

Mining the future

**WHAT WILL THE MINING INDUSTRY OF THE FUTURE LOOK LIKE?
GLEN CORDER TAKES A LOOK IN THE CRYSTAL BALL.**

There is no doubt demand for minerals and metals will remain strong and will grow well into the future. The industry's products make a major contribution to modern living standards and you can add to this the aspirations of the emerging economies, such as India and China, to achieve first world lifestyles.

There is also a growing requirement and desire, from both a regulatory and community perspective, to extract and process minerals and metals in a socially responsible manner with minimal environmental harm.

So what does society want the minesite of the future to look like? There is no simple answer to this question. No doubt it should have a much lower environmental footprint, work more harmoniously with the local community and have greater social responsibility than the average minesite does today.

This might seem like a tremendous task, particularly with the sudden economic downturn, but setting aspirational goals is nothing new to this industry. Think of safety a generation ago. Back then there were safety measures but no overriding "safety culture" as there is today, where safety comes first and foremost. Mining sites and mining companies are proud of their safety record, and safety is a critical consideration in the decision-making process. Projects do not proceed if they are inherently unsafe, regardless of the financial returns.

It is not unreasonable to suggest sustainability will chart a similar course to safety in the mining industry. Greater government and community expectations will elevate the level of sustainability culture within the industry. This enhanced culture will be the vehicle for moving towards the "ideal" minesite of the future.

But any journey needs a suitable strategy and the right instruments to stay on course. In a broad sense, much of the theory of sustainability is relatively mature and there are several frameworks plus numerous associated tools available.

What has been lacking is the application

of these in systematic and rigorous mechanisms to the mining industry. Such mechanisms need to look at things from a different perspective and generate new and innovative approaches that will lead to better sustainability outcomes.

Too often the tendency is to design and develop a mine and processing plant that is the same as the last one, for reasons of proven technology, known costs and reduced risk. Emerging carbon trading schemes and increased pressure on the "licence to operate" will necessitate moves towards more innovative approaches.

By considering frameworks, such as the triple bottom line (economic, environmental and social aspects) or the five capitals (which also include manufactured and human), in the conceptual stages of mine and plant design, all the key aspects of sustainability can be covered. Such frameworks can also assist in ongoing

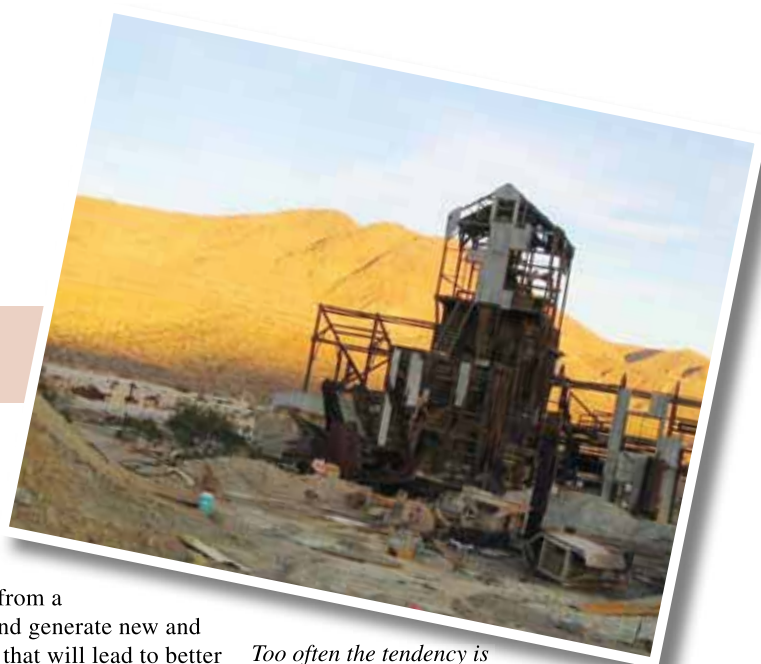


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- Glen Corder.**

monitoring during the life of the mine. One example is monitoring the closely coupled relationship between a minesite and the local community well after the completion of the original social impact assessment.

Lifecycle assessments, product stewardship and other such tools help a company understand and quantify its true environmental impact by looking at all phases of its product. The aluminium industry has used lifecycle assessment to show that even though aluminium production is energy intensive, the metal's properties allow for lighter and more efficient cars.

Tackling the challenges of emerging



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mining countries and economies, as well as better understanding the interactions between local communities and minesites, will have growing importance in the future. The Community Development Toolkit, developed by the International Council on Mining and Metals in conjunction with the World Bank and Energy Sector Management Assistance Program, is one tool aimed at supporting government, industry and community efforts to realise more sustainable community development around mining and mineral processing operations.

A systems perspective is also a key element in driving sustainability initiatives. Improved blasting and selective separation of waste rock at the mine can result in considerable energy savings, as well as economic benefits, in the concentrator and along the value chain.

Innovative and efficient technologies are not the only answer to the sustainability question. If they compromise the environment or lack the support of the public, the chances of their being successfully implemented will be severely reduced. Strong and robust dialogue between the constituents representing the broad "pillars" of sustainability (economic, environmental and social) is essential, so that holistic solutions can emerge to develop the minesite of the future.

Glen Corder is principal research fellow at the University of Queensland's Sustainable Minerals Institute. It is hosting the Sustainable Development Indicators in the Minerals Industry (SDIMI) 2009 Conference on July 6-8. More information is at ausimm.com.au/sdimi2009

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