

# Normas Internacionales IFRS S2

Transparencia y Resiliencia en la Divulgación de  
Sostenibilidad





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Cuenta con más de 15 años de experiencia profesional en gerencia de programas y proyectos de sostenibilidad. Ha asesorado diversas empresas del sector privado en Estrategias de ESG. Así mismo, ha liderado varios proyectos de cooperación internacional en temas de empoderamiento económico, superación de pobreza y construcción de paz en territorios pos-conflicto en Colombia y otros países de Latinoamérica.

Cristina tiene grandes fortalezas en el desarrollo de sistemas de monitoreo, evaluación y aprendizaje con enfoque de resultados; lo cual le ha permitido liderar los procesos de MEL con donantes como USAID, Unión Europea y otras agencias de cooperación.

- 1 Contexto general
- 2 Aproximaciones a las IFRS S2
- 3 Impacto en los Estados Financieros y reporte
- 4 Consideraciones en Colombia
- 5 Referentes

# Agenda

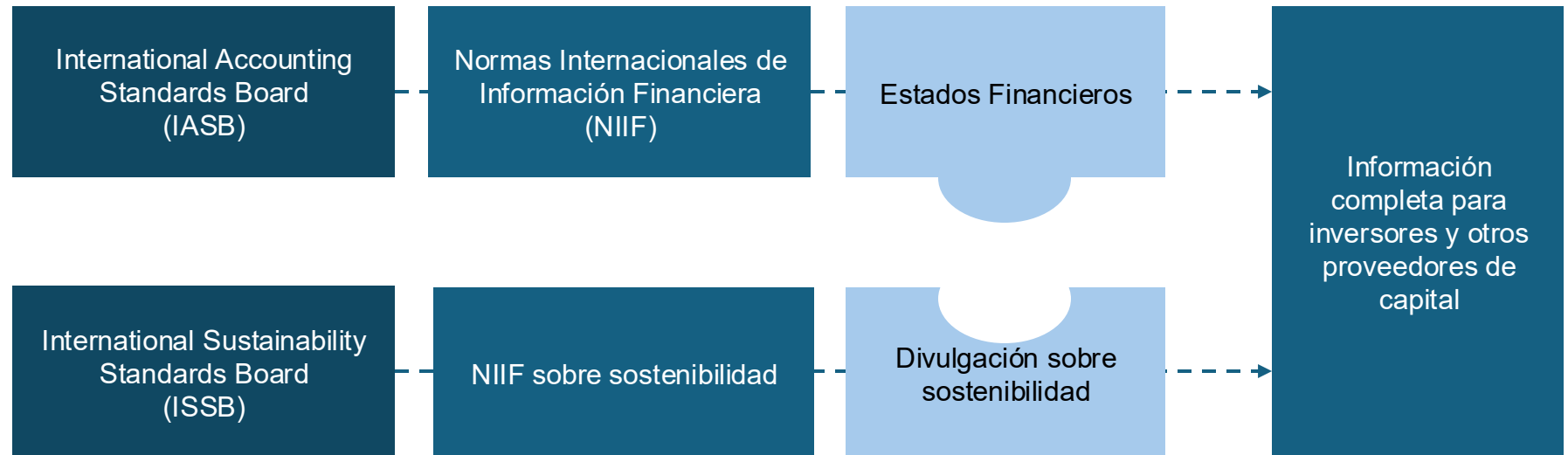
# 1

## Contexto General

# Transparencia y coherencia en la Divulgación

## La Fundación IFRS, el IASB y el ISSB

La sostenibilidad se ha convertido en una prioridad en los mercados de capitales debido a los riesgos climáticos y ASG que pueden impactar sus estados financieros.



La conectividad es impulsada por el Marco de Reporte Integrado y el Proyecto del IASB sobre “Comentarios de la Gerencia”.

La norma **IFRS S1** cubre los requerimientos generales para divulgar la información **financiera relacionada con la Sostenibilidad**.

La norma **IFRS S2** se centra en la divulgación de información relacionada con el **cambio climático**.

# IFRS S1 y S2: Consolidación de marcos y estándares

- La IFRS consolidó **tres iniciativas fundamentales en la evolución de la información corporativa en sostenibilidad**: el Reporte Integrado (IR), el Consejo de Normas de Contabilidad de Sostenibilidad (SASB) y el Consejo de Normas de Divulgación Climática (CDSB).
- **IR**: Enfoque en cómo las organizaciones crean valor a lo largo del tiempo.
- **SASB**: Métricas sectoriales y enfoque centrado en inversionistas.
- **CDSB**: Alineación con el marco contable financiero.

Consolidado en la Fundación IFRS



Los estándares ISSB se basan en marcos y estándares líderes en el mercado



**Esta integración permitió al ISSB desarrollar las normas IFRS S1 e IFRS S2 sobre una base sólida y reconocida internacionalmente.**

Estas, además adoptaron la estructura basada en cuatro pilares del Grupo de Trabajo sobre Divulgaciones Financieras Relacionadas con el Clima (TCFD), que ahora sirve como base organizativa de los requerimientos de divulgación.

# IFRS S2 – Información a Divulgar relacionada con el Clima



## Objetivo

Requerir que una entidad revele información sobre sus riesgos y oportunidades climáticos que puedan afectar los flujos de efectivo, acceso a financiación o costo del capital a **corto, medio y largo plazo**, útil para los usuarios de informes financieros al tomar decisiones sobre la asignación de recursos.

## Alcance

Esta norma aplica a:



**Los riesgos físicos y de transición** relacionados con el clima a los que está expuesta la entidad.



**Oportunidades relacionadas con el clima** disponibles para la entidad.



Los riesgos y oportunidades relacionados con el clima de los que no podría esperarse razonablemente que afecten a las perspectivas de una entidad quedan fuera del alcance de esta Norma.

**Origen:** 2021, UK

**Cobertura:** Global

**Usuarios:** Inversionistas y participantes del mercado de capitales

**Información financiera:** Sí

**Tipo:** Norma

# S1 y S2: Implementación conjunta

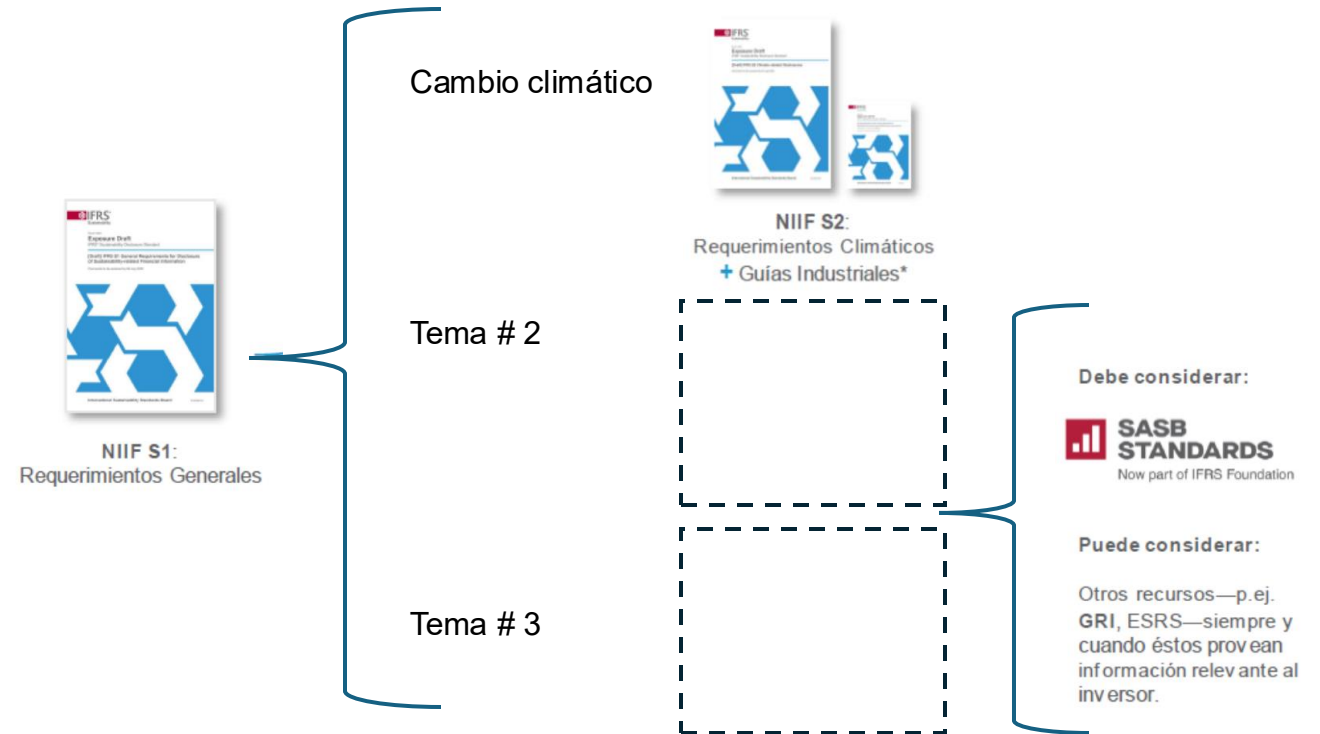
Las **NIIF S1** pide divulgar información sobre todos los **riesgos y oportunidades sobre sostenibilidad** que pudieran afectar las perspectivas de la entidad.

Si la entidad determina que **el cambio climático es uno de estos riesgos y oportunidades deberá utilizar la NIIF S2.**

Para otros temas, la entidad “deberá” considerar los tópicos y métricas de los Estándares SASB.

La entidad podrá considerar otros recursos – p. ej. Los Estándares GRI, Normas ESRS de Europa – siempre y cuando éstos provean información relevante al inversor.

En el siguiente esquema se refleja cómo se aplican las NIIF S1, S2 y SASB:



\* Nota: Con el fin de facilitar la adopción de las NIIF sobre Sostenibilidad, las guías industriales ilustrativas que acompañan a la NIIF S2 no serán obligatorias en el corto plazo, sin embargo, el ISSB ha dejado claro que estas serán obligatorias más adelante.

# NIIF 2: Divulgación climática



- Requiere divulgación de información material sobre **riesgos y oportunidades relacionados con el clima**, incluyendo riesgos físicos y transicionales.
- Se utiliza en conjunción con la **NIIF S1**.
- Incorpora las **Recomendaciones TCFD** – es decir, **las organizaciones que divulguen bajo NIIF S2 estarían cumpliendo con TCFD**.
- Solicita divulgación sobre **planes de transición, GEI Alcance 1-3 y análisis de escenarios climáticos**; tomando en cuenta provisiones de alivio para facilitar la implementación.
- Promueve la divulgación de riesgos y oportunidades industriales mediante **guías industriales ilustrativas** basadas en las métricas climáticas de los Estándares SASB.

## Gobernanza

Comprender los procesos, controles y procedimientos de gobernanza que una entidad utiliza para supervisar, gestionar y vigilar los riesgos y oportunidades relacionados con el clima

## Estrategia

Comprender los riesgos y oportunidades relacionados con el clima que podría esperarse razonablemente que afecten a las perspectivas de la entidad.

- Describir los riesgos y oportunidades que podrían esperarse razonablemente que afecten las perspectivas de la entidad.
- Explicar si son riesgos físicos o de transición.
- Especificar los efectos de cada riesgo en horizontes de corto, mediano y largo plazo.

Comprender la estrategia de la entidad para gestionar los riesgos y oportunidades relacionados con el clima:

Efectos de los riesgos y oportunidades sobre:

- El modelo de negocio y la cadena de valor
- La estrategia y la toma de decisiones (plan de transición)
- La situación financiera, los rendimientos, flujos de efectivo en el corto, mediano y largo plazo
- La resiliencia climática

## Gestión de riesgos

Comprender los procesos de una entidad para identificar, evaluar, priorizar y supervisar los riesgos y oportunidades relacionados con el clima, incluyendo si y cómo esos procesos están integrados e informan el proceso global de gestión de riesgos de la entidad

## Métricas y objetivos

Comprender el rendimiento de una entidad en relación con sus riesgos y oportunidades relacionados con el clima, incluido el progreso hacia cualquier objetivo relacionado con el clima que la entidad haya establecido y cualquier objetivo que deba cumplir por ley o regulación.

- Métricas relacionadas con el clima.
  - Gases efecto invernadero (GEI)
- Remuneración de los ejecutivos por la gestión de consideraciones relacionadas con el clima.
- Porcentaje de activos o actividades empresariales vulnerables a los riesgos físicos y de transición.
- Definición de objetivos relacionados con el clima.

# Características clave de la NIIF S2



## **Planes de transición:**

Pide divulgación de los objetivos de emisiones de gases de efecto invernadero (GEI) y el uso de esquemas de compensación.



## **Emisiones Alcance 1 - 3:**

Requiere la divulgación de emisiones de GEI alcance 1, 2 y 3; tomando en cuenta varias provisiones de alivio para GEI Alcance 3.



## **Resiliencia climática:**

Busca divulgación sobre la resiliencia de la organización ante diferentes escenarios climáticos; tomando en cuenta varias provisiones de alivio.

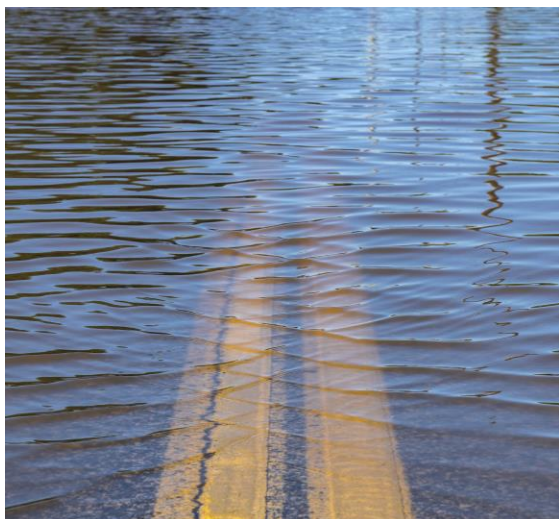
**Emisiones de Alcance 1:** Son las emisiones directas que resultan de las operaciones controladas por la empresa, como la quema de combustibles en sus instalaciones o vehículos.

**Emisiones de Alcance 2:** Son las emisiones indirectas resultantes de la generación de electricidad, vapor, calefacción y refrigeración que la empresa compre y consume.

**Emisiones de Alcance 3:** Son todas las demás emisiones indirectas que ocurren en la cadena de valor de la empresa, tanto aguas arriba (por ejemplo, la producción de materias primas) como aguas abajo (por ejemplo, el uso y disposición final de los productos).

En resumen, el **alcance 1** son emisiones directas, el **alcance 2** son emisiones indirectas por energía comprada, y el **alcance 3** son el resto de emisiones indirectas en la cadena de valor, según el Protocolo de GEI.

# Beneficios de la implementación de las IFRS S1 e IFRS S2



## Identificación de riesgos

Permiten a las organizaciones tener un panorama claro de sus riesgos e impactos para anticiparse y desarrollar respuestas estratégicas y facilitan el cumplimiento de futuras regulaciones en distintos mercados.



## Mejora en la toma de decisiones

Integrar la información sobre sostenibilidad y clima en los informes financieros proporciona una visión más completa y estratégica, facilitando decisiones más informadas y con visión de largo plazo.



## Fortalecimiento de la reputación y ventaja competitiva

Reportes sostenibles mejoran la percepción de responsabilidad e innovación, diferenciando a la organización.






## Acceso a capital y confianza del mercado




La adopción de estándares internacionales mejora la transparencia y credibilidad de la información, generando mayor confianza entre inversionistas y entidades financieras.



# Aproximaciones a las IFRS S2

# IFRS S2: Riesgos & Oportunidades Climáticas

Agudos	
	Tormentas
	Alta velocidad del viento
	Inundaciones

Crónicos	
	Cambio en las estaciones
	Olas de calor crónicas
	Aumento del nivel del mar

## Riesgos Físicos

Derivados de **eventos climáticos extremos** y **cambios graduales en el clima** que pueden afectar negativamente los activos, operaciones y cadena de suministro de una entidad.



### Político y Legal

Obligaciones, mandatos, impuestos, litigios.



### Tecnológico

Sustitución de tecnologías, transición, inversiones fallidas.



### De Mercado

Oferta y demanda de materias primas, productos y servicios.



### Reputacionales

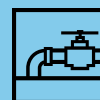
Percepción de consumidores, inversionistas.

## Riesgos de Transición

Asociados con el proceso de adaptación a una economía baja en carbono. Pueden surgir de nuevas políticas ambientales, tecnologías obsoletas, cambios en la demanda de productos y servicios, y la preferencia por opciones sostenibles.

## Oportunidades

Son ventajas potenciales que una entidad puede obtener al adoptar prácticas sostenibles, como la mejora en la eficiencia operativa, acceso a nuevos mercados, reducción de costos a largo plazo, atracción de inversiones, y fortalecimiento de la reputación corporativa.



Eficiencia en el uso de Recursos

- Reducción del costo de recursos.
- Mejoras en eficiencia operativa.
- Aprovechamiento de residuos.



Fuentes Energéticas

- Capacidad de acceder a energía renovable y de bajas emisiones.
- Reducción de dependencia a fuentes móviles.



Productos y servicios

- Innovación en productos y servicios sostenibles.
- Aumento de demanda de productos específicos
- Mejoras en la competitividad



Acceso a nuevos mercados

- Expansión en consumidores con conciencia climática y de sostenibilidad
- Aumento de la participación en el mercado
- Diversificación



Resiliencia

- Preparación ante posibles impactos
- Fortalecimiento de la cadena de suministro
- Reducción de costos operativos

# Riesgos & Oportunidades climáticas

Proceso de identificación y análisis de los riesgos y oportunidades relacionados con el cambio climático.

## Riesgos físicos



Precipitaciones extremas e inundaciones (A)



Vendavales (A)



Incendios forestales (A)



Desertificación (C)



Avenidas torrenciales (A)



Movimientos en masa y desprendimiento de material (A)

## Riesgos de transición



**Político y jurídico:** Aparición de políticas emergentes en torno a la disminución de emisiones de GEI



**Reputacional:** Deterioro de la imagen corporativa por fugas y aumento de las emisiones de GEI



**Mercado:** Cambios en la demanda de gas natural debido a adopción de nuevas tecnologías



**Político y jurídico:** Incumplimiento de requisitos legales ambientales y climáticos

## Oportunidades



**Eficiencia de recursos:** Mejora en los procesos de mantenimiento y control de fugas en los sistemas de transporte de gas



**Fuentes de energía:** Auto y cogeneración de energía a partir del gas natural



**Mercado:** Mayor demanda de gas natural como combustible de transición



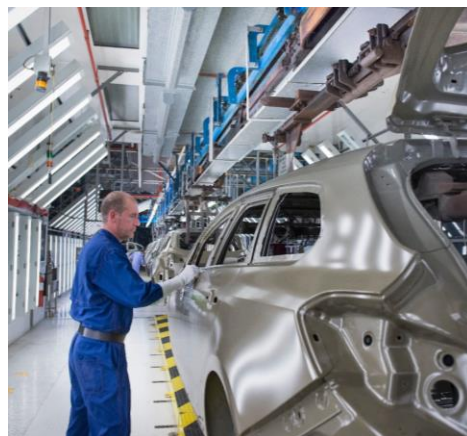
**Mercado:** Aumento de la demanda de GNV en el parque automotor de vehículos

# 70 Guías industriales ilustrativas



## Agricultura:

**Riesgo:** exposición a sequías que afectan los procesos productivos (escasez o abundancia de agua)



## Automotriz:

**Oportunidad:** Generar productos más eco-eficientes (mejor consumo de combustible)



## Petroleo y gas:

**Riesgo 1:** presiones regulatorias por mejorar la calidad del aire y reducir la huella de carbono.

**Riesgo 2:** Disposición de agua

## Otros sectores:

- Bienes de consumo
- Finanzas (bancos y seguros)
- Alimentos y bebidas
- Salud
- Infraestructura
- Tecnología y comunicaciones
- Transporte



# Impacto en los Estados Financieros y reporte

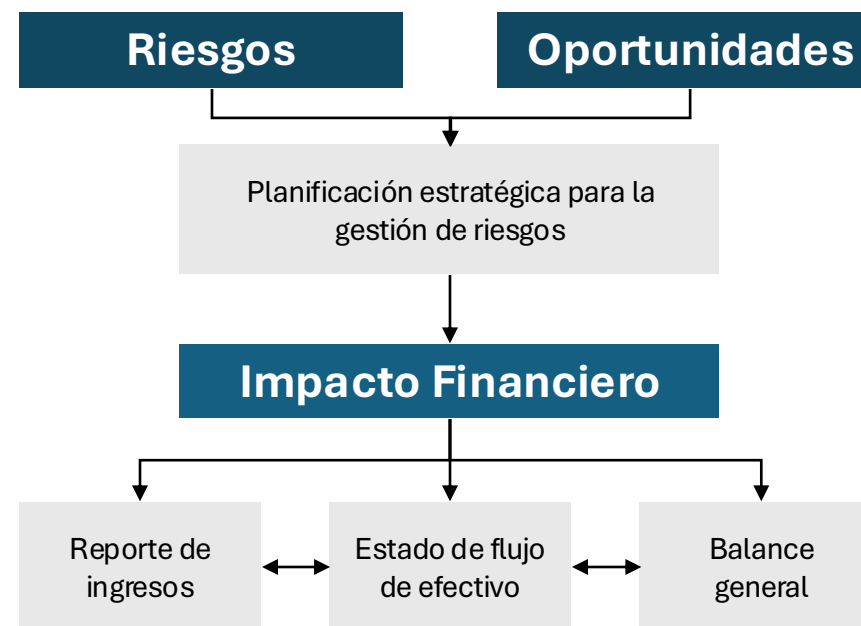
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# IFRS S1 y S2: Impacto en los estados financieros

## Impactos financieros

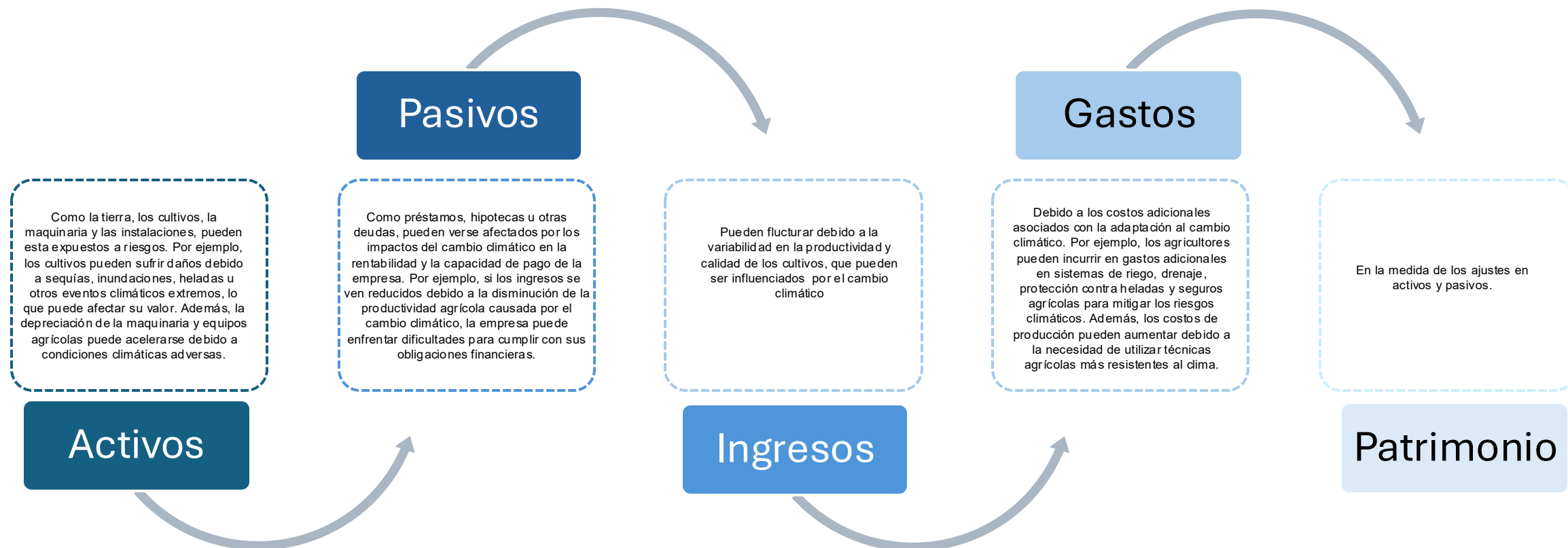
Son los efectos económicos que resultan de los **riesgos físicos** y de transición que pueden afectar la viabilidad financiera, la rentabilidad y la competitividad de las empresas. Algunos ejemplos incluyen:

1. Aumento de costos y/o reducción de la demanda de productos.
2. Cambios en cumplimiento, multas, fallos judiciales, nuevos impuestos y primas de seguros.
3. Depreciación, deterioro de activos y jubilación anticipada de activos.
4. Gastos de investigación y desarrollo de nuevas tecnologías.
5. Costos de implementación de nuevas prácticas y procesos



Para tomar decisiones financieras más informadas, los investigadores, prestamistas y aseguradoras deben entender cómo la planificación estratégica de la organización aborda los riesgos y oportunidades relacionadas con la sostenibilidad.

# Posibles efectos del cambio climático a revelarse



# Caso práctico: Vale (Brasil)

Letter from the CEO and from the Chairman of the Board

**1** Basis of preparation

**2** Organizational boundary

**3** Significant judgments and uncertainties

**4** Business model and value chain

**5** Corporate Governance

**6** Management of risks and opportunities

**7** Strategy

**8** Risks and opportunities

**9** Resilience

**10** Metrics and targets

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Assurance report



All financial data is presented in millions of United States dollar, unless otherwise stated

## 1. Basis of preparation and presentation

The sustainability-related financial information report of Vale S.A. ("Parent Company") was prepared in accordance with the International Financial Reporting Standards ("IFRS") as issued by the International Sustainability Standards Board ("ISSB") and referred to by the IFRS Foundation as the "IFRS Sustainability Disclosure Standards", as well as the Sustainability Disclosure Pronouncements issued by the *Comitê Brasileiro de Pronunciamentos de Sustentabilidade* ("CBPS").

In Brazil, the Brazilian Securities and Exchange Commission ("CVM") issued the *Resolução CVM No. 193/2023*, subsequently amended by *Resolução CVM No. 219/2024*, which requires public companies to disclose Sustainability-Related Financial Information starting in 2026, prepared according to the IFRS Sustainability Disclosure Standards.

### Connectivity with financial statements

This report should be read in conjunction with the Vale S.A.'s consolidated financial statements for the year ended December 31, 2024 ("[Financial Statements](#)"), prepared and presented in accordance with the International Financial Reporting Standards (IFRS), issued by the International Accounting Standards Board ("IASB"), currently referred to by the IFRS Foundation as the "IFRS Accounting Standards, and in alignment with the accounting practices adopted in Brazil, issued by the *Comitê de Pronunciamentos Contábeis* ("CPC"), approved by CVM.

The information presented in this report covers the 12-month period ended December 31, 2024, and refers to Vale S.A. and its subsidiaries ("Vale" or "Company"), consistent with the Financial Statements.

The information derived from the statement of financial position are translated into US\$ at the closing exchange rate, all other information are translated into US\$ at the average annual exchange rate.

The Company used the following exchange rates in 2024 to translate sustainability-related financial information.

	Closing rate	Average rate
US Dollar ("US\$")	6.1923	5.3920

### First-time adoption of international sustainability-related disclosures standards

The Company is disclosing this report for the first time, on a voluntary basis, and the following standards were used by Vale to prepare this report:

- IFRS S1/CBPS 01 – General Requirements for Disclosure of Sustainability-related Financial Information.
- IFRS S2/CBPS 02 – Climate-related Disclosures.

The IFRS Sustainability Disclosure Standards provide transition reliefs for the first annual reporting period in which an entity applies the standards. Vale has applied the following transition reliefs:

- Relief from the requirement to disclose comparative information.
- Relief from issuing the sustainability-related financial information report at the same time as the Financial Statements, which were issued on February 19, 2025.
- Only information on climate-related risks and opportunities are disclosed in accordance with the IFRS S2, applying the requirements of IFRS S1 in relation to the climate-related risks and opportunities disclosures.

Regarding industry-based metrics, Vale considered the IFRS S2/CBPS 02's Implementation Guide by Economic Sector, Volume 10 – Metals and Mining.

## 2. Organizational reporting boundary

This Sustainability-Related Financial Information report includes Vale S.A. and its subsidiaries, consistent with the Financial Statements.

To calculate greenhouse gas ("GHG") emissions, Vale uses the approach established by the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (GHG Protocol), as required by IFRS2, when applicable. Vale includes all Scopes 1 and 2<sup>1</sup> (market-based and location-based) emissions from operations and assets over which it has operational control, and its proportional share of joint opera-

tions. Any other emissions generated in the Company's value chain are reported as Scope 3 emissions.

The Company has operational control over all of its subsidiaries, and their emissions are classified as Scopes 1 and 2 (market-based and location-based). Conversely, it does not have operational control over any of its affiliates and joint ventures, and their respective emissions are classified as Scope 3. A list of investees controlled by the Company, as well as its affiliates and joint ventures, is presented in Note 16 to the Financial Statements.

## 3. Significant judgments and uncertainties

In the process of preparing this report, Management has exercised judgment in various areas, including the process of identifying sustainability-related risks and opportunities and identifying relevant information to report. In addition, the preparation of this report requires the use of estimates for certain amounts that cannot be measured directly. Estimates have been made where the sustainability information relates to

an entity in the value chain and needs to be estimated, is related to forward-looking information, or involves data limitations.

The details of critical judgments made by Management in preparing this report, as well as amounts that are subject to a high degree of measurement uncertainty, are included in the following sections.

Reference	Significant judgments and uncertainties
8	Internal carbon pricing in Strategic Planning
8	CO <sub>2</sub> e premium trend in Strategic Planning
8 and 9	Assumptions in climate scenarios
9	Carbon pricing
9	Climate scenarios – Transition risks and opportunities
9	Climate scenarios – Physical risks
10	Method for calculating GHG emissions
10	GHG-related metrics
10	Quantification of anticipated financial effects

<sup>1</sup>The definitions of the Scopes of the GHG inventory are described in the [Climate Change Policy](#)

# Caso práctico: Vale (Brasil) (Continua...)

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## 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%<sup>1</sup> 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 CO<sub>2</sub> 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<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>).



#### 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.

<sup>1</sup> 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.

### 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
<b>Briquettes and Mega Hubs</b>	c.1	288	(2)	(25)	(116)
<b>Renewable energy</b>	b.1	219	(18)	(5)	(17)
<b>Energy efficiency</b>	b.2	93	(12)	(2)	(5)
<b>Low-carbon process inputs</b>	b.3	41	-	(3)	(39)
<b>Biofuels, low-carbon energy solutions and natural gas</b>	b.4	26	(1)	(31)	(46)
<b>Other decarbonization projects</b>		23	(2)	(3)	(12)
<b>Carbon pricing<sup>2</sup></b>		-	-	(11)	(5)
<b>Total</b>		<b>690</b>	<b>(35)</b>	<b>(80)</b>	<b>(240)</b>

<sup>2</sup> Due 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.

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## Assessment of climate risks and opportunities

The Company assesses the materiality of climate risks and opportunities considering the likelihood and the magnitude of the respective financial impact.

Vale uses defines horizons to support its Strategic Planning and decision making:



The process of assessing the materiality of risks and opportunities considers qualitative and quantitative characteristics, and it involves the application of judgment and the use of assumptions, which are reassessed at each reporting period to reflect the best information available. The climate-related risks and opportunities, detailed in section 8 in this report, are presented below:

### Climate risks:

- TR1** Political, legal and market – Exposure to regulations related to GHG emissions, potentially resulting in reduced market share and increased operational costs. (Transition risk)
- TR2** Political and legal – Increased shipping costs due to the carbon tax imposed by the International Maritime Organization (IMO). (Transition risk)
- TR3** Reputational – Failure to meet the 2030 carbon target for Scopes 1 and 2 (market-based) emissions reductions; and increased scrutiny of voluntary commitments and GHG reductions, including but not limited to Scope 3 emissions reductions. (Transition risk)
- PR1** Intensification of extreme weather conditions, impacting operating sites, the production chain and communities. (Physical risk)

### Opportunities related to climate change:

- OP1** Increased demand for high-quality and more efficient products and agglomerates with the potential to reduce GHG emissions.
- OP2** Growing demand for nickel, copper and other energy transition metals.

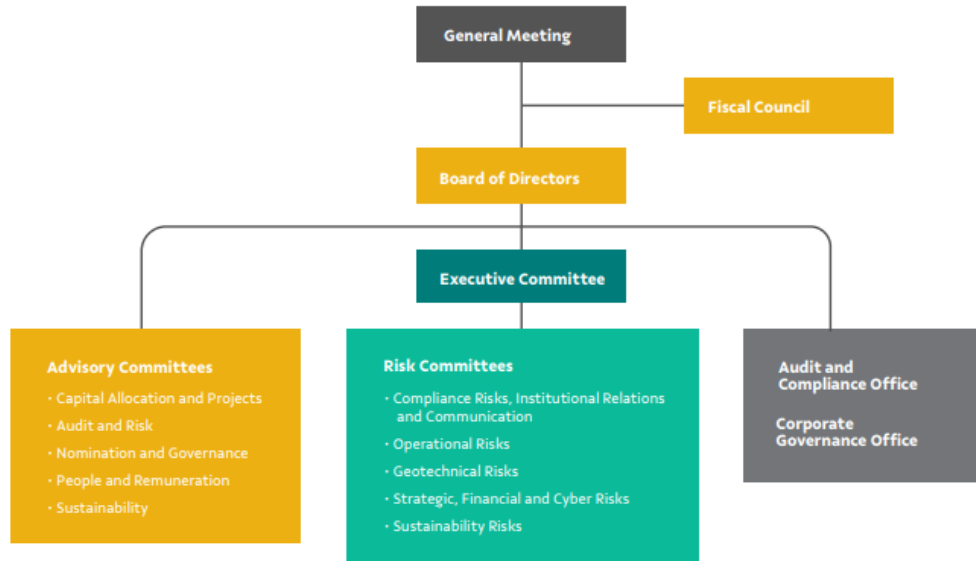
# Caso práctico: Vale (Brasil) (Continua...)

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## 5. Corporate Governance

Vale has been a true corporation since November 2020, that is, the Company is not controlled by a single shareholder nor a group of shareholders. This corporate format was also reflected in the restructuring of the Company's Bylaws and the internal regulations of its governance bodies.

To strengthen the governance structure's decision-making process, the Board of Directors is supported by five advisory committees, which are permanent and statutory bodies composed exclusively of board members. Some committees include external consultants who are specialists in the topics addressed.



### Sustainability-related governance

Vale has adopted a governance structure for overseeing sustainability-related risks and opportunities, supported by specific controls and procedures, which monitor progress toward targets. These controls are part of the Company's risk management and are integrated into the functions of its governance bodies. These mechanisms include the identification of climate risks and opportunities, the materiality assessment process, the development of strategy, metrics and targets, the monitoring of progress, and the establishment of sustainability-related policies. The Board of Directors and the Sustainability Advisory Committee have been engaged to ensure the appropriate skills and competencies to oversee climate-related risks and opportunities, and they might hire external experts to provide specific guidance and training on sustainability matters.

### Board of Directors ("BoD")

The Board of Directors is responsible for the Company's strategic direction, including oversight of sustainability-related risks and opportunities, encompassing environmental, social and governance matters. The Board of Directors approves the resources necessary for the effective management of sustainability-related initiatives.

The Board of Directors ensures that sustainability is integrated into the Company's strategy. In particular, it considers climate-related risks and opportunities when reviewing strategy, performance targets, and risk management processes and policies. It also considers how they are designed to respond to sustainability-related risks and opportunities and how they align with Vale's

business model and long-term strategy, including the transition to a low-carbon economy. In accordance with the Bylaws, the Board meets at least eight times a year, and may include climate-related matters on their agenda.

Vale's Board of Directors possesses advisory committees, which are responsible to proposing improvements related to their area of expertise, in accordance with the operating rules and duties established in each committee's internal regulations. The main bodies that advise the BoD on sustainability matters are the Audit and Risks Committee and the Sustainability Committee.

### Sustainability Committee

The Sustainability Committee advises the Board of Directors on integrating sustainability strategy into Vale's strategic planning. This involves aligning the Company's policies and practices, promoting discussions on the topic and seeking to ensure greater efficiency and quality in its decisions, approach and handling of critical issues that result in business risks or impacts, as well as evaluating proposals for investments in sustainability, in accordance with the duties defined in its [internal regulations](#). The Sustainability Committee meets according to an annual schedule. In 2024, it held eight meetings, including climate-related matters on the agenda.

### Audit and Risks Committee

The Audit and Risks Committee is responsible for assessing and monitoring the Company's risk exposure.

The committee advises the Board of Directors on risk management strategy, including analysis of associated

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## 6. Management of risks and opportunities

Vale's risk management is guided by its Risk Management Policy, which establishes methodological guidelines, response strategies, a governance framework and responsibilities for addressing risks. This framework is built on three essential pillars – people, processes and systems – to ensure an integrated and effective approach. This model underpins all stages of the risk management cycle, from identification and analysis to treatment, monitoring and reporting, ensuring informed decision-making aligned with governance best practices.

Vale employs the lines of defense model, based on global risk management standards such as ISO 31000, ISO 55000, COSO-ERM and, for its operational safety management system, Risk-Based Process Safety (RBPS).

In connection with Vale's Climate Change Policy, risks related to this matter are incorporated into the Company's Integrated Risk Map and classified as a high-priority topic in the corporate risk management process.

The process of managing and monitoring risks and opportunities related to climate change contributes to the development of Vale's strategic climate ambition, transition plan and capital allocation decisions, which consider any trade-offs associated with these risks and opportunities in the context of the Strategic Planning cycle.

Expenditures and investments related to risk mitigation efforts, business model adaptation and the development of new opportunities are approved by the Board of Directors, as part of the Company's annual planning cycle and the management of its commitments and obligations.

For more details on the liquidity risk process, see Note 21c to the Financial Statements.

### Climate-related risk methodology

Vale's risk management follows four stages: (a) Identification, (b) Analysis and Treatment, (c) Monitoring and (d) Communication and Reporting.

#### (a) Identification:

the risks that could impact the organization's objectives are mapped, whether their causes are under the Company's control. External and internal sources, new market, legal or regulatory requirements, analysis of similarities between operations, analysis of historical data and analysis of the risk map are used in a non-exhaustive way.

#### (b) Analysis and Treatment:

the identified risks are analyzed to define the best treatment approach. The analysis begins by assessing the situation and context, describing the worst-case scenario and identifying causes and impacts. A risk matrix is used for prioritization, which combines probability and severity, classifying risks as Very High, High, Medium or Low.

The severity of impacts is evaluated considering qualitatively and/or quantitatively the potential negative impacts arising from the risk materialization, considering five assessment dimensions: People (employees, contractors and communities), Environment, Social and Human Rights, Reputation and Financial. At this stage, appropriate treatment is also planned in line with risk appetite through the implementation of preventive and mitigating controls.

#### (c) Monitoring:

the controls are tracked to ensure that risk levels remain within the established limit. The tools used for monitoring include risk appetite alignment analysis, key performance indicators and key risk indicators. The emissions intensity per unit of production indicator, which monitors Vale's emissions profile per metric ton of output produced, mapped decarbonization projects, regulatory reviews and advocacy are examples of the monitoring Scope for climate-related risks.

#### (d) Communication and Reporting:

information related to the risk management process is communicated in a clear and structured way at different levels of the organization, according to the priority level of each risk. The main climate risks are communicated within the framework of the Low-Carbon Forum, where decisions are made to mitigate, transfer, accept or control the identified climate risks, as well as to capitalize on opportunities. These risks are also reported to the Audit and Risks Committee and the Sustainability Risks Executive Committee, as described in [section 5](#) of this report.

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## 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

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The Company adopts an integrated approach to matters related to climate, nature and the just transition, in different spheres of influence, through its climate pillars.

Spheres of influence:		Value shared with society	Value chain	Operations
<b>Decarbonization targets</b> ( <a href="#">section 10</a> )		Support the central objective of the Paris Agreement, to limit the average global temperature increase to below 2°C, while making efforts to limit the increase to 1.5°.	Reduce net Scope 3 emissions by 15% by 2035.  Contribute to the International Maritime Organization's 2023 strategy of achieving net-zero GHG emissions by around 2050.	Reduce absolute Scopes 1 and 2 (market-based) emissions by 33% by 2030.  Reach net-zero Scopes 1 and 2 (market-based) emissions by 2050.
<b>Supporting ambitions</b>				
<b>Climate pillars</b>	<b>Low-carbon solutions</b>	Supply products that support the transition to a low-carbon economy and embrace circularity, creating business models. Presented in <a href="#">section 8</a> , in the topic on business model adaptation	Portfolio of products and technological solutions that support the transition to the manufacturing of low-carbon steel and other metals. Presented in <a href="#">section 8</a> , in the topic on opportunities related to climate change.	Efficient allocation of capital to implement low-carbon fuels and technologies. - Obtain 100% of electricity from renewable sources globally by 2030. In Brazil, 100% of Vale's power consumption has come from renewable sources since 2023. Presented in <a href="#">section 10</a> , in the topic on climate-related targets. - Improve global energy efficiency indicator by 5% by 2030. Presented in <a href="#">section 10</a> , in the topic on climate-related targets.
	<b>Resilience</b>	Generate positive social and environmental impacts, in line with climate strategy. Presented in <a href="#">section 9</a> , in the topic of adaptation and resilience efforts.	Develop the ability to assess and mitigate climate change-related risks in the Company's supply, logistics and value chains. Presented in <a href="#">section 9</a> .	Assessment, monitoring and management of physical climate risks, protecting workers, operational assets and local communities. Presented in <a href="#">section 9</a> .
	<b>Partnerships and investments</b>	Invest in technological and scientific solutions to global climate-related problems. Presented in <a href="#">section 8</a> .	Partner with suppliers and clients to mitigate investment risks, collaborate on solutions to shared challenges, and support the transition of the metals and mining value chain. Presented in <a href="#">section 8</a> .	Strategic partnerships to accelerate the study and implementation of technological solutions and new fuels in operations. Presented in <a href="#">section 8</a> .
	<b>Transparency and engagement</b>	Advocate for robust climate regulation and policies, including carbon targets and markets.	Actively collaborate in industry groups and initiatives and support technical studies.	Commitment to monitoring and verification processes, promoting transparency in the identification and disclosure of climate risks and opportunities.

# 4

## Consideraciones en Colombia

# Consideraciones especiales durante la transición en la adopción de las IFRS S1 e IFRS S2

## Aspectos Generales

	Consideración
<b>Fecha de entrada en vigor</b>	1 de enero de 2024
<b>Información Comparativa</b>	No se requiere durante el primer año
<b>Especificidades para la IFRS S2</b>	<ul style="list-style-type: none"> <li>Las entidades pueden optar por divulgar solo riesgos y oportunidades climáticos.</li> <li>Se permite el uso de métodos de medición previos para reportar GEI.</li> <li>No es obligatorio reportar emisiones de alcance 3 durante el primer año.</li> </ul>
<b>Divulgación diferida (Solo IFRS S1)</b>	<ul style="list-style-type: none"> <li>Debe realizarse dentro del mismo periodo de reporte.</li> <li>Debe estar claramente identificada como parte del conjunto de información de sostenibilidad.</li> <li>La organización debe explicar el motivo del diferimiento y garantizar que no compromete la utilidad, consistencia ni comparabilidad de la información.</li> </ul>

## Regulación en Colombia

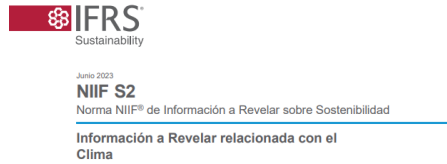
	Consideración
<b>Normativa actual</b>	Circular 031 de 2021 de la Superintendencia Financiera de Colombia (SFC)
<b>Requisitos</b>	Divulgación de información ESG siguiendo el marco TCFD y las métricas SASB
<b>Transición</b>	<ul style="list-style-type: none"> <li>La normativa se mantendrá hasta que la SFC disponga lo contrario o se normalicen las IFRS S1 e IFRS S2</li> <li>Se espera que reportar bajo TCFD y SASB facilite la transición hacia las IFRS S1 y S2.</li> </ul>



# Referentes

# 5

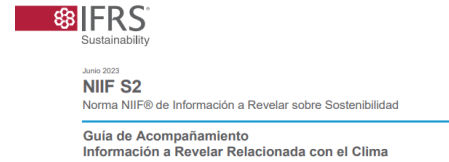
# IFRS S2 – Cambio Climático



Consejo de Normas Internacionales de Sostenibilidad

## [Norma IFRS S2](#)

Establece los requisitos para que las entidades divulguen información sobre sus riesgos y oportunidades relacionados con el clima.



Consejo de Normas Internacionales de Sostenibilidad

## [Guía de Acompañamiento IFRS S2](#)

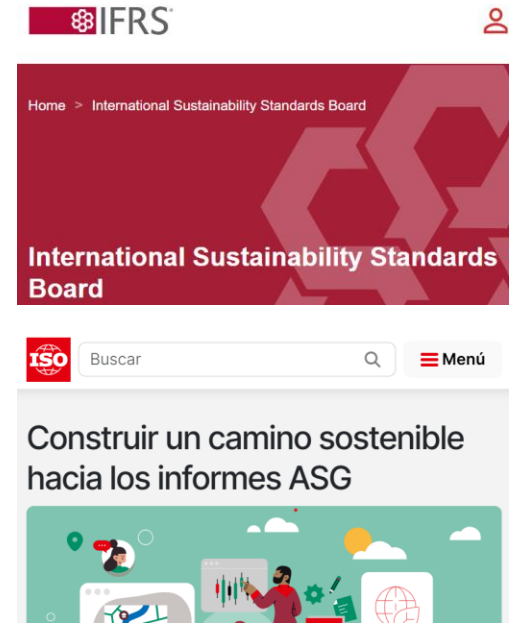
Proporciona orientación adicional para la implementación de la norma y cómo aplicar los requisitos de divulgación.



Consejo de Normas Internacionales de Sostenibilidad

## [Fundamentos de las conclusiones de la IFRS S2](#)

Explica las razones detrás de las decisiones tomadas en la elaboración de la norma. Proporciona contexto y justificación.



Páginas Web: [IFRS](#) e [ISO](#)

Sitios oficiales de la fundación IFRS y la Organización Internacional de Normalización (ISO), donde se pueden encontrar las normas, noticias y recursos.

# TCFD e IFRS S2



## Recomendaciones del TCFD

Proporcionan un marco para que las organizaciones divulguen información sobre los riesgos y oportunidades relacionados con el clima. Se estructuran en cuatro áreas clave: gobernanza, estrategia, gestión de riesgos, y métricas y objetivos



## Guía de aplicación de las recomendaciones del TCFD

Guía de contexto y sugerencias para la implementación de las recomendaciones del TCFD, destacando consideraciones para los sectores más afectados por el cambio climático.



## Guía en establecimiento de métricas, objetivos y planes de transición.

Define las métricas que las organizaciones deben monitorear para evaluar su progreso, establece guías para fijar objetivos cuantitativos y cualitativos, y provee una estructura con acciones y plazos para alcanzarlos.



## Comparación entre IFRS S2 y TCFD

Muestra las diferencias y similitudes entre los requisitos de divulgación de la norma IFRS2 y las recomendaciones del TCFD. Y los puntos clave para cumplir con los requisitos de divulgación.

# Materiales de apoyo para el uso de NIIF S1 y S2

## Comparativo NIIF S2 y TCFD

Este [documento](#) compara y contrasta los requerimientos de divulgación de la NIIF S2 con las Recomendaciones TCFD

## Interoperabilidad NIIF S2 y GRI

Esta [publicación](#) compara y contrasta los requerimientos de divulgación sobre gases de efecto invernadero de la NIIF S2 con los Estándares GRI

## Estándares SASB en NIIF S1

Esta [guía](#) explica cómo utilizar los Estándares SASB para cumplir con los requerimientos de divulgación industrial de la NIIF S1.

## Biodiversidad en NIIF S2

Este [material](#) provee ejemplos sobre cómo considerar aspectos sobre biodiversidad y naturaleza en la divulgación alineada a NIIF S2.

## Marco Reporte Integrado y NIIF S1/S2

Este [recurso](#) mapea los requerimientos de divulgación de NIIF S1 y S2 a los contenidos centrales de Marco de Reporte Integrado

## *ISSB Knowledge Hub*

Este [repositorio](#) contiene recursos propios y materiales desarrollados por nuestro aliados para facilitar el entendimiento y uso de las NIIF sobre sostenibilidad

# Gracias

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