

PROTECTING MINERAL RESERVES

by managing social and environmental risk



Swamps, marshes and wetlands provide important ecosystem services

Failure to protect mineral reserves is costing mining companies dearly, as unforeseen social and environmental risks stop projects in their tracks.

In line with global and national reporting standards, mining companies can only declare their mineral reserve – the economically mineable part of a measured or indicated mineral resource – after addressing a range of ‘modifying factors’¹ that include social, governmental and environmental issues.

According to SRK corporate consultant Roger Dixon, mining companies and investors alike are grappling with how to quantify growing environmental and social risks, as these affect not just feasibility but key governance, legal and permitting requirements.

“Investors need to know how these modifying factors have been accounted for when a project is presented to them for funding, so it is vital that these risks have been properly understood and quantified,”

he says. “The risk here is very real – it is the risk of losing your social licence to operate.”

Social: The unsustainable cost of conflict with communities

Community resistance to mining – often linked to mines’ environmental impact – is shaking the foundations of the industry’s sustainability, and demanding a fresh understanding of where project risk really lies and how to responsibly address it.

“A major global miner recently had to walk away from a \$5 billion copper and gold project, after community opposition and the expiry of operating and construction permits forced it to reclassify its reserves as resources²,” says Dixon.

Bodies engaged in reporting standards

– such as the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) and the South African Mineral Resource Committee (SAMREC) – have therefore highlighted the importance of stakeholder engagement during all project planning stages.



The CRIRSCO template, for instance, requires the Competent Person to “describe any environmental

SRK corporate consultant, Roger Dixon

factors that could have a material effect on the likelihood of eventual economic extraction,” and requires them to describe the proposed mitigation measures. It also specifies that a statement should be provided “to the effect that all necessary permits have been approved.”

According to SRK partner and principal consultant Andrew van Zyl, mines that do not establish and maintain a strong relationship with local stakeholders may be courting considerable risk in terms of the reporting codes – as this is vital to safeguard their mineral reserve figures. It is also a complex risk that could be affected by various seemingly unrelated factors.

“The risk of losing the social licence to operate is inherently dynamic, and can be affected daily by a range of factors – from drought to inflation – that may have little to do with the mining operation itself,” Van Zyl outlines. “So investors want to know that strong, constructive relationships exist between the mine and local communities, and that these relationships are a core value of the company and an on-going priority for the management team. Only in this way can



the mine adapt and respond effectively to the series of social licence risks

Andrew van Zyl, SRK partner and principal consultant

1 http://www.crirSCO.com/news_items/CRIRSCO_standard_definitions_oct2012.pdf

2 <http://www.mining.com/community-opposition-forces-newmont-abandon-conga-project-peru/>

that are bound to emerge at some point.”

He highlights the importance of mining companies providing professional, evidence-based assessments of these risks to investors and funders, as well as managing the risks with the necessary level of skills and experience – from in-depth environmental studies to structured engagement with stakeholders.

Despite the fact that there is clearly more compliance and reporting from mining companies on environmental and social issues, he said there remains a dangerous gulf between the respective world views and perceptions of company management and the community members whose lives are affected by mining arising from their dramatically different life experiences and circumstances.

Governmental: Risk-based approach to mine waste can satisfy regulations and save costs

Stringent regulations published in South Africa last year have tightened the design standards for mining residue stockpiles and deposits, but there is still scope to apply a risk-based approach that will meet legal and environmental requirements while potentially saving on capital expenditure.

According to SRK Consulting South Africa senior environmental economist and management consultant Matthew Law, the regulations promulgated in July 2015 specified design standards for mining waste disposal facilities based on the character of waste.

“These regulations apply to new infrastructure at existing mining operations, and could require that new tailings disposal facilities be developed according to the new, more stringent design specifications – and of course with financial implications,” Law points out.

In July this year, however, the Department of Water and Sanitation issued a notice that an alternative, risk-based approach to the design of disposal facilities and management of mine residue deposits could be considered if commensurate standards of environmental protection can be achieved.

“For decades, SRK has used risk-based methods to guide its technical studies and professional recommendations to clients,” he

says. “There is no doubt that this approach can be applied to the design of the new facilities in ways that, firstly, will not result in unsustainable ecological impacts and, secondly, could reduce capital expenditure.”



Law emphasises that the new regulations have

Matthew Law, senior environmental economist and management consultant, SRK Consulting

the potential to limit the financial or technical viability of certain operations by inadvertently precluding a range of appropriate design alternatives that could equally mitigate environmental impacts. He says, as an example, that the installation of liners in tailings facilities – often a relatively high-cost option – was not necessarily the only effective solution available to mitigate groundwater impacts.

He says the intention of the regulations – which highlight the importance of environmental protection, particularly groundwater resources – needs to be respected and observed, but that a

risk-based approach to design was a tried-and-tested route to accomplishing this without entailing excessive and unanticipated costs.

Environmental: Mine investment in 'natural capital' can cut risk and costs

While mines are generally familiar with the impacts they have on the environment around them, most do not really appreciate how dependent their operations are upon the 'services' this ecological infrastructure provides – nor how they could benefit financially by nurturing this natural capital.

"Water, for example, is a key risk element for mines and substantial expenditure is made on securing sufficient quantities and qualities of water on site," explains Paul Jorgensen, environmental scientist at SRK Consulting (South Africa).



"While one technical response to this is to build treatment plants, the options also

Paul Jorgensen,
environmental scientist
at SRK Consulting

include investing in better catchment management practices and enhancing the role of ecological infrastructure."

This focus on the natural capital inherent in the surrounding environments, says Jorgensen, has been recently consolidated into a protocol to help businesses understand and benefit more from the ecosystem services on which their operations rely.

"Developed by the Natural Capital Coalition, a global multi-stakeholder group, the Natural Capital Protocol offers a standardising framework to identify, measure and value impacts and dependencies on natural capital. This opens the door to better decision making that reduces risk and highlights opportunities for business."

Member companies to the Natural Capital Coalition – including Coca-Cola, Dow, Nestlé, Shell and Tata – are working to conserve and enhance natural capital by ensuring sustainable practices not just in-house but throughout their respective value chains.

The natural capital approach also has an important governance-related element, which is already being applied in certain African countries as part of the 2012

Gaborone Declaration and other United Nations-led initiatives.

"The Gaborone Declaration addresses the failure of the historical pattern of natural resource exploitation to promote sustainable growth, secure environmental integrity and improve social capital in Africa," says Jorgensen. "In response, a number of states including South Africa, Botswana, Ghana and Mozambique have committed to incorporate the value of natural capital in public and private policies and decision-making."

In a similar vein, the Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a World Bank-led global partnership promoting sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.

"As governments increasingly recognise the importance of natural capital stocks, flows and accounting, it is likely that the approach will soon filter down to regulations that require the private sector to monitor and report in these terms, much in the same way as has already happened with greenhouse gas reporting," he concludes. **MRA**