

Sustainability Reporting in Extractive Industries

Subjects: [Mineralogy](#) | [Environmental Studies](#) | [Social Issues](#)

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Sustainability reporting is one of the tools that contribute to incorporating sustainable development in the design of extractive operations (i.e., “Design for Sustainability”), and the demand for sustainability reports is increasing due to the increased focus on sustainable development and sustainable financing efforts. The extractive industries are believed to have unique strengths to contribute to achieving the Sustainable Development Goals. Nonetheless, companies are expected to be transparent and accountable not only to investors but to all stakeholders, including communities, suppliers, clients, employees, and governments. Therefore, extractive industries require effective sustainability accounting and reporting to transition and contribute to sustainable development.

sustainability reporting

extractive industries

sustainability indicators

mining

oil and gas

1. Sustainability Reporting in the Extractive Industries

Oil and gas companies' first efforts at sustainability reporting occurred in the 1980s, and mining companies followed suit in the 1990s ^[1]. Although the primary focus was on producing stand-alone environmental reports ^{[2][3][4]}, both industries have since expanded their scope and become more invested in sustainability reporting than most other industries ^{[5][6][7]}. In the last decade, research on indicators used in sustainability reports of oil and gas and mining companies has primarily focused on a single industry (either oil and gas or mining); however, the research has varied in terms of scope. For example, some studies have focused on the indicators companies used in a single year ^{[6][3][4][8][9][10][11]}, and others have examined the trends in reporting practices over time ^{[1][5][7][12][13][14][15][16][17][18]}, but hypothesis testing to assess the statistical significance of the temporal trends in reporting has not been conducted. Likewise, some studies have focused on a single dimension of sustainability (e.g., only environmental indicators) ^{[3][8][10][13]}, while others investigated more than one dimension ^{[1][5][6][4][9][12][14][15][16][17]}. However, none of these studies simultaneously addressed both the oil and gas and mining industries and the three dimensions of sustainability.

Sustainability reporting provides several potential benefits for companies. It can increase companies' understandings of risks and opportunities, and it can provide them with the opportunity to increase transparency and therefore enhance their credibility and brand value in the eyes of customers, suppliers, and broader society ^[19]. It has also been viewed as a response to increased environmental and societal pressures and as a component of obtaining and maintaining a “social license to operate” ^{[2][3][4]}. It may increase competitiveness by allowing companies to benchmark and assess their sustainability performance with regard to legislation, standards, and voluntary initiatives, and it may motivate employees to learn more about and implement measures to contribute to

companies' sustainability performance. "Development of sustainable development indicators and reporting and ongoing improvement against these indicators" is key for what has been referred to as "Design for Sustainability" in both the production and mineral processing stages of a mining operation [20]. Recording and reporting of sustainability risks and opportunities are also essential for better management of extractive operations, as they can be integrated into the project management system [21]. Finally, it can encourage companies to streamline their processes and reduce costs by increasing efficiency [16][22][23][24][25].

Despite the benefits, criticisms have been lodged at the transparency, reliability, thoroughness, and utility of sustainability reports and the data presented within [26]. On its own, sustainability reporting has been criticized for its mostly voluntary nature, and companies have not appeared to prioritize sustainability reporting [26]. Companies have also been accused of "greenwashing", or presenting a favorable rather than a realistic view of their performance [27][26], and exerting a significant level of higher management control over the reporting process without implementing any accountability or auditing mechanisms [26]. No less, sustainability reports are still the most institutionalized resource that discloses companies' activities related to sustainable development, and the demand for sustainability reports is increasing [12]. Because large-scale extractive companies often operate multi-nationally, and in some cases are required to report on aspects of sustainability, while in other cases reporting is voluntary [28], there is a certain degree of subjectivity in sustainability reporting [29][30][31]. This has potential political and managerial implications [30][31] and may contribute to the variation that occurs in these reports. However, among multinational corporations, traditional reporting topics and employment data have become more standardized as companies gain more experience reporting on these topics and their measurement is relatively more straightforward than other issues [25].

2. Oil and Gas and Sustainability Reporting

Research on sustainability reporting practices of oil and gas companies has mostly focused on the ways in which companies are using the GRI indicators and the trends in reporting over time. Alazzani and Wan-Hussin (2013) evaluated the environmental reporting in 2009 of eight oil and gas companies against the GRI 2006 Sustainability Reporting Guidelines and revealed the least and most disclosed environmental indicators [8]. They concluded that companies made reasonable efforts to report their environmental performance in accordance with the GRI guidelines, that the voluntary adoption of GRI guidelines increased transparency, credibility, and comparability in sustainability reporting, and that the GRI guidelines should be adopted more widely among the industry [8]. Another study on environmental reporting by Khan et al. (2019) investigated the reporting of 30 environmental GRI indicators by 12 oil and gas companies in Pakistan for the years 2010–2014. They showed that overall, there was an increase in the presence of the indicators; however, the majority of the companies had relatively low coverage of these indicators, and the indicators were not consistently disclosed over the years [13]. Orazalin and Mahmood (2018) evaluated the trends in sustainability reporting practices of the Russian oil and gas industry by manually collecting data from sustainability reports, annual reports, and audited financial statements of fifty companies from 2012 to 2016. The authors used the GRI-based environmental, social, and economic indicators for evaluation and analyzed the extent of disclosure in each pillar. They found a steady increase in the quantity of environmental and

economic indicators disclosed across the survey years and detected an increasing trend in triple bottom line sustainability reporting, which measures a corporation's performance across the three main pillars of sustainability: economy, society, and the environment [27]. They suggested that triple bottom line reporting resulted in more extensive sustainability disclosures [16].

Some studies have examined the relationship between the reporting practices of oil and gas companies and other parameters. Summerhays and De Villiers (2012) reported that the six largest oil and gas companies increased their environmental disclosures in response to the 2010 Gulf of Mexico oil spill, and Hournaux et al. (2017) examined the association between companies' corporate strategies and their reporting on sustainability indicators. Through a comparative study of two large oil and gas companies using the GRI-G4 indicators, they identified the indicator categories that were and were not connected to each company's corporate strategy. Their results showed that the indicator categories that were strongly connected to strategy elements included *labor practices and decent work*, *environmental compliance*, and *indirect economic impacts*, while *transportation* had a very limited connection to company strategies. The authors also detected an imbalance in triple bottom line reporting, with a dominance of social aspects [12]. In another study, Mahmood and Orazalin (2017) examined the relationships between corporate board characteristics and sustainability reporting practices of 30 Kazakhstan oil and gas companies between 2010 and 2013 by using GRI indicators and found that the board's gender diversity and size had a positive impact on the scope and quality of environmental reporting [14].

3. Mining and Sustainability Reporting

Research on sustainability reporting in the mining industry has primarily focused on understanding the trends and evolution of reporting practices in all sustainability pillars (social, environmental, and economic) and has emphasized the importance of integrated sustainability reporting. Yongvanich and Guthrie (2005) argued that reporting both financial and non-financial performance is essential. Their content analysis, based on 73 indicators that appeared in annual reports of 17 Australian mining companies for the financial year 2002, revealed the disclosure frequency of each indicator. They showed that although companies reported an average of 48% of all indicators, they disclosed only a small portion of environmental and social indicators [9].

A number of studies have investigated the trends in reporting practices in the mining industry over the years. Jenkins and Yakovleva (2006) performed a temporal analysis of reporting of ten mining companies between 1999 and 2003. Although they found substantial variability in the reporting practices among these companies, there were increasing trends in social and environmental reporting, as well as in the incorporation of economic disclosures in the stand-alone Social and Environmental Reports. There was also a trend toward covering more complex issues related to sustainable development and corporate social responsibility (CSR). Similarly, Perez and Sanchez (2009) assessed the evolution of sustainability reporting in the mining sector between the years 2001 and 2006 by performing a content analysis of the sustainability reports of four mining companies. They compared these companies' reporting performance and adherence to best practices and scored them according to the most and least addressed topics. The social performance reporting score was the highest for all companies, and the economic performance score was the lowest. The environmental performance had the most variability in the

reports. Furthermore, all of the companies showed an improvement in their sustainability reports in terms of structure and comprehensiveness. Lee (2017) investigated the relationship between the quality and quantity of environmental disclosures of 55 Australian mining companies based on their 2013 reports and the indicators in the GRI's Mining and Metals Sector Supplement. They found that the number of environmental disclosures of these companies was positively and significantly correlated with market capitalization and disclosure quality (i.e., the usefulness of information in understandability, relevance, reliability, and comparability) [10]. Analyzing the literature on sustainability accounting and reporting practices in the mining industry from 2004 to 2013, Lodhia and Hess (2014) concluded that these practices were evolving slowly in the mining industry, and they identified the need for future studies that analyze the social, environmental, and economic aspects disclosed by companies and the extent to which they are integrated [17]. Yaylaci and Duzgun (2016) compiled 347 sustainability indicators specific to the mining sector in their study that proposes an indicator-based sustainability assessment framework for the mining sector [32].

4. Comparing Industries

Few studies have examined the sustainability reporting practices of both the oil and gas and mining industries. Raufflet et al. (2014) assessed the CSR practices in both industries through interviews with experts and practitioners in the extractive industries and through a content analysis of "regulatory scripts" in company reports in 2011, defined as shared practices among the sector in response to international frameworks and standards. They found that environmental topics (excluding transportation) and social, health, and safety issues were particularly well covered [4]. Guenther et al. (2007) assessed the reporting practices of the two industries but limited the analysis to GRI environmental indicators over a one-year period. Their results revealed the three most commonly and comprehensively reported indicators as *total water use*, *compliance*, and *air emissions* and showed that only one-third of the GRI environmental indicators were reported. They also showed significant differences in environmental reporting between the two industries. Suska (2021) assessed the annual reports of the two industries for 2014–2019 and focused on the environmental and climate responsibility initiatives of three Polish companies. They showed that both industries were working toward reducing their environmental impact caused by wastewater discharge but that there were areas for improvement in reporting on carbon emissions and waste management [18]. Dilling (2016) examined the financial and sustainability reports of the two industries and found that in 2012, Canadian companies' minimally disclosed information related to long-term value creation [11].

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