CSR disclosures are largely used by Chinese companies as way of maintaining legitimacy and responding to institutional pressures, particularly the state government. However, there is still low engagement with improving the substance and quality of such practice through the role of stakeholders at the lower level, such as municipal governments, employees and shareholders. Hence, to improve the comprehensiveness and usefulness of CSR reporting, the lower-level municipal governments, which act as the state's agents, local communities, and internal organizational factors, such as corporate governance procedures, supervisory board, managers' attitudes and corporate resources, should play significantly complementary roles. As See (2009) concludes, while institutional factors can play a role in developing CSR in China, it is likely that the strongest and most visible effect of government policy on raising the level of CSR will be through directly shaping demand-side factors. The study contributes to descriptive analysis understanding CSR reporting practice in a particular industry and developing country context however the study is limited by the use of corporate self-reporting practice focusing on secondary data – corporate annual reports and CSR reports. In future studies, the relationship between CSR reporting and actual CSR performance could be investigated. In a developing country context, such as China, the notion of CSR has the potential to aid much-needed social progress for a large and important part of the population however the central issue is to generate a real change in corporate behavior and virtuous benefits for members of Chinese society (Wharton 2010). CSR reports are not the destination

but a stepping- stone towards greater awareness and comprehensive understanding of socially responsible behavior, and achieving accountability of corporate behavior. The central question in the future research is, to what extent public reporting practice could move China's mining and minerals industry towards a more equitable, open, harmonious and greener sector.

## REFERENCE

Adams, C.A., Hill, W.-Y. and Roberts, C.B. (1998), "Corporate Social Reporting Practices in Western Europe: Legitimizing Corporate Behavior?", *British Accounting Review*, Vol. 30, pp. 1-21.

Azapagic, A. (2004), "Developing a Framework for Sustainable Development Indicators for the Mining and Minerals Industry", *Journal of Cleaner Production*, Vol. 12, pp. 639-662.

Belal, A.R. and Momin, M. (2009), "Corporate Social Reporting (CSR) in Emerging Economies: A Review and Future Direction", *Research in Accounting in Emerging Economies*, Vol. 9, pp. 119-143.

Bouten, L., Everaert, P., Liedekerke, L.V., Moor, L.D. and Christiaens, J. (2011), "Corporate Social Responsibility Reporting: A Comprehensive Picture?", *Accounting Forum*, Vol. 35, pp. 187- 204.

China Daily (2011), "China's 12th Five-Year Plan Signifies a New Phase in Growth", available at: [http://www.chinadaily.com.cn/china/2011npc/2011-03/06/content\\_12122766.htm](http://www.chinadaily.com.cn/china/2011npc/2011-03/06/content_12122766.htm) (accessed 18 September 2011).

China Daily (2011), "Tasks and Goals for the 12th Five-Year Plan", available at: [http://www.chinadaily.com.cn/bizchina/2010-10/27/content\\_11463985.htm](http://www.chinadaily.com.cn/bizchina/2010-10/27/content_11463985.htm) (accessed 20 August 2011).

China Mining Report (2010), "Business Environment", Q4, pp. 20-29.

China Mining Report (2011), "Industry Trends and Developments", Q1, pp. 12-18.

China Securities Regulatory Commission (CSRC) (2002), "Code of Corporate Governance for Chinese Listed Companies", available at: [http://www.csrc.gov.cn/pub/csrc\\_en/newsfacts/release/200708/t20070810\\_69223.htm](http://www.csrc.gov.cn/pub/csrc_en/newsfacts/release/200708/t20070810_69223.htm) (accessed 4 May 2011).

China WTO Tribune (2011), "Golden Bee Research on Corporate Social Responsibility Reporting in China 2011", available at: <http://www.csr-china.net/templates/node/index.aspx?nodeid=0ed932b0-db43-45a9-ad3a-ddb6ac82007f&page=contentpage&contentid=6f077f35-31b5-40d3-b6e8bd70a58f803d> (accessed 6 September 2011).

Chinanews.com (2011), "Experts: China's carbon dioxide emissions by about 23% of the world", available at: <http://www.chinanews.com/ny/2011/12-04/3506192.shtml> (accessed 5 March 2012).

Chinese Academy of Social Science (2009), "Chinese CSR Report Preparation Guide (CASS-CSR 1.0)", China Social Sciences Academic Press, Beijing.

Chinese Academy of Social Science (2009), "*Research Report on Corporate Social Responsibility of China*", China Social Sciences Academic Press, Beijing.

Chinese Academy of Social Science (2010), "China Top 100 Companies CSR Development Index (2010)", CSR Research Centre.

Chinese Academy of Social Science (2011), "*Research Report on Corporate Social Responsibility of China*", China: Social Sciences Academic Press, Beijing.

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. 3, pp. 303-327.

- Cormier, D., Magnan, M. and Velthoven, B.V. (2005), "Environmental Disclosure Quality in Large German Companies: Economic Incentives, Public Pressures or Institutional Conditions?" *European Accounting Review*, Vol. 14, No. 1, pp. 3-39.
- Cowan, D.M., Dopart, P., Ferracini, T., Sahmel, J., Merryman, K., Gaffney, S. and Paustenbach, D.J. (2010), "A Cross-Sectional Analysis of Reported Corporate Environmental Sustainability Practices", *Regulatory Toxicology and Pharmacology*, Vol. 58, pp. 524-538.
- Cowell, S.J., Wehrmeyer, W., Argust, P.W. and Robertson, J.G.S. (1999), "Sustainability and the Primary Extraction Industries: Theories and Practice", *Resources Policy*, Vol. 25, pp. 277-286.
- de Abreu, M.C.S., de Castro, F., de Assis Soares, F. and da Silva Filho, J.C.L. (2012), "A comparative understanding of corporate social responsibility of textile firms in Brazil and China", *Journal of Cleaner Production*, Vol. 20, pp. 119-126.
- Deegan, C., Rankin, M. and Tobin, J. (2002), "An Examination of the Corporate Social and Environmental Disclosures of BHP from 1983-1997: A Test of Legitimacy Theory", *Accounting, Auditing and Accountability Journal*, Vol. 15, No. 3, pp. 312-343.
- Deloitte Touche Tohmatsu (2012), "Tracking the trends 2012: The Top 10 Trends Mining Companies May Face in the Coming Year", available at: <http://www.deloitte.com/.../Mining/Tracking%20the%20trends%202012.pdf> (accessed 4 April 2012).
- Dierkes, M. and Preston, L.E. (1977), "Corporate Social Accounting Reporting for the Physical Environment: A Critical Review and Implementation Proposal", *Accounting, Organizations and Society*, Vol. 2, No. 1, pp. 3-22.
- Dong, S. and Burritt, R. (2010), "Cross-Sectional Benchmarking of Social and Environmental Reporting Practice in the Australian Oil and Gas Industry", *Sustainable Development*, Vol. 18, pp. 108-118.
- Frost, G., Jones, S., Loftus, J. and Der Laan, S. (2005), "A Survey of CSR reporting Practice of Australian Reporting Entities", *Australian Accounting Review*, Vol. 15, No.1, pp. 9-96.
- Frynas, J. (2006), "The False Developmental Promise of Corporate Social Responsibility: Evidence from Multinational Oil Company", *International Affairs*, Vol. 81, No. 3, pp. 581-598.
- Frynas, J. (2010), "Corporate Social Responsibility and Societal Governance: Lessons from Transparency in the Oil and Gas Sector", *Journal of Business Ethics*, Vol. 93, pp. 163-179.
- Gao, Y. (2009), "Corporate Social Performance in China: Evidence from Large Companies", *Journal of Business Ethics*, Vol. 89, pp. 23-35.
- Global Reporting Initiative (2006), "Sustainability Reporting Guidelines (G3)", available at: [www.globalreporting.org](http://www.globalreporting.org).
- Gray, R., Kouhy, R. and Lavers, S. (1995b), 'Methodological Themes Constructing a Research Database of Social and Environmental Reporting by UK Companies', *Accounting, Auditing & Accountability Journal*, Vol. 8, No. 2, pp. 78-101.
- Guenther, E., Hoppe, H. and Poser, C. (2007), "Environmental Corporate Social Responsibility of Firms in the Mining and Oil and Gas Industries: Current Status Quo of Reporting Following GRI Guidelines", *Greener Management International*, Vol. 53, pp. 7-24.

Guo, P., Chen, Y., Tan, X., Li, W., Zhang, J., Du, Y. and Zhang, X. (2009, 2010), "A Journey to Discover Values: A Study of Sustainability Reporting in China", Beijing, SynTao, available at: <http://www.syntao.com> (accessed 17 February 2012).

Guo, R. (2009), *How the Chinese Economy Works*, Palgrave Macmillan, New York.

Guthrie, J., Cuganesan, S. and Ward, L. (2008), "Industry specific social and environmental reporting: The Australian Food and Beverage Industry", *Accounting Forum*, Vol. 32, pp. 1-15.

Guthrie, R.P., Yongvanich, K. and Ricceri, F. (2004), "Using Content Analysis as a Research Method to Inquire Into Intellectual Capital Reporting", *Journal of Intellectual Capital*, Vol. 5, No. 2, pp. 282-293.

Hackston, D. and Milne, M.J. (1996), "Some Determinants of Social and Environmental Disclosures in New Zealand Companies", *Accounting, Auditing & Accountability Journal*, Vol. 9, No. 1, pp. 77-108.

Homer, A.W. (2009), "Coal Mine Safety Regulation in China and the USA", *Journal of Contemporary Asia*, Vol. 39, No. 3, pp. 424-439.

Islam, M.A. and Deegan, C. (2008), "Motivations for an Organization within a Developing Country to Report Social Responsibility Information Evidence from Bangladesh", *Accounting, Auditing & Accountability Journal*, Vol. 21, No. 6, pp. 850-874.

Jenkins, H. (2004), "Corporate Social Responsibility and the Mining Industry: Conflicts and Constructs", *Corporate Social Responsibility and Environmental Management*, Vol. 11, pp. 23-34.

Kolk, A. (2008), "Sustainability, Accountability and Corporate Governance: Exploring Multinationals' Reporting Practices", *Business Strategy and the Environment*, Vol. 18, pp. 1-15.

Kolk, A., Hong, P. and Dolen, W.V. (2010), "Corporate Social Responsibility in China: an Analysis of Domestic and Foreign Retailers' Sustainability Dimensions", *Business Strategy and the Environment*, Vol. 19, pp. 289-303.

Kolk, A., Walhain, S. and Wateringen, S.V.D. (2001), "Environmental Reporting by the Fortune Global 250: Exploring the Influence of Nationality and Sector", *Business, Strategy and Environment*, Vol. 10, pp. 15-28.

KPMG (2002, 2005, 2008, and 2011), "International Survey of Corporate Sustainability Reporting", available at: <http://www.kpmg.com/au/en/issuesandinsights/articlespublications/pages/kpmg-international-survey-corporate-responsibility-reporting-2011.aspx> (accessed 10 Oct 2011).

KPMG (2006), "Going for Gold: China as a Global Mining Player", available at: <http://www.kpmg.com/cn/en/issuesandinsights/articlespublications/pages/china-mining-200611.aspx> (accessed 10 Oct 2011).

KPMG (2006), "The Global Mining Reporting Survey", available at: [http://www.kpmg.com.br/publicacoes/industrial\\_markets/Global\\_Mining\\_survey.pdf](http://www.kpmg.com.br/publicacoes/industrial_markets/Global_Mining_survey.pdf) (accessed 10 Oct 2011).

Krippendorff, K. (2004), *Content Analysis: An Introduction to Its Methodology*, US: Sage.

Laine, M. (2009), "Ensuring Legitimacy through Rhetorical Changes? A Longitudinal Interpretation of the Environmental Disclosures of a Leading Finnish Chemical Company", *Accounting, Auditing & Accountability Journal*, Vol. 22, No. 7, pp. 1029-1054.

- Li, J.C. (2007), "China's Rising Demand for Minerals and Emerging Global Norms and Practices in the Mining Industry", *Minerals & Energy*, Vol. 22, No. 3-4, pp. 105-126.
- Liu, X. and Anbumozhi, V. (2009), "Determinant Factors of Corporate Environmental Information Disclosure: An Empirical Study of Chinese Listed Companies", *Journal of Cleaner Production*, Vol. 17, pp. 593-600.
- Milne, M.J. and Adler, R.W. (1999), "Exploring the Reliability of Social and Environmental Disclosures Content Analysis", *Accounting, Auditing & Accountability Journal*, Vol. 12, No. 2, pp.237-256.
- Mining, Minerals and Sustainable Development (MMSD) (2002), "Breaking New Ground: The Report of the Mining, Minerals and Sustainable Development Project", Earthscan Publications Ltd, London.
- Moon, J. and Shen, X. (2010), "CSR in China Research: Saliency, Focus and Nature", *Journal of Business Ethics*, Vol. 94, pp. 613-629.
- Neuendorf, K.A. (2002), *The Content Analysis Guidebook*, Thousand Oaks, Calif: Sage.
- Noronha, C., Tou, S., Cynthia, M.I and Guan, J. (2012), "Corporate Social Responsibility Reporting in China: An Overview and Comparison with Major Trends", *Corporate Social Responsibility and Environmental Management*, pp. 1-14.
- Raar, J. (2002), "Environmental Initiatives: Towards Triple-Bottom Line Reporting", *Corporate Communications: An International Journal*, Vol. 7, No. 3, pp. 169-183.
- Roberts Environment Centre (2010), "CSR reporting of the World's Largest Mining, Crude-Oil Production Companies", available at: <http://www.roberts.cmc.edu/psi/pdf/mining2010.pdf> (accessed 4 May 2012).
- Roca, L.C. and Searcy, C. (2012), "An Analysis of Indicators Disclosed in Corporate Sustainability Reports", *Journal of Cleaner Production*, Vol. 20, pp. 103-118.
- Skouloudis, A., Konstantinos, E. and Stavros M. (2012), "Accountability and stakeholder engagement in the airport industry: An assessment of airports' CSR reports", *Journal of Air Transport Management*, Vol. 18, pp. 16-20.
- Tu, J. (2007), "Coal Mining Safety: China's Achilles' heel", *China Security*, Vol. 3, No. 2, pp. 36 - 53.
- Unerman, J. (2000), "Methodological Issues Reflections on Quantification in Corporate Social Reporting Content Analysis", *Accounting Auditing & Accountability Journal*, Vol. 13, No. 5, pp. 667-680.
- Wang, J. and Qin, S. (2010), "Problems and Prospects of CSR System Development in China", *International Journal of Business and Management*, Vol. 5, No. 12, pp. 128-134.
- Wharton Finance and Investment (2010), "Corporate Social Responsibility in China: One Great Leap Forward, Many More Still Ahead", available at: <http://www.knowledgeatwharton.com.cn/index.cfm?fa=viewArticle&articleID=2218&languageid=1> (accessed 4 April 2012).

World Bank (2008), “Economically, Socially and Environmentally Sustainable Coal Mining Sector in China”, available at: [http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/01/15/000333037\\_20090115224330/Rendered/PDF/471310WP0CHA0E1tor0P09839401PUBLIC1.pdf](http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/01/15/000333037_20090115224330/Rendered/PDF/471310WP0CHA0E1tor0P09839401PUBLIC1.pdf) (accessed 8 December 2011).

Xinhua (2007), “The 9th China Mining Congress & Expo”, available at: [http://news.xinhuanet.com/newscenter/2007-11/13/content\\_7066749.htm](http://news.xinhuanet.com/newscenter/2007-11/13/content_7066749.htm) (accessed 7 July 2011).