



# Seeing the light

## Is the resources sector changing?

With a longstanding reputation for tough company managers, 'dig and deliver' attitudes, high profile environmental accidents and a reportedly cavalier attitude to the welfare of communities in overseas host countries, the perception in some quarters that the minerals, mining and energy industry is 'dirty and dangerous' persists. But is this image changing as the sector begins to more earnestly embrace sustainable development principles?

Certainly, mining and minerals processing are usually large-scale operations and when a mishap occurs, it can be dramatic. However, Mr Mike Smith of sustainability partnership The Natural Edge Project (TNEP) says Australian Bureau of Statistics data indicate that mining and oil and gas operations occupy less than 0.01 per cent of the Australian land surface, or less than half the area used for car parks at pubs, and the

rate of technological advance in Australian industry is impressive, with mining patent exports worth a billion dollars a year.

Many mining companies also claim, particularly on corporate websites, to have a sustainable development philosophy. So is the Australian resources sector really embracing sustainability and putting it into practice ... or is it all just spin? Where does the sector actually have solid runs on

**Mt Whaleback open cut iron ore mine, Newman, WA.** Peter Franzmann

the board and where is more effort needed to improve performance?

### Phased changes

Dr Joe Herbertson, founder of the Centre for Sustainable Resource Processing and an Executive Director of The Natural Step organisation, says that sustainable development was a relatively unknown concept in the resources sector a mere 10 years ago, but that it has since come a long way. Now, he points out, many Australian resource companies, especially the big blue-chip miners, are better embracing the concept and taking more concrete action.

'The minerals industry, possibly stung by criticism and embarrassed by a record of environmental problems and social discord, has responded positively to community pressure to move towards sustainability,' says Herbertson, a former



executive with BHP. 'However, this is a three-step process, and we are only now seeing most leading companies moving into the second phase,' he says.

'First of all, we had industry pulling together to develop formalised sustainability principles and systems, notably the Environmental Code of the Minerals Council of Australia. In the second phase, a broader sense of sustainability covering community and environmental stewardship is becoming more of a mainstream activity within the operating business. In the next, emerging stage, I think we'll see sustainable development driving significant innovation and creating value in these companies, way beyond notions of the licence to operate,' Herbertson told *Ecos*.

Other researchers agree that things are turning around. Dr Anna Littleboy, Group Leader of Sustainable Mining Research at CSIRO Exploration and Mining, says there has been a cascade of activity following the Global Mining Initiative of the World Business Council for Sustainable Development in 2002.

'This initiative led to the inception of the International Council on Mining and Metals (ICMM) which has published a well known list of principles for global sustainable development in the industry,' Littleboy says. (See the principles listed at: [www.icmm.com/sd\\_framework.php](http://www.icmm.com/sd_framework.php).)

### An Australian industry framework

In this country, the Minerals Council of Australia (MCA) has been actively promoting sustainability. Informed by the above-mentioned principles, it has produced the comprehensive document *Enduring Values*. Ms Melanie Stutsel, Director of Environmental and Social Policy at the Council, says *Enduring Values* is based on the views of more than 900 stakeholders. It is essentially an industry framework for implementation of sustainable development, in particular the ICMM principles, where it counts, at operational mines and processing sites.

Mr Mitch Hooke, Chief Executive of the Minerals Council, says *Enduring Values* is testimony to the industry's commitment to do better. 'The industry has moved way beyond the rhetoric of its commitment to sustainable development, although arguably not as universally as industry leaders would like,' says Hooke.

He points out that commitment to *Enduring Values* and to meeting its 'conformance requirements' is a condition of MCA membership.



A mural at Ravenswood, Queensland, depicts a bygone era for mining. Willem van Aken

Is this approach working? Professor David Brereton, Director of the University of Queensland's Centre for Social Responsibility in Mining, thinks sustainability is certainly beginning to get some traction. 'I would go so far as to say the mining industry has been a pacesetter in addressing sustainability issues, although the commitment of different companies varies widely, as you would expect,' says Brereton.

'Some people argue that mining is fundamentally incompatible with sustainable development – after all, it involves extraction of non-renewable resources – and that the best the industry can hope for is to minimise its "footprint" and improve resource efficiency,' Brereton says. 'The alternative view is that mining can actually contribute positively to sustainable development by transforming physical resources into new forms of economic and human capital ... and by leaving a positive legacy in areas where mining has taken place.'

### The challenge in diverse requirements

Increasingly, the principal of sustainable development has been used as shorthand for good practices in managing health and safety, environment and community (HSEC). Foremost of these are:

- adoption of a 'beyond compliance' philosophy by companies and their sites;
- a strong focus on resource-use efficiency and waste minimisation;
- responsible stewardship of the environment;

- mine closure policies that leave a positive legacy – environmentally and socially;
- responsible and safe workforce management practices;
- sensitivity to local community concerns and commitment to the well-being of communities affected by mining; and
- integration of economic, social and environmental considerations into corporate decision-making.

Resource companies, then, face a fairly daunting task. 'Committed companies need to find ways of achieving ongoing improvement in all of these areas while remaining profitable, while continuing to build value, and while coping with the vagaries of the global market for minerals,' Brereton says.

Technological advances in eco-efficiency and the like, however, will not achieve sustainability if companies fail to genuinely embrace sustainable development and merely opt to meet the minimum requirements for compliance.

Asked whether the main obstacle to sustainability in the sector is technological or the lack of an appropriate mindset, Herbertson says 'adoption is largely a mental hurdle because company management sometimes see sustainability as only a mere compliance issue, or as requiring open-ended altruism that could send them broke.'

'We need to get the message out, with convincing examples, that sustainability is about systematically improving our capac-

## Progress

ity to create value relative to harmful social or ecological impacts,' he says. 'Companies will benefit financially and in community perception, when they can optimise the total process from primary extraction through to product stewardship.'

### Walking the talk

David Brereton makes the point that while it is commonplace for companies to report publicly on their triple-bottom-line performance, there is still a tension in many companies between sustainability and the traditional focus on production, profits and costs.

'Senior management may talk about the need to embrace environmental and social objectives, but much of the day-to-day focus, particularly at the level of individual sites and business units continues to be on increasing production and containing costs – that is, on "dig and deliver",' he says. 'When did you last hear of a manager losing his or her job for failing to make progress on sustainable development?'

WWF-Australia calls on companies to ensure that mines are only operated in areas where environmental and social impacts can be responsibly managed, respecting that some sites have values that preclude mining. It points out that some mining processes require a lot of water and suggests that decisions on water allocation, over and above that necessary for environmental flows should be made against sustainable development criteria.

WWF, as well as a list of other more mining-focused environmental groups, believe the practice of submarine and

riverine disposal of mining waste should be prohibited in all future mines to avoid impacts like those of the notorious Ok Tedi mine in Papua New Guinea. BHP Billiton, the Ok Tedi operator, has since decided against any future riverine disposals globally and has created PNG Sustainable Ltd, which it says will ensure that all future profits from Ok Tedi will be used to support sustainable development projects in PNG.

### Benchmarks towards certification

Mike Smith of TNEP highlights that mining companies now, at least, have benchmarks to which they can aim, and that they may in future have the opportunity to be certified for best practice by a legitimate, independent third party. The Mine Certification and Evaluation Project, for example, is a research program sponsored by industry, government, and non-government organisations, including the WWF, which is evaluating the possibility of certification of mining sites and mining companies for sustainable development.

'Nevertheless,' argues Smith, 'disasters like Ok Tedi and the cyanide spill in Romania, the opposition of some mining companies to the Kyoto Protocol, and the simple fact that mining is largely an extractive industry, leave the community still understandably sceptical of whether mining can be truly sustainable.'

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exemplary sustainability projects, especially those with 'rubber on the road'?

The London-based International Council on Mining and Metals (ICMM) has recently released a joint publication with IUCN entitled *Integrating Mining and Biodiversity Conservation* that presents a number of case studies from around the world on this 'sometimes thorny' issue. It reflects the ICMM belief that 'improving sustainable development requires an integrated package of activities covering principles, and supported by public reporting, verification systems and dissemination of good practice examples'.

Highlighted cases in our part of the world include Alcoa's Western Australian bauxite mines – rehabilitation involving re-establishment of young jarrah forests 'with as rich a selection of indigenous plant species as the surrounding native forest'. Another case study is BHP Billiton's 'Revive our Wetlands' initiative, which has been carried out in partnership with Conservation Volunteers Australia and, in its first three years, renewed 100 wetlands. (Read more about these and other case studies at: [www.icmm.com/library\\_publication\\_detail.php?rcd=173](http://www.icmm.com/library_publication_detail.php?rcd=173).)

### Necessity breeds innovation

But there is clearly more to sustainability than conserving biodiversity, as the ICMM itself recognises (see page 28). Many other organisations are also addressing these wider imperatives, such as energy and resource use efficiency, waste minimisation and lifecycle product management. Australia's CSIRO, as one example, is involved in such minerals sustainability projects and research partnerships. Some current ones include:

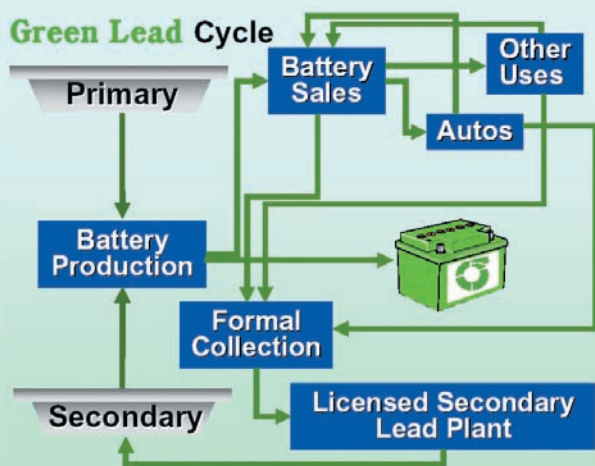
- a spin-off company, Comenergy, to sell kiln technology that burns waste coal and waste gas to create useful power for mine sites;
- a patented design for a catalytic turbine system that can work off very low and



An aerial view of settling ponds at the Woodlawn Mine complex near Tarago, NSW, in 1999.

Gregory Heath





**The Green Lead cycle for lead acid batteries.** Once in place, the Green Lead regime will facilitate the development of environmentally sound practices, safe working conditions and excellent recycling rates through the formal lead sector. Green Lead™

variable quantities of waste methane (a high impact greenhouse gas) in mine ventilation gas. Talks continue with a commercial partner to demonstrate a prototype in China;

- benchmarking and assessment of practices in mine-site water management and the value could come from more effective water management – a joint project with the Sustainable Minerals Institute;
- use of remote sensing to monitor the effectiveness of revegetation and rehabilitation of mine-sites – a joint project with BHP Billiton; and
- Minerals Downunder – a project aiming to provide exploration, mining and processing technology to add a trillion dollars to the value of Australia's mineral endowment through the discovery of new deposits and the conversion of currently uneconomic resources to viable reserves.

Similarly, Green Lead™, an initiation out of the Lead Industry, is an ambitious product stewardship project described as 'a vision of mining, processing, transporting, treating, manufacturing, storing, using and recycling lead – with zero harm from lead exposure to people and the environment'. It will focus initially on the lead used in batteries, which amounts to 75 per cent of global lead use.

BHP Billiton's Cannington Mine in Queensland is the world's largest producer of lead at a single mine. Mr Mick Roche says BHP Billiton initiated the Green

Lead™ project as part of the company's philosophy of 'zero harm' to people and the environment, and by extension, to zero harm as a result of the commodities produced.

'Improving the practices – such as storage, handling, transport and use – in the life cycle of lead will help achieve the no-harm goal,' says Roche. 'It also allows the company to secure its markets in the face of growing concern about the toxic effects of lead products on human health and the environment.'

Green Lead™ is essentially the identification of impacts associated with lead, the establishment of standards to minimise these impacts and certification of organisations, and eventually lead products, that achieve these standards.

Other outstanding achievements include the Rio Tinto Foundation for Sustainability and Argyle Diamond Mine (see page 30) and the innovative Kwinana Industrial Area near Perth, which is developing as a set of cooperative production cycle industries.

The Centre for Sustainable Resource Processing is an industry driven CRC with the participation of Alcoa, Newmont, Rio Tinto, WMC, Xstrata, OneSteel, Rocla Industries, Hatch, Kwinana Industries Council, Minerals Council of Australia, NSW Minerals Council, Orica, URS and the Gladstone Area Industry Network. The Centre claims to harness some of the best scientific expertise in the minerals sector, CSIRO and other university research partners, cooperating with the companies

involved. It aims to find technical solutions to progressively eliminate waste and emissions in the materials cycle, while enhancing business performance and meeting community expectations.

Meanwhile, the Sustainable Minerals Institute, based in Queensland, has a slightly different emphasis. It carries out research in four main areas: to develop new technologies and processes (e.g. reduction in energy used for comminution such as crushing and grinding); to identify 'good practice' in sustainable development (e.g. Indigenous employment in mining); to develop information resources for industry use; and to develop diagnostic tools for industry (e.g. risk analysis techniques).

### A sustainable future?

We can safely say then that the Australian mining sector is beginning to make good progress in applying ICMM sustainability principles, but it seems that is still debatable as to whether enough mining companies are doing enough to silence the industry critics.

'I don't think we can conclude that any company has adopted sustainable development "lock, stock and barrel",' David Brereton says, 'but certainly sustainability thinking is becoming more pervasive and most major companies are now engaging with sustainable development to at least some extent. It is encouraging to see a greater focus on translating the higher level principles into action on the ground.'

Joe Herbertson's view of the future is particularly enthusiastic. 'I can see sustainability driving resource companies into a whole new territory,' he says. 'New technologies, regional synergies, industrial ecology and innovation across traditional business boundaries will make the stretch targets like "zero waste" and "greenhouse neutral material cycles" achievable in economically attractive ways.'

● **Steve Davidson**

*The writer holds shares in BHP Billiton.*

#### More information:

Minerals Council of Australia:  
[www.minerals.org.au](http://www.minerals.org.au)

International Council on Mining and Metals:  
[www.icmm.com](http://www.icmm.com)

Centre for Social Responsibility in Mining:  
[www.csr.m.uq.edu.au/index.html](http://www.csr.m.uq.edu.au/index.html)

Centre for Sustainable Resources Processing:  
[www.csrp.com.au/index.html](http://www.csrp.com.au/index.html)

The Green Lead Program: [www.greenlead.com](http://www.greenlead.com)  
CSIRO Mining and Sustainable Development:  
[www.em.csiro.au/sustainable\\_mining](http://www.em.csiro.au/sustainable_mining)