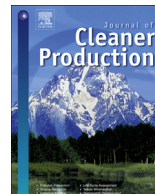




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## Corporate Sustainability Indicators: an Australian Mining Case Study

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## ABSTRACT

Corporate Sustainability Indicators (CSI) provide the potential to integrate economic, social and environmental information. This research developed CSI for a major Australian diversified resources company and engaged with expert stakeholders in determining the indicators' value and explanatory capacity. It was found that these CSI integrate the company's reported economic, social and environmental issues into specific usable trend markers for business and environmental analysts. The findings provided support for these indicators at a general, as well as at a specific, project level. This paper highlights that the use of these indicators will assist in the management of the company and in informing stakeholders, particularly with regard to corporate impacts on the environment, climate and broader society. It is also suggested that for corporate sustainability indicators to be effectively utilized, there is a need for consensus among organizations and their stakeholders in relation to the use of these indicators.

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## 1. Introduction

Corporate sustainability (CS) highlights the business role and contribution to sustainable development (van Marrewijk, 2003; Schaltegger and Burritt, 2005). It differentiates business from state and civil society (van Marrewijk, 2003) and outlines responsibilities specific to businesses. CS has various dimensions – including economic, social and environmental issues (Schaltegger and Burritt, 2005). Corporations are increasingly involved in managing and reporting these issues, a process referred to sustainability accounting and reporting (Unerman et al., 2007). The emphasis in this paper is on the external reporting of CS to stakeholders as this approach provides an understanding of corporate accountability to those groups that are external to a business but whose support is essential for corporate survival. Such reporting is effective when it is accompanied by information and management systems which assess, measure, and manage sustainability impacts (Schaltegger and Wagner, 2006).

Stakeholders are defined as 'any group or individual who can affect or are affected by the achievement of the organization's objectives' (Freeman, 1984, p. 46). For organizations to survive, they need to be aware of the range of different stakeholders who can affect or are affected by organizational activities (Mitchell et al.,

1997). Organizations are accountable to these stakeholders and must align their activities and performance with the needs of stakeholders. The importance of stakeholders has increased over time, especially in relation to social and environmental issues (Andriof and Waddock, 2002; Freeman et al., 2004; Bidhan et al., 2010).

The practice of sustainability reporting has emerged to prominence as a critical component of an organization's sustainability accounting and reporting process (Unerman et al., 2007; Burritt and Schaltegger, 2010). Sustainability reporting has moved from a brief account of environmental disclosure in annual reports in the past (see for instance, Harte and Owen, 1991; Roberts, 1991) to more recently encompassing sophisticated reporting media such as standalone sustainability reports and corporate websites (Adams and Frost, 2004; Herzig and Godemann, 2010; Lodhia, 2012). Guidelines such as the Global Reporting Initiative (GRI) have been developed to guide social and environmental disclosure (GRI, 2011). KPMG (2011) states that ninety five percent of the largest two hundred and fifty global corporations (G250) currently engage in sustainability reporting, highlighting the importance of this mechanism to businesses.

A critical aspect of sustainability reporting is the need for economic, social and environmental indicators which provide organizations with the ability to assess and measure sustainability impacts. These indicators also need to be integrated in order to provide an understanding of the linkage between social and environmental issues, and economic information, thereby enabling

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organizations to address sustainability issues holistically (Azapagic, 2003, 2004; Lozano, 2007, 2008; Lozano and Huisingsh, 2011). In line with these arguments, it is argued in this paper that a vital aspect of initiating the sustainability reporting process is for organizations to have more focused indicators, much like those used in economic performance analysis (Castro and Chousa, 2006; Gombola and Ketz, 1983; Lewellen, 2004). These indicators are referred to as corporate sustainability indicators (CSI) (Dyllick and Hockerts, 2002).

The central research issue investigated in this study is the usefulness of CSI to an organization and its stakeholders. The literature surrounding CSI was briefly examined. The research process involved engagement with a large diversified resources company and, using its reported sustainability data, development and analysis of its CSI. In addition, management and key sustainability stakeholders of the company were interviewed as part of the exploratory research process in order to determine the value (ease of use and usefulness) and explanatory capacity of the indicators and trends. The discussions and concluding statements highlight the potential of CSI for organizations.

## 2. Corporate Sustainability Indicators

Schaltegger and Wagner (2006) discuss two different approaches to sustainability accounting and reporting, the inside-out and the outside-in approach. These differ in terms of whether the drivers for sustainability accounting are internal (inside-out) or external (outside-in). Similarly, the integration of economic, social and environmental issues into usable CSI can assist organizations, internally and externally. From an internal perspective, the use of CSI provide a highly visible tool for corporate governance and management of resource inputs and environmental capacities (Figge et al., 2002; Hahn and Scheermesser, 2006; Labuschagne et al., 2005). It is argued that management requires a range of corporate level measures and trend indicators for decision making, in addition to the economic performance ratios that support sustainable business goals and objectives (Callens and Tyteca, 1999; Kolk, 2008; Moller and Schaltegger, 2005). In the face of globalized industries and regulation, these types of management considerations are satisfied by CSI which enable companies to assess the optimum use of resources in line with the environment's absorptive capacity (Dyllick and Hockerts, 2002; Kolk, 2003, 2005, 2008; Tyteca, 1999).

From an external perspective, the use of CSI and associated trends provide useful viewpoints for the company and the broader market (Azapagic, 2004; Hussey et al., 2001; Veleva and Ellenbecker, 2001). Analysts and external observers can determine and understand the relationships between economic, social and environmental performance as changes occur within the company or across the industry sector. Moreover, stakeholders can observe and track changes and market signals, making informed decisions based on the shifting operating trends and behavioral patterns of the business (Shields et al., 2002).

In proposing the use of CSI for organizations, there is an acknowledgment that these metrics may not be capable of communicating accurate sustainability assessments on their own. Much like the economic performance ratios in use, any proposed CSI may require supporting information (e.g. key event details, time and space dimensions, decisions bases or management change-over) for knowledgeable analysis, interpretation and understanding (Gombola and Ketz, 1983; Lewellen, 2004; Yeh, 1996). Performance indicators that are configured to convey information about a company or organization therefore have limitations (Moller and Schaltegger, 2005; Porter and Kramer, 2006). More specifically, CSIs are not without problems or analytical challenges, including

the critical temporal issues that surround sustainability (Lozano, 2008). However, when combined with sustainability reporting information, these indicators have potential to provide an enhanced understanding of corporate performance in relation to economic, social and environmental issues.

This study used the seminal work of Dyllick and Hockerts (2002) for its study into CSI. They created a six criteria framework for CS performance; eco-efficiency, socio-efficiency, eco-effectiveness, socio-effectiveness, ecological equity, and sufficiency. Their study framed three cases (business or economic, natural or environmental, societal or social) where each sustainability dimension is driven by the two complementary dimensional forces. For example, under the first case, economic sustainability can be driven by the need to minimize negative impacts on the environment (termed as eco-efficiency criteria) and maximize positive social or community impacts (one interpretation of the socio-efficiency criteria). The other two cases follow similar dynamics with environmental sustainability driven by the effectiveness of sustainable business solutions and products (eco-effectiveness) and optimal resources choices and consumption of our society (sufficiency); and, social sustainability is shaped by the fair intergenerational use of natural resources (ecological equity) and the effective use of goods and solutions to meet the needs of all levels of society (socio-effectiveness). The focus on interrelationships between indicators by Dyllick and Hockerts (2002) provides potential for integration of social, environmental and economic issues and therefore justifies the use of their framework for this study.

In addition to constructing their framework, Dyllick and Hockerts (2002) directed more applied research in some specific areas. The relationships between the economic and social dimensions of sustainability need further study. The authors offered that socio-efficiency, and the socio-effectiveness criteria, require practical examination and further research. Also, environmental drivers of social sustainability (ecological equity) are in need of further refinement. The researchers posited that business relevancy is a key ingredient to good ecological equity criteria.

This research acknowledges that there are numerous studies on the development of sustainability indicators. Prominent among these are studies that have focused on developing general CSI for the mining industry (Azapagic, 2004), developing specific indicators and making comparisons across the oil companies, BP and Shell (Krajnc and Glavič, 2005), and focusing on inter-linked sustainability indicators through three case studies (Lozano and Huisingsh, 2011). Such research motivates the current study, which looks to add further understanding and practical measures to the sustainability body of knowledge. Prior literature has focused on indicator development and while this has also been applied to a practical context (Krajnc and Glavič, 2005; Lozano and Huisingsh, 2011), there is a lack of management and stakeholder insights into the utility of these indicators, especially in relation to the use of specifically developed indicators from company data. The unique contribution of this paper to the CSI literature therefore is the development of company specific indicators and the investigation of their practical application and appropriateness in relation to an actual company (BHP Billiton) and its stakeholders.

## 3. Methods

This paper follows the case study research approach. Yin (2009) argues that a case study is appropriate for obtaining an in-depth understanding of a particular research context with a view to providing analytical, rather than statistical generalizations. Analytical generalizations are findings specific to a particular context that have the potential to inform studies of other contexts, possibly studies of larger samples. The author further argues that

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