

## References

- Delors, J., Al Mufti, I., Amagi, I., Carneiro, R., Chung, F., Geremek, B., . . . Nanzhao, Z. (1996). *Learning: The treasure within*. Paris: UNESCO.
- Guo, L. (2014). Preparing teachers to educate for 21st century global citizenship: Envisioning and enacting. *Journal of Global Citizenship and Equity Education*, 4, 1–23.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2015). *Global citizenship education: Topics and learning objectives*. Paris: Author.

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## Responsible Mining: Key Principles for Industry Integrity

Sara Bice, Routledge, London, 2016

Reviewed by Oliver Moraes, Environmental Researcher

This book provides a comprehensive grounding for more ethical and environmentally responsible mining practices and behaviours to emerge in the 21st century, and why global mining corporations should take account of the social, cultural and environmental consequences that their operations produce. The author puts forward five pillars for responsible mining as the key aims of her research.

The book's prologue opens with a critical distinction that provides a much needed and nuanced analysis of the controversial area that is global mining. 'While mining can never be sustainable . . . it holds the potential to be responsible' (p. xv). This is an important point, with Bice clearly articulating her support of working with miners rather than against them throughout the book.

The introduction outlines the complex relationship that mining has with economics, politics, society, and the earth system, ending with an important point that educators and decision-makers around the world should better communicate to their students, members and constituents: 'Every aspect of our daily lives is facilitated by mining. Yet many of us never realise . . . the deep connections we hold to [the] industry' (p. 1). While Bice acknowledges that mining companies can act and behave responsibly, she notes that 'corporations have little impetus to act responsibly without being held to account by an informed and active public . . . and strong governments' (p. 2). However, through all of the controversies and social and environmental catastrophes caused by mining, she argues the industry's collective consciousness has 'undeniably been emerging' (p. 6) in recent years.

The research uses document analysis of 50 sustainability reports from five major mining companies between 2003 and 2013, complemented by 51 in-depth interviews with mining executives, senior managers, community relations specialists, contractors, and community representatives living near to mining operations. This work involved mine site visits and case studies in Australia, Canada, Central Asia, Papua New Guinea and west Africa, in relation to the mining of iron ore, coal, copper, gold and other minerals.

Chapter 2 starts with an important contention by the author that while 'responsible mining is an oxymoron' (p. 15) for some critics, 'this book asserts [that] it is possible and necessary' (p. 15). The chapter highlights the concept of the 'Great Adoption' of corporate social responsibility (CSR) over the last two decades, which has led to the idea that mining companies can be more responsible than they have been in the past. Such a shift is evident with companies like BHP Billiton now

putting greater emphasis on maintaining their ‘social licence to operate’ (p. 27), and has been possible because of key social drivers, including shared language, peer pressure (between firms), group identity, and discipline across the sector. It should be noted that Bice’s analysis of this shift within the mining industry before publishing the book in 2016 has begun to play out with examples like mining giants BHP and Rio Tinto (among others) calling for the Australian government to establish an effective climate change policy, including putting a price on carbon (Janda, 2017; Toscano, 2018). Both companies have even threatened to leave the notoriously conservative Minerals Council of Australia (BHP in 2017 and Rio in 2019) for their ongoing promotion of fossil fuels and anti-climate agenda (Janda, 2017; Stevens, 2019).

Chapter 3 assesses the industry’s own perspectives on CSR, their values and engagement activities, which subsequently demonstrate how CSR has now become institutionalised in the global mining sector. Whereas Chapters 4 and 5 discuss the first three pillars of the author’s responsible mining framework: (1) ‘Holistic Assessment’ – outlined as ‘adopt[ing] a transdisciplinary and team-based approach to impact assessment to desegregate research silos’ (p. 81) in pre-mine development activities and planning; (2) ‘Community-Based Agreement-Making’ that provides a means for impact assessment findings to be worked on alongside local stakeholders so that mining decisions are informed by the communities that they impact; and (3) ‘Ethical Decision-Making’, where Bice integrates political and academic theories into her analysis of the ethics of responsible mining to help the reader understand the emergence of the CSR adoption in mining decision-making processes in the 21st century.

Chapter 6 delves into what the author sees as the key considerations for improving the governance mechanisms and regulatory frameworks that would better foster the establishment of a truly responsible mining sector, making up the final two pillars: (4) ‘Appropriate Boundaries’ highlights how until recently, company-driven social welfare and development initiatives are often not criticised and have created harmful community dependence while ‘undermin[ing] government responsibilities’ (p. 117). The author argues that effective establishment of the first three pillars of responsible mining can contribute to the development of equitable and realistic boundaries between corporations, communities and governments, whereas pillar (5) ‘Good Governance’ focuses on ‘deliberating the sound regulatory mix’ (p. 141) for responsible mining by discussing deregulation, transparency, and reporting approaches and procedures.

Chapter 7 uses the five pillars of the responsible mining framework to develop a set of propositions the author sees as necessary to fostering and expanding the role of genuine CSR and the establishment of a more responsible mining ethic by outlining where future research pathways might lead. The chapter focuses on the opportunities and challenges that policy makers face in institutionalising responsible mining within the global mining sector.

Bice finishes the book in Chapter 8 by highlighting her hope for a more responsible future in international mining ventures, activities and operations. She discusses several recent mining catastrophes, such as the dam collapse at Brazil’s Samarco iron ore mine (jointly owned by BHP and Brazilian mining giant Vale) in 2015, as reason for caution about the industry’s ability to self-regulate. However, Bice emphasises that how the industry responds to mining disasters like Samarco are hugely different to how they avoided responsibility to catastrophes in the past, such as the Ok Tedi mine disaster in the 1980s, which does give commentators like Bice hope for the changing nature of the industry, toward a more responsible mining ethic. Bice references Matthew Stevens (an Australian journalist) who in 1995 interviewed former BHP Chairman Brian Loton after the Ok Tedi disaster: ‘Loton, with typical poised precision, said BHP had satisfied its own environmental charter ...’ (p. 170), which starkly contrasts with current BHP CEO Andrew Mackenzie’s emotional and tear-filled response to the Samarco catastrophe in Brazil. Bice acknowledges that such an example is anecdotal and may be down to individual personality differences but nevertheless reflects the transforming cultural environment that mining giants now operate within.

This book is aimed at educating the mining community, governments, civil society, and university researchers about the importance of creating a responsible mining sector. The research is particularly important for the fields of geology and earth sciences, environmental science, sustainable development, and international business.

This is not a textbook but rather provides a structured and logical basis for researchers and more advanced university students with a reference point for understanding the complex social, environmental and financial factors that are created by and influence extractive industries around the world. Bice provides a nuanced analysis of both the criticisms and accomplishments of the rise of corporate social responsibility (CSR) within the global mining industry while postulating the necessary steps for reducing impacts through improved practices.

This makes the book an important work for educational purposes for those scholars and students of economics, development, climate change and environmentalism, as well as decision-makers in public, private and civil society who influence and are influenced by extractive industries.

For me, a postgraduate researcher, practitioner and educator across climate change, conservation, and sustainable development this book is a very well written and engaging account of the current state of play in the global mining industry and provides a future vision for the sector. Further, as a geologist by training, and having worked within the mining industry during my undergraduate years, I have a strong understanding of the importance of mining, minerals, and geological resources for the prosperity of our society; at the same time I have always been critical of the disastrous impact that mining can have on people and the ecosystems we depend on, and particularly the sector's contribution to global climate change and the resulting social and ecological crises we now face. Thus, Bice's argument that mining can never be sustainable rings true for me; however, because I know people who work in the sector and care about our planet's future at the same time, I do believe that the industry can become more responsible and ethical, and it must if its legitimacy is to be maintained.

## References

- Janda, M. (2017). BHP set to leave World Coal Association, threatens Minerals Council withdrawal. *ABC News Online*. Retrieved from <https://www.abc.net.au/news/2017-12-19/bhp-threatens-minerals-council-withdrawal/9271472>
- Stevens, M. (2019). Rio puts Minerals Council on notice over coal and climate. *The Australian Financial Review*. Retrieved from <https://www.afr.com/business/mining/rio-puts-minerals-council-on-notice-over-coal-and-climate-20190411-p51d8x>
- Toscano, N. (2018). 'Rallying cry': Mining giant BHP renews calls for carbon price. *The Sydney Morning Herald*. Retrieved from <https://www.smh.com.au/business/companies/rallying-cry-mining-giant-bhp-renews-calls-for-carbon-price-20181022-p50b5e.html>

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## Sustainability and the art of long-term thinking

Bernd Klauer, Reiner Manstetten, Thomas Petersen and Johannes Schiller, Milton Park (Ox): Routledge, 2017

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