



Sustainability Risk and International Sustainability Standards Board (ISSB) Disclosures

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Malaysian Association of Risk and Insurance Management (MARIM): Risk Outlook 2026

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HELLO! CALL ME SYIKIN

Nurasyikin Rosni is a seasoned professional with **two decades of experience** in the fields of **Finance, Investment and Sustainability**.

She holds a **Ph.D. in Environmental Science**, where her research focused on the “**Impact of climate change on water and air quality in the Royal Belum Forest, Malaysia**”.

An avid nature lover, Nurasyikin is particularly passionate about **herpetofauna (reptiles and amphibians)**. This passion, combined with her love for books, highlights a person who is both academically grounded and deeply connected to the natural world.

A photograph showing two people in a forest. In the foreground, a woman wearing a blue hijab, a white cap with a logo, and a blue backpack is smiling. Behind her, a man in a dark sweater and blue boots is looking towards the camera. In the background, there is a large woven basket filled with egg trays. The setting is a lush, green forest.

Hoang Lien National Park in 2023
With the indigenous ethnic group of H'Mong
(as part of Asia Pacific researchers visit)

AGENDA



01 Introduction:
The New Global Language

02 Changes in Sustainability Reporting

03 IFRS S1/S2 adoption in Malaysia

04 How are ISSB standards relevant to risk management, governance and financial reporting?

ISSB standards (IFRS S1/S2) became the "global baseline" for sustainability reporting in 2024.

The focus has **shifted** from "saving the planet" as a PR exercise to **financial materiality**, how sustainability issues actually impact the bottom line

The Problem

The "Alphabet Soup" of reporting (TCFD, SASB, GRI) created confusion.

The Solution

The ISSB (International Sustainability Standards Board) was created to unify these into one global language.

The "Why"

Investors need to know how **sustainability risks** affect a company's **prospects, cash flows, and cost of capital.**

Key Concept

Shift from "Impact Materiality" (how we affect the world) to **"Financial Materiality"** (how the world affects our financial health).

Entities are required to disclose both the **current and anticipated financial effects** of sustainability-related risk and opportunities on the entity's business model and value chain.



Changes in Sustainability Reporting

Sustainability data must be connected to financial data

Changes in sustainability reporting under ISSB Standards

Structural Shift

- Transitioning from structuring the report based on **material topic under GRI Standards** to **sustainability-related risks and opportunities (SROs)** as per ISSB Standards
- Requires an investor-focused lens (**financial materiality**) rather than wider-stakeholder group (impact materiality)
- IFRS Standards disclosures must be **clearly distinguished** from other additional sustainability information

Use of SASB Standards

- Use SASB’s industry-specific guidance to aid in:
- Identifying financially material SROs
 - **Consider the applicability of the metrics associated with the disclosure topics included in the SASB standards.**



SASB Standards – Materiality Finder

Cross-Function Collaboration

- Preparation requires sustainability team to collaborate with: (non-exhaustive)
- Strategy – alignment on business strategies to address SROs
 - Finance & Risk Management – identification of SROs & integration with financial reporting processes
 - Business units: Monitoring of progress and implementation
 - Internal Audit (IA) – data validation and control assurance

Board and C-Suite oversight is critical.

Language and Tone

- Tone and language are expected to be more investor-focused
- Maintain a formal, objective tone—similar to the financial Statements
- Prioritise clarity, consistency, and credibility in disclosures

*The goal is to pinpoint how sustainability factors could reasonably affect your company’s **cash flows, access to finance, or cost of capital over the short, medium, and long term.***

IFRS S1/S2 adoption in Malaysia:

Beginning the reporting period of FY2025, organisations in Malaysia will be required to issue a sustainability report under the IFRS Sustainability Disclosure Standards – NSRF September 2024

Aimed to **enhance transparency and accountability** of how businesses manage **sustainability risks and opportunities (SRO)**, improve business resilience, and contribute to the nation’s broader sustainability agenda.

Implementation of NSRF will be done through a **phased approach from annual reporting periods** beginning on or after 1 January 2025

Mandatory reporting:

- Applies to all listed issuers, and non-listed Companies with revenue above RM2 billion
- Reports must adhere to IFRS S1 and IFRS S2 (ISSB Standards)
- Must include Scope 3 GHG emissions disclosure

Transition reliefs & exemptions:

- Facilitate phased adoption from 2025 to 2030
- The implementation timeline as per **Table 1 below (PLCs)**
- **No Comparative Information**

Location and timing of reporting:

- Follow specific regulator requirements for disclosure location and reporting timing.

Implementation timeline for ISSB Standards Main Market Listed Issuers

Applicable entities	TIMELINE					
	2025	2026	2027	2028	2029	2030
Group 1: Main market listed issuers with market capitalisation ≥ RM2 billion ²	Adoption with ATRs		<ul style="list-style-type: none"> • Full adoption of IFRS Sustainability Disclosure Standards with Scope 3 greenhouse gas (GHG) emissions disclosures • Reasonable assurance (mandatory Scope 1 and 2) 			
Group 2: Main Market listed issuers (other than listed issuers in Group 1)		Adoption with ATRs		<ul style="list-style-type: none"> • Full adoption with Scope 3 GHG disclosures • Reasonable assurance (mandatory Scope 1 and 2) 		
Group 3: <ul style="list-style-type: none"> • ACE Market-listed issuers • Non-listed companies (NLCos) with annual revenue of RM2 billion and above 			Adoption with ATRs			<ul style="list-style-type: none"> • Full adoption with Scope 3 GHG disclosures • Reasonable assurance (mandatory Scope 1 and 2)



IFRS S1: The Foundation of Sustainability Reporting



- **IFRS S1** serves as the "General Requirements" standard. It provides the **methodology** for how a company should report.
- S1 requires disclosure of all **material sustainability-related risks and opportunities**.
- Examples: Labour practices, water scarcity, data privacy, and supply chain ethics.
- Designed to be reported alongside financial statements to give investors a complete picture of enterprise value.

The Four (4) Pillars:

PILLAR	FOCUS QUESTION	KEY DISCLOSURE REQUIREMENT
1. GOVERNANCE	Who is in charge?	The board's oversight and management's role in monitoring risks .
2. STRATEGY	What is the impact?	How risks/opportunities affect the business model and cash flows over time (time horizon).
3. RISK MANAGEMENT	How is it handled?	The processes used to identify, assess, prioritize, and monitor risks.
4. METRICS & TARGETS	How is it measured?	The KPIs used to track performance and the progress made against set goals.



IFRS S2: The Climate Specialist



- **IFRS S2** Specific requirements for climate-related disclosures.
- Physical vs. Transition Risks:
 - ❖ Physical: Extreme weather (acute) or rising sea levels/heat (chronic) damaging assets.
 - ❖ Transition: Policy changes (carbon taxes), new technology, or shifting market preferences.
- S2 mandates using "Climate Scenario Analysis" to test business resilience (e.g., "What happens to our supply chain in a 2°C warming scenario?").
- Scope 1, 2, and 3 Emissions: S2 explicitly requires disclosure of Scope 3 (value chain) emissions, which is often the biggest risk area for companies.

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How are ISSB standards relevant to risk management, governance and financial reporting?

Bridging Sustainability & Financial Value

ISSB standards are built on the TCFD architecture, requiring companies to disclose how sustainability-related risks and opportunities are managed across four areas:

1

GOVERNANCE

The oversight bodies (Board/Committees) and their role in monitoring risks.

2

STRATEGY

The actual and potential impacts of these risks on the business model.

3

RISK MANAGEMENT

The processes used to identify, assess, prioritise, and monitor risks.

4

METRICS & TARGETS

The quantitative data used to track performance and progress.

How are ISSB standards relevant to risk management, governance and financial reporting?

FOCUS AREA	RELEVANCE OF ISSB STANDARDS
Governance	<p>Mandates Accountability Requires disclosure of how the Board manages sustainability. It moves ESG from "marketing" to a formal fiduciary responsibility, ensuring senior leadership is equipped to oversee long-term resilience.</p>
Risk Management	<p>Integrated Thinking Forces companies to move sustainability risks out of silos and into the Enterprise Risk Management (ERM) framework. It requires assessing "Physical Risks" (climate events) and "Transition Risks" (policy/market shifts).</p>
Financial Reporting	<p>Connectivity & Consistency Disclosures must be published at the same time and for the same period as financial statements. It requires a clear link between sustainability risks and their impact on cash flows, access to finance, and cost of capital.</p>



How SROs link to financial performance and decision-making?

Moving from Compliance to Strategic Risk Management

Sustainability data is no longer a standalone "marketing" exercise; it is a fundamental component of financial integrity.

ILLUSTRATION

THE FINANCIAL LINK

Under IFRS S2, physical risks (like floods or extreme heat) must be cross-referenced with asset valuations.

THE IMPAIRMENT TEST

If a manufacturing plant is located in a high-risk flood zone, auditors will now ask:

"Has the carrying value of this asset been adjusted to reflect its shortened useful life or potential for total loss?"

THE GOAL

To ensure that the Balance Sheet reflects the reality of the changing environment.

Key Takeaway:

If your sustainability report highlights a risk that your financial statement ignores, you are signalling a gap in your internal risk management.

NSRF (National Sustainability Reporting Framework) in Malaysia expects this integration.

It's about "One Story, Two Reports"

CASE STUDY: VALE (Brazilian multinational mining corporation)

8. Risks and opportunities related to climate change

Addressing the impacts of climate change is a strategic priority on Vale's agenda. The Company seeks to reduce GHG emissions across the entire value chain by offering a portfolio of high-quality products, increasing the use of renewable energy, and adopting lower carbon intensity energy solutions. Vale understands that this path toward decarbonization requires a multifaceted approach, involving partnerships across the supply chain, improvement of processes and standards for licensing, encouragement to incentives and government commitments, and the use of technology and innovation to enhance efficiency and capture opportunities.

Climate risks

TR1 Exposure to regulations related to GHG emissions, resulting in a possible reduction in market share and higher operating costs

Transition risk category

Political and legal – Increased operating costs resulting from carbon regulation

Market – Market demand for less carbon-intensive products, resulting in loss of market for products with a higher carbon footprint

Time horizon

Political and legal – Medium and long term

Market – Long term

Concentration of business activities vulnerable to this risk

Operations related to the Iron Ore Solutions and Energy Transition Metals segments are exposed to this risk, with assets concentrated in Brazil, Oman, Malaysia and Canada.

Main items potentially impacted in the Financial Statements

- Cost of goods sold, and services rendered (Note 6a to the Financial Statements)
- Research and development expenses
- Property, plant and equipment (Note 19 to the Financial Statements)
- Provisions associated with GHG emissions regulation

a) Nature of risk

Vale is exposed to uncertainty concerning regulations related to GHG emissions in the jurisdictions where it operates and in its value chain, directly and indirectly impacting its business value.

The Company monitors the development of climate policies, including carbon pricing mechanisms such as the Canadian Federal Output-Based Pricing System, the Brazilian GHG Emissions Trading System (SBCE), the Chinese National Carbon Trading Scheme, the European Union Emissions Trading System (EU ETS) and the EU's Carbon Border Adjustment Mechanism (CBAM).

Depending on the carbon pricing model established by jurisdictions and the carbon price adopted, in addition to other climate-related regulations, the increase in operating costs may impact or even make economically unviable Vale's operating assets and impact the value of its iron ore business.

The implementation of such regulations may adversely impact the business value, reducing the Company's market share, due to the possibility that its products may have relatively higher carbon footprint than compared to competitors.

Alternatively, higher operational costs resulting from decarbonization initiatives may affect the competitiveness of Vale's products, especially when compared to competitors operating in jurisdictions without carbon regulation or with less restrictive policies.

b) Mitigation efforts

The Company assesses its portfolio of decarbonization initiatives and prioritizes them according to their technical and economic feasibility, with the aim of achieving its GHG emission reduction targets. As a risk mitigation measure and to support decision making, Vale uses a Marginal Abatement Cost Curve to estimate the costs of solutions to achieve its Scopes 1 and 2 (market-based) emission reduction targets. This tool provides an internal estimate of the potential costs related to decarbonization, which are considered in the Company's strategic planning.

Strategy for reducing GHG emissions

Vale's targets in this area, presented in [section 10](#), are voluntary. However, the Company's investments in the following initiatives to reduce its Scopes 1 and 2 (market-based) GHG emissions contribute to risk mitigation:



Petrobras and Vale are partnering to test R5 Diesel in locomotive operations in Vitória, Espírito Santo, Brazil

CASE STUDY: VALE (Brazilian multinational mining corporation)

Category	Description of solution	Main projects, initiatives and partnerships
Renewable energy (b.1)	Renewable energy solutions to achieve zero Scope 2 (market-based) emissions, which refer to indirect emissions from electricity purchases.	As a milestone for its target of reducing absolute GHG emissions from Scopes 1 and 2 (market-based), the Company achieved 100% use of renewable electricity sources in its operations in Brazil through power purchase agreements, as well as through concession agreements and the purchase of a small portion of renewable energy certificates. Details of these targets are presented in section 10 .
Energy efficiency (b.2)	Solutions to optimize the use of energy inputs such as diesel and anthracite in industrial operations.	Investment in more modern, automated, geo-referenced fixed assets (trucks, drilling rigs, machinery and equipment), using radar and artificial intelligence. In addition to enhancing safety and energy efficiency, these investments contribute to sustainability benefits due to reduced fuel consumption and increased useful life of components.
Low-carbon process inputs (b.3)	Solutions that seek changes in production processes.	This includes inputs for briquette production (see the topic on business model adaptation to find out more about risk) and the replacement of anthracite, a type of coal, with low-carbon solutions.
Biofuels, other low-carbon energy solutions and natural gas (b.4)	Low-carbon energy solutions to replace traditional energy inputs with low-carbon alternatives where, (i) biofuels contribute to decarbonization when their full life cycle is considered, since the carbon emitted during combustion is previously captured from the atmosphere by the biomass used in their production. Although these emissions are biogenic, they are not accounted for in Scopes 1 and 2 target (market-based); (ii) low-carbon solutions include process electrification, the use of renewable energy, and energy efficiency; and (iii) natural gas is used as a transitional energy source, with a lower emission factor than liquid fossil fuels.	<p>Replacing diesel with biodiesel, considering a renewable fuel produced from vegetable oils or animal fats. In addition to biodiesel, natural gas a transitional fossil fuel, as despite being a fossil fuel, its combustion generates less CO₂ and other pollutants compared to coal and fuel oils used in the production process.</p> <p>In October 2024, Vale and Petrobras signed a strategic alliance agreement with the potential to commercialize three products: (i) biofuel bunker (a fuel used in ships), (ii) R5 (diesel, co-processed with vegetable oils, which is being tested on the Vitória-Minas Railroad and at Fábrica Nova Mine in Minas Gerais); and (iii) natural gas, an essential input for the production of pellets and iron ore briquettes. This agreement will allow a range of possibilities to replace fossil fuels and promote the use of more sustainable energy sources.</p> <p>During 2024, Vale entered into partnerships with its truck suppliers (Komatsu and Caterpillar), to develop dual-fuel trucks, which consist of converting current diesel engines to run on a mixture of ethanol and diesel, making these trucks more sustainable. In addition, Vale has signed an agreement with Caterpillar to decarbonize mining operations, which includes testing large electric battery-powered trucks.</p> <p>In March 2025 (subsequent event), Vale and Wabtec Corporation signed an agreement to acquire 50 new locomotives for the Vitória-Minas Railroad and Carajás Railroad. These locomotives will be able to operate with a higher blend of biodiesel, which will reduce greenhouse gas emissions.</p>



In the photo: Off-highway mining truck

CASE STUDY: VALE (Brazilian multinational mining corporation)

c) Efforts to adapt the business model

Briquettes (c.1)

Iron ore briquettes are a new product developed by Vale. The production process operates at low temperatures and involves the agglomeration of iron ore using a technological binder solution, which gives the final product high mechanical strength. When used by steel producers, briquettes can contribute to an estimated potential reduction of up to 10%¹ in greenhouse gas emissions due to their unique characteristics and the possibility of eliminating the sintering process. Additionally, briquettes require less energy consumption during their production compared to traditional agglomeration processes.



Lower CO₂ emissions

The production of these briquettes emits less carbon dioxide compared to traditional agglomeration processes.



Water

No water is used to make the briquettes.



Lower emissions of other gases

The production of iron ore briquettes results in lower emissions of gases such as sulfur dioxide (SO_x) and nitrogen oxides (NO_x).



Production process

Briquettes have lower particulate emissions, and sand from mining tailings can be incorporated into the binder's production process.

Vale has two iron ore briquette plants at Tubarão Complex, which were both converted from pelletizing plants. The first plant is already in operation, while the second is scheduled to start up after 2027. In addition, a mobile briquetting unit has been operating at the same site since 2024. The production process is being enhanced, with consistent progress in product testing in blast furnaces and direct reduction furnaces, in collaboration with its clients.

Negotiations and Partnerships

In 2024, the Company advanced in its strategy of increasing briquette production in order to develop low-carbon solutions for steel production, particularly through the following partnerships:

Briquette plant in the United States. In March 2024, the Company, through its subsidiary Vale USA LLC, was selected by the U.S. Department of Energy to enter into a cooperative agreement involving a financial reimbursement mechanism under the Inflation Reduction Act. In December 2024, the Company concluded negotiations with the Department of Energy and began phase 1 of a project to develop an industrial-scale briquette plant in the state of Louisiana. The partial cost reimbursement mechanism under the Cooperative Agreement provides for up to US\$282.9 to be allocated to Vale, conditional on successful progress throughout the four phases of the partnership, until 2031. This iron ore briquette plant in the United States could be the first in the world to apply a patented cold briquette agglomeration process for direct reduction steelmaking.

Other partnerships: memorandum of understanding signed with Hydnum Steel, which includes evaluating the construction of a briquette plant in Puertollano, Spain; and renewal of a technical cooperation partnership with Midrex Technologies, Inc. to support the development and validation of iron ore briquettes produced via the direct reduction.

d) Current financial effects

The following table shows the financial impacts of decarbonization projects and costs related to carbon pricing expenses.

	Reference	December 31, 2024	Year ended December 31, 2024		Year ended December 31, 2024
		Balance Sheet	Income statement	Cash flows Statement	
		Property, plant and equipment	Depreciation	Costs and Expenses	Payments
Briquettes and Mega Hubs	c.1	288	(2)	(25)	(116)
Renewable energy	b.1	219	(18)	(5)	(17)
Energy efficiency	b.2	93	(12)	(2)	(5)
Low-carbon process inputs	b.3	41	-	(3)	(39)
Biofuels, low-carbon energy solutions and natural gas	b.4	26	(1)	(31)	(46)
Other decarbonization projects		23	(2)	(3)	(12)
Carbon pricing ²		-	-	(11)	(5)
Total		690	(35)	(80)	(240)

²Due to GHG emission regulations in Canada. The Company also has assets in other jurisdictions that have regulated carbon markets, such as the United Kingdom and Japan, for which there were no expenses related to this matter in the 2024.

e) Anticipated financial effects

The Company estimates that it may incur costs arising from carbon pricing mechanisms from US\$1 billion to US\$3.5 billion, measured at present value. These costs may impact the Company's income statement and cash flows substantially from 2030 onwards, therefore, over the long-term horizon as defined in [section 4](#). The amount and timing of disbursements will depend on the achievement of Vale's emissions targets and the significant uncertainties described in [section 9](#). For more details on the Company's targets, please refer to [section 10](#).

In the steel industry, the Company invests in its own technologies and partnerships for the transition from blast furnaces and has developed iron ore briquettes. These investments are estimated at up to US\$1 billion (present value) and are substantially linked to the construction and development of Mega Hubs. Disbursements will occur in the short (4%), medium (74%) and long term (22%), and will be recognized on the balance sheet as property, plant and equipment or investments in associates and joint ventures. In addition, Vale estimates research and development expenses of up to US\$250 (present value), which disbursements will occur in the short (44%) and medium (56%) term.

¹ Estimates of the reduction in greenhouse gas emissions associated with the use of iron ore briquettes were based on Vale's internal data, considering information from its own database and specific operating parameters. As these are estimates, the results may vary according to different application scenarios, technologies used and future operating conditions.

KEY TAKEAWAY

ISSB isn't just a reporting exercise; it's a **risk management** exercise.

Next Steps:

Review current internal data, bridge the gap between the Sustainability and Finance departments, and look at SASB industry standards for guidance



THANK YOU



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