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New Models of Sustainability for the Resources Sector: A Focus on Minerals and Metals

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Abstract

The role of the resources sector in sustainable development is indisputable. A world without water, energy, agriculture and minerals is impossible to envisage. Increasingly, however, these same sectors are disconnected from the social fabric of life in countries with developed economies – the consumer society demands instant gratification, with scant regard to the resources which underpin supposed quality of life. In developing countries, however, the picture is distinctly different – these same sectors are the lifeblood of the economy, and their role is obvious to all. The “disconnect” between these two perspectives is real (and growing).

On a different level, chemical engineers understand mass conservation, the guiding principles of thermodynamics and their combined role in defining sustainability – but

whether policy makers, business strategists, and consumers do is a moot question.

This paper explores these two dichotomies using the minerals and metals sector as an example. It suggests new operational models which could position the resources sector at the heart of materials value chains, focusing on the role of networks and partnerships in enhancing the contribution of this sector to sustainability. Such partnerships have the potential to help heal the “north-south”™ divide between resource extraction and resource consuming economies. Discussion is offered on desirable futures for the sector, and the implications of such for strategic planning and decision support—both for public policy and business practice; the operation of existing operations, and broader societal stewardship of primary resources. Specific consideration is given to the role of chemical engineering in both structuring and analysing problems in this realm of complex systems, and to points of engagement with cognate approaches from the behavioural and management sciences.



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Keywords

sustainability; resources; minerals; metals; decision making

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