

GISTM 2021 SELF-ASSESSMENT - EXECUTIVE SUMMARY

The Global Industry Standard on Tailings Management (GISTM) and Compliance Protocols, issued by the International Council on Mining and Metals (ICMM), released in August 2020 and May 2021, respectively, present a broad and consolidated view of best practices of the industry for the management of Tailings Storage Facilities (TSF's). As a signatory to the ICMM, VALE has a public commitment to implement the GISTM for all TSF's of extreme and very high consequences by August 2023 and for all others by August 2025.

The gap-assessment process started in mid-2021 through a self-assessment conducted for all TSF's. To give more robustness to this self-diagnosis process, an external gap-assessment service was contracted, led by a specialized consulting firm, for a sample of 10 TSF's selected to represent the external audit work. This work was carried out in the last quarter of 2021 and served as a reference to more faithfully establishing the starting point for elaborating action plans to comply with the GISTM requirements.

The selection of TSF's for the GISTM 2021 self-assessment aimed at all VALE's tailings dams classified as of extreme and very high consequences, having been much broader, including all of the list published for the Global Tailings Review¹, regardless of classification. The total was 58 TSF's (41 of Ferrous and 17 of Base Metals (Table 1)).

Table 1 - 58 TSF's considered in the GISTM 2021 self-assessment

Business Unit	Corridor	TSF
Ferrous	Midwest	Bacia 02-03 Alto da Serra
		Bacia 03-04 Pé da Serra
		Bacia 05 Alto da Serra
		Bacia 07 Alto da Serra
		Bacia 02 Pé da Serra
	North	Gregório
		Gelado
		Kalunga
	Southeast	Azul
		ED Monjolo
		ED Vale das Cobras
		Itabiruçu
		Rio do Peixe (Barragem)
		Diogo
		Sistema Pontal
		Sistema Conceição (Dique 1A, Dique 1B)
		Campo Grande
		Xingu
		Norte/Laranjeiras
		Sul (Córrego do Canal)
	Southeast (Inactive Mines)	Doutor
		Timbopeba
	South	Sul Superior
B3/B4		
		Vargem Grande

¹ Convened by the United Nations Environment Programme (UNEP), the Principles for Responsible Investment (PRI) and the International Council on Mining and Metals (ICMM).

Business Unit	Corridor	TSF
		Peneirinha
		Barragem 7
		5 - Mutuca
		Área IX
		Forquilha I
		Forquilha II
		Forquilha III
		Forquilha IV
		Forquilha V
		Grupo
		Maravilhas I
		Maravilhas II
		Maravilhas III
	South (Inactive Mines)	Galego
		VI
5 MAC		
Base Metals	North Atlantic	Levack TSF
		Upper Pond Tailings Facility
		A Area Tailings
		M Area Tailings
		P Area Tailings
		R1 Tailings
		R4 Tailings
		R2 Tailings
		R3 Tailings
		Long Harbour Residue Storage Facility
		Shebandowan TSF
		FETA Dam
		Thompson TSF Dam A
		Thompson TSF Other Dams
	Voisey's Bay TSF	
	South Atlantic	Rejeito do Mirim
		Rejeitos do Sossego

For the external audit work conducted by the external specialized consulting firm, 10 TSF's were selected to represent the total, being TSF's chosen from different countries and businesses. Table 2 shows the dams that were audited by the external specialized consulting firm.

Table 2 - 10 TSF's considered in the GISTM 2021 gap-assessment

Business Unit	Corridor	TSF
Ferrous	South	Vargem Grande
		Forquilha III
		B3/B4
	Inactive Mines	Sul Superior
		Barragem VI
	Southeast	Pontal
		Conceição
North	Gelado	

Business Unit	Corridor	TSF
Base Metals	North Atlantic	Thompson System
	South Atlantic	Rejeito do Mirim

Finally, the criteria used for the self-assessment work were those presented in the document “Conformance Protocol” issued by the ICMM in May 2021, however, for better quantification/precision for the “partially meets” criteria, VALE adopted 3 different levels of adherence (25 %, 50%, and 75%), considering the information sufficiency status as evidence for meeting the requirement (Table 3)

Table3 – Criteria and levels of adherence adopted by VALE in the GISTM 2021 self-assessment

Criteria	Adherence
Does Not Meet – No information as evidence.	0%
Partially Meets 25 – Information exists but is insufficient and no contract provided.	25%
Partially Meets 50 - Information exists but is insufficient and the provided contract does not cover all requirement.	50%
Partially Meets 75 - Information exists but is insufficient and the provided contract covers all requirement.	75%
Meets – Information exists as evidence.	100%
Not applicable - The specific requirement is not applicable to the context of the asset and does not participate in the calculation of the average.	

Business Unit - Ferrous

The average result of the GISTM adhesions of the 41 TSF’s evaluated for iron ore was 60% (December 2021). This value was obtained after a leveling work where the original answers issued by each operator were jointly reviewed and calibrated, allowing a more reliable analysis and with greater quality control.

Figure 1 shows the adherence results for each unit considering all the 41 evaluated TSF’s.

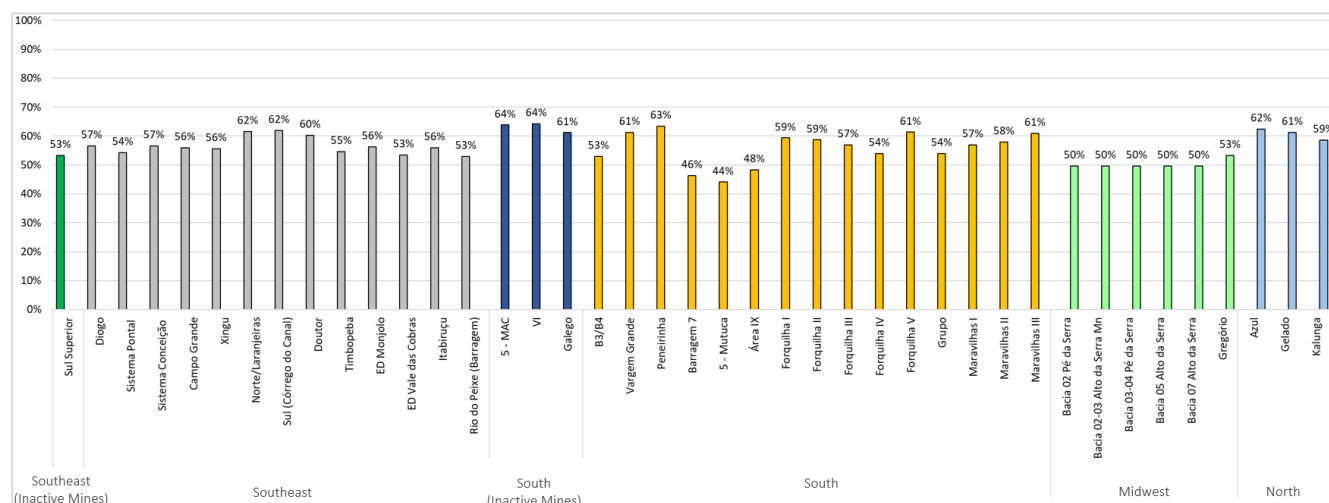


Figure 1 – Adherence results of the GISTM 2021 self-assessment considering the 41 Ferrous TSF's.

Extending the analysis, Figure 2 shows the average adherence by the 15 GISTM Principles, and then there is a summarized discussion of the main gaps detected in the self-assessment that led to the respective levels.

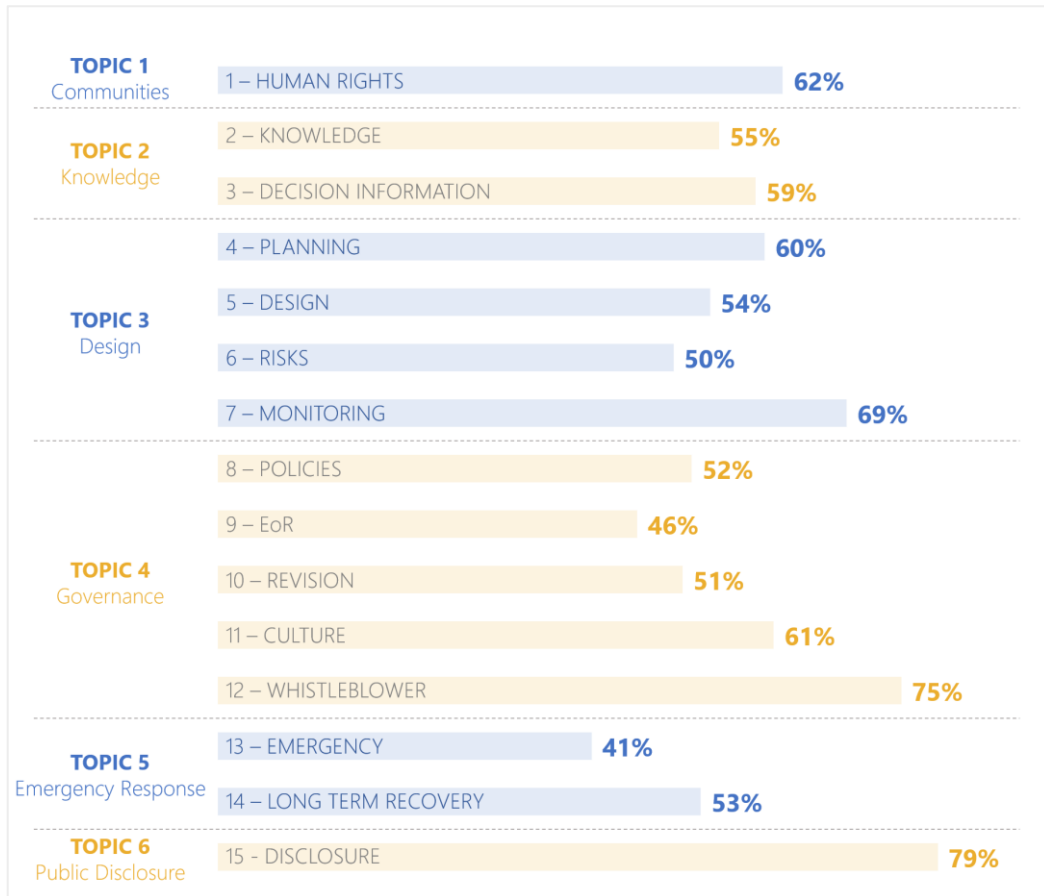


Figure 2 – GISTM adherences by Principles considering the 41 Ferrous TSF's.

Topic 1 in its only Principle (1) on human rights reached 62 %, whose main gap was due to the need to demonstrate greater depth in the studies of socioeconomic impacts due to a possible collapse of the TSF's.

Topic 2 has two Principles (2 and 3). Principle 2 (knowledge) achieved 55% adherence, and its main gap was because complete flood patch studies now need to be done for all TSF's, regardless of the Associated Potential Damage (DPA) level. Principle 3 (decision information) with 59% was mainly affected by the need to prove the use of climate change parameters in the TSF's water management plans.

Topic 3 has four Principles (4, 5, 6, and 7). Principle 4 (planning) showed 60% adherence and had as its main gap the demand for the participation of the Accountable Executive in various situations of the TSF's daily life, emphasizing that, through training, this new routine is already being implemented, not only for this function itself but also for its representatives. Principle 5 (design) with 54% adherence had as its two main gaps: the issue of the TSF's water balances needing to include climate change parameters and the demand for specific TSF' closure plans, both medium and long-term implementation demands. Principle 6 (risks) with adherence of 50% has the main gap in the official job description of the TSF's Responsible Engineer (RTFE),

and by the selection process of qualified professionals in progress in the company, both long term actions. Principle 7 (monitoring) had the highest adherence to the Topic (69%), however, it showed its main gap in a better demonstration of the results/products of the Geotechnical Monitoring Centers (CMG) set up for the TSF's and operating on a 24x7 basis.

For **Topic 4**, there are five Principles (8, 9, 10, 11, and 12). Principle 8 (policies) reached compliance of 52% with its main gap being due to the need to adapt the internal rules of financial incentives linked to the safety of dams. Principle 9 (EoR) shows a low adherence of 46%, with some issues and new attributions of the EoR as one of the main gaps of this principle, noting that all of them are already mapped and have been in full implementation since 2021. Principle 10 (revision) reached an adherence of 51% and, among others, one of the main gaps is the need for a more robust demonstration for all TSF's of an already installed process of risk analysis (*Hazard Identification and Risk Analysis - HIRA*) and independent technical advice (*Independent Tailings Review Board - ITRB*) already running at VALE since 2021. Still, these are long-term processes due to the large number of TSF's. Principle 11 (culture) had 61% adherence. Its main gap was because it is necessary to standardize roles and responsibilities (job descriptions) in all Lines of Defense in the new organizational chart for each TSF'. Principle 12 (whistleblower) was the best performance in adherence to the principle with 75% and, despite well-implemented public channels, the main gap is a better demonstration of the handling of complaints.

Topic 5 has 2 Principles (13 and 14). Principle 13 (emergency) had a low adherence rate of 41%. In addition to what has previously described VALE need to improve the documentation of post-simulated actions with the communities, activities that are already still in the process of systematization and standardization for all TSF's. For Principle 14 (recovery), the adherence achieved by 53% had its main gap in the need for better formatting of actions and controls demonstrated by the company in the Brumadinho reparation works through its public disclosure channels.

Topic 6 (dissemination) had a high adherence of 79%, as it has several channels of communication and disclosure of public information. Still, its main gap was the need to complement the content requested in the requirement.

Table 4 summarizes the most common gaps detected in the evaluated TSF's, clarifying that they already have their action plans in progress for compliance.

Table 4 - Most common gaps of the GISTM 2021 self-assessment – Ferrous

COMMON GAPS	REQUIREMENTS
<input type="checkbox"/> Climate change associated with flood security and water availability, including dam break revision studies	2.1 - 2.2 - 3.1 -3.2 - 3.3 - 3.4 - 5.2 - 5.3 - 10.6 - 13.1
<input type="checkbox"/> Social Due Diligence and Community Relations	1.1 - 1.3
<input type="checkbox"/> Engagement of the Accountable Executive (AE)	4.3 - 4.7 - 5.7 - 6.5 - 8.4 - 8.5 - 8.6 - 8.7 - 9.3 - 9.4 - 10.2 - 10.6 - 12.1
<input type="checkbox"/> Seismic Stability Studies	2.2 - 4.2
<input type="checkbox"/> Revision Operation Manual adhering to GISTM requirements	6.1 - 6.2 - 6.4 - 6.5 - 6.6 - 7.1 - 7.2 - 7.3 - 7.4
<input type="checkbox"/> Financial Incentive linked to EAR's performance	8.3
<input type="checkbox"/> Mechanism to recognize, reward and protect employees who report opportunities for improvement in the management of EAR's	1.4 - 5.8 - 11.5 - 12.1 - 12.2 - 14.5 - 15.2
<input type="checkbox"/> Closing Plan with a focus on the EAR	2.1 - 5.2 - 5.5 - 5.6 - 6.6 - 10.7
<input type="checkbox"/> Succession Plan for key positions in the field of dam safety (EOR, RTFE, AE)	8.6 - 9.5

Business Unit – Base Metals

The overall GISTM average adherence result of 78% is shown in Figure 3. This result reflects the greater maturity in tailings management of the TSF's operated by VALE Canada.

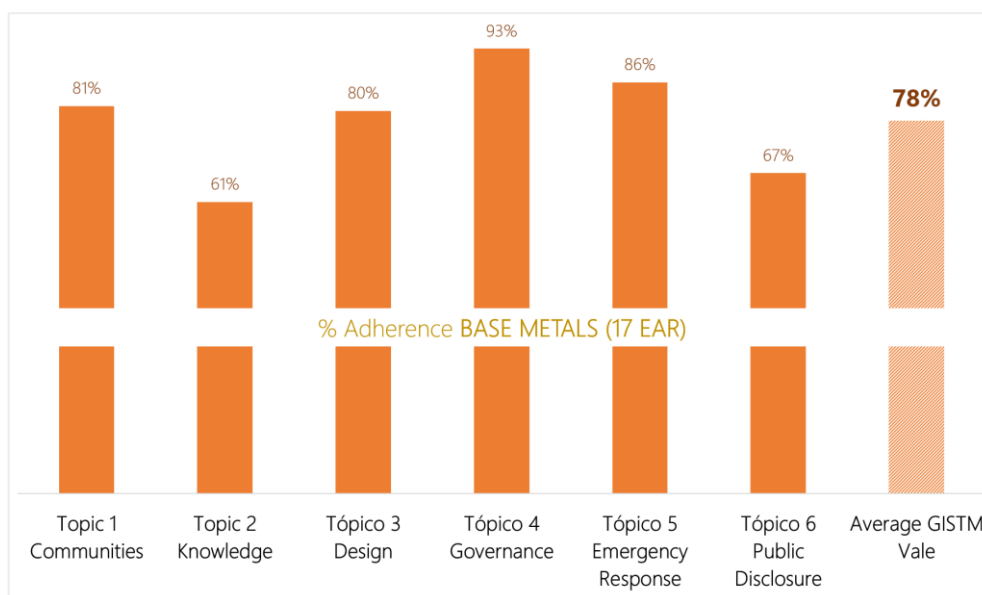


Figure 3 – GISTM Adherences of the 17 Base Metals TSF's.

The main common gaps identified in the self-assessment are shown in Table 5 and also are already addressed in the action plans established for each TSF.

Table 5 - Most common gaps of the GISTM 2021 self-assessment – Base Metals

COMMON GAPS	REQUIREMENTS
☐ Climate change associated with flood security and water availability, including dam break revision studies	2.1 - 2.2 - 3.1 - 3.2 - 3.3 - 3.4 - 5.2 - 5.3 - 10.6 - 13.1
☐ Engagement of the Accountable Executive (AE)	4.3 - 4.7 - 5.7 - 6.5 - 8.4 - 8.5 - 8.6 - 8.7 - 9.3 - 9.4 - 10.2 - 10.6 - 12.1
☐ Financial Incentive linked to EAR's performance	8.3
☐ Mechanism to recognize, reward and protect employees who report opportunities for improvement in the management of EAR's	1.4 - 5.8 - 11.5 - 12.1 - 12.2 - 14.5 - 15.2

External Audit (gap-assessment)

The purpose of contracting this work was to bring a high-level independent assessment to a sample of selected 10 TSF's in order to calibrate the self-assessment process. The methodology used sought to analyze the evidence of implementation of GISTM requirements, check their levels of compliance, and point out gaps when they exist, presenting the degrees of priority and levels of effort for their closure. Table 6 shows the 10 audited TSF's and their results, also comparing with the adherences of the self-assessment made by VALE.

Table 6 – 10 TSF's with external audit and the comparison with VALE' self-assessment results.

Business Unit	Corridor	TSF	External Audit (gap-assessment)	Self-assessment VALE
Ferrous	South	Vargem Grande	56%	61%
		Forquilha III	51%	57%
		B3/B4	54%	54%
	Inactive Mines	Sul Superior	56%	53%
		VI	56%	64%
	Southeast	Pontal	50%	54%
		Conceição	53%	57%
North	Gelado	61%	61%	
Base Metals	North Atlantic	Thompson system	38%	77%
	South Atlantic	Rejeito do Mirim	45%	78%
General Average			52%	62%

Analyzing the results of Table 5, it is clear that the internal (VALE) and external (specialized consulting firm) adherences results for Ferrous Business TSF's were very similar, and this is due to a higher level of interaction between the areas aligning and bringing a better interpretation of the requirements. With that, both internal and external methodologies proved to be very close.

The most significant difference in Base Metals was due to the different interpretations for some requirements among the operators of the external specialized consulting firm and VALE Canada during the evaluation process. This situation is already solved with the ongoing methodological homogenization, and the auditing company itself placed in its final report the following text: "According to discussions made throughout the evaluation process, it is

understood that a significant part of the gaps can be closed with the presentation of adequate evidence or by working with existing information and structures to generate the necessary evidence”.

Final Remarks and Next Steps

The self-assessment led to the conclusion that VALE's current adherence to the GISTM is around 60%. The external audit for a sample of 10 TSF's made it possible to verify that the process used for self-assessment is satisfactory and can be used as a baseline for planning to fill the gaps identified in the self-assessment stage.

With the baseline values of the GISTM adherences defined (60% for Ferrous Business and 78% for Base Metals), the **GISTM 100 Journey** was designed and implemented, which consists of a permanent program of action plans, prepared along with the TSF's teams and aiming to close the gaps to achieve and maintaining 100% adherence to the GISTM requirements.

The goal for 2022 is to achieve average compliance of 90% for TSF's classified as Extreme and Very High consequences. The action plans to close the gaps are defined as a strategic goal for VALE and will be continuously monitored by the senior leadership throughout the year.



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GISTM 2021 SELF-ASSESSMENT RESULTS

AND

GISTM 100 JOURNEY

Executive Summary

March/2022

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Disclaimer

GISTM

Global Industry Standard on Tailings Management



TOPIC 1

Affected Communities

1. Human rights, meaningful engagement and remedy for damage (4 requirements)



TOPIC 2

Integrated Knowledge Base

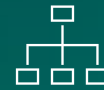
2. Interdisciplinary knowledge base (4 requirements)
3. Informed decision making (5 requirements)



TOPIC 3

Design, Construction, Operation and Monitoring of the Tailings Facility

4. Plan and design to minimize risks (8 requirements)
5. Develop a robust design (8 requirements)
6. Minimize and manage risk throughout the lifecycle (6 requirements)
7. Lifecycle Monitoring (5 requirements)



TOPIC 4

Management and Governance

8. Policies, Systems and Accountabilities (7 requirements)
9. Engineer of Record (5 requirements)
10. Review Levels (7 requirements)
11. Organisational Culture (5 requirements)
12. Whistleblower protections (2 requirements)



TOPIC 5

Emergency Response and Long-Term Recovery

13. Emergency response (4 requirements)
14. Long-Term Recovery (5 requirements)



TOPIC 6

Public Disclosure and Access to Information

15. Public Disclosure (3 requirements)

- **2021 – Self-assessment of Tailings Storage Facility (TSF's) in the "gap-assessment" format.**
 - 58 TSF's were self-assessed (41 Ferrous Business and 17 Base Metals Business).
 - The self-assessment was supported by an external assessment audit conducted by third parties for a sample of 10 TSF's (08 Ferrous Business and 02 Base Metals Business).
 - Results indicated an average adherence of 60% for the evaluated TSF's.
- **Q1 2022 – Disclosure of the "gap-assessment" results.**
- **GISTM 100 Journey:**
 - **Year 2022** – Fill the gaps as a corporate task reaching 90% GISTM adherence of the evaluated TSF's.
 - **Aug 2023** – 100% GISTM adherence of the evaluated TSF's (extreme and very high consequence focus).
 - **Aug 2025** – 100% GISTM adherence of all TSF's.

GISTM Self-assessment 2021 - Main Figures

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58

Evaluated TSF's

20

Self-assessment **weeks**
(Jul-Nov 2021)

104

On-sites task-
force **hours**

11

Self-assessment **professionals**
(2^aLD/2^aLayer/consultants)

141

Virtual follow-up
meetings

71

Follow-up **meetings**
hours

33

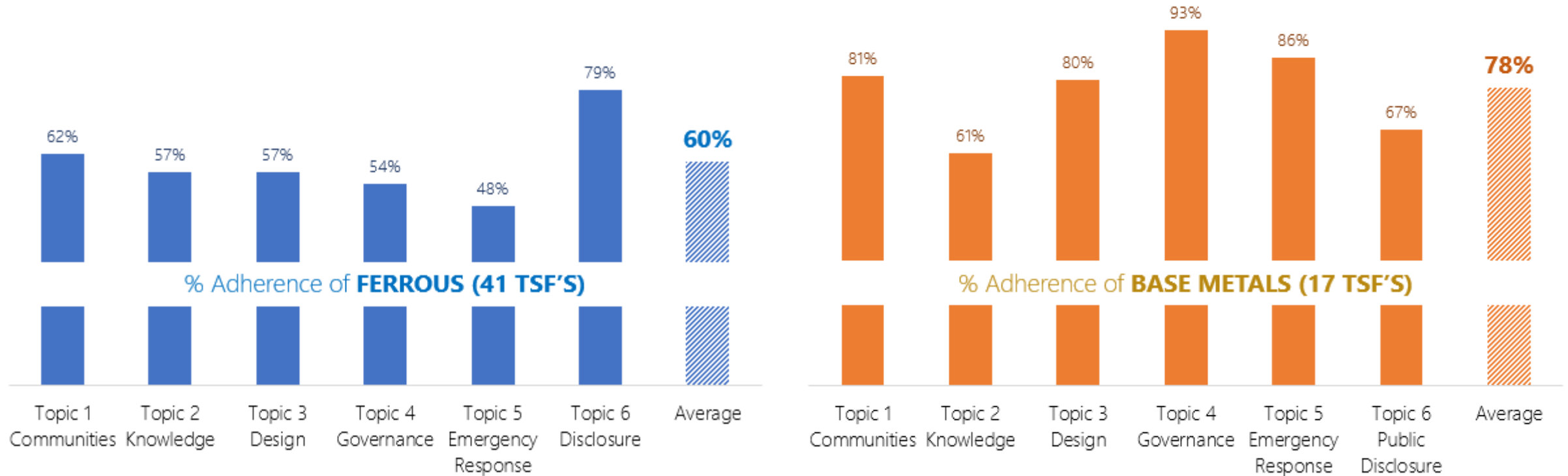
TSF's **Geotechnicians**
involved

126

Reports/Studies/Normatives
that fulfilled GISTM
evidences

GISTM Self-assessment results

Ferrous and Base Metals Businesses Units



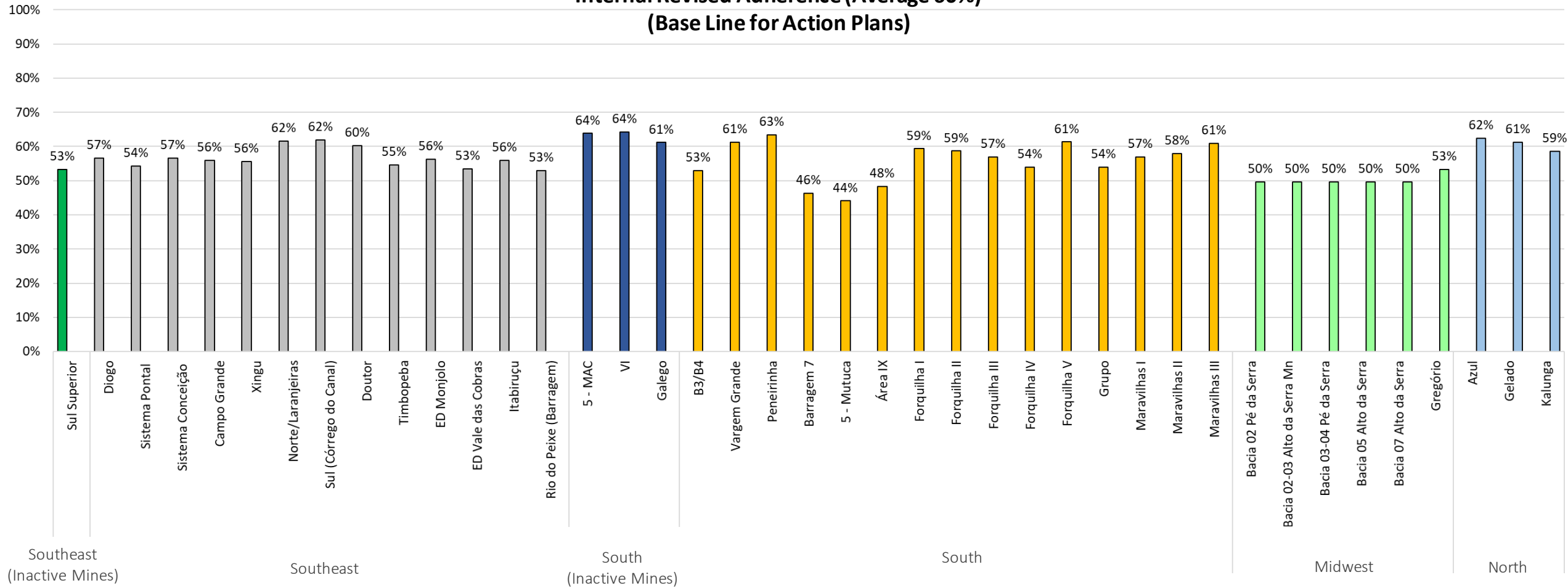
Conformance level % of adherence criteria for GISTM requirements

- **Does not meet (0%)** – No Information as evidence
- **Partially meets (25%)** – Information exists but is insufficient and no contract provided
- **Partially meets (50%)** – Information exists but is insufficient and the provided contract does not cover all requirement
- **Partially meets (75%)** – Information exists but is insufficient and the provided contract covers all requirement
- **Meets (100%)** – Information exists as evidence
- **Not Applicable** – The specific requirement is not applicable to the context of the asset.

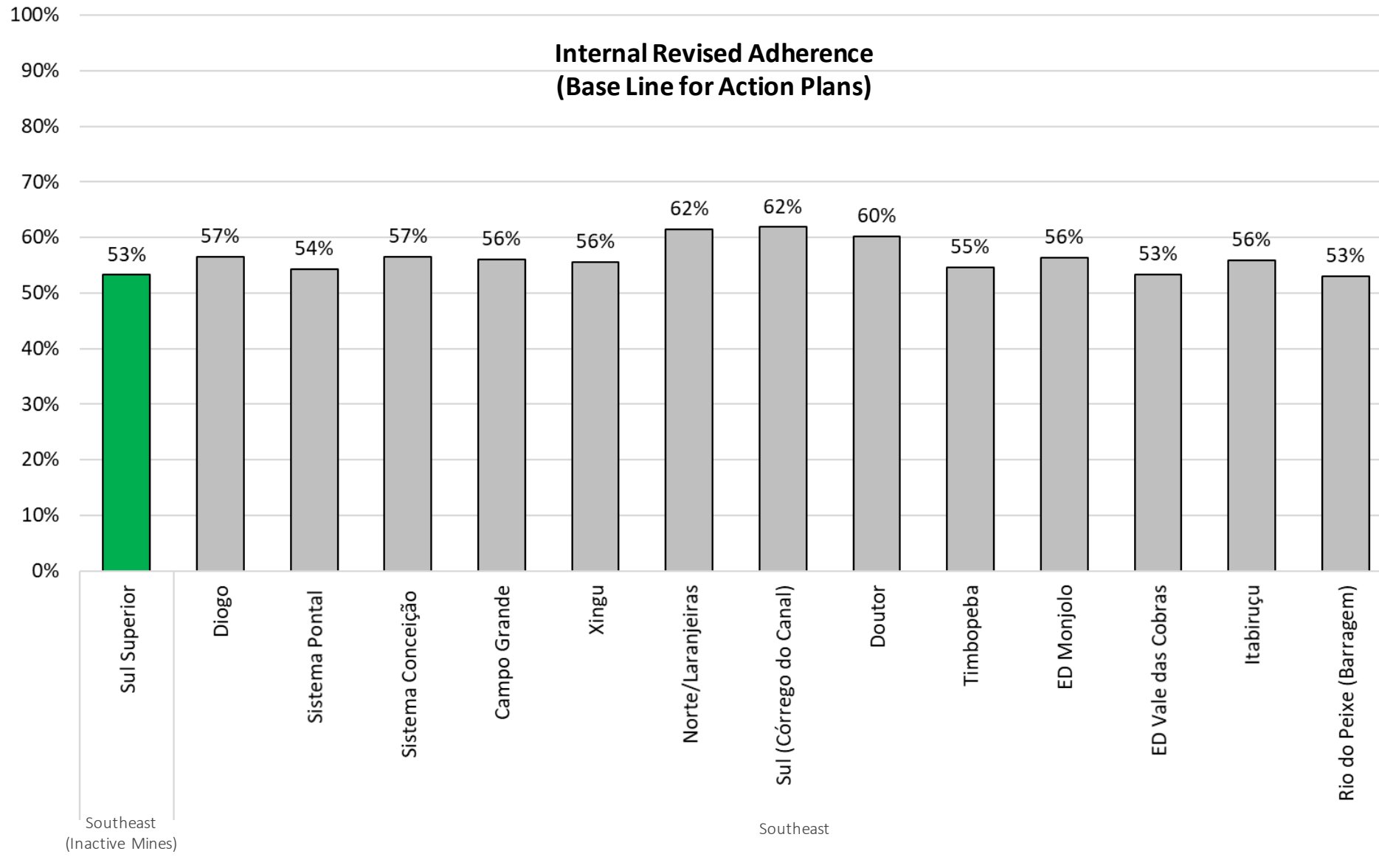
% GISTM adherence – Ferrous Business

All Sites (41 TSF's)

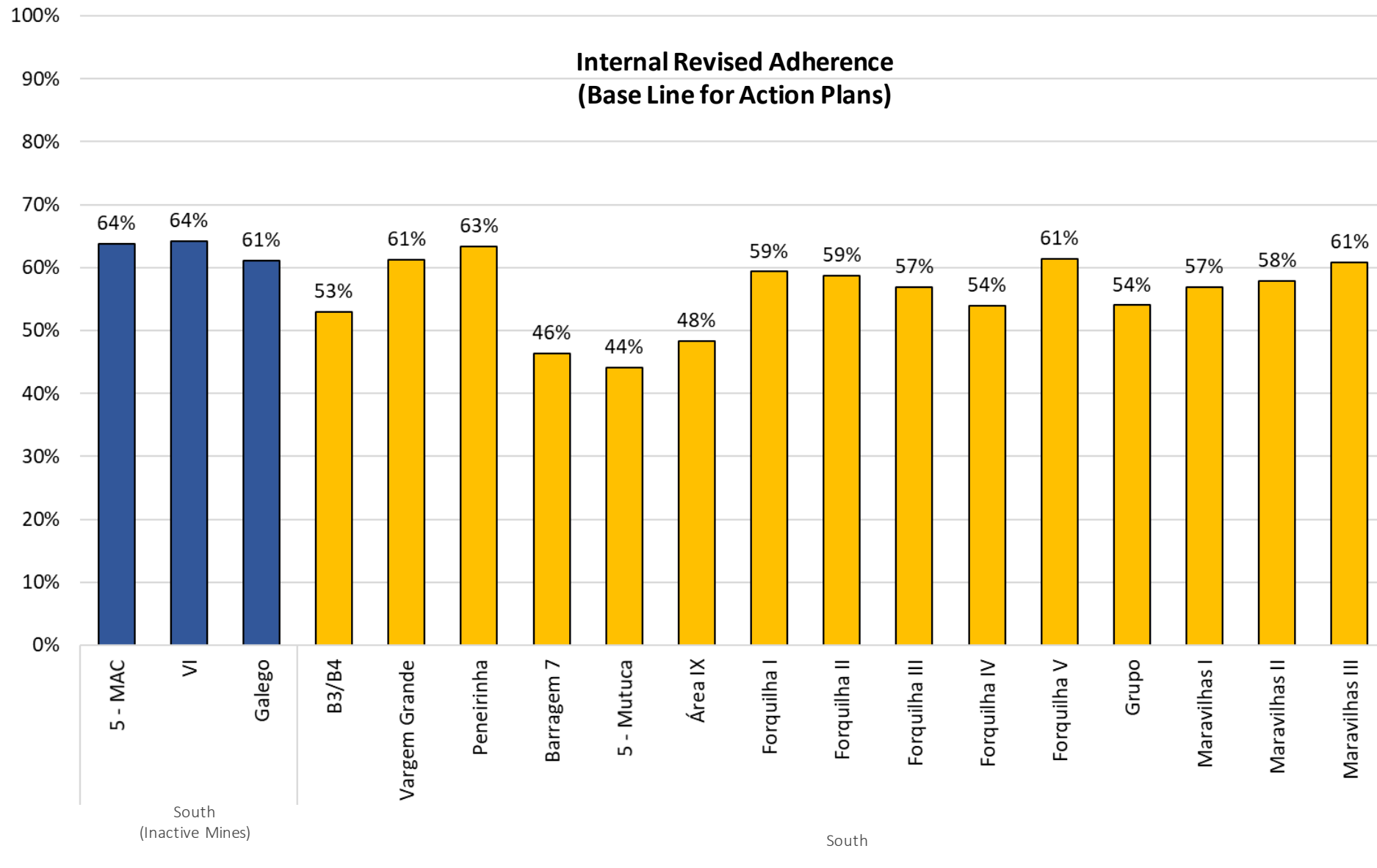
Internal Revised Adherence (Average 60%)
(Base Line for Action Plans)



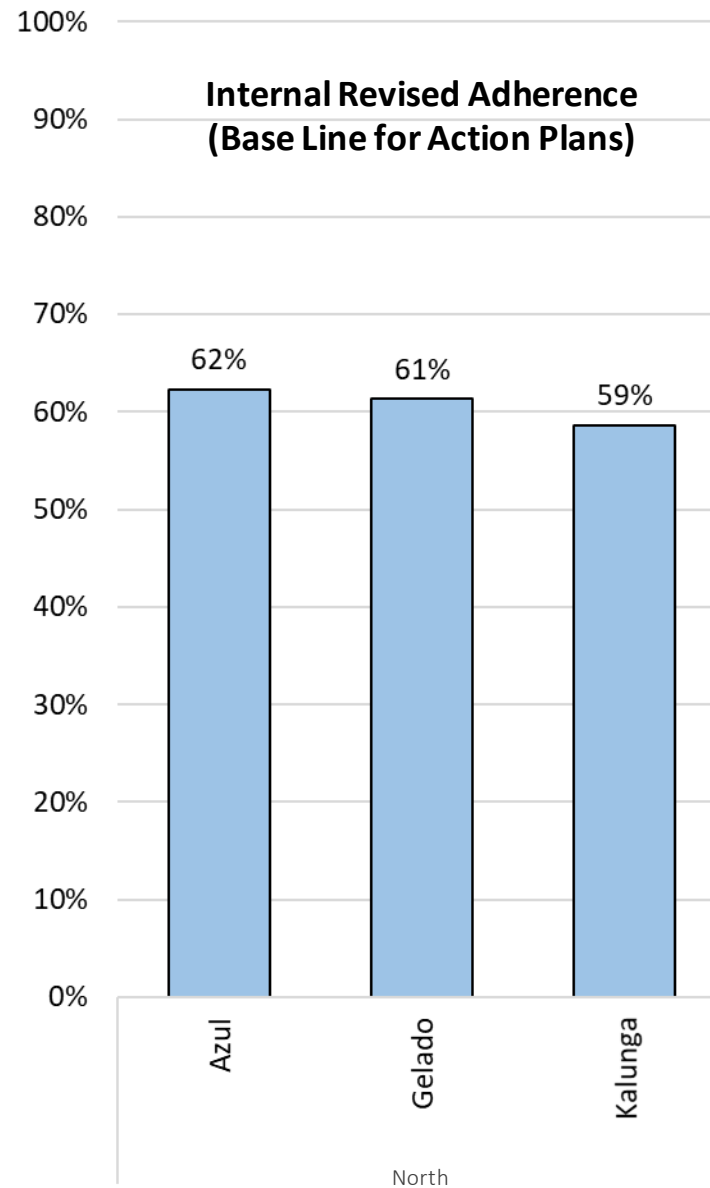
% GISTM adherence – Ferrous Business Southeast Corridor (14 TSF's)



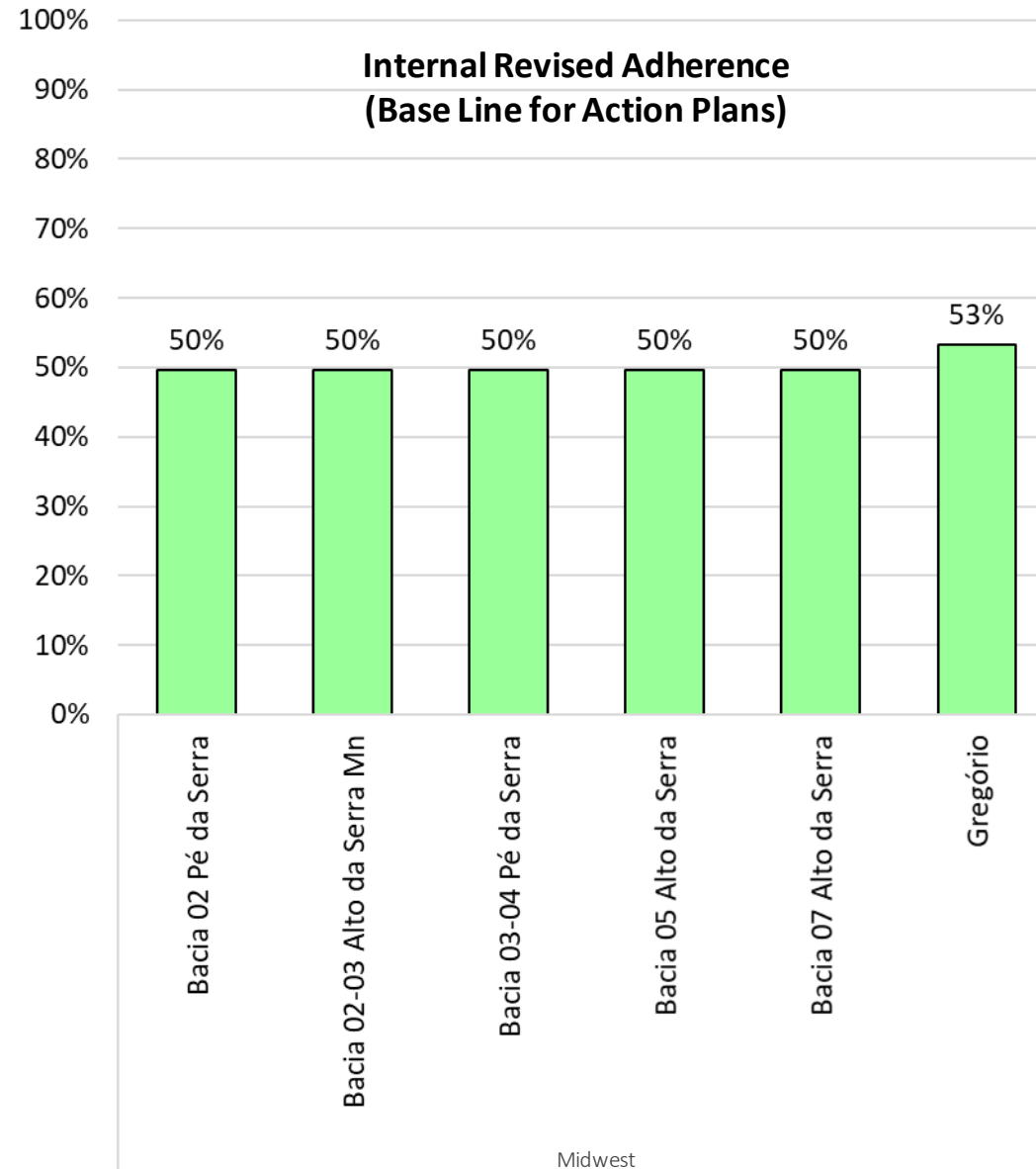
% GISTM adherence – Ferrous Business South Corridor (18 TSF's)



% GISTM adherence – Ferrous Business North Corridor (3 TSF's)

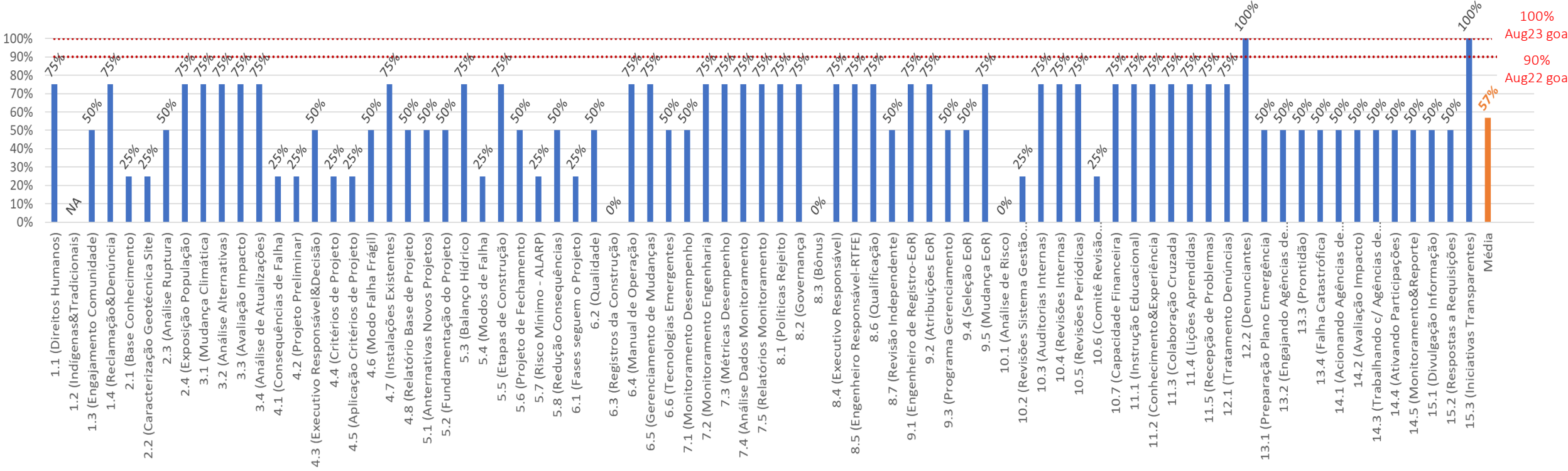


% GISTM adherence – Ferrous Business Midwest Corridor (6 TSF's)



GISTM Self-Assessment Results - Ferrous Adherence by requirement (ex: Forquilha III Dam)

Internal Revised Adherence by Requirement (Base Line for Action Plans)



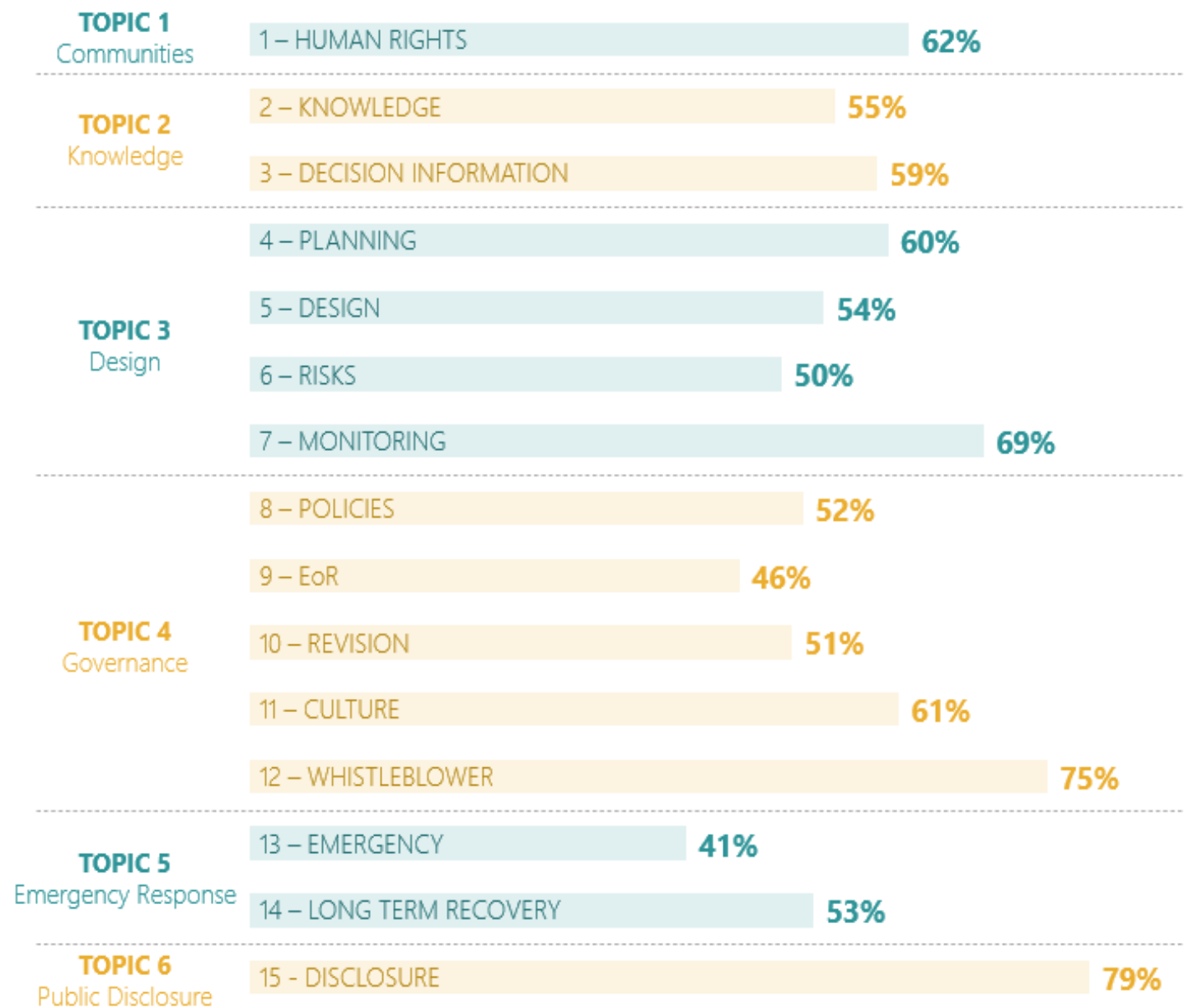
100%
Aug23 goal
90%
Aug22 goal

GISTM 2021

Self-assessment Results

Ferrous

41 TSF's average revised adherences by PRINCIPLE

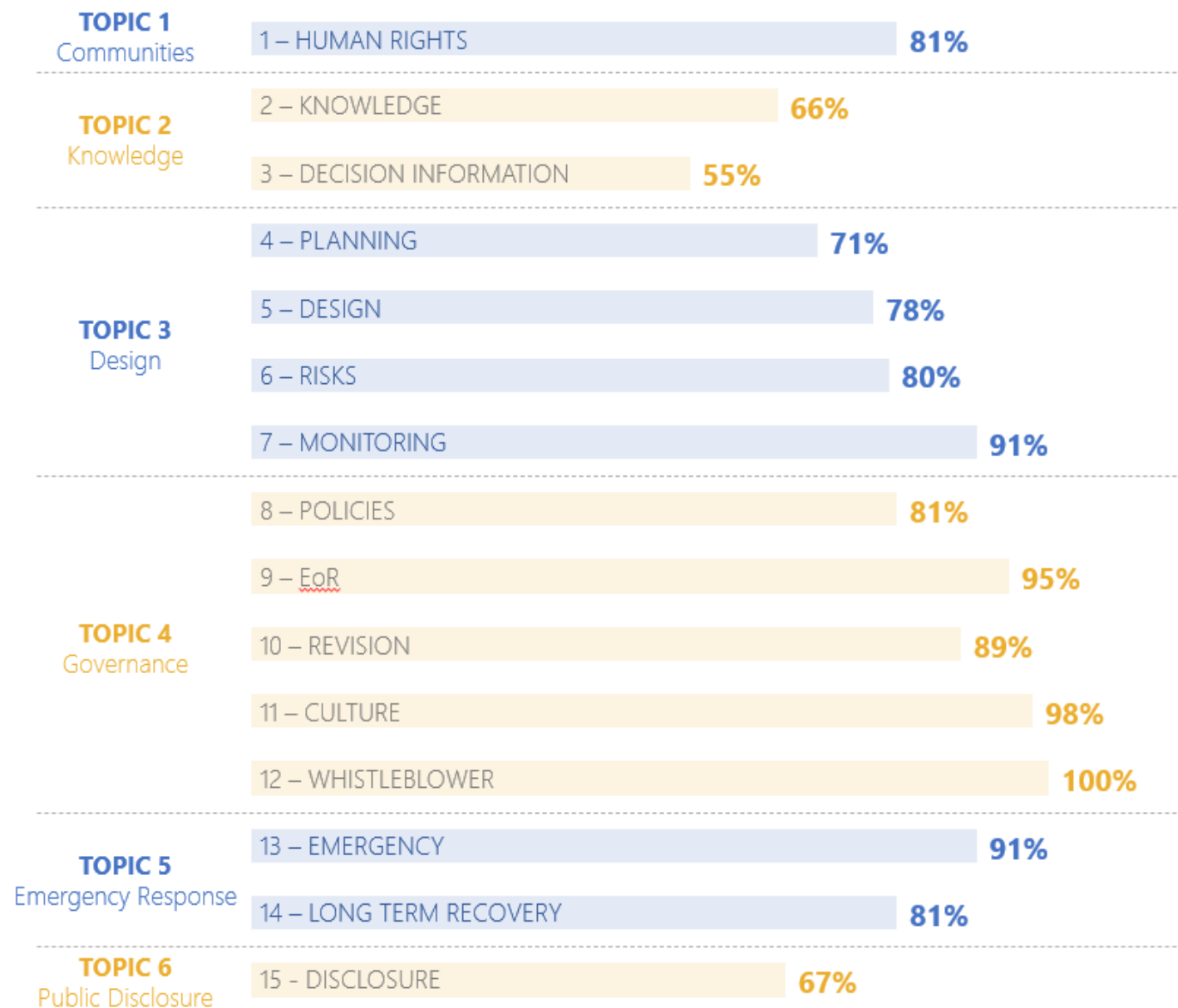


GISTM 2021

Self-assessment Results

Base Metals

17 TSF's average original adherences by PRINCIPLE

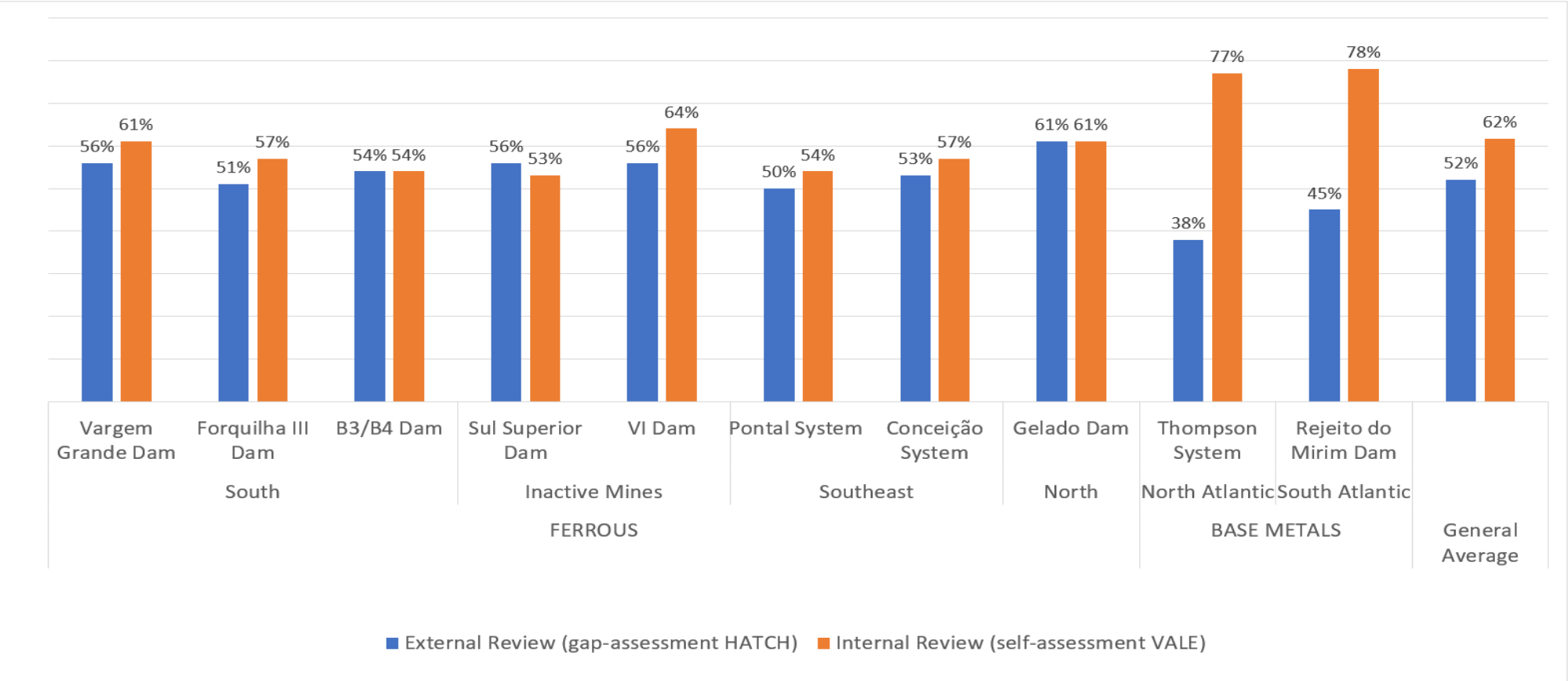


- In order to evaluate the consistency of the internal self-assessment process, a multidisciplinary external audit was contracted with a specialized consulting firm for a high-level independent assessment for a sample of 10 selected TSF's.
- The audit also allowed for a better calibration of the criteria and greater robustness to the definition of the baseline for the preparation of action plans and to address the gaps.

10 TSF's selected for the gap-assessment / external audit

Business Unit	Corridor	TSF
Ferrous	South	Vargem Grande
		Forquilha III
		B3/B4
	Inactive Mines	Sul Superior
		Barragem VI
	Southeast	Pontal
		Conceição
North	Gelado	
Base Metals	North Atlantic	Thompson System
	South Atlantic	Rejeito do Mirim

GISTM External Audit of 10 TSF's – Self-Assessment Support



External audit results showed good consistency in the gap identification process and consequently for the definition of the baseline

- The adherence results for the 8 Ferrous TSF's were very similar, showing that the VALE and the external specialized consulting firm methodologies are well aligned.
- The exception was the 2 Base Metals TSF's, where a substantial difference between the adherences was noticed, explained by the different approach of interpretation of some requirements between the external specialized consulting firm and VALE Canada. These differences should be resolved soon, homogenizing the methodologies between the two Business Units.

Highlights and Common Gaps

Highlights	Requirement
<input type="checkbox"/> EoR implemented and with well-established activities and responsibilities.	4.7- 4.8- 5.2- 5.7- 6.1- 6.3 6.4- 6.5 - 7.1 - 7.3 - 7.4 - 8.4 - 8.5 - 8.6 -9.1 -9.2 - 9.3 - 9.4 - 9.5 - 10.4 - 10.6
<input type="checkbox"/> ITRB implemented and with well-established activities and responsibilities.	3.2 - 4.2 - 4.4 - 4.7 - 4.8 - 5.1 - 5.2 - 5.7 - 6.4 - 8.7 - 10.1 - 10.5 - 10.6
<input type="checkbox"/> EPRP implemented and with well-established activities and responsibilities.	13.1 - 13.2 - 13.3 - 13.4 - 14.1 - 14.2 - 14.3 -14.4

Common Gaps *	Requirement
<input type="checkbox"/> Climate change associated with flood security and water balance.	2.1 - 2.2 - 3.1 -3.2 - 3.3 - 3.4 - 5.2 - 5.3 - 10.6 - 13.1
<input type="checkbox"/> Social Due Diligence and relationship with the community.	1.1 - 1.3
<input type="checkbox"/> Engagement of the Accountable Executive (AE) .	4.3 - 4.7 - 5.7 - 6.5 - 8.4 - 8.5 - 8.6 - 8.7 - 9.3 - 9.4 - 10.2 - 10.6 - 12.1
<input type="checkbox"/> Seismic Stability Studies.	2.2 - 4.2
<input type="checkbox"/> Revision of the OMS manual following GISTM requirements.	6.1 - 6.2 - 6.4 - 6.5 - 6.6 - 7.1 - 7.2 - 7.3 - 7.4
<input type="checkbox"/> Financial Incentive linked to the performance of the TSF's.	8.3
<input type="checkbox"/> Mechanism to recognize, reward and protect employees who report improvement in the management of TSF's.	1.4 - 5.8 - 11.5 - 12.1 - 12.2 - 14.5 - 15.2
<input type="checkbox"/> Closure Plan focusing the TSF's.	2.1 - 5.2 - 5.5 - 5.6 - 6.6 - 10.7
<input type="checkbox"/> Succession Plan for key positions of dam safety (EoR, RTFE, AE).	8.6 - 9.5

Glossary

- *EoR – Engineer of Record*
- *ITRB – Independent Tailings Responsible Board*
- *RTFE – Responsible Tailings Facility Engineer*
- *OMS – Operations, Maintenance and Surveillance Manual*
- *EPRP – Emergency Preparedness Response Plan (similar to PAEBM (Plano de Ação de Emergência para Barragens de Mineração – PAEBM requested by Brazilian legislation))*
- *TSF - Tailings Storage Facility*

* All mapped gaps have their action plans in progress



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Action Plans - Mar 2022 – Aug 2023

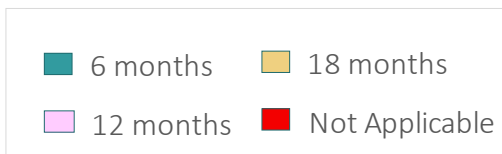
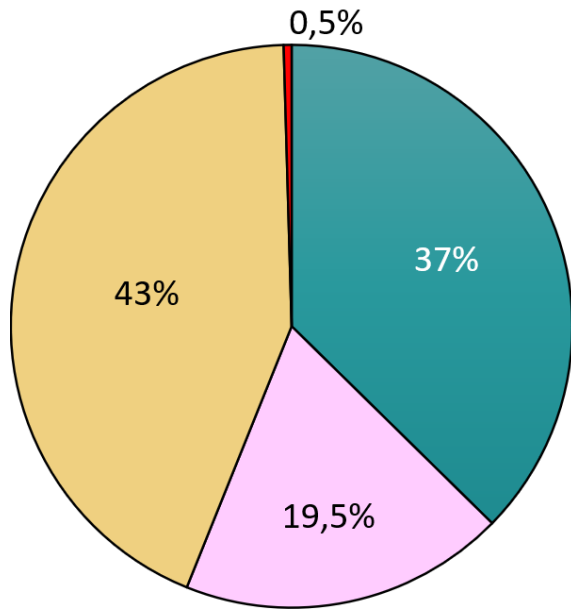
(all TSF's)

GISTM 100 Journey - Action Plans (Mar 2022- Aug 2023)

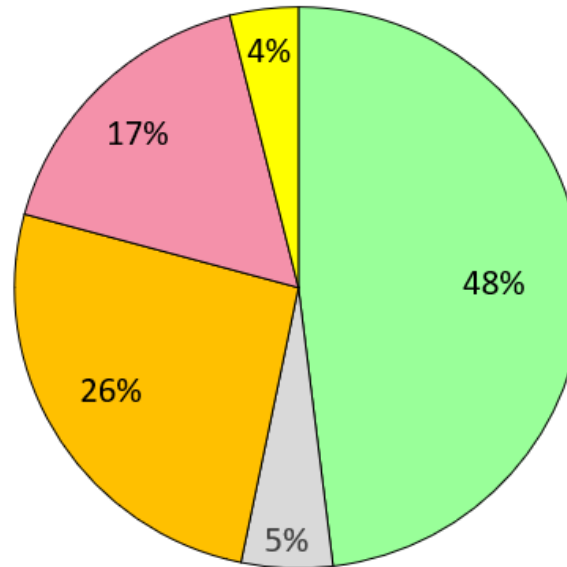
Timing vs Responsibilities vs Activities of Requirements to Full Compliance

Strategy: The 77 requirements of all TSF's were grouped into 3 completion deadlines (6, 12 and 18 months) according to their degree of complexity in closing the mapped gaps. Then responsibilities and type of activities were set accordingly.

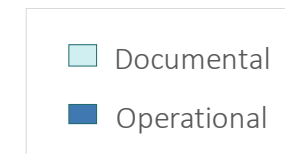
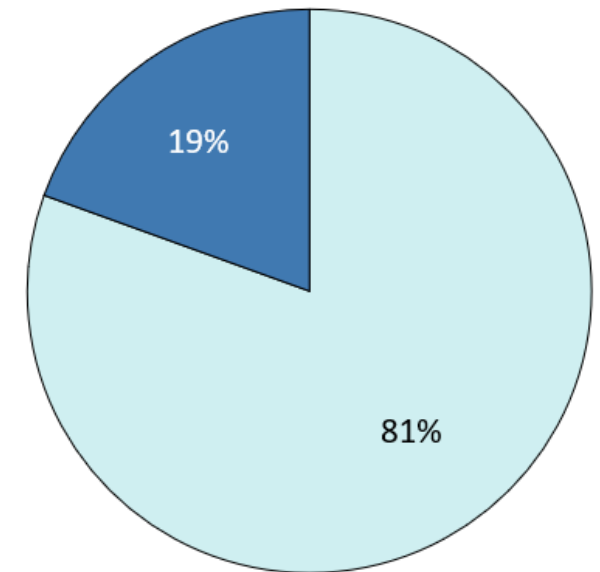
Estimated time to close the gaps
(% of 77GISTM requirements)



Responsible areas to close the gaps
(helping chain)
(% of 77 GISTM requirements)



Main type of activities to close the gaps
(% of 77 GISTM requirements)



* VALE divides its areas into 3 Lines of Defense (LD): 1st LD(1st Layer) = Operational -- 1st LD(2nd Layer) = Matrix -- 2nd LD = Corporate



Geotechnics
Directorate

GISTM Adherence KPI

On line Control Tools and Dashboard



Jornada GISTM 100

Indicador de aderência

57%
Aderência
EAR

90%
Meta de
aderência
Dez 2022

100%
Meta de
aderência
Ago 2023

Menu principal

Dashboard

Tópicos

Tópico 1

Tópico 2

Tópico 3

Tópico 4

Tópico 5

Tópico 6

Tópico 1

Forquilha III

Total de aderência do tópico atual: **75%**

Princípio :

1

Período

mar/2022

Requisito

Aderência

Prazo

Status

1.1	Direitos Humanos	100%	jul/22	<input type="radio"/> Sem avanço	<input type="radio"/> Como Planejado	<input type="radio"/> Concluído
1.2	Indígenas&Tradicionais	77,27%	jan/23	<input type="radio"/> Sem avanço	<input checked="" type="radio"/> Como Planejado	<input type="radio"/> Concluído
1.3	Engajamento Comunidade	52,94%	jul/23	<input checked="" type="radio"/> Sem avanço	<input type="radio"/> Como Planejado	<input type="radio"/> Concluído
1.4	Reclamação&Denúncia	70%	jul/22	<input checked="" type="radio"/> Sem avanço	<input type="radio"/> Como Planejado	<input type="radio"/> Concluído

Salvar

Enviar

Concrete Steps Towards GISTM Implementation

Non-exhaustive examples

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
Affected communities	Integrated knowledge base	Design, construction, operation & monitoring	Management and governance	Emergency response and long-term recovery	Public disclosure and access to information
<p>Grievance Global Standard released on October 30, 2020</p> <p>New Human Rights Global Policy and new Global Standard Procedure for engagement with Indigenous People and Traditional Communities</p> <p>Brazilian legislation requires Free Prior and Informed Consent (FPIC)</p> <p>All process that requires EPRP¹ review has an Indigenous and Quilombola component</p>	<p>The EPRP¹ registers the project-affected people (socio-economic and environmental)</p> <p>The most at-risk groups are also identified</p> <p>Probabilistic seismicity hazards and climate change assessments being performed</p> <p>Dam break studies under review, following best practices</p>	<p>Consequence of failure classification being reviewed in accordance with GISTM</p> <p>Addressing brittle failure modes with conservative design criteria (implementation of backup dams for the upstream critical TSF's)</p> <p>Design Basis Report being prepared by EoR's</p> <p>HIRA to map risks and critical controls and GMC (geotechnical monitoring centers) with TARPS</p>	<p>Policies, systems and accountabilities completely reviewed.</p> <p>ITRB and EoR appointed</p> <p>Multi levels of review implemented</p> <p>Geotechnical knowledge portal implemented</p> <p>Organizational culture with VPS enforcement</p> <p>Ombudsman channel working with whistleblower protection</p>	<p>EPRP¹ publicly disclosed²</p> <p>Vale is engaged with public sector agencies in the post-failure response strategies</p> <p>Brumadinho reparation enabling participation of the affected people in the restoration and recovery works and ongoing monitoring activities</p>	<p>GISTM implementation commitment disclosed at the VALE's ESG Portal</p> <p>ESG Portal under review to accommodate all the TSF and information requested</p> <p>EoR reports publicly disclosed by late 1Q21</p>

¹ Emergency Preparedness and Response Plan.

² <http://www.vale.com/brasil/PT/aboutvale/servicos-para-comunidade/minas-gerais/Paginas/Projetos.aspx>

- The self-assessment led to the conclusion that VALE's current adherence to the GISTM is around 60%, which reflects the revision process of its internal protocols regarding tailings governance management started in mid-2019.
- The external audit for a sample of 10 TSF's made it possible to verify that the process used for self-assessment is satisfactory and can be used as a baseline for planning to fill the gaps identified in the self-assessment stage.
- With the baseline values of the GISTM adherences defined (60% for Ferrous Business and 78% for Base Metals), the **GISTM 100 Journey** was designed and implemented, which consists of a permanent program of action plans, prepared along with the TSF's teams and aiming to close the gaps to achieve and maintaining 100% adherence to the GISTM requirements.
- The goal for 2022 is to achieve average compliance of 90% for TSF's classified as Extreme and Very High consequences.
- The action plans to close the gaps are defined as a strategic goal for VALE and will be continuously monitored by the senior leadership throughout the year.



VALE