

Research Insight

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Tailings management: What has changed since Brumadinho?

As concentrations of valuable ore continue to decrease in mines around the world, the mining industry has to cope with the enormous volumes of residual waste – known as tailings – it generates as outputs of its complex chemical processes. Typically piped into large surface impoundments and held in place by earthen dams, stored tailings pose by far mining’s greatest risk of severe impacts.

While the scale and consequences of the Brumadinho dam failure last year were extreme, other tailings dam failures have occurred on a regular basis over the past two years in countries such as Brazil, Peru, Russia, Australia and China, and the incidence rate of such failures has been increasing for some time¹. And the RMI Report 2018 results on tailings showed that the operating company Vale was performing no worse than the vast majority of other large companies in tracking, reviewing and acting to improve its tailings risk management.

The Brumadinho disaster generated a flurry of industry statements and media interest on tailings safety, but has anything really changed since 2018 and are such catastrophic failures any less likely to happen in the future?

The latest research by the Responsible Mining Foundation (RMF), published in the [RMI Report 2020](#), reveals that while an investor-led initiative has resulted in improved transparency about companies’ tailings storage facilities (TSF), the vast majority of companies are still unable to demonstrate that they are reviewing how effectively they are managing TSF-related risks and taking responsive actions where necessary. And critically, very few mine sites show evidence of having informed local communities about what to do in the case of a tailings-related incident.

Commenting on the release of the RMI Report 2020, Dr Bruno Oberle, Chair of the Global Tailings Review, said:

“As more companies now disclose data on the locations and characteristics of their mine tailings storage facilities, the RMI Report 2020 shines a light on the lack of public information with regards to how effectively these facilities are managed by mining companies. As the

Global Tailings Review continues, the results of the RMI Report 2020 further reinforce the urgent need to create a global standard that will deliver a step change in the safe management of tailings facilities across the industry.”

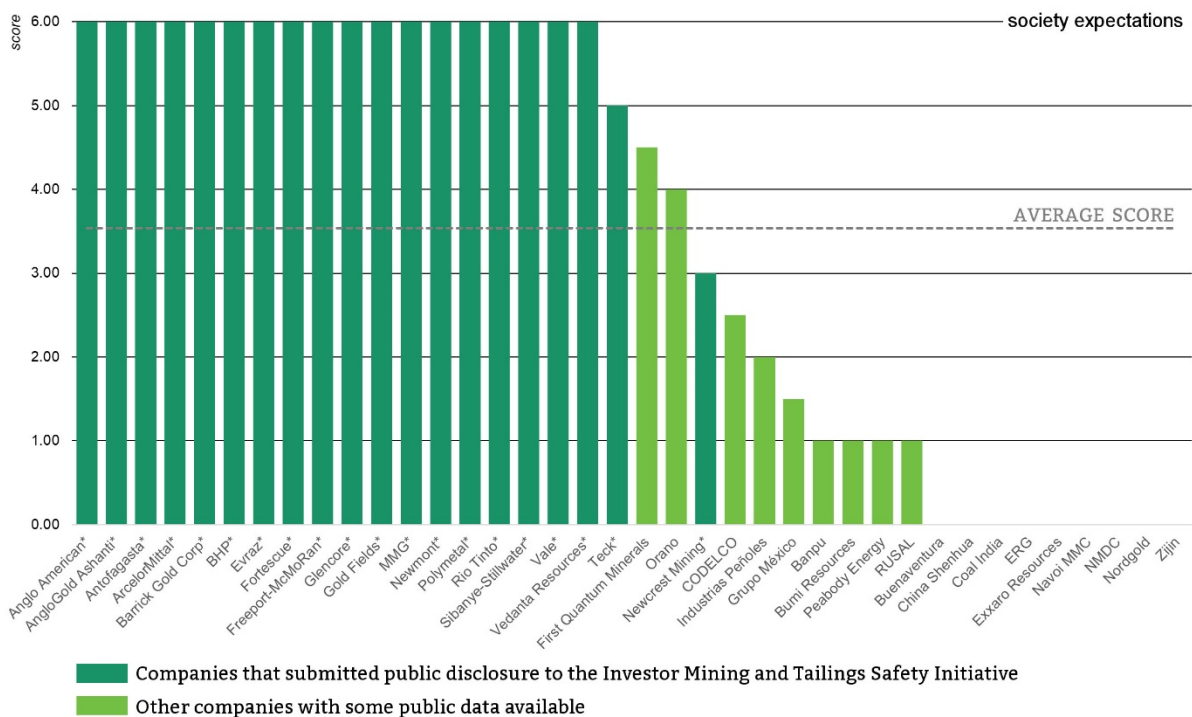
More publicly-available information on tailings storage facilities

Prior to the Brumadinho disaster there was no global public register of TSF, and mining companies were generally not publicly disclosing even the location of their TSF let alone information on the safety of these facilities – information of critical interest to shareholders, investors, insurers and governments as well as communities and workers.

In response, a group of investors, led by the Church of England Pensions Board and Swedish Council of Ethics of the AP Funds, established the [Investor Mining & Tailings Safety](#) and requested over 700 extractive companies to publicly share such information. Approximately 50% of the companies responded, including 45 of the 50 biggest mining companies.

This has significantly improved the availability of basic data on TSF – the RMI Report 2020 found that nearly half of the 38 companies assessed had publicly disclosed the number and exact location of their TSF (see Figure 1), mostly through their response to the investor request.

Figure 1 Public data on location and safety of all TSF (as of December 2019)
(Results from RMI Report 2020 - F.02.2)



Increasingly heavy reliance on risky structures

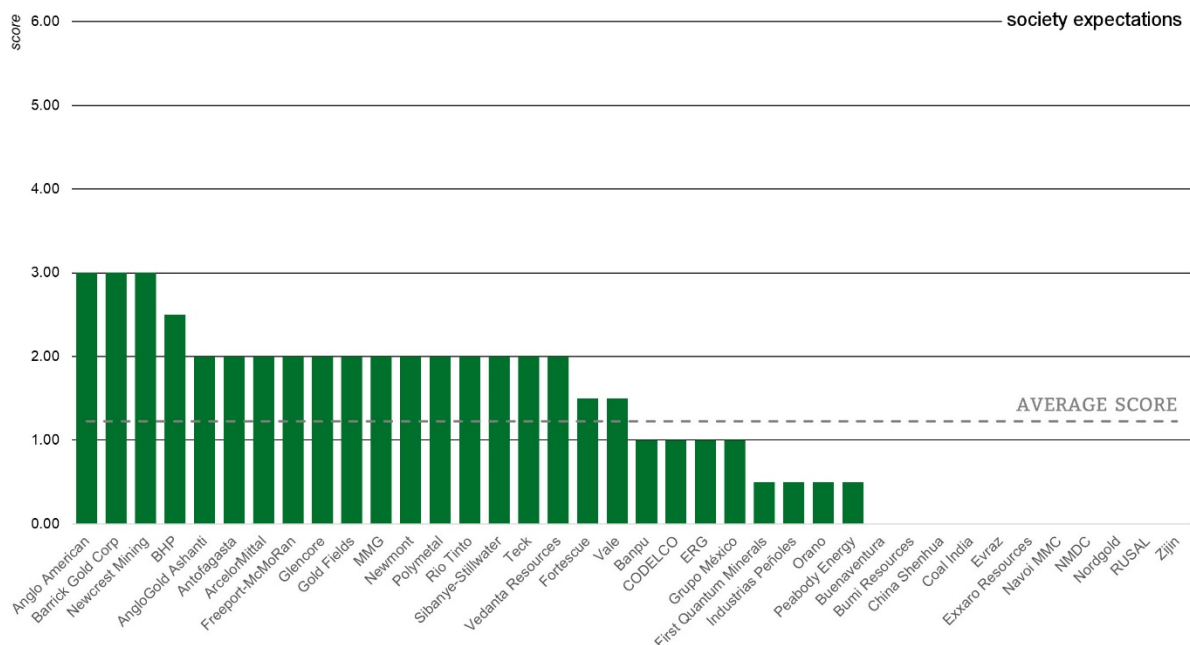
These recent TSF disclosures have revealed a worrying trend: according to the information available, companies are planning to increase the volume of tailings stored in upstream-constructed TSF (the type of dam that failed in Brumadinho), meaning an increase from 24% to 30% of all tailings will be stored in these structures – 92% of which are currently classified as having a High hazard potential².

No improvement in companies tracking the effectiveness of their tailings risk management

As was the case in the RMI Report 2018, only a handful of the 38 companies assessed in the RMI Report 2020 show evidence of having conducted third-party audits or reviews of the effectiveness of their TSF management, and these reviews are often quite limited in scope. Even fewer companies show evidence of having taken responsive actions on the basis of these reviews in order to improve their performance on managing TSF-related risks. In fact, as Figure 2 shows, no company scored more than 50% on this indicator.

If companies cannot ‘know and show’ how they are doing on preventing tailings dam failures and other TSF problems such as seepage, they will find it difficult to address the trust deficit commonly found in mining areas and the concerns about TSF risks among investors and financiers, governments and other stakeholders.

Figure 2 Addressing potential risks related to TSF, including seepage and dam failure
(Results from RMI Report 2020 - F.02.3)



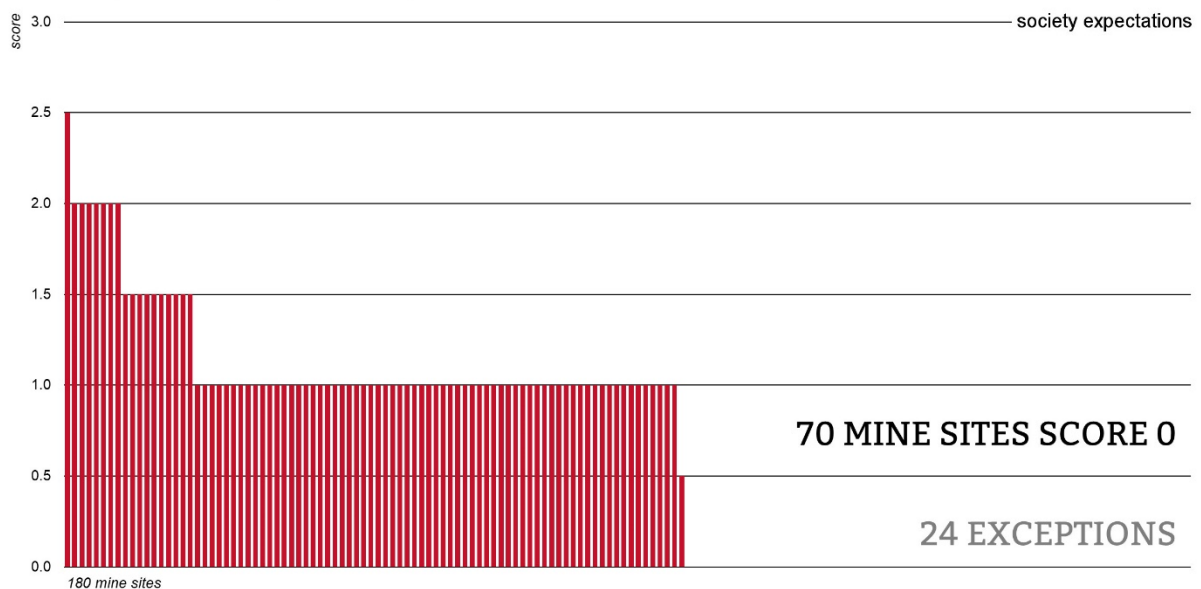
Lack of local information on risks and emergency procedures in the case of tailings incidents

The RMI Report 2020 found that less than 10% of the 180 mine sites assessed publicly disclose the area potentially affected by a failure of its tailing’s facilities.

Furthermore, very few mine sites demonstrate that they have informed local communities of what to do in the case of a tailings-related incident. See Figure 3 for details.

Collaborative preparation of emergency plans that involves local communities is essential to make process effective. It is requested in the United Nations-approved process of “Awareness and Preparedness for Emergencies at the Local Level” (APELL process) and other international guidance, such as the UNECE’s Safety guidelines and good practices for tailings management facilities. Strong disclosure of such information, of potential life-or-death importance to local stakeholders, should of course be the norm.

Figure 3 Public data and engagement on tailings management at the asset-level
(Results from RMI Report 2020 - MS.09)



Recommendations for strengthening the forthcoming Global Tailings Standard

A new global standard on tailings management is currently being finalised by a multi-stakeholder group, the [Global Tailings Review](#), co-convened by the United Nations Environment Programme (UNEP), the Principles for Responsible Investment (PRI) and the International Council on Mining and Metals (ICMM).

The Global Tailings Standard is certainly a welcome first step, but it is of critical importance not to miss this opportunity to significantly raise the bar on tailings management by ensuring the standard adequately addresses key issues of transparency, engagement and respect for local stakeholders living and working with the risks of TSF failure.

As the process is currently underway to finalise this new norm, RMF strongly recommends that the standard sets out clear requirements on the following points:

– Open data formats to manage risk: Companies should disclose publicly and at the level of individual mine sites all public-interest data on their management of TSF, the safety of these structures, and the emergency preparedness procedures to follow in case of TSF failure. This data is crucial for investors and financiers, governments and local stakeholders.

– Meaningful engagement with local stakeholders: Companies should undertake upfront and ongoing engagement measures to be clear with local stakeholders (communities, workers) about the risks and potential impacts in the event of failure and to involve local stakeholders in designing and testing emergency preparedness plans.

– Strong measures to address existing high-risk TSF: Companies should ensure the safety of their existing TSF, and where necessary to decommission and remove TSF that cannot be made safe. These provisions should apply to any TSF the failure of which is expected to lead to *any* loss of life.

– Broader accountability for TSF risk management: Companies should assign broader senior-level responsibility for the safety of tailings facilities, to include not only a member of senior management but also the Board of Directors.

– Free, Prior and Informed Consent (FPIC): In line with the UN Declaration on the Rights of Indigenous Peoples, respecting the right to FPIC of Indigenous Peoples should be mandatory during all stages of planning, design and implementation. Beyond this internationally-recognised right to give consent or not, the standard could better align with the widespread recognition that the principle of FPIC be applied more broadly, by requiring companies to ask for FPIC from all potentially-impacted communities.

– Lake, riverine and marine disposal of tailings: In line with the growing momentum among international banks and multi-lateral lenders, the standard should ban the use of these disposal methods and require formal company-wide commitments to not use these methods. The RMI Report 2020 found that at least eight of the assessed companies are actively discharging tailings into rivers or marine environments or storing them on the seabed. And only one company has formally committed to not use such disposal methods.

¹ See www.worldminetailingsfailures.org.

² WMTF, forthcoming 2020. State of World Mine Tailings 2020. World Mine Tailings Failures www.worldminetailingsfailures.org.

Responsible Mining Foundation

The Responsible Mining Foundation (RMF) is an independent research organisation that encourages continuous improvement in responsible mining across the industry by developing tools and frameworks, sharing public-interest data and enabling informed and constructive engagement between mining companies and other stakeholders.

As an independent foundation, RMF does not accept funding or other contributions from the minerals and metals industry. www.responsibleminingfoundation.org

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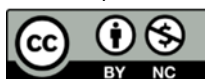
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