

Inching towards convergence?

Jax Jacobsen explores the progress and future direction of mining standards

A mine tailings stack: tailings-dam failures can be disastrous

Like most global industries that produce raw materials, mining successfully stays under the radar of most customers and consumers.

But when tragedy strikes – as it did with the Samarco tailings-dam failure in Brazil in November 2015, with another tailings-dam failure at the Mt Polley mine in British Columbia in August 2014, and numerous social and community conflicts throughout Latin America and Africa – the mining industry comes into sharp relief.

It is this reality that has driven a number of organisations to create global mining standards, such as the Mining Association of Canada's (MAC) Towards Sustainable Mining (TSM) initiative, developed in 2004, as well as the International Council on Mining & Metals' 10 Principles for sustainable development, launched in 2003.

The Initiative for Responsible Mining Assurance (IRMA) has been working on a new initiative to establish global best-practice standards for the industry since 2006, and has been engaging with a variety of stakeholders – including mining companies, NGOs, communities and other organisations – to formulate a workable standards policy. IRMA released its first draft of the Standard Version 1.0 in July 2014, and released the latest draft, Version 2.0, in April 2016.

The final draft, which will include more specific information on certification and benchmarking, will begin work in the December quarter of 2017, IRMA coordinator Aimee Boulanger tells *Mining Magazine*.

FIELD TESTING

IRMA is now field-testing the second version of the standard as part of the organisation's Launch Phase, which will last from 12 to 24 months.

"We field-tested twice, at a mine in Montana [US] and at a mine in Zimbabwe," Boulanger says. "We're

looking for a relatively common definition as to what is 'responsible mining', how can there be enough prescriptiveness and definition, and flexibility enough to deal with that context?"

IRMA has already learned from the experiment, she says.

"We've always been open to the need to have different types and modes for different mining methods and geography, but so far that hasn't borne out," Boulanger explains. "It's more of an issue of economics, such as where is the value for tin mines versus for silver mines."

As the Launch Phase continues, IRMA will be managing the number of mine sites that can enter the programme to ensure that the organisation has enough capacity to handle demand. Mines entering at that stage will be eligible for certification.

Mines will be able to enter into the standard on two levels: as a candidate-level mine, which does not yet meet all of the standard's requirements, or as a fully certified mine.

"We recognise that many existing mines will come in, which have been around for years, and can't turn it around overnight [to meet IRMA requirements]," Boulanger says. "It's an entry-level coming-in point, which meets a core threshold of environmental and social responsibility of mine sites."

The benefit of this distinction is that it doesn't come with a time limit, she adds. "If a mine comes in as a candidate mine, it doesn't have to commit to going to full certification in 12-18 months to hold that."

The most controversial section of the standard, according to Boulanger, remains the chapter on water quality. "Environmental issues are the greatest magnifying glass on IRMA right now," says Boulanger. "To define clean water, some [participants] are very prescriptive about how to get there... in the 2016 draft, we have a very



unusual standard framed with three options". These are:

- using the Alliance for Water Stewardship's Language, to leave the water as good as it was before mining or better;
- a criteria-based requirement; or
- a risk-based approach, which involves high-cost large studies.

Civil society groups are very nervous about the last option, Boulanger notes, but many smaller companies are choosing other options, to avoid extra costs, particularly when mines are already located in areas highly regulated for water quality.

IRMA based the foundation of its new standard on existing codes – including those from MAC and the International Council on Mining and Metals (ICMM), as well as those heralded by the Aluminium Stewardship Initiative and the Responsible Jewellery Council.

"Each of these standards was written differently, and it's not easy to come up with clear equivalencies," Boulanger says. "But there's a set of issues on which we're all talking, a set where there's a common hum between all five groups."

IRMA has tried to pull out the common denominators to answer the world's call for more responsible mining practices, she adds. However, organisations such as MAC, which have put forward their own initia-

"Environmental issues are the greatest magnifying glass on IRMA right now"



MAC president and CEO Pierre Gratton tells *MM*.

"Even when it's completed and when individual components are rendered workable, what will be the take-up of individual mining sites, given that it's so huge? It doesn't have a risk-based approach that accounts for the fact that certain elements are more relevant to some mine sites than to others." Gratton adds that IRMA's tailings standard is less rigorous than MAC's TSM.

WHAT'S IT WORTH?

Also concerning participants and critics of the IRMA standard is a lack of business case for what mining companies will glean from joining up.

"If you were to do everything IRMA says, you would have a very responsibly run mine, but it's not apparent where the actual certification adds value," MAC's VP for sustainable development, Ben Chalmers, tells *MM*.

However, Boulanger insists that IRMA certification will pay off for members.

"IRMA will not work if the effort

involved does not have a value for those mines," she admits.

"We will be working hard in that first year or two to make sure there is value in those claims. We're also working directly right now with specific purchasers.

"Our most frequent new contacts are from the purchasing sector, mostly retail and consumer-facing. They are selling consumer goods that have mined materials in them. They're trying to do responsible sourcing."

Boulanger emphasises that IRMA is still in its launch phase.

"It's very difficult to have a supply chain that's not ready, that's still in development," she says.

IRMA is aiming to create a standard that will have formal recognition in several years' time.

"All of the systems [already in place] have a reason to be," Boulanger says. "There is a separate space where they overlap. ICMM is an important voice for the mining industry globally, while MAC represents the Canadian mining industry. We want to create mutual recognition... there are relationships that ▶

"IRMA will not work if the effort involved does not have a value for those mines"

tives, remain sceptical about IRMA's end project. "The broader issue is that the breadth is so massive,"

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need to be developed. Will they align? I dearly hope so."

Aidan Davy, ICMM's chief operating officer, tells *MM* that there's good reason to believe these standards will move closer together over time.

"There is an increasing number of standards and initiatives, and we see value in others contributing in the debate to what responsible mining looks like," he says.

"In the longer term, whether you're a mining company or a direct customer of mining companies or the end user of equipment that's produced using mine products, you want to get a sense of the extent which these have been produced responsibly."

At the moment, none of the mining standards can provide that answer, Davy notes: "At some stage there will need to be a drive towards greater recognition between these standards, but I don't think it's going to happen overnight, and it will take time because they're so new and so fresh. That debate still needs to take place, and will be driven by a number of different quarters."

A report by Resolve Solutions Network released in March 2016 reached similar conclusions. It states: "Over the past 5-10 years, efforts to create more comprehensive, multi-issue assurance initiatives that promulgate standards and seek to verify performance have increased.

"Efforts over the next few years are likely to clarify, integrate and/or consolidate these multi-issue assurance initiatives. Indeed, this trend has already begun as initiatives reference other standards and guidelines with their own design."

Though it's likely that these standards will begin to converge in some form, there's little need for policy tweaks on the question of automation, Davy adds.

"I don't see the gradual move towards increasing automation as representing an existential threat or challenge to existing standards or framework," he says. "But what it may mean is that the applicability of some of these [standards] becomes less relevant, and this is obvious in the health-and-safety space. If through automation you have fewer people in situations of risks in an underground setting, you will still have some people underground.

"The health-and-safety requirements associated with the under-



ground situation are still highly relevant, but the risk factor will be diminished by there being fewer people," Davy adds.

TECHNOLOGY CONCERNS

Though international global mining standards are likely to continue to focus only on policy and regulatory issues, technical concerns – including automation – have been fostered, developed and standardised by groups such as the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), executive director Jean Vavrek tells *MM*.

"A greater focus on investor returns by miners and mining investors has led to an increased interest in environmental and social beneficial outcomes, which in turn has created conditions for more autonomous and electric vehicles," he says.

CIM has worked with the Surface Mining Association for Research and Technology (SMART), which has resulted in the standardisation information exchange, to enable multiple operators to be able to communicate and direct the machines.

"The mining sector, in the last 10 years, saw increasing operating costs, and the need to simplify the integration of these devices of operation. So we created at CIM what we call the Global Standards Mining Group. It's a group that has a wide appeal globally, with over 60 mining

corporations to work in the areas of interoperability, of automation, to simplify at least a basic level of information that everyone can work from the same basis," Vavrek explains.

Many of these processes culminate in International Standard Organisation certification, he adds.

"An ISO standard can be many things – some can be prescriptive, audited and third-party verified – while some are anchored in principle. Once we have the ISO standard, a lot of national agencies in many countries will choose to refer to those," says Vavrek.

Processes to bring about ISO certification in areas as varied as mine reclamation and mine rehabilitation, as well as in rare-earths extraction, are also under way in Canada, with CIM playing a key role in both these processes. The push towards standardisation for these technical aspects of mining follows a very different path from policy considerations and wide-ranging global agreements on social and environmental aims, Vavrek points out.

"CIM works on standards and best practice, but policy and regulatory framework is more with organisations such as MAC," he says. "A lot of our developments come out of work on best practices and standards such as NI 43-101 and JORC in Australia, and related to that was SimVal, a valuations standard."

"There will need to be a drive towards greater recognition between these standards"



Similarly, the next push for greater standardisation in automotive technologies will likely come from new forms of exploration.

"Automation is driven by extra-planetary exploration, by GoogleX, Planetary Resources, Virgin Galactic, they're all privatising space. To do



The tailings storage facility at PT Indonesia's Grasberg mine after remediation

that, you need to advance automation, minimisation, teleremote devices," Vavrek says.

The development of global mining standards, both from a policy and regulatory perspective and from a technical one, are both continuing apace, though it remains unlikely that these will ever be reconciled in a singular process and framework.

However, those on the policy and regulatory side may find themselves overlapping more and more, and eventually converging, while technical standards will probably continue to follow their own path, influenced by scientific and mechanical developments in their own field. ♥

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