Executive Summary
Global Industry Standard on Tailings Management (GISTM)

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VALE

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A Word from the CEO

Gustavo Pimenta
CEO

“The implementation of GISTM in our Tailings Storage Facilities reaffirms our commitment with safety and responsible management. This is another fundamental step Vale takes towards the protection of its operations and neighboring communities. We will remain dedicated to adopting the best international practices, reinforcing our purpose to turn Vale into a reference in safety and sustainability”, states Vale CEO, Gustavo Pimenta.

A Word from the Vice President of Operations and Accountable Executive

"At Vale, we have a clear and unequivocal commitment to do our level best to ensure our Tailings Storage Facilities are managed by applying the best practices and the highest safety standards. For that matter, GISTM implementation bodies forth an industry milestone, especially by ensuring community safety and environmental protection. As the Accountable Executive, I may assert we will remain steadfast in our work towards maintaining GISTM, executing action plans, and enhancing our tailings facilities”, underscores the Vice President of Operations and Accountable Executive, Carlos Medeiros.

Carlos Medeiros
Vice President of Operations and Accountable Executive

A word from the Technical Vice President

Rafael Jabur Bittar
Technical Vice President

"Implementing the Standard is not a swift or straightforward process. It requires a high level of sustained effort over time, seeking to integrate social, environmental, and technical aspects so as to prevent any harm to people and the environment, with zero tolerance for human fatalities. Therefore, not all actions can be implemented in parallel, for they include technical challenges. We have already trodden a rather significant path, but we still have a lot to do, and we remain steadfast in this commitment to having increasingly safer operations and complying with the best international practices", highlights the Technical Vice President, Rafael Bittar.

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1. Introduction

The Global Industry Standard on Tailings Management (GISTM) represents a milestone in the mining industry. Released in August 2020 by the International Council on Mining and Metals (ICMM), the United Nations Environment Program (UNEP), and the Principles for Responsible Investment (PRI), GISTM sets out comprehensive guidelines for Tailings Storage Facility (TSF) management.

In May 2021, ICMM complemented these guidelines by issuing the Compliance Protocols, aiming at providing guidance on the implementation of best TSF management practices. These protocols emphasize the need for integral commitment by mining companies regarding the technical conduct and governance of their activities, aligned with the highest safety and socio-environmental responsibility standards.

GISTM's focal point is the "zero harm" principle towards people and the environment, thus reflecting an effort to mitigate risks and enhance operational safety in mining Tailings Storage Facilities. The Standard sets out a global benchmark for social, environmental, and technical management excellence. This includes adopting strict safety practices at every TSF lifecycle stage, comprising planning, design, construction, operation, closure, and post-closure phases.

The aim is to ensure mining operations not only comply with, but exceed, current regulatory and ethical requirements, thus reflecting a commitment towards sustainability and corporate responsibility.

GISTM requirements are categorized into six topics: (i) impacted communities; (ii) integrated knowledge base; (iii) design, construction, operations, and monitoring of tailings disposal facilities; (iv) management and governance; (v) efficiency in emergency response and long-term recovery; and (vi) public disclosure and access to information.

In January 2021, Vale, along with the other ICMM members, publicly committed to implementing GISTM in all its TSFs classified as of "Extreme" or "Very High" consequence, by August 5, 2023. Additionally, all other facilities not under a safe closure status will have to comply with the standard by August 5, 2025, which expresses the industry's commitment to adopting such practices.

This document is part of Vale's commitment to be transparent in the semiannual disclosure of GISTM implementation results in its TSFs.

2. Vale's Portfolio of Tailings Storage Facilities

Reaffirming the commitment made to ICMM, society and its employees, Vale has implemented GISTM, as established by ICMM Compliance Protocols and, regardless of the consequence classification, in the 35 TSFs in Brazil, as of August 5, 2023.

Two TSFs, Torto Dam and Dique de Pedra, will be in compliance with GISTM by August 2025, according to a public commitment. Torto Dam was under construction by the time

GISTM was released, and Dique de Pedra was incorporated to the dam portfolio also after GISTM was released.

Figure 1 shows a list of TSFs and their associated consequence classification.

TSF	Consequence Classification
Azul	High
Gelado	Extreme
Kalunga	High

TSF	Consequence Classification
5 – MAC	Extreme
5 – Mutuca	Extreme
Área IX	Very High
B3/B4	Very High
Barragem 7	Very High
Campo Grande	Extreme
Diogo	Extreme
Dique de pedra	High
Doutor	Extreme
ED Monjolo	Extreme
ED Vale das Cobras	Extreme
Forquilha I	Extreme
Forquilha II	Extreme
Forquilha III	Extreme
Forquilha IV	Extreme
Forquilha V	Very High
Galego	Extreme
Grupo	Very High
Itabiruçu	Extreme
Maravilhas I	High
Maravilhas II	Extreme
Maravilhas III	Extreme
Norte/Laranjeiras	Extreme
Peneirinha	Significant
Rio do Peixe (Barragem)	Extreme
Sistema Conceição	Extreme
Sistema Pontal	Extreme
Sul (Córrego do Canal)	Extreme
Sul Superior	Very High
Timbopeba	Extreme
Torto	Very High
Vargem Grande	Extreme
VI	Extreme
Xingu	Extreme

Figure 1 - Map of TSFs and their associated consequence classification based on GISTM

3. Implementation History to GISTM Compliance, August 2023

2019

In 2019, Vale strengthened its risk management model with the implementation of the three-line defense system. It also established Executive Risk Committees reporting to the company's Executive Committee and Board of Directors.

Also in 2019, Vale began enhancing its own Tailings and Dams Management System (TDMS), establishing roles and responsibilities, standards, and procedures for safe TSF management. TDMS development was supported by specialized international consultancy.

2020

In 2020, shortly after GISTM release, Vale mobilized a dedicated and exclusive team to prepare, plan, and develop performance indicators, in addition to creating and acquiring control tools to monitor the company's GISTM implementation processes.

In October 2020, Vale's Board of Directors approved of a new Safety Policy for Mining Dams and Geotechnical Facilities (POL-0037-G), which has GISTM as one of its main references. Among other guidelines, the Policy mandates that all TDMS components use and apply the best available technologies and practices in accordance with international institutions, including ICMM.

The formal GISTM implementation process started out in September 2020 through self-assessment followed by a review conducted in 2021.

2021

Subsequently, still in 2021, a specialized independent external consultancy was retained to perform a gap assessment. In November 2021, Vale reported 60% compliance with the requirements, a result used as a benchmark upon which the action plans for completion of the other requirements were to be established.

2022 - 2023

The second GISTM implementation program phase was launched in March 2022. This program encompassed a series of integrated activities involving multidisciplinary teams of the company and aimed mainly at engagement, in-depth understanding of requirement interpretation, with permanent technical discussions, and development of action plans to comply with the requirements.

Due to the wide-ranging GISTM requirement scope, a continuous team maturity gain could be observed throughout the work on the various action fronts, with crystal-clear line of defense improvement in environmental, social, and governance aspects.

For another external verification by an independent company, aiming at calibration and validation of GISTM implementation methodology and results achieved in its Iron Ore Solutions operations, Vale retained a specialized technical consultancy at the end of 2022, whose results also support the information presented by this Executive Summary.

Figure 2 shows major GISTM implementation actions on a timeline.

Figure 2 - Timeline of major GISTM implementation actions at Vale

4. GISTM Compliance Maintenance Program (August 2023 onwards)

GISTM Compliance Maintenance Program is a set of governance processes within the company, ensuring thorough monitoring of management and control so that any compliance deviation related to the standard requirements may be observed during TSF lifecycle.

According to ICMM Compliance Protocols criteria, the company may declare compliance with GISTM, considering both requirements complied with and those including an ongoing action plan.

The implementation and compliance process associated with a management standard such as GISTM is an ongoing process. To facilitate indicator monitoring and control, Vale has established the following definitions:

- **Compliant requirements** are those that have already been complied with during implementation and do not require action plans.
- **Transitional compliance requirements** are those that have been complied with, but still have ongoing action plans.

Requirements classified as 'transitional compliance' bear a higher complexity level and, therefore, are associated with GISTM requirements demanding engineering efforts and/or other long-term measures. These requirements are expected to be completed as soon as reasonably possible, with such actions being properly monitored, followed up, and informed to all stakeholders.

In addition to complying with the 77 GISTM Requirements, a compliant TSF means

that information oversight, monitoring, and transparency have improved and undergo continuous improvement. Primary focus is on people and environment safety throughout TSF lifecycle.

Figure 3 shows the number of compliant requirements and those that are under transitional compliance in relation to the applicable requirements. Among the 77 GISTM Requirements, 6 were considered not applicable to Vale's TSFs, as per the Compliance Protocols criteria.

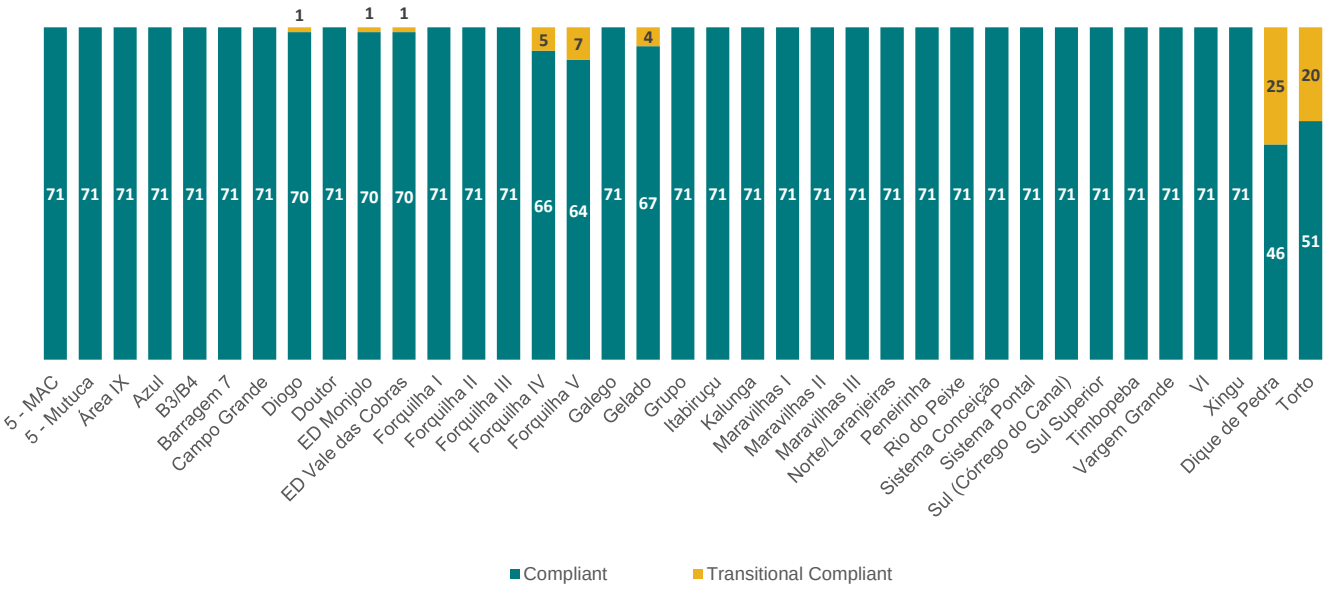

Figure 3 – Quantity of compliant and transitional compliance requirements of the 37 TSFs

Since the last update of the Executive Summary in 2024, there has been significant progress in the implementation of previously identified actions then labeled “ongoing”. Current assessment reflects the consolidation and the effective implementation of such initiatives.

Amongst major progresses, some deserve being highlighted, e.g., development of closure plans, Design Basis Report (DBR), and Change Assessment Reports (CAR) for TSFs, in addition to considerable progress of Socioenvironmental Management System (SEMS) and studies of climate change and regional seismology. These actions resulted in noticeable improvement in compliance with requirements. Such progress not only ascertains compliance with the planning set out, but also shows the evolution of management and control process maturity, thus bolstering facility operations safety and reliability.

As previously mentioned, Torto Dam was under construction at the time GISTM was issued, whilst Dique de Pedra was incorporated to the dam portfolio following the time the standard was due in force. As a result, these TSFs started the implementation process later than the others, which explains the largest quantity of action pans still under transitional compliance status. Such condition is natural in facilities with distinct implementation schedules, once progressive adjustments are expected until requirements set out are fully complied with.

For the transitional compliance requirements, the ongoing action plans have been approved of by the Accountable Executive, including the completion deadline. Figure 4 shows an analytical diagram of the forecast timeframe for compliance with the requirements by the 37 EARs.

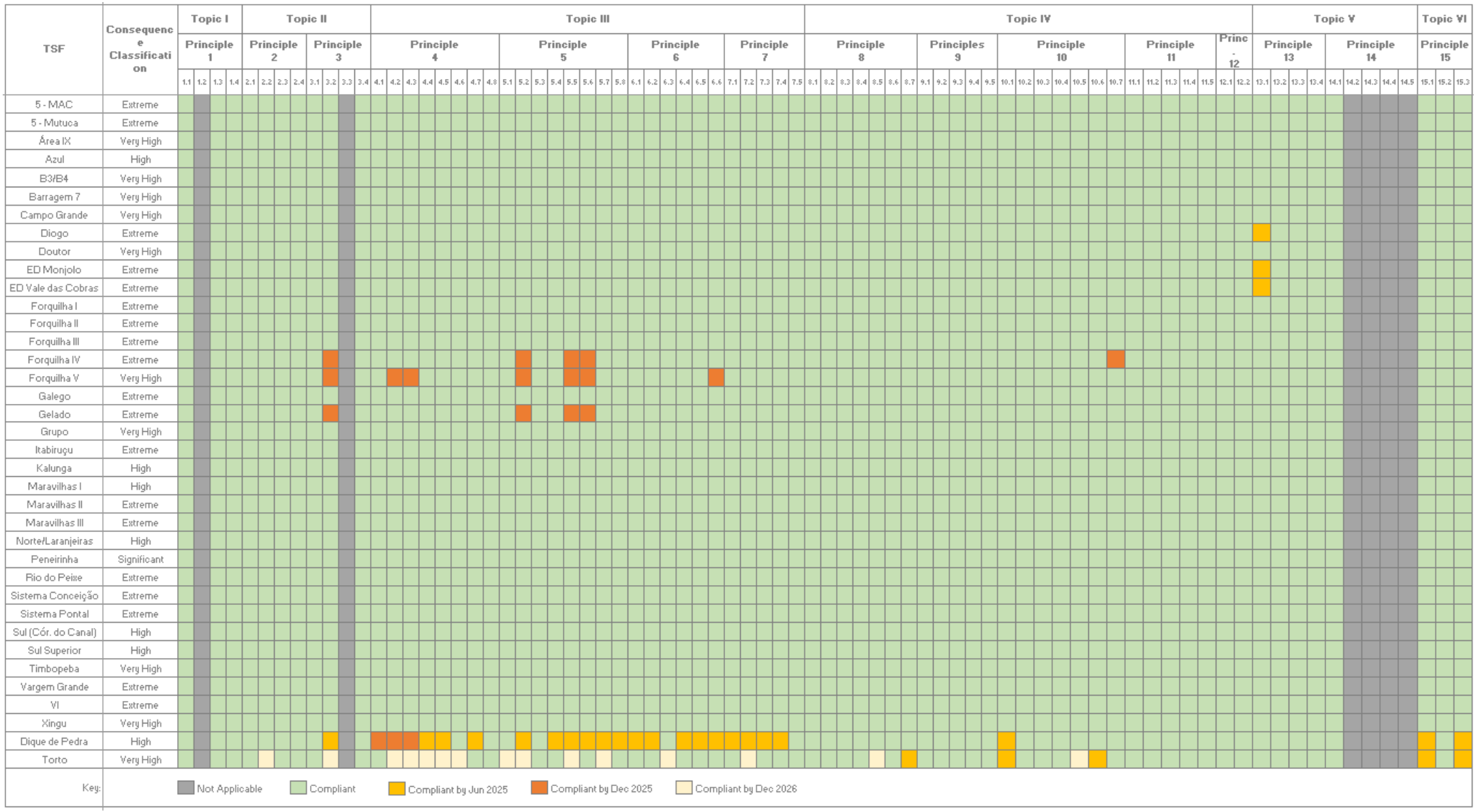

Figure 4 – GISTM requirement compliance by the 37 TSFs

In line with GISTM objective of zero harm to people and the environment, Vale has prioritized and completed all actions aimed at ensuring this integrity. Therefore, even facilities with ongoing actions are safe for communities and the environment.

Furthermore, even though Vale is increasingly closer to fully implementing the mapped actions for all its TSFs, it is important to emphasize that maintaining a continuous approach to reviewing and updating compliance with requirements is essential. Compliance should not be seen as a permanent state but rather as a dynamic process subject to variations over time, making constant monitoring and the ability to respond to necessary adjustments indispensable.

The periodic reassessment of the interpretation of the Standard's requirements, combined with the review and updating of already implemented actions, allows for mapping the current adherence to requirements, identifying potential compliance deviations, and, most importantly, ensuring the implementation of necessary corrections to restore compliance whenever needed.

Additionally, in January 2025, the GTMI (Global Tailings Management Institute) was officially established with the aim of strengthening the safety of tailings storage facilities through the widespread adoption and implementation of the GISTM. Vale recognizes this initiative as a significant advancement in the safe management of these structures, reinforcing the industry's commitment to continuous improvement and the standardization of best practices.

5. Public Disclosure

A major GISTM principle is the disclosure of public information by maintaining communication channels, thus ensuring transparency based on standardized and integral data.

Principle 15 calls for "*Publicly disclose and provide access to information on Tailings Storage Facilities to support public accountability*".

Also in line with Principle 15, its Requirement 15.1 states:
"*Release and regularly update information on operator's commitment to safe management of Tailings Storage Facilities, implementation of tailings governance framework, policies, standards, or approaches applicable to the organization as a whole regarding design, construction, monitoring, and closure*".

Regarding GISTM, Vale publicly disclosed an Executive Summary about the implementation process since 2021. Vale has semiannually maintained and updated this Executive Summary at: https://vale.com/pt/web/esg/gistm

Vale maintains a comprehensive external communication network through various channels, e.g., Whistleblowing Channel, Contact Us, Reparation, amongst others.

To comply with this requirement, Vale has developed a Disclosure Portal regarding its Iron Ore Solutions operations. This portal is a dynamic tool created to render navigation of Requirement 15.1 items more user-friendly for all Tailings Storage Facilities where GISTM has been implemented.

For information on Iron Ore Solutions operations, please visit:
https://principio15.azurewebsites.net/

6. Final Remarks

Vale reaffirms its commitment to the Global Industry Standard on Tailings Management, reinforcing its dedication to activities related to the integrity of its Tailings Storage Facilities.

Since the last publication of the Executive Summary, there has been significant progress in implementing actions and strengthening compliance with established requirements. This progress reflects Vale's ongoing commitment to compliance and the continuous improvement of its management processes.

The teams dedicated to GISTM implementation remain committed to reviewing and maintaining compliance over time. The periodic reassessment of protocols allows for identifying improvement opportunities, correcting any deviations, and ensuring the implementation of necessary corrections to restore compliance whenever needed.

This document is updated and published at least every six months.

GISTM draft, issued on August 5, 2020, can be accessed in Portuguese at:
https://globaltailingsreview.org/wp-content/uploads/2020/12/global-tailings-standard_PT.pdf

GISTM Conformance Protocols, dated May 2021, can be accessed in Portuguese at: https://www.icmm.com/website/publications/pt/tailings/tailings_conformance-protocols-por-br.pdf

Approved of by the Accountable Executive
Carlos Medeiros
Vice President of Operations Issued on
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