Fostering social sustainability management through safety controls and accounting

A stakeholder approach in the mining sector

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Abstract

Purpose – This paper aims to identify the usefulness of safety controls and accounting in corporate social sustainability management in response to various stakeholders' demands and expectations in the mining sector.

Design/methodology/approach – The case study approach is followed in this study as it provides in-depth understanding of complex social phenomena. Data collection is mainly based on semi-structured interviews, on-site assessments and documentation reviews. Visits were repeated and cross-checked to ensure the validity of data collection and analysis.

Findings – The study identifies a reciprocal relationship between stakeholder management strategies and the safety control system that encapsulates a mix of leading and lagging key safety performance indicators (KSPIs). A safety control system with the right mix of KSPIs drives corporate value-creation by instigating internal organizational changes. Yet, the stakeholders' expectations and pressures are dependent on national, historical, cultural and social settings and institutions that will impact on the safety controls and safety accounting in a substantial way.

Originality/value – The paper demonstrates the usefulness of safety controls and accounting in corporate stakeholder management in the mining sector in Sri Lanka. The paper, by addressing how safety control systems and accounting meet various stakeholder demands and expectations, provides new insights into corporate social sustainability performance in mining companies and the role and implications of sustainability (management) accounting.

Keywords Mining industry, Stakeholder management, Health and safety, Corporate social sustainability, Leading and lagging indicators, Safety accounting

Paper type Research paper

1. Introduction

In the current turbulent global environment, companies are increasingly striving to become better "corporate citizens" (Gomes *et al.*, 2014; Lee *et al.*, 2015) and to consider stakeholder interests in the daily management decisions processes (Epstein and Roy, 2003). In this attempt, sustainability management and sustainability reporting practices have become a mainstream business practice worldwide (KPMG, 2015). Sustainability accounting, defined as "the collection, analysis and communication of corporate

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sustainability information" (Schaltegger *et al.*, 2006, p. 1), has become a crucial trigger for management towards corporate sustainability. Sustainability accounting has been widely discussed as an attempt to respond to various stakeholder pressures. An emerging issue in sustainability accounting, in particular, sustainability performance, is corporate health and safety performance (Rikhardsson, 2006). Safety accounting can provide valuable information for internal decision-making and for managing relationships with stakeholders in the management of safety risks in the workplace (Ibarrondo-Dávila *et al.*, 2015). Yet, only little is still known about how stakeholder demands influence safety management, control systems and accounting.

Management commitment to sustainability is becoming important in all business sectors, though some sectors face greater challenges than others (Gomes *et al.*, 2014; Lee *et al.*, 2015). The mining industry that is categorized as dirty, dangerous and difficult faces some of the toughest challenges of any industry in terms of social sustainability and, specifically, industrial safety. Serious lapses in industrial safety could produce significant social and legal repercussions for corporations. In an attempt to mitigate these negative implications that could come from various stakeholders, organizations take many steps primarily to improve safety at work. Extensive studies have been done in respect of various sustainability aspects in the mining industry, such as corporate social responsibility (Jenkins and Yakovleva, 2006), corporate sustainability trends (ICMM, 2012a;), mining's contribution to sustainable development (ICMM, 2012b, Moran and Kunz, 2014; Vintró *et al.*, 2014), sustainability reporting and communication (de Villiers *et al.*, 2014; Lodhia, 2014; Lee, 2016), sustainability performance measurement (Gomes *et al.*, 2014; Lodhia and Martin, 2014), stakeholder management and legitimacy (Dong *et al.*, 2014). However, there is little understanding of the role of safety control systems and accounting when mining companies respond to various stakeholder demands and expectations. By adopting a stakeholder management perspective, this paper aims to identify the usefulness of safety controls and accounting in corporate social sustainability management in response to various stakeholder demands and expectations. Although many multinational enterprises operate their mining businesses in emerging markets, empirical studies on business cases of safety and social sustainability management are very limited. Thus, a mining company in an emerging economy was selected as the subject of this study.

This study makes several important contributions to the relevant literature. Firstly, it develops industrial safety management as one of the corporate social sustainability performance measures (GRI, 2013; Rikhardsson, 2006). Although environmental sustainability is relatively well analyzed and understood, the understanding of "how social sustainability is operationalized within firms" is weak (Dillard *et al.*, 2009; Rikhardsson, 2006). Secondly, this study provides new insights into safety control systems and their accounting by showing how key safety performance indicators (KSPIs) could induce organizational changes to promote corporate value creation. This is an area that much of the safety accounting literature has not yet discussed, as their focus, so far, has been on how firms use external disclosures to manage sustainability performance or issues but not on how these strategies affect the internal processes or consequent outcomes (Deegan, 2006). Thirdly, by linking safety controls and accounting with stakeholder management strategies, this research focuses on the operationalization of stakeholder management strategies for industrial safety empirically.

The rest of the paper is organized as follows: The next section provides a literature review together with the theoretical framework of the study. Section 3 describes the research method, and Section 4 reports the findings and results. Section 5 presents a discussion of the study, and Section 6 presents the conclusions reached.

2. Literature review

2.1 Social sustainability and safety in the mining industry

Sustainable development requires the integration of economic development, environmental protection and social cohesion in all social spheres and levels both in the short and long term (Jenkins and Yakovleva, 2006). Although sustainable development has been emphasized at state and civil society levels, corporate sustainability highlights the role of business in sustainable development (Lee, 2012; Schaltegger *et al.*, 2006). The "triple bottom line" developed by Elkington (1997) has become a common practice in reporting sustainability performance from environmental, social and economic perspectives (Schaltegger *et al.*, 2006). Unlike the other two perspectives, the social aspect of corporate sustainability has not received much attention (Dillard *et al.*, 2009; Rikhardsson, 2006). In defining what forms the social aspect of sustainability, Geibler *et al.* (2006) suggest eight aspects that are of significant relevance for social impact. Among them, the health and safety of employees and the quality of their working conditions are important. When issuing ISO 26000 standards on social responsibility, the International Organization for Standardization (2010) suggests "health and safety at work" as one of the seven core aspects of social responsibility.

Despite its important economic roles, the social and environmental impacts of the mining industry are critical (ICMM, 2012b; Lee, 2016). Public opinion and mounting pressure from various groups at local and international levels have given added significance to sustainability initiatives in mining companies (ICMM, 2012b). Mining companies, therefore, need to provide evidence of their social and environmental responsibility to their stakeholders, and sustainability accounting and reporting is an approach that they have increasingly utilized towards that end (Jenkins and Yakovleva, 2006; Lodhia, 2012). For example, the Global Reporting Initiative (GRI) provides a supplementary reporting guideline for the mining and metal industries to provide specific data and information to stakeholders (GRI, 2010). The ICMM (2012b) highlights "health and safety" as one of the ten indicators of how the industry has changed markedly over the past decade. In response to this trend, there is currently a growing emphasis on safety accounting and reporting in general and in the mining sector in particular. The next section discusses sustainability accounting and reporting.

2.2 Safety controls and accounting in sustainability performance measurement in the mining sector

Management accounting or accounting in general can play an important role in safety management in organizations by providing relevant cost-benefit information, especially in areas such as risk management, performance evaluation, strategic planning, investment appraisals and stakeholder relationship management (Ibarrondo-Dávila *et al.*, 2015). Company costs arising from occupational accidents are by their very nature non-value-adding, as such accidents have a negative impact on corporate value creation (Rikhardsson and Impgaard, 2004). There have been recent attempts to improve the

organizational visibility of the costs by providing various health and safety cost categorization methods (Rikhardsson, 2004).

To improve the visibility of health and safety costs, activity-based approaches have been suggested (Rikhardsson, 2006). The main argument of these approaches has been that modern company accounting information systems are often incapable of showing the resource use related to support activities such as health and safety. Consequently, this information is not used in management control activities (Rikhardsson, 2004). If health and safety costs are made explicit through management accounting, it will motivate managers to take these issues into account in their regular decision-making (Rikhardsson, 2006). In providing information for management decision-making, management accountants use financial and non-financial information (Kaplan and Norton, 2001). Hence, there should be performance measurement systems that are capable of capturing information on all aspects of the business, financial and non-financial (Bryant *et al.*, 2004). The collection of non-financial or physical information pertaining to health and safety has been practised over a long period.

Safety accounting also now focuses on the prevention of accidents as a value-creating activity (Rikhardsson, 2006). Thus, these developments have pointed to a causal link between accidents and initiatives taken to prevent them. The physical measurements of accidents and the quantification of action taken to reduce them are of critical importance because they link performance to sustainability management policies and facilitate continuous improvement by inducing accident investigation and appropriate action (Ibarrondo-Dávila *et al.*, 2015). In this regard, accidents can be identified as lagging indicators, whereas the action taken to prevent accidents can be identified as leading indicators. Lagging indicators enable managers to monitor progress in achieving company goals (Kaplan and Norton, 2001; Langfield-Smith *et al.*, 2012). They provide important information about the outcomes of decisions and operations but have limited capacity to assist managers in directly managing performance. Leading indicators focus on factors that drive results and provide actionable information. As the leading indicators are related to processes and activities, improvements in them should result in improvements in lagging indicators over time (Langfield-Smith *et al.*, 2012). In safety accounting, a combination of leading and lagging indicators is recommended, as lagging indicators alone will provide little guidance on how to navigate towards the future. Agnew and Daniels (2012) suggest that lagging metrics result in reactive safety management by accelerating activities when an incident takes place but give low priority when no incidents take place. Blair and Spurlock (2008) state that well-chosen leading indicators contribute to continuous improvement of the safety culture by serving as a catalyst for change. Therefore, Blair and O'Toole (2010) recommend a mix of indicators that give greater emphasis on leading indicators. That is, when a company does a good job of focusing on what it is doing for safety, the lagging indicators will reflect the safety accomplishments and, thus, lower injury rates, workers' compensation costs and other outcome measures (Blair and O'Toole, 2010).

The causality of accidents and the initiatives to prevent them are also reflected in the external sustainability reporting guidelines such as GRI (GRI, 2010, 2013). The social category of GRI guidelines relating to labour practices and decent work include many indicators on industrial safety such as:

- type and rates of injury;
- occupational diseases;

- lost days;
- absenteeism;
- total number of work-related fatalities;
- education;
- training;
- prevention; and
- risk control programmes in place.

Some of these indicators are lagging outcome indicators and other measures on drivers are leading indicators (Kaplan and Norton, 2001).

Despite the heightened attention on health and safety issues, industries such as mining still face the challenge of accidents which could result in significant social, legal and even economic consequences. These consequences could affect various stakeholders mainly because of the nature of the mining industry, which has a poor public image as an industry (Giurco *et al.*, 2014; Jenkins and Yakovleva, 2006). Thus, mining companies need to provide evidence of their social and environmental performances to their stakeholders (Jenkins and Yakovleva, 2006; Lodhia, 2012).

2.3 Stakeholder management

Stakeholder management was used as the predominant research stance in this study, as stakeholder expectations and pressures are significant in the mining industry. Freeman (1984), in his probably the most widely accepted definition of a stakeholder (Banerjee and Bonnefous, 2011), laid a solid and lasting foundation for many models, frameworks and theories despite older references to the same concept (Clarkson, 1995; Phillips *et al.*, 2010). Clarkson (1995) distinguishes between two types of stakeholders, primary and secondary. Primary stakeholders are "the stakeholders without whose continuing participation the corporation cannot survive as a going concern" (Clarkson, 1995, p. 106). Primary stakeholders include shareholders and investors, employees, customers, suppliers and public stakeholders such as governments and communities, trade associations and environmental groups (Clarkson, 1995; Donaldson and Preston, 1995). Secondary stakeholders are "the stakeholders who influence or affect, or are influenced or affected by, the corporation, but they are not engaged in transactions with the corporation" (Clarkson, 1995, p. 107). They include the media and a wide range of special interest groups. Although there is a high level of interdependence between primary stakeholders and an organization, secondary stakeholders are not essential for its survival. However, secondary stakeholders have the capacity to mobilize public opinion in favour of, or against, a corporation.

Donaldson and Preston (1995) are of the view that the stakeholder theory can be used in a number of ways. They suggest a taxonomy of stakeholder theories, namely, descriptive/empirical, instrumental and normative. There are different approaches that an organization could adopt to deal with primary stakeholder groups. These approaches are reaction, defence, accommodation and proaction (Clarkson, 1995; Jawahar and McLaughlin, 2001). Carroll (1979) places these strategies on a continuum ranging from "do nothing" to "do much". Clarkson (1995), based on his previous work, converts these approaches into a reaction, defence, accommodation and proaction scale.

The firms that follow a reactive strategy deny responsibility and do less than what is legally required (Clarkson, 1995) or fight all the way against addressing stakeholder issues (Carroll, 1979). Firms that follow defensive strategies admit responsibility but fight for it when performing what is the least required by law. This strategy involves defending against demands to do more than the minimum legal requirement. Firms that follow accommodative strategies accept responsibility and do all that is required (Clarkson, 1995). Accommodation involves accepting responsibility but, at the same time, bargaining to obtain concessions (Jawahar and McLaughlin, 2001). The firms that follow the final strategy – proactive strategy – anticipate responsibility and do more than what is required by law (Clarkson, 1995). By doing so, they become industry leaders (Carroll, 1979). Proaction involves attempts to enhance the interests of a particular stakeholder (Jawahar and McLaughlin, 2001). Proaction strategies require the most resources in terms of management attention and financial commitment, and reaction strategies require the least (Jawahar and McLaughlin, 2001). Jawahar and McLaughlin (2001) further suggest that certain stakeholders become more important than others, and the strategy used to deal with each stakeholder depends on the importance of that stakeholder relative to the others.

3. Method

In this study, the case study approach was selected as it provides an in-depth understanding of complex social phenomena (Yin, 2003) such as industrial safety. The case study method allows the retention of the holistic characteristics of real-life events while investigating empirical events (Otley, 1994). Further, it is appropriate for studies that ask "how and why" research questions that require no control over behavioral events and that concern people who are still accessible and able to recall those events relatively accurately (Crossan and Berdrow, 2003; Yin, 2003).

A well-known graphite-exporting Sri Lankan mining company (hereafter referred to as "the Mining Company"), which is listed in the country's main stock exchange, was selected as the unit of analysis for this study. The main reason for selecting this company was both the importance of the company's performance in the mining sector and the accessibility to rich safety and performance data. The company is the world's only vein graphite producer operating for more than 100 years.

The exact origin of the company is unknown, but the earliest traceable records of the company date back to 1865. Having operated as a private entity for well over 100 years, the company was nationalized in 1970. In 2000, it was privatized and its control went to a specialist mining firm in Germany. During the period of government ownership, the company was plagued by experiencing overstaffing because of political influence. In 2008, 80 per cent of the parent German company's shares were acquired by a global mining company incorporated in The Netherlands. This Mining Company is the only graphite company in Sri Lanka to obtain and maintain the ISO 9001:2000 and ISO 14001:2004 standards in addition to those established specifically for graphite processing by the British Standards Institute. The graphite produced by the company is used for many purposes and some of them include pencils, crucibles and refractory products, fireproof products, brake linings, carbon brushes, powder metallurgy and batteries. During the year 2013, the Mining Company recorded a turnover of LKR 536m (approximately US$ 4.1m) with its 188 full-time employees.

Both primary and secondary data collection methods were used that included interviews, on-site assessments and reviews of archival data. To improve the validity of the study, several approaches were used, including interviews with different horizontal and vertical categories of employees, personally observing the site, keeping records and taking photographs, using probing questions and extensive content analyses of the secondary data (Golafshani, 2003; Yin, 2003). The entire data collection period extended from April 2014 to August 2015. Data collection commenced with a review of relevant documentation especially from the company website and annual reports. This enabled the researchers to gain a basic understanding of the events in the company's history. Eight senior managers, including the Chief Executive Officer (CEO) and the General Manager, directly participated in the interviews. The Senior Managers were from the Safety Department, Mining Department, Processing Department and Plant Engineering Department with more than 25 years of experience in the mining sector and/or in this Mining Company. In addition, several mine workers on the site were interviewed. The interviews carried out in this study were in-depth and semi-structured. When conducting semi-structured interviews, the researchers had a list of themes to be covered (Appendix).

The researchers made several visits to the mining site with a view to obtaining first-hand information about accidents and the mitigation measures taken. In addition to on-site interviews, data were gathered through several follow-up telephone interviews. All the interviews, except some follow-up telephone interviews, were voice recorded with the permission of the respective interviewees. These voice records were subsequently transcribed.

The secondary data sources used were business press coverage, analysts' reports, annual reports of the parent company and internal company reports such as safety bulletins, accident records, risk assessment reports, monthly KPI reports on safety and GRI information sheets sent to the parent company. The data were analyzed by identifying three distinct phases in the history of the Mining Company along with the use of several perspectives of stakeholder theory, which mainly included different stakeholder response strategies, namely, reaction, defense, accommodation and proaction.

4. Findings and results

This section presents the main findings and results of the study based on stakeholder management, safety control systems and their accounting implications. In particular, the manner in which this organization has devised various safety control systems in response to stakeholder pressures by using strategies such as proaction, accommodation, defence and reaction in two different time periods identified as two phases has been highlighted: Phase I (period of pre-safety strategy implementation) and Phase II (period of safety strategy implementation and thereafter). In addition, safety control systems and the outcomes/implications for sustainability (safety) accounting in each of these periods have been highlighted.

4.1 Phase I (period of pre-safety strategy implementation)

This refers to the time period before the year 2008. During this phase, the workers of the company had been given monthly-based targets, which were used for performance evaluation. This performance measurement method continued to be in operation for a

long time. Excepting the years 2002 and 2003, (during which period the company's operations were lower than average), the average number of minor accidents[1] was above 1,000 per year and the major accidents[2] were approximately 170 per year (see Figure 1).

4.1.1 Key stakeholder management. Until 1991, the ownership of the company had been with the government. Hence, the government played a dual role as the regulator and the main shareholder. Even after privatization in 1991, the Mining Company did not experience any issue with the government in respect of the accidents that were taking place as it was operating within the legal framework of the country. The only requirement of this primary stakeholder – the government (Clarkson, 1995) – was to ensure that the company fulfilled its legal obligations when an accident took place. In confirming this view, the Safety Manager stated:

> The Labor Officers [i.e. the government] only wanted us to carry out our legal duties properly when there is an accident. They came and investigated whether we had provided the victims with medical treatment, insurance, salary and whether we had kept proper records as per the Act [i.e. The Factories Ordinance, No. 45 of 1942].

As per the Act (with its subsequent amendments in later years), the Mining Company had to record and report only on the following aspects when an accident took place:

- injured person's details;
- date and hour of accident;
- nature of work the injured person was doing at the time of the accident;
- cause of the accident and injury;
- manner in which the accident occurred if the accident was not caused by a machine; and

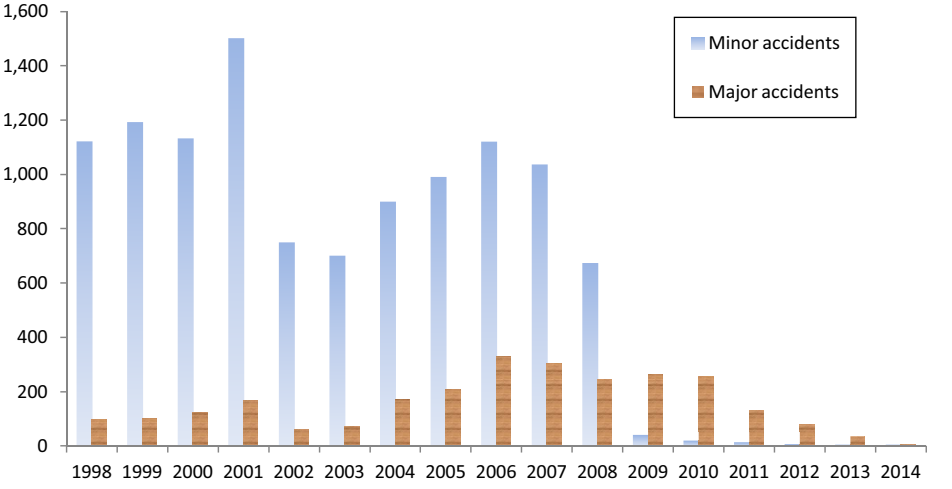

Figure 1.
Number of accidents reported at work (1998-2014)

Source: Corporate internal documents

- nature and extent of injury (e.g. fatal, loss of body member, fracture, scald and scratch).

Further explaining the government's reaction towards accidents, the General Manager stated:

> As long as we maintained proper records and fulfilled other things [fulfilling other legal requirements], we did not have any problem […]. In fact, they did not bother much about the number of accidents.

The primary stakeholder (i.e. the government, as a shareholder and a regulator) management strategy followed by the company during this period was mainly characterized as reactive in which the company fulfilled only what is least required by law.

The Mining Company did not face any problem from other key stakeholders, employees or trade unions during this period. The employees and trade unions had not considered the accidents seriously, as the action taken by the company complied with the legal requirements. Explaining the response of the trade unions, the CEO of the company stated:

> During this period, we had many accidents and these were taken for granted. As soon as an accident took place, we provided paid leave, medical facilities and compensation for the victims. So we did not have big issues; we actually did not bother much.

A mine worker confirmed the view of the CEO. He said:

> Previously [i.e. before 2007], we had many injuries. Our main focus was to achieve the monthly targets to get the bonus. Even my father [who used to work in this mine] sustained many injuries, so it was quite natural for us. If you are to work in a mine, accidents and injuries are an unavoidable part of your life.

When responding to the demands and expectations of employees and trade unions, the company had been following a defensive strategy with respect to health and safety issues. Further, the long accident-prone tradition of the company had created a mindset with the employees that accidents were mainly due to employee mistakes and should be a way of life at a mine. One of the family members of an injured worker made the following statement about this mine:

> Those [these accidents] are your faults. These gentlemen [that is the management of the mining company] can't help it, you should know how to work carefully […]. This is our destiny.

The above statement clearly highlighted the perception of employees when there was an injury. The villagers, who worked as mine workers, were used to taking injuries for granted mainly because of the long tradition of doing so. This perception facilitated the Mining Company to maintain a defensive strategy towards its employees during this phase.

4.1.2 Safety management controls and outcomes: implications for sustainability (safety) accounting. The defensive and reactive strategies in respect of its key stakeholders propelled the Mining Company to maintain very minimum safety controls during this period. These minimum safety controls addressed only what is least required by law while not involving the affected stakeholder, that is, employees.

Compliance with the legal provisions of the government has necessitated reporting mainly the lagging safety indicators. These indicators have only fulfilled merely a reporting (compliance) purpose and have not brought about any change to mitigate the causation of accidents. Lagging indicators usually provide important information about the outcomes of decisions and operations (Langfield-Smith *et al.*, 2012). If the management had been careful and observant, these indicators could have prompted internal action. For example, the legal reporting indicators such as the nature of work the injured person was doing, cause of the accident and injury and the manner in which the accident occurred could have been used as inputs to devise better safety controls in the company. Further, these KSPIs were prepared by the mining engineers and were never considered in decision-making because of the absence of stakeholder pressures to go beyond a reactive or defensive strategy. Thus, the health and safety-related information remained hidden from (Rikhardsson, 2004) and/or was not subject to the investigation of the management.

4.2 Phase II (period of safety strategy implementation and thereafter)

This is the period from the year 2008 upto the present. The situation explained in the previous period prevailed till the company experienced a change of ownership from its parent company to a Netherlands-based group in 2008. Subsequent to this change in ownership, the Mining Company cautiously implemented a new safety strategy in the years 2008/9.

4.2.1 Key stakeholder management. Since the new Netherlands-based parent company followed the GRI guidelines in preparing its annual report, the parent company had a well-developed safety, health and environment (SHE) policy, which brought in better safety controls to the Mining Company. As a result, the Mining Company had to adhere to the new parent company's SHE policies that demanded strict safety controls and better safety performance. Accordingly, it had to report on the following nine KSPIs to the parent company:

(1) total number of incidents in the last 12 months;
(2) 12-month average total incident rate;
(3) number of lost time incidents in the last 12 months;
(4) 12-month average lost time incident rate;
(5) days lost to lost time incidents in the last 12 months;
(6) severity rate over the last 12 months;
(7) total near miss reports;
(8) total monthly safety training hours; and
(9) number of initiatives taken to mitigate the accidents.

In addition to using this information for external reporting, the parent company compiled them into a safety news bulletin that highlighted the performance of each division. These KSPIs were compared with previous periods, and the site-specific performances were also highlighted in the reports that were circulated to all the member companies in the group.

The initial reports revealed that the safety standards of this Sri Lankan Mining Company were way behind the standards of The Netherlands-based company and their

sites (divisions) around the world. Thus, it exerted pressure on the local management to adopt at any cost the parent company's SHE policy to comply with the global standards set by the parent company to reduce the high number of accidents (both minor and major). Explaining these pressures the local management experienced from its parent, the CEO of the company stated:

> The Netherlands-based management was not so keen on our profit figures; they were more keen on our safety measures and policies, which needed a lot of improvement. I was asked repeatedly to adopt an effective SHE policy and to reduce the number of injuries reported from the mining site, which were quite high at that time.

Supporting the same view as that of the CEO, the Safety Manager stated:

> The Netherlands parent company continuously insisted that we reduce the number of injuries taking place and to adopt its SHE policy. By that time, we were far behind established standards in terms of safety and health.

Because of the high accident rate, the Mining Company found it difficult to adopt the safety standards of the parent company. The local management was ready to incur any investment/cost to overcome the safety issues to get on par with the safety policies stated by its new parent company. Around this time, the internal management, including the CEO, was compelled to consider the accidents seriously, and this called for several measures. The CEO, explaining the pressure exerted by the parent company, said:

> We had to quickly adopt the new SHE policy. The Netherlands company [the new parent] wanted quick results as they were following GRI guidelines […] And the performance of our company is reported as a subsidiary. So we had to find solutions as quickly as possible and had to report not only on our safety performance but also on what we were doing to reduce the accidents [training hours].

A new department named the "Safety Department" was set up to explore the possible causes of accidents and to take remedial action. The Safety Department found that the serious safety issues involved in the mining process were mostly related to multiple factors such as management policies and procedures, supervision or training.

Accordingly, along with the new SHE policy, the mining mechanism was reviewed to introduce a cycle-based target system instead of the traditional monthly-based system that had existed in Phase I. The company provided training for employees with the assistance of the trade unions. The performance measurement system was also adjusted accordingly. After the introduction of the new safety mechanisms, the accidents started to decrease noticeably as depicted in Figure 1.

One of the key factors that contributed to success in adopting the SHE policy of the organization was the commitment of the management and the practice of working closely with all workers of the company, which is consistent with the findings of Cohen (1977). It is evident that the company had followed a proactive strategy to meet the pressure/interest of the new parent company. A proactive strategy requires the most resources in terms of management attention and financial commitment. In support of this view, a mine engineer stated:

> Our managers including our CEO all make frequent visits to the mine and maintain a very friendly dialogue with our workers. As management, we always emphasize the importance of

> maintaining the SHE policy. As a result, our employees have got it into their DNA and they almost don't need any supervision now.

The new SHE policy adopted has been well received by the trade unions as well. In this respect, the Safety Manager stated:

> Obtaining the bottom-level mining worker's support [for the new safety strategies] was challenging. To win their support, we approached the trade union and we gave leadership to implement the new safety measures. We were able to convince them about the repercussions of accidents on employees and employee responsibility in looking after their own safety. This bargaining process helped us a lot.

It is clear that the company had been following an accommodative strategy (but very close to a proactive strategy) with trade unions and the workers, accepting responsibility but, at the same time, bargaining with these groups.

After the implementation of these changes, the new SHE strategy was well instilled into the culture of the organization. So far, the management has been able to inculcate the safety standards into the DNA of the workforce so that now they need only a little supervision. Not only did the new action reduce the number of accidents and increase the safety of the company's workforce but also led to higher productivity (see Figure 2). The improvement in productivity was witnessed in other aspects too, though not convincingly as in the case of output. These aspects include lower sick leave payment and compensation cost, improved morale (Blair and O'Toole, 2010), less staff in the Safety Department and minimum administrative work in terms of lengthy submission of accident records to the government.

4.2.2 Safety management controls and outcomes/implications of sustainability (safety) accounting. The proactive strategy in respect of its primary stakeholder, the new parent company, has brought in new and demanding safety controls within the Mining Company. Even though the Mining Company had been reporting on some KSPIs to fulfill its legal requirements, no tangible action was taken as the accidents were not explicitly reported through an internal reporting system. The KSPIs that the Mining

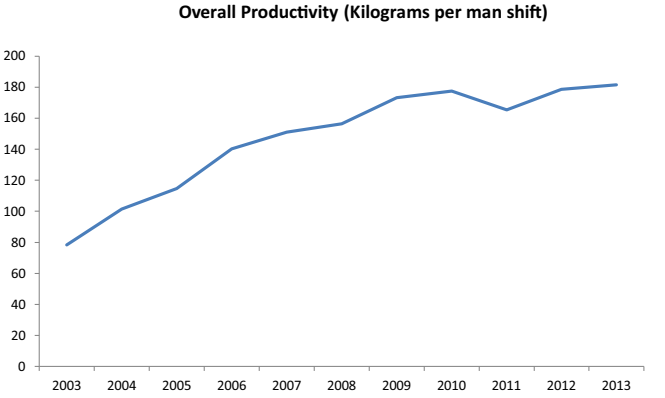

Figure 2.
Productivity of the Mining Company

Notes: The drop in productivity in the 2010-2011 period is mainly attributable to the impact of the worldwide financial crisis
Source: Company internal data

Company had to report on as per the new SHE policy reflect a mix of leading and lagging indicators (Agnew and Daniels, 2012; Blair and O'Toole, 2010). The first six indicators can be considered as lagging, and the last three indicators are leading indicators. Some of these leading indicators also focused on the preventive actions taken to mitigate the accidents. As the Mining Company had to report on leading indicators that reduced the undesirable lagging indicators (Blair and O'Toole, 2010; Blair and Spurlock, 2008), it was compelled to take action to prevent accidents and report on the same.

Moreover, these KSPIs are still non-financial in nature, and it is apparent that the company had not taken steps to assign a cost for the accidents that were taking place by following methods such as insurance-based approaches and activity-based approaches (Rikhardsson, 2006). Though any explicit financial values were not assigned, the management became well aware of the company costs of accidents because of the new reporting system. In explaining how they understood the cost of accidents through the new safety controls, the Safety Manager stated:

> We realized that there is a huge cost in accidents when we started preparing the internal reports. We even knew these costs before, but they were highlighted well in the new system […]. All these had a direct impact on our productivity and bottom line. This encouraged us to find solutions for the accidents that were taking place.

As Rikhardsson (2004) highlights, the health and safety information had not been used in management control activities until the new safety controls were made explicit through management accounting. The new safety control systems have motivated managers to take these issues into account in their regular decision-making to highlight their contribution to corporate profitability (Rikhardsson, 2006). As Blair and Spurlock (2008) state, these well-chosen leading indicators have contributed to continuous improvements in the safety culture by serving as catalysts for change in improving the safety performance. Hence, through these safety controls, the Mining Company has been able to use safety accounting for the prevention of accidents as a value-creating activity (Rikhardsson, 2006).

5. Discussion

Health and safety management has become an important aspect of social sustainability management in many industries. As key stakeholders in the mining sector demand better corporate sustainability performance, safety control systems and related sustainability accounting can support better stakeholder management and decision-making by corporate managers.

This case demonstrates that stakeholder management strategies can affect and are largely affected by the safety control system that encapsulates a mix of leading and lagging KSPIs (Blair and O'Toole, 2010; Langfield-Smith *et al.*, 2012). If a company can find a right mix of KSPIs (Blair and O'Toole, 2010), safety controls and accounting can facilitate corporate value creation (Rikhardsson, 2006). Active stakeholder management strategies such as proaction lead to better economic performance as identified in the instrumental argument of the stakeholder theory (Donaldson and Preston, 1995). Yet, better economic performance does not take place automatically. In line with the argument of Schaltegger and Synnestvedt (2002), whether it pays to be sustainable or not depends substantially on internal variables which are determined by the management, and a company has to cautiously take many safety improvement-oriented steps. Thus, the safety control systems should identify the requisite leading indicators

and compel the management to report on the same. As Schaltegger *et al.* (2006) suggest, this is evidence of accounting-driven sustainability (safety performance). The overall productivity improvements in the Mining Company highlight the positive synergy between actions to improve occupational safety (social sustainability) and (economic) performance (Preston and O'Bannon, 1997). This case further demonstrates that drivers of economic benefits are the way in which different corporate stakeholder response strategies impact on the structures, systems and management practices within an organization.

However, if the safety control systems demand reporting only on the lagging indicators, as in the case of the government, stakeholder management strategies will be only reactive, and, therefore, no change will actually take place. For example, the reactive strategy followed by the government has not changed over the passage of years, and the changes within the Mining Company were instigated only by the new parent company. In addition, this demonstrates that the government, which is regarded as a definitive stakeholder in the mining sector (Dong *et al.*, 2014), has not been very active in instigating the necessary legal reforms to improve the health and safety conditions at work, particularly in developing countries. Christmann and Taylor (2002) and Herzig *et al.* (2012) emphasized that developing countries face greater difficulties in dealing with environmental sustainability owing to inadequate legislation and institutional capacity to enforce them. These findings while confirming this situation extend the same to the social side of sustainability in developing countries. This also highlights the potential for the government to intervene through legislation, which ensures that the companies not only keep records reactively but also are compelled to report on leading indicators that demand changes in workplace practices.

As highlighted by Abreu *et al.* (2012), stakeholder expectations and pressures may be context-specific because of each country's unique social and political, regulatory and economic and cultural institutions. Consistent with Abreu *et al.* (2012), the case clearly demonstrates that stakeholder pressures/reactions are dependent on their perceptions, which are linked to national, social and cultural settings. For example, even severe fatal accidents were taken for granted by the management, employees, trade unions and communities because of their long accident-prone history, resulting in minimum safety controls and accounting.

6. Conclusions

With a specific focus on health and safety in the mining sector, this study addresses the importance of safety controls and accounting, stakeholder management and its links to sustainability management and social performance. In particular, the study presents an empirical case on how at a mining level, a company adopts industrial safety measures and sustainability management strategies to meet various stakeholder demands and expectations. This study highlights the usefulness of safety controls and accounting to support corporate sustainability management strategies for stakeholder engagement. Safety measurement as a part of social sustainability performance is of critical importance because it links performance to the policies and strategies of sustainability management and facilitates continuous improvement. With the support of sustainability accounting, corporate managers can use a right mix of leading and lagging performance indicators to define specific goals and targets to improve their social sustainability performance. Appropriate safety measures and sustainability

performance measurement systems can provide the proper tools for corrective action. Safety accounting is an emerging concept of sustainability management with a set of accounting tools and approaches to support corporate decision-making on health and safety issues in organizations. In sustainability (management) accounting, safety accounting is a part of social performance measurement but is relatively under investigation in accounting research and practice. It is hoped that this case study will motivate scholars and researchers to investigate the usefulness of safety controls and performance indicators in different accident-prone industry sectors, such as transport and material moving; construction and extraction; and shipping, as well as the international mining sector, to increase research validity. Moreover, it will be interesting to identify causal connection between safety-related control action and improvements, organizational changes and corporate value creation.

This study provides important managerial implications. Firstly, it is important to identify key stakeholder interests and expectations regarding business activities. Depending on the level of stakeholder power and urgency, a company can adopt different types of corporate stakeholder strategies from reactive to proactive strategies to corporate social sustainability. Secondly, when corporate managers develop corporate stakeholder strategies for social sustainability, they should identify clear business motivations to fit stakeholder needs and expectations. Based on the "fit" between business motivations and stakeholder interests, a firm can decide on the level of commitment needed to achieve social sustainability. Thirdly, when a firm identifies economic drivers to adopt a proactive corporate stakeholder management strategy, it will be beneficial to identify costs and the benefits of industrial safety and accidents in the mining sector. As there are significant costs that are not accounted for in management accounting information systems, it will be very useful for corporate managers to derive financial benefits and value from their corporate social sustainability before making decisions on corporate stakeholder strategies. Financial constraints can limit the level and scope of corporate stakeholder strategies. Thus, the visible costs and financial benefits will support corporate managers in making decisions regarding corporate social sustainability and corporate stakeholder strategy. Fourthly, mining companies should devise control systems with appropriate leading and lagging indicators that will drive organizational changes with the help of its primary stakeholders. If these stakeholder actions and management strategies are devised properly, they will lead to corporate value creation.

Notes

1. A minor accident is an accident that causes minor injuries that can be treated with first aid.
2. A major accident is an accident when any injury results in days away from work.

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Appendix Interview guide.

(1) Who are the most important stakeholders in your company and what pressures can they have on you?

(2) How do you maintain relations between different stakeholder groups?

(3) Explain the emphasis that the company has placed on preventing workplace accidents.

(4) How do you comply with legal implications regarding the safety measures of the company?

(5) What sort of pressures do you have from stakeholders regarding the safety measures the company has adopted?

(6) How do the trade unions/workers/community/government react to industrial accidents and the safety policies of the company?

(7) To what extent do you report on safety measures of the organization internally and externally?

(8) What are the reporting changes (including internal reporting) you experienced as a result of the change in ownership?

(9) What are the reports you maintained upto year 2008 and thereafter regarding safety?

(10) What measures were/are taken to reduce accidents and why were/are they taken?

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