

The SAIMM Tailings Working Group leads the way



I thought that that I would use this month's President's Corner to tell you about the Tailings Working Group (https://www.saimm.co.za/about-saimm/saimm-committees/tailings-working-group), which was established in March 2020 to address critical issues in tailings storage facilities (TSF) management and design. This initiative, in collaboration with the South African Institute of Civil Engineers (SAICE), aims to meet the specific requirements of the Southern African mining industry. The Working Group comprises experts from academia, industry, consulting, and regulatory bodies.

An increased international focus on the responsible management of TSF was triggered by the catastrophic dam failure at Vale's Corrego de Feijao mine in 2019 in Brumadinho, Brazil, which resulted in the loss of almost 300 lives, in addition to major environmental and social consequences. This incident followed several other highly publicised tailings dam failures, which also had major environmental and social impacts.

As a result, the International Council on Minerals and Metals (ICMM) commissioned a study to develop the Global Industry Standard on Tailings Management (GISTM) (https://globaltailingsreview.org/global-industry-standard).

The standard is directed at operators, who are required to take responsibility and prioritise the safety of tailings facilities, through all phases of a facility's lifecycle, including closure and post-closure. There are six topics that must be addressed (Figure 1). The GISTM aims for zero harm to people and the environment. It also mandates the disclosure of relevant information for public accountability.



Figure 1—Global Industry Standard on Tailings Management (https://globaltailingsreview.org/global-industry-standard)

President's Corner *(continued)*

SAIMM is coordinating funding for joint work with SAICE to revise SANS 10286, the Mine Residue Code of Practice. The previous version, born out of the Merriespruit tailings dam failure in 1994, was well aligned to international standards, and has served South Africa and multiple jurisdictions in Africa well. Many South African mining companies are now required to comply with the GISTM, even if they are not ICCM members, because many investors and insurance companies require compliance. The updated SANS 10286 will align with the GISTM and will incorporate specific South African requirements and practices.

Most South African tailings storage facilities are constructed using the upstream method, which is not suitable for significant water storage and is more vulnerable to seismic loading. This method of construction is not allowed in certain countries. The risks are mitigated by managing the rate of rise, good drainage characteristics of materials, good drainage design, storm water design, geotechnical investigations, slope design, and structured monitoring. When hazardous conditions are encountered, additional data are collected to remove uncertainty or dewatering and buttressing are implemented to improve stability.

The Working Group is linked to Global Action on Tailings (GAT), an initiative led by the Global Mineral Professionals Alliance (GMPA). GAT aims to build awareness and knowledge in good tailings practices and identify ways to eventually reduce or eliminate TSF. A key goal is to support professionals in gaining greater trust from society regarding the industry's ability to manage tailings risks.

The SAIMM Tailings Working Group has a comprehensive mandate that includes:

- Reporting on TSF activities in Southern Africa to the GMPA;
- Coordinating regional activities and maintaining a watching brief;
- Providing inputs and comments on global and local activities and documents;
- Liaising with academic institutions to develop competency and qualifications;
- Organizing conferences and schools through SAIMM to disseminate new knowledge and standards;
- Offering local technical input to global committees to represent Southern African interests;
- Reporting to other regional working groups on GMPA initiatives;
- Developing a high-level, principle-based global framework for local codes, standards, and guidelines.

SAIMM has hosted three successful conferences on Tailings. The inaugural conference raised the profile of tailings management and fostered collaboration among various stakeholders in the tailings industry. The second conference focused on embracing the GISTM, highlighting the progress made in understanding its requirements and implications. The third conference was held in October 2023, which I had the pleasure of attending. It centred on the future of tailings management for the next generation. It explored new standards, expectations, and possibilities, while addressing the residual risks associated with tailings. Key discussions included strategies for reducing, reclaiming, or reusing tailings, as well as improving existing technologies and adopting new ones. The conference also emphasized the importance of addressing impacts that were once considered acceptable but are no longer tolerated, and how best to mitigate these issues moving forward. Through these conferences, SAIMM continues to lead the way in promoting safe, sustainable, and innovative tailings management practices.

The SAIMM Tailings Working Group remains dedicated to advancing the field, ensuring that Southern Africa remains at the forefront of responsible and efficient mining operations. We are always looking for volunteers to participate and contribute.

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