

Improving mining's social and environmental performance: A key to 'sustainable mineral development'

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INTRODUCTION

In many parts of the world there is an ongoing sense that the distribution of benefits from mining is unfair -while within mining, there is frustration that credit for the importance of mining's role is not forthcoming from those who would criticise industry practices. Many dozens of initiatives aimed at strengthening mining's social and environmental performance have been mounted from both within and outside the industry. These generally depend on a 'leadership-trickle-down' change model. While progress has been achieved, the society-industry trust deficit continues. This paper draws on work undertaken over the last two years¹ that reflects on why progress has been inadequate. A fresh approach is needed. Development of the change strategies must come from a broad dialogue of key interests. It must be based on a careful review of the culture of the entire global mining community and related barriers and incentives for change. Motivation for this call comes from a sense that current conditions can serve as an opportunity for mining to demonstrate a powerful degree of leadership in facilitating the transition to a low-carbon economy and a future development pathway characterised by (1) fairness in the distribution of costs and risks, benefits, responsibilities, and accountabilities across the full project life cycle through post-closure; (2) social justice; and (3) care for the environment.

The global mining community

That global mining community includes a corporate core, a complex array of surrounding organisations, and government.

Corporate core. There are approximately 25,000 mining companies in the core of the global mining community (Table 1). Of these, 14,000 operate upwards of 30,000 mines² in about 140 countries. Companies vary significantly in: size (as estimated by asset base, numbers of operations, numbers of employees); corporate objectives; risk tolerance; overall financial strength and means of financing; ownership model: public, private, state-owned, hybrid; geographic focus; commodity focus; technical challenges; extent of exposure to multiple operating environments; regulatory regimes they are operating under; and interest in and capacity for embracing change leading to improved social and environmental performance.

¹ Hodge, R. Anthony, M. Ericsson, Olof Lof, Anton Lof, Paul Semkowich, in press. The global mining industry: corporate profile, complexity and change. Mineral Economics, in press. Berlin: Springer.

² SNL, 2016. Global Mining Information: SNL Metals and Mining's Metals Economics Group. (Accessed March 2017) as quoted in Roche, C., Thygesen, K., Baker, E. (Eds.), 2017.

Table 1. Corporate core of the global mining community

Category	Approximate total assets in billions of USD ³	Approximate number of employees	Approximate number of companies (percent)
<i>Production (14,000)</i>			
Global giants	above 12	tens of thousands	50 (0.2%)
Seniors	6 – 12	thousands	250 (1%)
Intermediates	3 – 6	hundreds	3,200 (13%)
Production juniors	1 – 3	tens to hundreds	10,500 (42%)
<i>Exploration (8,500)</i>			
Exploration juniors	0.5 – 1	a few to fifty	8,500 (34%)
<i>Investment (2,500)</i>			
Investment juniors	below 0.5	a few to tens	2,500 (10%)
TOTAL	25,000		

Around the core. Surrounding the 25,000 core companies lies a complex array of service, supply, and support industries (financial, technical, social), industry associations, organised labour, host communities and land holders (indigenous and non-indigenous), research and teaching organisations, and civil society organisations.

Government. All these organisations operate within the policy, laws, regulation and enforcement actions set by government. Governments serve on the one hand to incentivise greater mining activity and on the other, to modify mining activity in favour of competing political, social, environmental, and economic pressures that reflect host-country policies. Across the world, government’s interest in and capacity for effectively managing change varies greatly as does trust in government by industry and citizens alike.

Improving mining’s social and environmental performance

In spite of dozens of initiatives aimed at improving mining’s social and environmental performance, improvement across the mining industry has been too little and too slow; the gap between mining’s performance and society’s expectations remains as does the attendant trust deficit. These initiatives depend on a ‘leadership, trickle-down change model’. While this approach is important, it is not sufficient.

Amongst mining companies there are significant variations between individual company cultures. However, there is also a “mining culture” that has ancient roots. It lies like a thin veil across the entire global mining community. Its dominant feature may be a desire for financial gain and a “control” management style while generating product and services needed by society. However, mining’s culture is also likely a source of significant inertia that resists change and compels companies to stay close to the norm. Self-identified ‘leadership’ companies play a key part but may not be the dominating force in defining the culture of the global mining community. Each part plays a significant role – large and small core mining companies, the surrounding maze of organisations, and government. Most importantly, it is this culture – and the related barriers and effective incentives for change – that needs to be understood and addressed as the foundation of any successful attempt to bring improved social and environmental improvement across the whole global mining industry. This is a change management challenge on a grand scale.

Fresh thinking and perspectives are needed from across the global mining community if mining and societal values are to be more synchronised and the trust deficit reduced.

³ “Total assets” is all the assets, or items of value, a company owns including cash, accounts receivable, inventory, equipment, tools, etc.

Emergent closure/post-closure research topics

Rethinking design: Time horizon scenarios and mine optimisation; up-front build efficiency vs long-term performance efficiency

Addressing the long-term: discount rate; resources to cover obligations; a rolling seven-generation responsibility; the musician's analogy

Change management: The culture of the global mining community, barriers and incentives for change; targeting change strategies.



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R. Anthony (Tony) Hodge received his B.A.Sc. (1972) and M.A.Sc. (1976) from the University of British Columbia in Geological Engineering. In 1995 he was awarded an interdisciplinary Ph.D. from McGill University for his work on Assessing Progress Toward Sustainability. His career has spanned a rich array of assignments - in the private sector, with government, in quasi-judicial processes, in civil society organizations, in communities, and with Indigenous peoples. Consistently he has sought common ground between actors and ways to integrate multiple values into the solutions to some of the most difficult socio-technical-environmental-financial challenges facing today's society.

In September 2015, he stepped down after serving 7 years as President of the International Council on Mining and Metals, London UK. He currently holds Adjunct Professorships at the Sustainable Minerals Institute, University of Queensland, Brisbane, Australia and at the Robert M. Buchan Department of Mining Engineering, Queen's University in Kingston, Ontario, Canada. In addition, he is a member of the Natural Resource and Energy Leadership Council convened by RESOLVE in Washington DC and is leading the Faro Mine Retrospective Initiative which is undertaking a full life-cycle analysis (1950s - today) of the mine's positive and negative contribution to people and ecosystems.

