

Transparency reporting on tailings dams: the case of the six largest listed mining companies

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Background

- 13 billion tonnes per year of tailings
- Since 1915, 257 failures
- 250 million m³ of tailings, destroying 5,000 km²,
- 2,650 people dead
- 317,000 people displaced (Hudson-Edward et al., 2024)
- Cost to the economy: US\$750 million and US\$56 billion
- The risk is clear. but how transparent is the system?

Concepts from the literature

REVISITING TAILINGS DAM REGULATIONS

Brumadinho

Church of England

Revision 2019/2020

Value / Shortcomings

THE SOCIAL ASPECTS OF TAILING FAILURES (human factors)

Managing early
warnings

Conflict of interest

Knowledge by top
executives/ company
oversight (accountability)

Bonuses

Implementation vs
restatement

Failure vs
consequence-based risks

Long-term planning

Affected communities /
worst-case scenarios

Recovery

TRANSPARENCY ABOUT RISK (The community's right to know, action and business benefits)

plane / nuclear

Actively withholding info

Community risks

Disclosure experience

Transparency reporting

FAILURE OR DISASTER?

Factors that, beyond the
physical characteristics,
contribute to instability

Disaster approach
uncommon on the
industry



Transparency reporting

- Increase pressures for organisations to disclose relevant information
- Two opposing forces
 - Corporate autonomy in org decides what to disclose social and environmental issues
 - Impression management = manage image and reputation

(Prates & Avelino, 2024; Crous in Marais et al 2021; Crous et al 2021; Kemp et al 2024)

International guidelines

- Different international guidelines standards
 - GRI
 - ISO
 - IRF
 - ICCM
 - IFRS
 - SDG
 - Corporate Sustainability Reporting Directive EU

COMPLEX



Literature - ICMM

- ICMM Global Industry Standard on tailing Management
 - Basis for literature
 - Disclosure contained in Principle 15: Publicly disclose and provide access to information about the tailings facility to support public accountability

Research questions

- Is there a difference in the transparency reporting of the six largest mining companies in the world about tailing dam risks before and after the revision of the Global Industry Standard on Tailings Management?
- What progress has been made, and what are the remaining shortcomings of transparency regarding tailings risks?

Methods

Comparative case
study design
(6 largest listed
mining companies)

Integrated reports
and sustainability
reports, websites

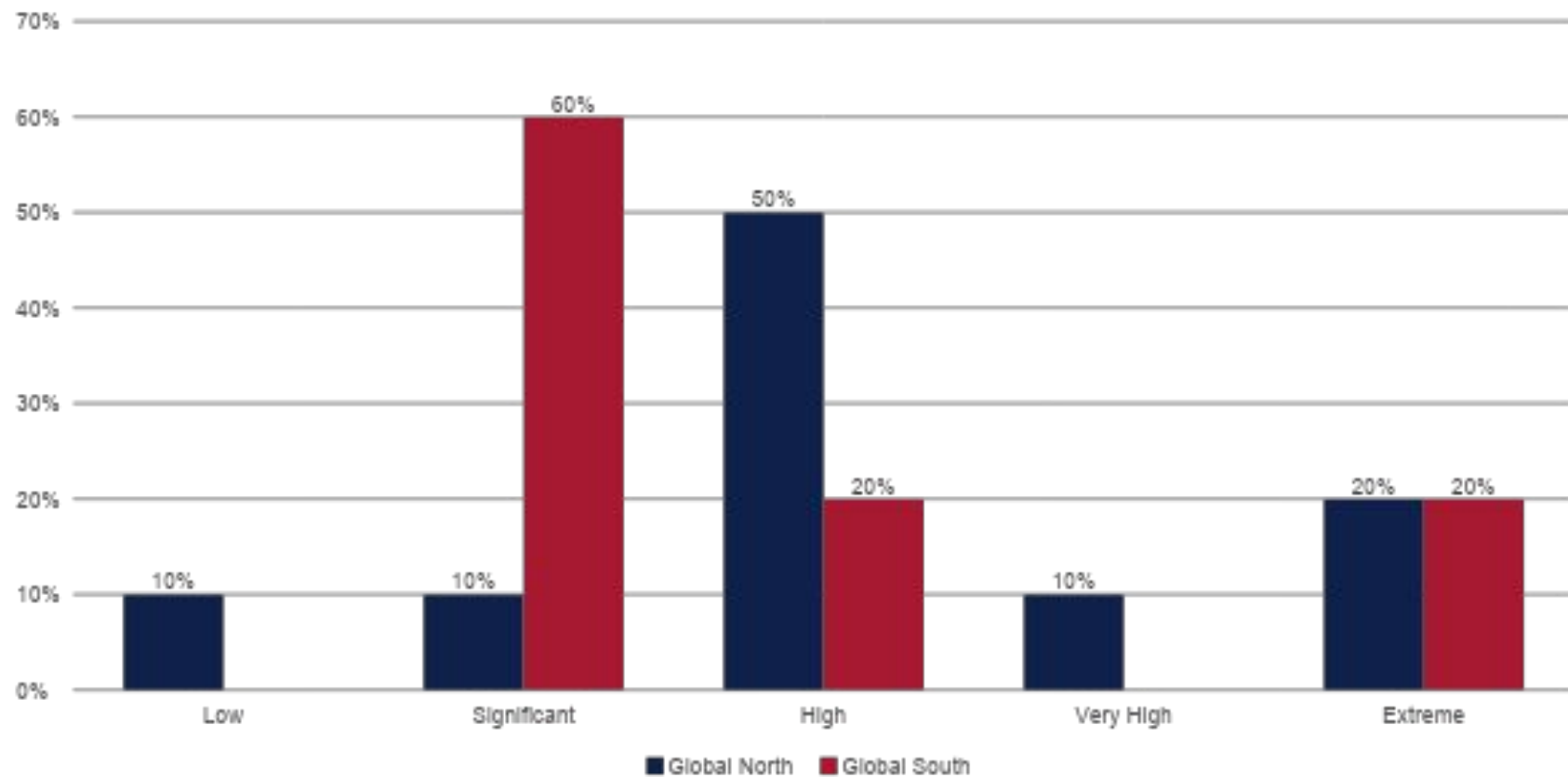
Thematic analysis
(Pre: 2017-2019 vs
Post: 2020-2023)

- Atlas.ti
 - Overall IR, SR
 - Pre-IR
 - Post-IR
 - Pre-SR
 - Post-SR
- Started with opinion mining = themes
- Auto coding for terms and co-occurrence of themes in different groups' top 20 for each group
- Tailings facilities: GISTM global north, global south
- Detail analysis paragraphs in reports and on websites containing a combination of terms

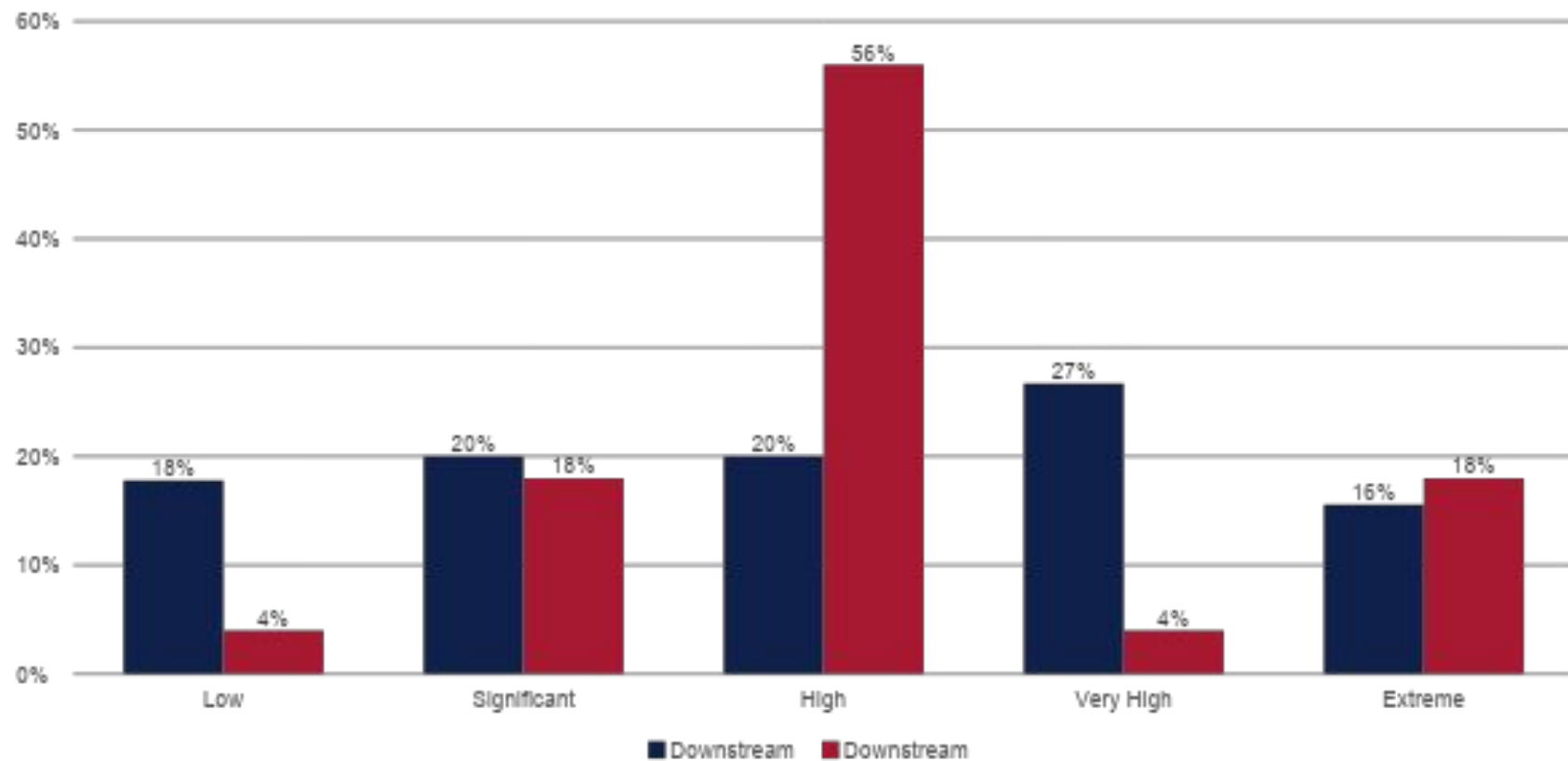


What are the numbers saying?

Centerline Consequence Classification



Downstream Consequence Classification



S&P Capital IQ Global Dashboard (2023): ESG & E

Company	ESG Score ²	Environmental score ²	Waste ²	Acid Rock Drainage Management ²	Tailing Management ²	Tailings Commitment ²	Tailings Risk Potential ²
BHP	48	52	26	33	50	50	0
Rio Tinto	66	69	54	50	100	100	80
Glencore Plc	31	38	33	67	20	75	0
Vale SA	51	56	1	83	75	75	80
Freeport-McMoRan Inc	66	70	77		65	85	80
Newmont Corp	81	74	65	100	100	100	80

S&P index based on voluntary disclosure by companies



S&P Capital IQ Global Dashboard (2023): Social

	Social	Occupational health and safety	Social impacts on community	Community relations	Human capital management	Human rights
BHP	37	47	22			
Rio Tinto	68	55		88	52	
Glencore Plc	46	81		43	44	
Vale SA	39	3	2			34
Freeport-McMoRan Inc	69	62		77	60	
Newmont Corp	82	53		94	71	



Co-occurrence one slide

- We mined the documents for 22 co-occurrence themes for pre-and post
- Examples: Tailings/community/risk

- Outcome

Annual reports		Sustainability reports	
Pre	Post	Pre	Post
6	37	49	132

- Far more reporting taking place?

What does the evidence show?

What gets reported?

- Within the company
- Technical details (controls, dam safety reviews, routine inspections)
- Arms-length oversight (establishment of independent tailings review boards / independent reviewers/tailings governance reviews)
- Some reference to tailings transparency within the company (informing management)
- The consequences of climate change and earthquakes (at least an acknowledgement)
- Learning programmes
- Reporting systems
- Consistent management across the business

What gets reported (2)

- Outside the company
- Some transparency regarding the degree of risks
- Some transparency regarding existing failures
- Employees – the first line of defence
- Some reference to emergency response plans (nothing before)
- Some reference to considering community impacts in case of failure:
 - “assessing and mapping the potential impacts from a hypothetical, significant failure including impacts to people, infrastructure, communities and environment, within and outside the mine site, regardless of probability”
 - “Downstream flooding risk assessment”
 - “extreme’ consequence TSF, largely due to the proximity of the informal settlement

Remaining concerns (1)

- OVERALL
- Often vague statements of intent – transparency hesitancy?
- No indication of tailings related to SLO
- Little attention to disasters and worst-case scenarios
- WITHIN COMPANY
- Despite an emphasis on technical issues often there is little indication of scheduling
- No indication of how management and bonus structures are managed to deal with tailings

Remaining concerns (2)

- COMMUNITY-RELATED
- Emergency response independent of risk often vague principles as opposed to basic implementation plans
- Some reference to community involvement in emergency response, “engaging with community stakeholders to maintain a shared state of readiness,” BUT GENERALLY ABSENT (Only one firm reported actively **engaging** with communities about tailing risks)
- Complaints not noted (only one company reported not receiving complaints)
- By far, there is not enough focus on “focus on human exposure and vulnerability in hazardous situations” or on vulnerability
- Frequency and purpose unclear



Remaining concerns (3)

- ABSENCE OF DISASTER LANGUAGE
- Limited use of disaster language: disaster (rather use hazard), early warnings
- Limited indication of how community risks are considered or how communities are engaged in the risk assessment
- MINE CLOSURE
- Limited reflection on mine closure and tailings

Conclusion

- Despite much progress, the overall impression is still one of limited disclosure or disclosure hesitancy
- MAIN POSITIVE
- Improved transparencies of the dam and downstream risk assessment
- REMAINING PROBLEMS
- There is very little indication of how these are used in the building of new dams
- Often statements of intent without much detail
- Hudson-Edwards et al (2024, p. 612) “Future research should build on attempts to link tailings facility locations to situated risk factors by improving spatial and time series analysis, reducing reliance on corporate disclosures, and increasing the visibility of priority locations and patterns of concern”

