

Tangible guidance for making ISSB
and TCFD climate-related disclosures
in emerging markets

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Part 2

Emerging Economies Climate Risks and Best Practices for Climate Risk Disclosure

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List of abbreviations

CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
G20	The Group of Twenty (G20)
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse gases
GICS	Global Industry Classification Standard
GRI	Global Reporting Initiative
IEA	International Energy Agency
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IPCC	Intergovernmental Panel on Climate Change
ISSB	International Sustainability Standards Board
NGFS	Network for Greening the Financial System
PCAF	Partnership for Carbon Accounting Financials
PRI	Principles of Responsible Investment
PwC	PricewaterhouseCoopers International Limited
SASB	Sustainability Accounting Standards Board
TCFD	Task Force on Climate-Related Financial Disclosures
UNEP FI	United Nations Environment Programme Finance Initiative
UNFCCC	United Nations Framework Convention on Climate Change
VRF	The Value Reporting Foundation



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Executive summary

The growing awareness of the profound impacts of climate change has prompted a worldwide focus on climate-related disclosures due to the urgent need to address the challenges posed by climate risks and opportunities. Climate change affects sectors, nations, regions, and financial systems, making it a critical consideration for businesses, investors, regulators, and policymakers.

The realisation of the wide-ranging consequences of climate change has led to an increased understanding of the importance of transparency and accountability in disclosing climate-related information. As a result, many countries have taken legislative action to enforce climate-related disclosures, leading to the development of various disclosure requirements and frameworks. This global attention on climate-related disclosures reflects the collective effort to foster sustainable finance practices and mitigate the adverse effects of climate change, making it an integral part of the broader sustainability agenda for organisations and economies worldwide.

The TCFD was established by the Group of Twenty (G20) Financial Stability Board in 2015 to address climate risk pricing and capital allocation for financial stability. Its 2017 final report provided voluntary disclosure recommendations to ensure consistent and comparable climate-related information in financial reports for investors, lenders, and insurers. In October 2021, the TCFD updated its implementation guidance, introducing transition plans and clarifying financial metrics and targets. The TCFD has gained over 2,700 global supporters, including corporates, investors, and governments. In July 2021, the G20 Finance Ministers and Central Bank Governors endorsed the TCFD, aiming for global coordination on reporting standards. The fifth status report from October 2022 revealed progress in disclosure but noted the need for further improvement.

The TCFD has made a major contribution to improving climate-related financial disclosures worldwide by serving as the foundation for many climate-related and sustainability disclosure or reporting frameworks and regulations. A notable achievement has been the recent finalisation of the IFRS Sustainability Disclosure Standards on General Requirements for Disclosure of Sustainability-related Financial Information (IFRS S1) and Climate-related Disclosures (IFRS S2), often referred to as ‘the ISSB standards’. The ISSB standards and, in particular, the IFRS S2 climate standard represent the successors to the TCFD, relying on its framework and four pillar structure.

In parallel, the ISSB was established in November 2021 to deliver a global baseline of sustainability-related disclosure for global capital markets. On 26 June 2023, the ISSB issued its inaugural standards—IFRS S1 and IFRS S2—aimed at enabling companies to deliver decision-useful, consistent and comparable information to investors glob-

ally in a cost-effective and assurable way. IFRS S1 requires companies to disclose sustainability-related risks and opportunities, while IFRS S2 focuses on climate-related risks and opportunities. Both standards fully integrate the TCFD recommendations. Now issued, the ISSB will support adoption by collaborating with jurisdictions and companies, including creating a Transition Implementation Group and launching capacity-building initiatives. The ISSB will also continue working with jurisdictions and the Global Reporting Initiative (GRI) to facilitate efficient reporting when combining the standards with other frameworks.

This report, divided into three parts, offers comprehensive guidance for companies in emerging markets on each pillar of the TCFD recommendations, all of which have been incorporated into the IFRS S2 standards. The report references IFRS Sustainability Disclosure Standards, as well as recommendations and guidance issued by the TCFD where applicable. The aim is to assist companies in making climate-related financial disclosures. These resources address key questions, outline pathways for progress, and show practical case study examples to illustrate real-world disclosures. Together, these contributions aim to empower financial institutions with the knowledge and tools needed to effectively navigate climate-related financial disclosures and contribute to a more sustainable future.

Financial institutions in emerging economies play a critical role in shaping the future of sustainable development. It is essential for these organisations to embrace climate-related financial disclosures so as to proactively manage risks and seize opportunities. The TCFD and ISSB provide robust standards for organisations to assess and disclose climate-related risks and opportunities. By adopting and implementing IFRS S2, which incorporates the core recommendations or pillars of the TCFD framework, emerging economies can enhance their resilience, attract sustainable investments, and contribute to the global transition toward a low-carbon economy.

The report explores best practices and summarises industry knowledge for climate-related risks and opportunity disclosures. This report was designed both for financial users who are developing climate-related financial reports and for decision-makers within their organisation. By fostering a deeper understanding of climate-related implications, this resource aims to bolster sustainability efforts and facilitate more resilient decision-making for a better future.

As a result, this report aspires to be a resource for policymakers and financial institutions, as well as organisations just starting out on their climate journey and other stakeholders in emerging economies. By harnessing the insights presented in this report, participants can strengthen their climate risk management practices, facilitate informed decision-making, and ultimately contribute to the sustainable growth and development of their respective economies.

In summary, the objectives of this report are as follows:

1. Provide participants with a comprehensive overview of climate risks and opportunities in emerging economies, enabling them to develop a nuanced understanding of the challenges and potential responses to these challenges.
2. Highlight best practices for climate-related financial disclosure, offering participants practical guidance to effectively integrate climate-related financial considerations into their reporting processes.
3. Support policymakers and financial institutions in creating an enabling environment for climate risk management and sustainable finance in emerging economies.
4. Foster international collaboration and knowledge-sharing, facilitating the adoption of standardised approaches to climate-related financial disclosures in emerging economies.

With a focus on financial institutions in emerging economies, this report aims to empower participants to embrace climate resilience, seize opportunities for sustainable development, and contribute to the global efforts in combating climate change.

3. Principles for disclosure

The purpose of disclosure is to provide decision-useful information to report users. This is already an established concept in corporate reporting. In terms of climate-related disclosure, information is decision-useful when it is used by report users to make decisions about the reporting organisation. In particular, investors are looking for data that can allow them to appropriately price risks and gauge opportunities so as to effectively allocate capital. To ensure information is decision-useful, reporting organisations should apply principles for effective disclosure. Reporting frameworks include principles for effective disclosure that are designed to elicit high-quality and decision-useful information for investors. In a changing reporting landscape, with evolving reporting requirements and deeper understanding of the impacts of climate change, these principles establish foundational expectations that will help to maintain coherence and consistency in disclosure. When establishing the necessary internal structures and processes to identify, assess, manage, and disclose climate-related risks and opportunities, these principles should be applied to ensure that the final information disclosed is reliable and complete.

The TCFD principles for disclosure (Table 1) also assist ISSB-aligned reporting. These seek to encourage the reporting of decision-useful information that is clear, consistent, comparable, and reliable. Together, these principles are designed to help reporting organisations connect climate-related issues to their financial reporting.

Table 1: TCFD principles for disclosure, ([TCFD, 2022](#)).

Fundamental Principles for Effective Climate-Related Financial Disclosure
Principle 1: Disclosures should present relevant information
Principle 2: Disclosures should be specific and complete
Principle 3: Disclosures should be clear, balanced, and understandable
Principle 4: Disclosures should be consistent over time
Principle 5: Disclosures should be comparable among organisations within a sector, industry, or portfolio
Principle 6: Disclosures should be reliable, verifiable, and objective
Principle 7: Disclosures should be provided on a timely basis

Transparency is an essential element of credible disclosure. Information that is published should be reliable and objective, which means that it should be neutral and free from error. It should also be balanced. This latter attribute involves reporting on the negative impacts of climate or the lack of progress towards targets, and not just focusing on successes. In addition, disclosure needs to be consistent and comparable. Ensuring

consistency in the collection and disclosure of data is key to achieving year-on-year comparability. For example, it would be difficult to understand an organisation's progress towards their targets if the methodologies applied to the calculation of the data is continuously updated or changed.

Additionally, consistency is also expected between multiple organisations within a single reporting period, making them comparable within either their sector or geography. This can be achieved by using international or sectoral standards that promote consistent approaches across the market. Additionally, data need to be clear and understandable to the user to make it useful for decision-making. By using plain language that is free from jargon and ensuring that reports are easy to navigate and read, organisations can effectively communicate with their intended audience. Finally, data that are verifiable minimise the risk of misstatement or bias. Verifiable information is characterised as information that can be tested and confirmed. This can be achieved by providing supporting evidence of the data trail from source to final disclosure, including the systems and processes in place. By having robust and documented data structures and processes, organisations should be able to trace data to verify their accuracy and validate the conclusions that arise from them.

Mainstream reporting and financial materiality

The “general purpose financial reports”, or “mainstream financial report”, is the publicly available annual reporting package in which organisations are required to deliver their audited financial results under the corporate, compliance or securities laws of the country in which they operate ([CDSB, 2019](#)). The mainstream report is fundamental to efficient capital allocation as it provides capital providers (i.e. investors and lenders) with material information about the performance, position, and future prospects of an organisation. Information as deemed material to capital providers “if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports, which include financial statements and sustainability-related financial disclosures and which provide information about a specific reporting entity” ([IFRS, 2023a](#)). Under IFRS S2, it is also recommended that organisations preparing to disclose climate-related financial disclosures should include this information in the mainstream report to enhance the understanding of climate-related risks and opportunities for capital providers. They also note that the internal processes and controls used in the preparation and disclosure of mainstream reports should be applied to climate-related information to promote rigour and credibility ([TCFD, 2017](#)). It is therefore vital that companies disclose material information about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects” ([IFRS, 2023a](#)).

4. Practical steps: developing climate-related financial disclosure in emerging economies

This section provides guidance on how organisations can get started with the ISSB standards which incorporate the TCFD core recommendations, including how to adjust or create internal processes, design action plans, and disclose relevant information in annual reports. Each section introduces practical actions that organisations can take, answers some frequently asked questions, and provides examples of different approaches taken by banks from around the world. Financial institutions in emerging economies can use this guidance to build robust climate-related processes to appropriately identify and manage their exposure to the transition and physical risks outlined in Chapter 2 of this report. The good practices discussed in this guidance should be considered in the context of the unique nature of each local economy and organisation. Therefore, each organisation will need to decide the best course of action and where to begin. Table 2 provides an overview of the key questions that this guidance seeks to answer. Each of the questions in the table are expanded upon with specific examples and/or detailed information to assist firms in developing their climate-related financial disclosure.

In addition, the ISSB has also published accompanying guidance, along with illustrative guidance and examples to support companies in applying both IFRS S1 and S2. Links to these guidance materials have been included: [Accompanying Guidance on General Requirements for Disclosure of Sustainability-related Financial Information—IFRS S1](#); [Accompanying Guidance on Climate-related Disclosures—IFRS S2](#).

Table 2: Overview of key questions in relation to TCFD core recommendations and IFRS S2 core content inspired by multiple sources and curated by UNEP FI for this report in 2023.

Sub-section	Key question
Getting Started	Where should we begin?
	Who in the organisation should lead the implementation of the recommendations under IFRS S1 and S2?
Governance	How involved should senior leadership be in this process?
	How do we engage with senior leadership on this topic?
	What does “good” corporate governance on climate-related matters look like?

Strategy	How do you identify material climate risks and opportunities?
	How do we start a scenario analysis?
	Which scenarios should be used in scenario analysis?
	What data should be used? And where can these data be found?
	Are there any resources that can help us start a scenario analysis?
	What are “transition” plans?
Risk Management	What are the special characteristics of climate-related risks that need to be considered in the risk management process?
	How should climate-related risks be integrated into existing risk management processes?
	How are climate-related risks drivers of existing risks?
	Is there any guidance on climate-related risk management processes?
Metrics & Targets	What metrics should we use?
	How do we collect and disclose material metrics?
	What greenhouse gases (GHG) emissions should we calculate and disclose?
	What should our targets be?
	How do we obtain the data needed to report metrics and set targets?
Additional Considerations	How much information should be disclosed?
	How can climate-related information be connected to financial information?
	What milestones should we follow in developing and writing our climate-related financial disclosure?

4.1 Getting started

With a number of complex elements that reporting organisations need to consider in order to disclose climate-related information that is useful for decision-making, it can be difficult to know where to get started. Before meaningful climate-related information can be disclosed, an organisation must first consider the internal structures and processes required, as well as integrate climate assessment and management into its business activities. Figure 10 presents the practical steps companies might take to prepare for reporting information that is aligned with the requirements under IFRS S1 and S2. This diagram is based on the checklist for laying the groundwork for effective climate disclosure. It highlights eleven preliminary steps that organisations can take to adopt the requirements under IFRS S2 and prepare for disclosure ([CDSB & SASB, 2019](#)). Building on this checklist, this guidance will discuss these steps in more detail.



Figure 1: Practical steps towards implementation, ([CDSB & SASB TCFD Implementation Guide, 2019](#)).

Where should we begin?

It is important to recognise that it will take time to implement all the elements of the IFRS S1, S2 and that of the TCFD. Taking a phased and iterative approach towards implementation is a useful way to break down the elements into manageable parts, especially when technical capacity and resources may be lacking. This iterative and phased approach will require a clear plan for implementation. This plan should account for, and manage, the organisation's limitations by structuring the activities that need to happen across a defined timeframe including when the requirements may be mandatorily effective for the organisation as determined by its regulators. Ideally, this plan should be communicated in the disclosure to demonstrate where the organisation intends to address gaps in disclosure.

In many cases, an organisation is not starting from zero and they should leverage existing internal structures and processes, especially if they already include climate-related matters. By completing a gap analysis of existing processes and disclosures, organisations can identify what is already in place and what needs to be amended or where new systems need to be established. When completing this gap analysis, organisations may ask the following questions:

- Does the board have a delegated sustainability/CSR committee that could include climate-related risks and opportunities in its oversight mandate?
- What is the existing enterprise-wide risk management process? How can this be adapted to include climate-related risks, or does a new process need to be developed?
- Are you already capturing climate-related data? If yes, how can this data be used for the purpose of climate-related financial reporting?

- Do you report to the [Carbon Disclosure Project](#) (CDP) or other reporting frameworks? CDP has aligned its questionnaire to include the recommendations under [IFRS S2](#). Other reporting organisations, including the [GRI](#) and the [Value Reporting Foundation](#) (VRF), have also mapped their resources to these same recommendations.

Another consideration concerns which teams will be involved in the drafting and development of climate disclosures. As the TCFD recommendations and ISSB standards aim to provide perspectives on the management of climate risks and opportunities throughout an organisation, many different groups will have important inputs into the reporting process. These include senior management (discussed below), business line staff, modelling teams, and many others. However, when it comes to the drafting of the report itself, a few specific teams are typically given responsibility for its compilation. Depending on the organisation, these teams are usually part of the sustainability or risk function. More specifically, enterprise sustainability risk management and climate risk functions are commonly involved in the development of the report. Where these dedicated teams are not yet established, climate disclosures drafting becomes a part-time responsibility of a diverse set of sustainability and risk colleagues.

Who in the organisation should lead the implementation of IFRS S2?

Climate-related matters are often characterised as an ESG issue and, as such, are placed within sustainability functions to manage. However, the TCFD recommendations/ISSB standards cover and connect different business functions and will therefore require input across the organisation. For example, other functions that will need to be involved in implementing the TCFD recommendations/ISSB standards alongside the sustainability function include the finance and accounting functions as well as the risk management function. Ultimately, who “leads” on the implementation of the requirements under IFRS S1 and S2 will depend on the organisation’s structure and technical capacity.

Organisations should consider forming an internal working group to bring together multiple functions and departments. Different professional experience and skills, as well as different working knowledge of the business, are key in understanding an organisation’s exposure to climate-related risks and can improve an organisation’s overall approach to climate-related risk. If an organisation has different divisions, it would be prudent to also include representatives who understand each of the business units to ensure all elements of the business are considered during the implementation process.

Different organisations may take different approaches to setting up internal working groups, including “top-down” approaches where senior leadership direct the strategy, or “bottom-up” approaches where functions and departments come together to develop a plan. In either approach, it is important to establish a climate/TCFD/ISSB “Champion”, preferably in senior management or on the board. This individual can set the tone from the top, and lead on setting and approving the climate disclosure implementation strategy.

4.2 Governance

To achieve transparency and enable stakeholders to understand an entity’s governance processes regarding climate-related risks and opportunities, it is important for organisations to report the role of the board and senior management in overseeing and managing these issues. This includes whether they are given appropriate attention in decision-making processes. Effective governance processes, controls and procedures companies use to monitor, manage and oversee climate-related risks and opportunities are important for investors to make assessments about the level of engagement throughout the organisation.

Organisations should not only disclose how involved the board and senior management are in identifying, assessing, and managing climate-related risks and opportunities, but they should also demonstrate how these issues are incorporated when setting the business strategy, major plans, risk management policies, and annual budgets. These issues should also be incorporated when reviewing and making decisions on an organisation’s performance objectives and major financial plans, including significant capital expenditures, acquisitions, and divestitures.

IFRS S2 is broadly consistent with the TCFD Recommended Disclosure a) and b) but requires the disclosure of more detailed information, for example, on how the governance body(s)’ or individual(s)’ responsibilities for climate-related risks and opportunities are reflected in the terms of reference, mandates, role descriptions and other related policies applicable to that body(s) or individual(s).

Table 3: Overview of requirements under IFRS S2 for governance, ([IFRS, 2023d](#)).

Understand the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities.	A. An entity shall disclose information about the governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of climate-related risks and opportunities [...]
	B. An entity shall disclose information about management’s role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities [...]

How involved should senior leadership be in this process?

The active engagement of senior leadership, including the board and executives, is vital for successfully embedding climate change considerations into the organisation-wide governance and risk management processes. While the board may not have day-to-day management responsibilities, there is an expectation that they stay aware of the potential financial implications of climate change for the organisation and regularly receive updates on its performance and position. This necessitates well-defined information flows and oversight mechanisms between the board, senior management, and other business functions and units.

The senior management, on the other hand, typically holds greater management responsibilities for climate-related matters. To facilitate effective management, the organisation should identify a designated individual (e.g. CEO) or a delegated management committee responsible for overseeing climate-related aspects across the business. This includes overseeing the risk management process, strategic decision-making, and the approval and monitoring of targets and associated metrics.

A clear internal governance structure is equally essential, encompassing wider business functions and units. This structure may involve existing committees and functions, along with the possibility of establishing new, dedicated bodies to address climate-related topics. The roles and responsibilities within this governance structure should have climate-related matters explicitly included in their mandates, all of which should be well-documented.

When preparing these disclosures, organisations should avoid unnecessary duplication, following IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information. If oversight of sustainability-related risks and opportunities is managed on an integrated basis, integrated governance disclosures should be provided instead of separate disclosures for each sustainability-related aspect.

How do we engage with senior leadership on this topic?

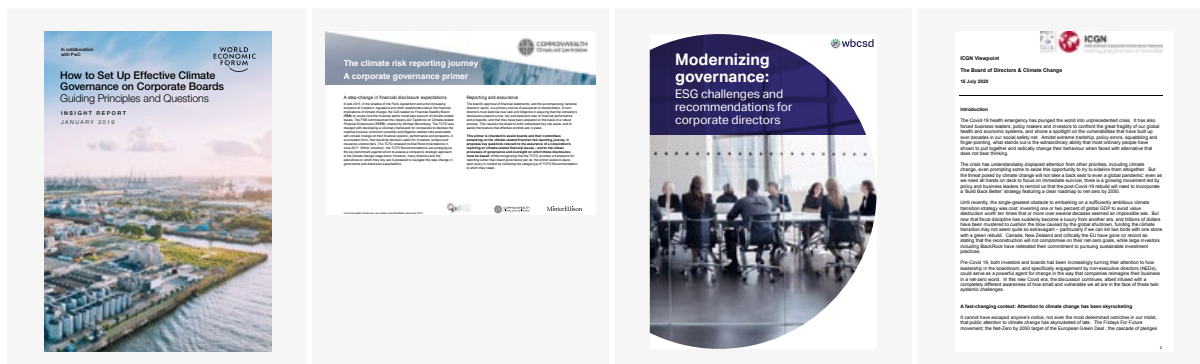
Having senior leadership involved and engaged in these processes is essential if an organisation is to successfully embed climate change into organisation-wide governance and risk management processes.

Crucial to the engagement of senior leadership is education. At the very least, the board and senior management should be informed about the basics of climate change, its risk manifestations, and the potential implications for the business model and strategy. Given the complexity of climate change, it may not be that senior leadership become experts in this field, but it is recommended that they take the necessary steps to ensure they are sufficiently informed about the climate-related risks and opportunities that their business is exposed to.

Organisations may also decide to align incentivisation and remuneration policies with climate-related metrics and outcomes. This could entail an assessment to address where existing incentive schemes may need to be amended to ensure that they are aligned with the business-wide climate change strategy. Including climate-related matters into incentivisation and remuneration policies demonstrates the commitment and accountability of both the organisation and its senior leadership. When considering how to incorporate climate-related matters into these policies, the organisation may consider linking the incentivisation and remuneration policies to relevant benchmarks (e.g. CDP) and the matters most pertinent to the organisation, reflecting the outcomes of its risk and opportunity identification process.

What does “good” corporate governance on climate-related matters look like?

There is already plenty of guidance to help organisations develop robust governance structures and processes on climate-related matters:



- World Economic Forum (in collaboration with PricewaterhouseCoopers GmbH), [How to Set Up Effective Climate Governance on Corporate Boards: Guiding principles and questions](#)
- Commonwealth Climate Law Initiative, [The climate risk reporting journey: A corporate governance primer](#)
- World Business Council for Sustainable Development, [Modernising governance: ESG challenges and recommendations for corporate directors](#)
- International Corporate Governance Network, [ICGN Viewpoint The Board of Directors & Climate Change](#)

4.3 Strategy

This requirement plays a central role in climate disclosure, urging organisations to identify and report on climate-related risks and opportunities and their potential impact on the reporting entity’s business model and value chain. This information is crucial for assessing an organisation’s performance, position, and resilience against a range of plausible future events over the short, medium, and long term.

Within IFRS S2, this requirement calls for organisations to assess the implications of climate change on their overall strategy. After identifying and assessing these risks and opportunities, organisations may choose to develop a climate strategy or transition plan to respond effectively. Key to IFRS S2’s strategy requirement is the inclusion of scenario analysis, a tool for strategic decision-making. Organisations should evaluate the resilience of their strategy against different climate-related scenarios and assumptions about the future. The results of this analysis should guide the formulation of mitigation and adaptation measures, ensuring preparedness for a range of plausible yet uncertain outcomes.

Under IFRS S2, organisations are required to disclose the climate-related risks and opportunities identified over the short, medium, and long term, with added specificity compared to TCFD’s Recommended Disclosure a). Additionally, they should refer to the Industry-based Guidance for disclosure topics ([IFRS, 2023b](#)) and disclose more detailed information about the concentration of risks and opportunities within the busi-

ness model and value chain. Regarding the impact of climate-related risks and opportunities, IFRS S2 aligns broadly with TCFD’s Recommended Disclosure b). However, IFRS S2 demands more detailed information, including disclosure of transition plans and the approach to achieve climate-related targets. While IFRS S2 remains consistent with TCFD’s Recommended Disclosure c), it doesn’t specify particular scenarios for the climate-related scenario analysis. Additional information required by IFRS S2 includes significant areas of uncertainty considered, the organisation’s capacity to adjust and adapt its strategy and business model over time, and details about how and when the climate-related scenario analysis was conducted.

In summary, IFRS S2 enhances climate disclosure, emphasising the importance of comprehensive strategy evaluation and resilience planning based on scenario analysis, ensuring organisations are well-prepared to navigate the challenges and opportunities posed by climate change.

Table 4: Overview of requirements under IFRS S2 for strategy, ([IFRS, 2023d](#)).

<p>Understand a company's strategy for managing climate-related risks and opportunities.</p>	A. the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects.
	B. the current and anticipated effects of those climate-related risks and opportunities on the entity's business model and value chain.
	C. the effects of those climate-related risks and opportunities on the entity's strategy and decision-making, including information about its climate-related transition plan.
	D. the effects of those climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period, and their anticipated effects on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how those climate-related risks and opportunities have been factored into the entity's financial planning.
	E. the climate resilience of the entity's strategy and its business model to climate-related changes, developments and uncertainties, taking into consideration the entity's identified climate-related risks and opportunities.

How do you identify climate risks and opportunities?

To identify climate-related risks and opportunities, organisations must conduct a thorough assessment considering both past climate-related trends and current scientific evidence of the future effects of climate change, encompassing both transition and physical risks. The TCFD and ISSB categorise climate-related risks into physical and transition risks, further classified within each category (Table 3). Organisations should use these categories as a framework to identify risks and can use specific questions as a starting point.

To fulfil the disclosure requirements, entities should provide information enabling users of general-purpose financial reports to understand climate-related risks and opportunities that could reasonably affect the entity’s prospects. This entails describing such risks

and opportunities, specifying their classification (physical or transition risk), and indicating the time horizons over which their effects might reasonably occur (short, medium, or long term). It is essential for organisations to explain how they define “short term”, “medium term”, and “long term” and how these definitions align with their strategic decision-making planning horizons.

In this identification process, organisations must utilise all reasonable and supportable information available at the reporting date, considering past events, current conditions, and forecasts of future conditions. Additionally, entities should refer to and consider the applicability of industry-based disclosure topics defined in the industry-based Guidance on Implementing IFRS S2 ([IFRS, 2023c](#)), ensuring comprehensive coverage of relevant risks and opportunities within their specific industry context. By identifying climate-related risks and opportunities based on their unique contextual factors, organisations can focus their assessments on the most crucial aspects impacting their prospects.

Table 5: Summary of climate-related risks and considerations inspired by ([IFRS, 2023d](#)) and curated by UNEP FI for this report in 2023.

Risk category	Risk description	Considerations for organisations
Climate-related transition risks Risks that arise from efforts to transition to a lower-carbon economy. Transition risks include policy, legal, technological, market and reputational risks. These risks could carry financial implications for an entity, such as increased operating costs or asset impairment due to new or amended climate-related regulations. The entity’s financial performance could also be affected by shifting consumer demands and the development and deployment of new technology (IFRS, 2023d).	Policy and legal risks These risks include policies that attempt to restrict actions that adversely contribute to climate change. For example, the introduction of carbon-pricing mechanisms could present financial risk if it significantly increases operating costs. Additionally, legal risks relate to litigation actions against organisations that fail to manage or mitigate their contribution to climate change.	What are the national climate targets of the countries in which you operate and invest in? Are there any current or expected regulatory requirements or policies in the countries in which you operate? Is there any exposure to carbon pricing across the different regions in which you operate, and how will this evolve? Are you exposed to any activities, directly or through the lending portfolio, that could be the target of litigation?
	Technology risk Technological developments are crucial to meet international climate goals and to enable the transition to a low-carbon economy. This may have adverse impacts on organisations, especially in relation to the speed in which new technologies are developed and deployed.	Are you exposed to expected technological changes, especially through financing activities? How will your portfolios be impacted by the cost competitiveness of coal against renewable technologies as they continue to develop? Do you finance sectors, such as transportation and agriculture, that may be disrupted by increasing use of low-carbon technologies?
	Market risk There are several ways in which markets could be affected by climate change, including shifts in supply and demand for certain commodities, products, and services.	Are the products and services you offer considered in line with international climate change commitments? How will consumer demand change, and what will this mean for your revenue streams?

Risk category	Risk description	Considerations for organisations
	<p>Reputation risk Changing customer perceptions could lead to reputational risks, especially in relation to the policies and actions taken that may contribute or detract from the transition to a low-carbon economy.</p>	<p>How are you communicating the current and planned activities you are taking towards positive climate action? What is the composition of your portfolios in relation to different sectors, and are there any that could be stigmatised?</p>
<p>Climate-related physical risks Risks resulting from climate change that can be event-driven (acute physical risk) or from longer-term shifts in climatic patterns (chronic physical risk). Acute physical risks arise from weather-related events such as storms, floods, drought or heatwaves, which are increasing in severity and frequency. Chronic physical risks arise from longer-term shifts in climatic patterns including changes in precipitation and temperature which could lead to sea level rise, reduced water availability, biodiversity loss and changes in soil productivity (IFRS, 2023d).</p>	<p>Acute risk Acute physical risks refer to those that are event-driven, including extreme weather events, such as cyclones, hurricanes, or floods. These risks are usually seasonal events, that might increase in severity and frequency due to changes in atmospheric conditions.</p> <p>Chronic risk Chronic physical risks refer to longer-term shifts in climate patterns due to global warming, which may cause sea level rise or chronic heat waves.</p>	<p>What is the composition of financing portfolio in relation to geographical spread? Are there any locations that are more exposed to physical risks? How might these risks affect borrower's default risk, and is this currently being considered in lending policies?</p>

It is common for companies to focus primarily on risk. However, climate change and the transition to a low-carbon economy may offer opportunities that could influence a company's business-wide strategies and financial planning processes. For banks, this may relate to the growing demand for sustainable finance products and services, including green bonds and loans, that focus on providing capital for decarbonisation technologies or low-carbon infrastructure. These products are becoming increasingly competitive. Banks can position themselves to not only benefit from these, but can also influence and help clients adapt to low-carbon expectations. In Vietnam, there are a number of opportunities associated with transitioning to renewable energies as demand increases for financing infrastructure projects and the development and deployment of new technologies.

How do we start a scenario analysis?

Conducting a scenario analysis is complex and will take time to complete. The ultimate goal is for organisations to use scenario analysis to assess the organisation as a whole, including the value chain. However, for those new to scenario analysis, it is often practical to begin with an analysis that has a focused scope. For example, following desk-based research or suitable guidance, the initial analysis may be focus on the impacts of a specific risk, geographic region, critical business unit or segment of a portfolio.

It is important to recognise that completing scenario analysis is an iterative process and organisations should expect to develop and improve the analysis on a regular basis to reflect scientific and regulatory developments, particularly as warming trajectories play out in the real world. Initial scenarios may also begin with qualitative narrative scenarios to enable an organisation to explore the range of potential impacts from climate change. More sophisticated analysis can then use quantitative models and datasets to begin to address the financial implications of different warming scenarios.

Which scenarios should be used in scenario analysis?

The IFRS S2 requires that organisations use multiple scenarios to capture a wide range of assumptions about uncertain future outcomes. The scenarios that are chosen will depend on the scope and objective of the analysis.

While IFRS S2 does not require specific scenarios, organisations could include scenarios that represent different warming pathways (which might include 1.5°C, 2°C, 3°C or 4°C scenarios) across multiple time horizons. These different warming pathways may each be associated with a range of different transition pathways (e.g. steady and consistent action or delayed and drastic action). By exploring a wide variety of futures and different pathways, organisations will better understand the range of possible outcomes and therefore be able to develop the most effective and efficient strategies.

Some believe that a single scenario can be used to model all climate-related risks, including both physical and transition risks. However, this is a common misconception as these risks are distinct and will require different data inputs. For this reason, they should be considered independently of one another. Transition risk scenarios need to consider a wide range of data about future technological developments, energy outlooks, and macroeconomic assumptions. Physical risk scenarios are equally complex as they model a large number of variables to understand changes in atmospheric conditions on a global scale.

A set of scenarios that might be particularly helpful are the suite scenarios developed by the Network for Greening the Financial System (NGFS). These scenarios are designed to provide data on both transition and physical risks, plus the associated economic impacts ([NGFS, 2022](#)).

What data should be used? And where can these data be found?

When conducting climate risk and opportunity assessments, and scenario analysis, decision-useful outputs depend on having good data inputs. This means organisations should consider the range of data needed to be able to conduct comprehensive risk assessments. For example, scenario data should be sourced from credible providers of climate transition scenarios, such as those used by the NGFS and included in Intergovernmental Panel on Climate Change (IPCC) reports. Within these scenarios, macro-level data inputs help organisations to assess climate-related risks in the context of global models. Building on this outlook, additionally data on the impacts of climate on local areas allow organisations to obtain granularity in their assessment.

Table 6 and Table 7 shows a number of freely available data sources that can be used to assess future climate-related impacts. These include both sources for physical risk and transition risk data at global, regional, and national levels of granularity.

Table 6: Physical risk data resources inspired by multiple sources and curated by UNEP FI for this report in 2023.

Data Source	Physical hazards covered	Geographical Coverage
CDP Open Data Portal	Storms, extreme heat, sea water intrusion, droughts, floods, and forest fires	1,224 cities, states and regions reporting through CDP
Climate Central	Extreme sea levels, storm surge data, high tide events, coastal flooding, sea level changes, and severe winds	Global
Climate Impact Explorer by Climate Analytics	Temperature rise, seasonal precipitation, sea level rise, and extreme weather events, such as floods, droughts, and heatwaves	Global, with country-level data included as well
GFDRR ThinkHazard!	Extreme heat, floods, earthquakes, landslides, sea level rise, water scarcity, and wildfires	Global
Google Dataset Search	Hurricanes, sea level rise, and temperature rise	Global
INFORM index	Variety of quantitative factors and resources to support physical risk assessments	Global
IPCC Assessment Report 6: Impacts, Adaptation, Vulnerability	Latest report on impacts of physical hazards, adaptation, and vulnerabilities to climate change	Global
IPCC Assessment Report 6: The Physical Science Basis	All major physical risk hazards	Global
KNMI—Climate Explorer	Temperature rise, droughts, cyclones, and precipitation	Global
Oasis Hub	Flooding, cyclones, earthquakes, extreme weather, and landslides	Global

PREPdata	Temperature rise, precipitation, coastal risks, water risks, and other extreme events	Global coverage with low granularity for specific countries
UNEP Global Risk Data Platform	Tropical cyclones, storm surges, droughts, earthquakes, fires, floods, and landslides	Global
World Bank Climate Change Knowledge Portal	Temperature rise, seasonal precipitation, sea level rise, extreme weather events, such as floods, droughts, and heatwaves	Global
WRI Aqueduct Water Risk Atlas	Water risks, including flooding and droughts	Global
United Nations Framework Convention on Climate Change (UNFCCC) Adaptation and Resiliency Resources	Database of databases on relevant adaptation and resiliency studies and measures	Global and national

Table 7: Transition risk data resources inspired by multiple sources and curated by UNEP FI for this report in 2023.

Data source	Transition risks covered	Geographical coverage
CAIT Climate Data Explorer (by WRI)	GHG emissions, emission pathways, pledges, and targets	Global
CDP Open Data Portal	GHG emissions	Global
En-ROADS simulator	Different emissions pathways and drivers of temperature rise	Global
Greenhouse Gas Protocol	Product life cycle and corporate value chain (scope 3) GHG inventories	Global
International Energy Agency (IEA) Net Zero by 2050 scenario	Policy, technology, and market risks based on the IEA's net zero by 2050 scenario	Global, with breakouts by region at a high level
IIASA scenario explorer	Policy, technology, and market risks based on a wide range of IPCC 1.5° C scenarios	Global, regional, and national at varying degrees of specificity
International Monetary Fund (IMF) World Economic Outlook	Macroeconomic forecasts/scenarios that can be used to understand potential policy, technology, and market shifts	Global, regional, and national
IPCC emissions factor database	Emission factors for various activities	Global with some regional variation
NGFS scenario portal	Policy, technology, and market risks based on the NGFS scenarios	Global, breakout into specific regions and national level downscaling
SENSES project on climate scenarios	Policy, technology, and market risks based on a wide range of IPCC 1.5° C scenarios	Global

The Carbon Monitoring for Action (CARMA) database	GHG emissions estimates for power plants	United States of America, European Union, Canada, India, and South Africa and data from the International Atomic Energy Agency
The Lowdown v2.0	Coal capacity for countries	Global
UN data	Methane, carbon dioxide (CO ₂), HFCs, Nitrous oxide, Nitrogen trifluoride, PFCs, and Sulphur hexafluoride	Data for 43 countries; only available for 29 years

UNEP FI created an [online live database](#) of climate risk tools where features to enhance users' readability are introduced. It intends to help financial institutions better navigate through the expanding climate risk tool universe by providing detailed information of some of the tools' functionalities, assumptions, and metrics:

- By applying selected filters in the 'Dashboard' sheet, financial institutions can apply an initial screening of potential tools that fit their selected criteria;
- Upon applying selected filters described above, financial institutions can identify tools for further exploration by accessing detailed information of tools in the 'Full data' page.

On the other hand, [the Net-Zero Data Public Utility](#) is also developing an open and free platform which is poised to serve as a centralised data repository that would allow all stakeholders to easily access key climate transition-related data, commitments, and progress of businesses and financial institutions toward those commitments.

Are there any resources that can help us start a scenario analysis?

Scenario analysis resources have continued to grow in the years since the initial TCFD recommendations were released. In particular, UNEP FI has produced a number of reports to assist financial institutions in conducting scenario analysis. Apart from UNEP FI's 2023 [Climate Risk Landscape report](#) and its [Technical Supplement report](#), which feature a number of third-party data providers whose tools assist financial institutions in making transition and physical risk assessments were profiled, several other reports include the following:



- [Extending our Horizons: Assessing Credit Risk and Opportunities in a Changing Climate](#) (Part 1: Transition-related risks and opportunities)
- [Navigating a New Climate: Assessing Credit Risk and Opportunities in a Changing Climate](#) (Part 2: Physical-related risks and opportunities)

- [Charting a New Climate: State-of-the-art tools and data for banks to assess credit risks and opportunities from physical climate change impacts](#)
- [The Climate Risk Landscape: Mapping Climate-related Financial Risk Assessment Methodologies](#)
- [Pathways to Paris: A Practical Guide to Climate Transition Scenarios for Financial Professionals](#)
- [Decarbonisation and Disruption: Understanding the Financial Risks of a Disorderly Transition using Climate Scenarios](#)

4.4 Risk management

When attempting to understand how an organisation oversees and manages climate-related risks, it becomes crucial to ascertain the processes employed to identify, assess, and manage these risks, and how these processes integrate into existing organisation-wide risk management practices. This provides investors with valuable insights to better comprehend and evaluate an organisation's overall risk profile and risk management activities.

For banks, which face unique climate-related risks, it is essential to have a holistic view that considers how these risks interconnect and impact existing risk categories. Therefore, integrating climate-related risks into the overall risk management processes is of paramount importance. Without a robust and well-documented approach to identifying, monitoring, and managing these risks, organisations may be ill-prepared for unexpected and sudden events that could adversely affect their financial performance and position.

In cases where climate-related risk identification, assessment, and management are new to an organisation, it may be prudent to ensure that the risk function, along with the supporting governance structures, has a foundational understanding of climate change and its potential impacts. While the risk function need not consist of climate change scientists or experts, those in this function should possess an appreciation of the complex, unique, and systemic nature of climate change.

In alignment with the TCFD recommendations, IFRS S2 maintains broad consistency with Recommended Disclosure a). However, IFRS S2 does stipulate some additional detailed information. This includes the disclosure of input parameters used for risk identification, whether and how the use of climate-related scenario analysis informs risk identification, and disclosure of whether there are any changes in risk management processes compared to the previous reporting period.

Furthermore, IFRS S2 explicitly requires additional disclosures regarding the processes employed to identify, assess, prioritise, and monitor opportunities.

Regarding Recommended Disclosure c), IFRS S2 is also broadly consistent with the TCFD's approach. However, IFRS S2 goes a step further and mandates additional disclosures on how the processes used for identifying, assessing, and managing climate-related risks and opportunities are integrated into an organisation's overall risk management process. This comprehensive disclosure helps stakeholders understand how climate-related considerations are embedded in an organisation's broader risk

management framework and how they inform strategic decision-making. By adhering to these disclosure requirements, organisations can provide meaningful and transparent information about their climate-related risk management practices, fostering investor confidence and promoting effective risk mitigation and adaptation strategies.

Table 8: Overview of requirements under IFRS S2 for risk management, ([IFRS, 2023d](#)).

Understand the processes to identify, assess, prioritise and monitor climate-related risks and opportunities, including, whether and how those processes are integrated into and inform the company’s overall risk management process	A. An entity shall disclose information about the processes and related policies the entity uses to identify, assess, prioritise and monitor climate-related risks. [...]
	B. An entity shall disclose information about the processes the entity uses to identify, assess, prioritise and monitor climate-related opportunities, including information about whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related opportunities.
	C. An entity shall disclose information about the extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the entity’s overall risk management process.

What are the special characteristics of climate-related risks that need to be considered in the risk management process?

Climate change brings a unique set of special characteristics and complex variables that should be considered by the risk function as they begin to integrate climate-related risks into existing risk management processes. For example, the effects of climate change are going to differ depending on the scale under considerations (e.g. local, regional, or global). Given the long-term nature of climate change, its effects will also vary across different time horizons. Addressing these special characteristics when integrating climate-related risks may require organisations to adjust their existing processes and risk policies to ensure climate change is fully comprehended.

The table below demonstrates some of the important characteristics that risk functions should be aware of.

Table 9: Special characteristics of climate-related risks inspired by multiple sources and curated by UNEP FI for this report in 2023.

Special characteristics	Impact on risk management processes
Geographical differences and business context	The manifestations of climate-related risks will occur at different local, regional, and global scales, with varying impacts depending on the geographical areas. This will also be compounded by the context in which an organisation operates, including the types of products and services it offers, the markets it operates in, the location of its operations, and the extent of its value chains. The risk management processes therefore need to be able to deal with risks that manifest across different locations and scales, while also addressing an organisation’s specific circumstances. The organisation may also set criteria in the risk policies to identify specific business areas that are more exposed to transition and/or physical risks.

Special characteristics	Impact on risk management processes
Time horizons	Climate-related risks are also expected to manifest across time horizons that go beyond traditional business planning and lending cycles. Risk management processes may need to be adapted to account for short-, medium- and long-term time horizons to fully address the impacts of climate change.
Unique and uncertain	Climate change is a dynamic and uncertain phenomenon with no precedent and limited historical data, which limits the ability to apply statistical and trend analysis. In addition, the impacts of mitigation responses are also complex, with uncertainties around the development of new technologies, governmental policies, and changes to consumer behaviour and demands. When considering future uncertainties, an organisation should utilise scenario analysis to review the impact of risks across multiple future conditions.
Non-linear dynamics	As already noted above, climate-related risks may manifest at different scales over time, with increasing severity and scope of impacts. Climate systems may exhibit thresholds and tipping points that result in changes that are large, long-term, abrupt, and possibly irreversible. Additionally, sudden physical climate events may lead to abrupt and disruptive policy changes. Understanding the sensitivities of tipping points in the physical climate system, as well as in ecosystems and society, is essential for understanding climate-related risks. Members of the risk function should educate themselves on the non-linear dynamics of climate change and ensure these form part of the risk assessment.
Complex and systemic	Climate-related risks are interconnected across socioeconomic and financial systems, due to knock-on effects and systemic impacts. Climate-related risks can have direct impacts, but also indirect impacts requiring risk management process to adopt a multidimensional perspective to assess the implications for the organisation.

How should climate-related risks be integrated into existing risk management processes?

Existing risk management processes should already address the procedures used to identify, assess, manage, and report material financial risks within the limits of its risk appetite framework. The usual steps used in these processes should also be applied to climate-related risk management, rather than creating a whole new set of procedures. However, some adjustments may be needed to the policies, risk limits, and risk controls to ensure these processes can be adapted to capture the global and systemic nature of climate change.

Risk management process generally include the following steps:

1. **Identifying** the financial risks an organisation is exposed to.
2. Measuring the risks using pre-defined metrics.
3. **Managing** the risks, including deciding if the risks can be mitigated or accepted.
4. **Monitoring** risks with a frequency proportional to the size and the speed with which they can increase.
5. **Reporting** risks internally through the governance process, and externally disclosing decision-useful information to stakeholders.

To help integrate climate-related risks into risk management processes, the organisation should map climate change to the existing risk taxonomy to understand where climate change presents its own specific risks, and where it is a risk driver that impacts and exacerbates existing risk categories. Once an organisation understands how climate-related risks can be included within the existing risk taxonomy, it should then consider updating the risk inventory. This may include providing further details about what the risk is, how it is likely to impact the organisation, what the necessary risk responses should be, and who within the organisation has ownership of these risks.

Additional updates and adjustments may also be required. For example, an organisation may consider adjusting its risk appetite framework to include climate-related risks. It may also choose to set limits on lending to certain sensitive sectors, businesses or geographical areas that are highly exposed to these risks.

All these considerations mean that organisations need to consider how climate change is viewed and integrated into risk management processes.

How are climate-related risks drivers of existing risks?

Although climate change is itself a risk, it is also a risk driver and multiplier, which means that it will impact on existing financial risks. In this regard, within the existing risk management framework, organisations should ensure climate-related risks are mapped to the existing risk taxonomy and categories.

The table below demonstrates how both physical and transition risks could impact credit, market, operational, and liquidity risks for banks.

Table 10: Impact of climate risks on traditional risks for banks inspired by multiple sources and curated by UNEP FI for this report in 2023.

Risk categories	Effects of climate risk drivers
Credit risks	<p>Credit risk increases if climate risk drivers reduce borrowers' ability to repay and service debt (income effect), or banks' ability to fully recover the value of a loan in the event of default (wealth effect).</p> <p>The probabilities of default and loss given default of exposures within sectors or geographies vulnerable to physical risk may be impacted, for example, through lower collateral valuations in real estate portfolios as a result of increased flood risk.</p> <p>Energy efficiency standards may trigger substantial adaptation costs and lower corporate profitability, which may lead to higher probabilities of default as well as lower collateral values.</p>

Market risks	<p>Reduction in financial asset values due to climate risk is not yet incorporated into prices. This is despite the potential of such risk to trigger large, sudden, and negative price adjustments. Climate risk could also lead to a breakdown in correlations between assets or a change in market liquidity for particular assets, undermining risk management assumptions.</p> <p>Severe physical events may lead to shifts in market expectations and could result in sudden repricing, higher volatility, and losses in asset values on some markets.</p> <p>Transition risk drivers may generate an abrupt repricing of securities and derivatives. A case in point are products associated with industries that are affected by asset stranding.</p>
Operational risks	<p>Increasing legal and regulatory compliance risk associated with climate-sensitive investments and businesses.</p> <p>A bank's operations may be disrupted due to physical damage to its property, branches, and data centres as a result of extreme weather events.</p> <p>Changing consumer sentiment regarding climate issues can also lead to reputation and liability risks for a bank as a result of scandals caused by the financing of environmentally controversial activities.</p>
Liquidity risks	<p>A bank's access to stable sources of funding could be reduced as market conditions change. Climate risk drivers may cause a bank's counterparties to draw down deposits and credit lines.</p> <p>Liquidity risk may be affected in the event of clients withdrawing money from their accounts in order to finance damage repairs.</p> <p>An abrupt repricing of securities due to asset stranding or other climate-related impacts may reduce the value of a bank's high-quality liquid assets, thereby affecting liquidity buffers.</p>

Is there any guidance on climate-related risk management processes?

There are a number of resources already available to provide guidance to organisations on risk management of climate-related risks. These include:

- Basel Committee on Banking Supervision, [Climate-related risk drivers and their transmission channels](#)
- Task Force on Climate-related Financial Disclosures, [Guidance on Risk Management Integration and Disclosure](#)

4.5 Metrics and targets

Metrics and targets play a pivotal role in enabling organisations to measure and monitor their performance concerning climate-related risks and opportunities. By externally disclosing these metrics and targets, organisations can demonstrate the extent of their exposure to climate-related risks and show how they are effectively managing these risks. Such disclosures facilitate consistency and comparability, particularly between different sectors. To ensure that climate-related information is decision-useful, both qualitative and quantitative information is required.

In the updated guidance released in October 2021, the TCFD introduced additional financial metrics to enhance climate-related disclosures. The revised guidance includes more explicit financial metrics that are applicable across industries. Furthermore, changes were made to the guidance on GHG emissions to encourage comprehensive disclosures. For banks specifically, the updated guidance requires disclosure of the alignment of lending and other financial activities with 2°C (or lower) warming goals, as well as the disclosure of financed GHG emissions for such activities.

IFRS S2 is aligned with the TCFD’s Recommended Disclosure a) , requiring the disclosure of metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. IFRS S2 also mandates the disclosure of industry-based metrics relevant to the company’s business model and activities.

IFRS S2 is broadly consistent with the TCFD’s Recommended Disclosure b) to disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, along with the related risks. However, IFRS S2 introduces additional disclosures for GHG emissions, including the separate disclosure of Scope 1 and Scope 2 GHG emissions for consolidated accounting groups and associates, joint ventures, unconsolidated subsidiaries or affiliates not included in the consolidated accounting group. It also requires information about the measurement approach, inputs, and assumptions used in measuring Scope 3 GHG emissions.

IFRS S2 aligns with the TCFD’s Recommended Disclosure c) to describe the targets used by the organisation to manage climate-related risks and opportunities, along with performance against these targets. IFRS S2 introduces additional requirements for more detailed information on GHG emissions targets, including the planned use of carbon credits to achieve net GHG emissions targets. It also necessitates information about the approach to setting and reviewing each target, including whether the target was derived using a sectoral decarbonisation approach and whether it has been validated by a third party.

By complying with these disclosure requirements, organisations can provide comprehensive and transparent information about their climate-related performance and progress, fostering comparability and enabling stakeholders to make informed decisions.

The requirements under IFRS S2 for metrics and targets are structured as follows:

Table 11: Overview of requirements under IFRS S2 for metrics and targets, ([IFRS, 2023d](#)).

<p>Understand a company’s performance in relation to its climate-related risks and opportunities, including progress towards any climate-related targets it has set, and any targets it is required to meet by law or regulation.</p>	<p>A. An entity shall disclose information relevant to the cross-industry metric categories.</p>
	<p>B. An entity shall disclose industry-based metrics that are associated with particular business models, activities or other common features that characterise participation in an industry.</p>
	<p>C. An entity shall disclose targets set by the entity, and any targets it is required to meet by law or regulation, to mitigate or adapt to climate-related risks or take advantage of climate-related opportunities, including metrics used by the governance body or management to measure progress towards these targets.</p>

What metrics should we use?

IFRS S2 requires a set of cross-industry metrics that create a baseline for all reporting organisations as presented in Table 12. Some may be less applicable to certain organisations, and reporting organisations are expected to identify which metrics are material to their business. Alongside these base metrics, the TCFD and ISSB also provide additional metrics for the banking industry to address the impacts of climate-related matters on lending and other financial activities. In addition, the ISSB also offers industry-based guidance on implementing IFRS S2, which has been derived from the Sustainability Accounting Standards Board (SASB) Standards ([IFRS, 2023b](#)).

In applying the IFRS S2, the ISSB specified that entities should consider both cross-industry and industry-specific metrics that would facilitate a reporting entity to adequately assess their climate-related risks and opportunities. Hence, the ISSB also published the Industry-based Guidance on implementing Climate-related Disclosures—IFRS S2 ([IFRS, 2023c](#)), which defines a list of industry-based disclosure topics and relevant guidance.

Table 12: Examples of climate-related metrics, ([IFRS, 2023d](#)).

Cross-industry climate-related metrics	Example of unit of measure
GHG emissions Absolute Scope 1, Scope 2, and Scope 3; emissions	Metric tons of CO2 equivalent
Transition risks Amount and extent of assets or business activities vulnerable to transition risks	Amount and percentage
Physical risks Amount and extent of assets or business activities vulnerable to physical risks	Amount and percentage
Climate-related opportunities Amount and extent of assets, or other business activities aligned with climate-related opportunities	Amount and percentage
Capital deployment Amount of capital expenditure, financing, or investment deployed toward climate-related risks and opportunities	Amount
Internal carbon prices Price on each ton of GHG emissions used internally by an organisation	Price in reporting currency, per metric ton of CO2 equivalent
Remuneration Proportion of executive management remuneration linked to climate considerations	Percentage

Banking sector climate-related metrics	Example of unit of measure
A bank's absolute gross financed emissions for each industry by asset class	<ul style="list-style-type: none"> ■ Absolute financed emissions, disaggregated by Scope 1, Scope 2 and Scope 3 GHG emissions for each industry by asset class ■ Industry—Global Industry Classification Standard (GICS), ■ Asset Class—whether it refers to loans, project finance, bonds, equity investments and/ or undrawn loan commitments`
A bank's gross exposure to each industry by asset class	<ul style="list-style-type: none"> ■ Funded amount in the presentation currency—calculated as the funded carrying amounts (before subtracting the loss allowance, when applicable), ■ Undrawn loan commitments— the full amount of the commitment separately from the drawn portion of loan commitments
The percentage of the bank's gross exposure included in the financed emissions calculation	<ul style="list-style-type: none"> ■ If the percentage of the entity's gross exposure included in the financed emissions calculation is less than 100%, disclose information that explains the exclusions, including type of assets excluded. ■ Disclose separately the percentage of its undrawn loan commitments included in the financed emissions calculation.

The metrics that are chosen should reflect the material risks and outcomes of the scenario analysis and connected to the strategy. They should be used internally to influence and monitor the strategy-setting and risk management processes, as well as being presented in the annual reports for investors to examine the organisations performance.

How do we collect and disclose metrics?

Whichever metrics an organisation has deemed as material, it should be prepared to collect and disclose in this information in a consistent way from year to year. Providing the same metric, measured in the same way, on a yearly basis allows for trends to be analysed and progress to be tracked.

When organizations are new to climate-related financial disclosure, they must tackle challenges related to data collection and management. This requires the establishment of robust data processes that span from data collection to disclosure. Creating and maintaining rigorous data policies and processes is important to ensuring the quality and credibility of the data. There should also be documentation that records the methodologies, processes, systems, assumptions, and estimates that are used when collecting and assessing these metrics. This is in addition to other internal controls and checks to ensure an organisation's data management processes are robust.

When disclosing these metrics, organisations should present the data in a clear and understandable manner. They should also include contextual and supporting narrative that explains the performance and the basis on which the data has been prepared. This

information might include the methodologies and definitions used, plus data sources and critical factors. It should also clarify how the published data connect to business-wide strategy and financial performance.

What GHG emissions should we calculate and disclose?

GHG emissions data are essential as they underpin how organisations calculate their exposure to both climate-related risks and opportunities. For example, organisations with high GHG emissions will likely be more impacted by transition risks. The GHG emissions data collected and calculated should include absolute emissions at the very minimum. Within these data, information should ideally be included on the direct emissions of operations and emissions across the organisation's value chain.

The GHG Protocol Corporate Accounting and Reporting Standard (originally published in 2001) is regarded as the global market standard for calculating and disclosing GHG emissions data. The standard includes guidance on how to develop a GHG emissions inventory and the calculation methods organisations should use to understand their direct and indirect emissions. In particular, the GHG Protocol differentiates between direct and indirect emissions sources through "scopes". Categorising emissions as Scope 1, 2, and 3, organisations can identify the largest sources of emissions and ensure that multiple organisations do not account for the same emissions in the same scope ([GHG Protocol, 2004](#)).

With reference to Appendix A—IFRS S2 (IFRS, 2023d), GHG emissions are defined as:

- **Scope 1:** Direct greenhouse gas emissions that occur from sources that are owned or controlled by an entity.
- **Scope 2:** Indirect greenhouse gas emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by an entity.
- **Scope 3:** Indirect greenhouse gas emissions (not included in Scope 2 greenhouse gas emissions) that occur in the value chain of an entity, including both upstream and downstream emissions. Scope 3 greenhouse gas emissions include the Scope 3 categories in the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard ([GHG Protocol, 2011](#)).

Additionally, financial institutions should provide Scope 3 emissions that relate to financing activities. This will help organisations understand the climate impact of their lending and other financing activities and whether these activities are aligned to international climate goals. In addition, it will assist them to identify transition risks and opportunities to which they are exposed. The Partnership for Carbon Accounting Financials (PCAF) created the Global GHG Accounting and Reporting Standard for the Financial Industry ([PCAF, 2020](#)) to standardise the calculation approach used to assess financed emissions data.

Banks should use the GHG Protocol Corporate Accounting and Reporting Standard, as well as the PCAF Global GHG Accounting and Reporting Standard for the Financial Industry, to collect and report their Scope 1, 2 and 3 emissions, including financed emissions.

What should our targets be?

Climate-related targets should be set to measure performance against organisation-specific policies and strategies. These targets should focus on reducing negative elements (i.e., GHG emissions), but also proactive targets (i.e., total amount of green loans).

Financial institutes may consider setting targets in relation to climate-related risks, alignment, and financing (Table 13). Although all three may collectively form part of an organisation's climate strategy and despite potentially overlapping in some elements, they are distinct and will require different actions and different metrics.

Table 13: Examples of climate-related target types inspired by IFRS S2 ([IFRS, 2023d](#)) and curated by UNEP FI for this report in 2023.

Type of target	Example
Risk target	Reducing the amount (or percentage) of assets or business activities that are considered vulnerable to climate-related transition or physical risks. Reducing the climate value-at-risk.
Alignment target	Reducing the warming potential of loan portfolios to align with the 1.5°C/2°C international goals (Paris alignment). Net-zero portfolio alignment.
Financing target	Increasing the total amount of financing deployed toward climate-related risks and opportunities (e.g., green bonds or green loans), and the proportion of these products in the whole loan portfolio.

To ensure targets are effective, they should be attached to an indicator, they should be timebound, and they should include a baseline. Once the target has been set, an organisation should communicate this effectively in its disclosure, including evidence of progress (or lack of it) every year. Where targets are long term (i.e. out to 2030 or 2050), organisations may also provide interim targets to signal progress in appropriate intervals.

How do we obtain the data needed to report metrics and set targets?

Climate-related financial data comprise a common area where many institutions struggle. While climate risk analyses demand traditional financial data, they also require new forms of data that may initially be unfamiliar to practitioners. However, while data gaps certainly exist, often there are significant amounts of data available on a variety of factors to enable an institution to begin setting meaningful targets on climate risk, alignment, and climate finance.

Key climate-related financial data includes the following:

Table 14: Climate-related financial data, ([UNEP FI, 2021](#)).

Data type	Data required
Climate hazard data	<ul style="list-style-type: none"> ▪ Historical data on acute and chronic physical risks. ▪ Projections of future acute and chronic physical risks, including their severity and frequency. ▪ Adaptive capacity data to determine client resilience and sensitivity to climate hazards, including current adaptation strategies of clients. ▪ Climate hazard data based on geography, sector, and industry, including economic losses from past climate hazards.
Data describing transition risk drivers	<ul style="list-style-type: none"> ▪ Data on transition risk drivers, including policy implementation, market shifts, technological changes, and reputation.
Emissions data	<ul style="list-style-type: none"> ▪ Energy and carbon mix of counterparties. ▪ Published or estimated GHG emissions produced by portfolios and assets of clients. ▪ GHG emission data by region, sector, or industry. ▪ Energy efficiency data, such as real estate ratings like the Energy Performance Certificate Rating. ▪ Data on carbon pricing by jurisdiction.
Climate-related client data	<ul style="list-style-type: none"> ▪ Identification of the physical assets owned by clients. ▪ Detailed and granular geographical/geolocational data of assets.
Alignment and transition data	<ul style="list-style-type: none"> ▪ Transition pathways set by clients in accordance with the Paris Climate Change Agreement. ▪ Science-based emission reduction targets set by clients. ▪ Climate policies and pledges of countries.

A number of open-source databases discussed above in the Strategy guidance section will be useful to firms in obtaining these data. In addition, many of the tool providers mentioned in this same section also have data that can enable institutions to understand their climate risks and opportunities. Collecting the necessary climate-related data may vary based on where these data originate. However, structured processes can improve data collection and future data quality as discussed in the guidance below.

Gathering data through internal sources and external partnerships

1. Attempt to collect as much relevant climate data on the client
 - Use in-house capabilities to develop internal tools
2. Increase stakeholder collaboration
 - Collaborate with regulators, governments, municipalities, and other stakeholders
3. Develop industry partnerships to provide the tools and support needed to clients
 - Partner with technology firms to leverage the use of digital resources
 - Engage with peers to identify data gaps and accelerate the development of solutions

Gathering data from clients

1. Facilitate open and effective communication with the client about data requirements.
 - Take steps to increase communication
 - Facilitate effective communication through workshops, courses, and materials
 - Open communication will be useful in understanding the client's current progress in disclosing data
2. Update current client engagement processes, such as:
 - Underwriting
 - Know your customer (KYC)
 - Other due diligence processes
 - Integrate climate stress test data requirements into these processes

Improving future data collection processes

1. Develop a questionnaire based on the data needed from the client
 - The questionnaire should act as a guide to ensure that necessary information is collected
 - The questionnaire can be provided during:
 - Onboarding process
 - Annual review
 - Due diligence process
 - Ad-hoc climate related discussions
2. Integrate geospatial data related to clients and their assets
 - Can be used to identify at-risk locations
 - May require upgrades to IT infrastructure

4.6 Additional considerations

How much information should be disclosed?

Disclosures should be clear, concise and proportional. It is important not to overwhelm report users with too much information, and therefore organisations should apply the principle of materiality to ensure the most pertinent information is easily accessible. Organisations also should consider how their disclosure on climate-related matters compares with disclosures on other financially material issues to the company to ensure that it is proportional.

Some organisations have attempted to overcome these issues by disclosing the most material information in the mainstream annual report, while publishing additional TCFD/ climate reports that can provide further details. Where this approach has been taken, organisations should ensure that the two reports are connected and information is appropriately cross-referenced.

It is also important that disclosures are specific to the organisation and tailored to the sectors and geographies in which it operates. Organisations that provide generic disclosures that can be applied to any other organisation risk the information being inadequate for financial decision-making.

How can climate-related information be connected to financial information?

Often climate-related information that is disclosed in annual reports focuses on the identification and management of risks and GHG emissions data, but this information is not explicitly connected back to the financial metrics and accounts. IFRS S1 introduces requirements to enable users of financial reports to understand connections between various sustainability-related risks and opportunities that could reasonably be expected to affect the organisation's prospects and the connections between disclosures provided by the organisation within its sustainability-related financial disclosures and across its sustainability-related financial disclosures and its financial statements.

The objective of IFRS S2 climate-related disclosure is to require an entity to disclose information about its climate-related risks and opportunities that helps primary users of general-purpose financial reports to make decisions relating to providing resources to the entity. In a significant stride towards promoting consistent, comparable, and dependable sustainability information, the International Organization of Securities Commissions (IOSCO) announced in July 2023 its endorsement of the recently issued sustainability-related financial disclosure standards by the ISSB—namely, IFRS S1 and IFRS S2. This endorsement marks a pivotal moment in advancing global efforts to enhance transparency and accountability in sustainability reporting across financial markets.

What milestones should we follow in developing and drafting our climate disclosure?

It can be helpful to set internal milestones or checkpoints during the climate disclosure reporting process to ensure that the work receives appropriate review and buy-in from across an organisation.

1. Initial commitment

The first step in the climate disclosure process is the decision to write a report. This initial commitment should come from senior stakeholders who can mobilise the requisite resources for the drafting of a detailed report. These senior leaders should also be accountable for the content within the report.

2. Assignment of responsible teams

As discussed previously, writing a climate disclosure will require inputs from across an organisation. However, clearly defined roles and responsibilities in the drafting process will support the production of a timely and high-quality report. Members of the sustainability and risk teams should be on point for producing the report. Executive attention to the report's development process can help the report's writers obtain the necessary data and information from colleagues. Those assigned to write the report should be clear on which portions of the report they are responsible to write and where supporting data and

analyses are likely to come from. Once the primary owners of the report have been identified, they should develop a workplan for the completion of the report. The next steps will discuss considerations for this workplan.

3. Gathering key internal information

Many of the recommended disclosures under the IFRS S2 request information on internal processes around governance and risk management as well as the firm's strategic plans. Report writers should look to aggregate all the necessary internal information as they draft the report. For the governance pillar, this will relate to the climate-relevant practices of the board and senior management as well as any accountability mechanisms for these leaders. For strategy, both firmwide strategic plans and those of material business lines should be considered. Conversations with business heads should inform the ways in which climate-related risks and opportunities are incorporated into strategic decision-making. Risk management will concern internal reporting practices as well as policies and procedures around climate risk identification, assessment, and management. For metrics and targets, existing and proposed climate targets should be included. For many institutions, some of these elements may be absent at the time the report is being written. In this case, the climate disclosure should indicate plans that the firm has to develop these capabilities.

4. Gather key external information

While internal information will form the bulk of the climate disclosure (as the report attempts to describe a firm's response to climate risks and opportunities), information from external sources is also needed. Specifically, for scenario analysis, report writers should consider commonly used physical and transition scenarios. For transition scenarios, the inclusion of a 1.5°C scenario is increasingly expected by stakeholders. Many of these scenarios are publicly available and are produced by well-known scientific researchers. Including 1.5°C scenarios supports efforts to compare results across reports. A tougher challenge may be the acquisition of client data on climate-related risks and opportunities. Public companies typically report on emissions and may even have a climate disclosure of their own. For smaller organisations or those lacking adequate data, proxies based on location and economic activity can be helpful. For material clients, direct engagement is recommended in order to better understand their climate strategy and its implications for the financial institution.

5. Conduct relevant analyses, both qualitative and quantitative

Once the necessary data is collected, both qualitative and quantitative analyses may be conducted. Qualitative analyses may include heat-mapping of physical and transition risks across sectors and regions, outcomes of recent client engagements, and anecdotes regarding the firm's climate risk management or sustainability practices. Quantitative analyses may require the construction of new models or the adaptation of existing models. Vendor tools may also be needed. These quantitative analyses may include climate scenario analysis and associated losses for portfolios under different scenarios, the firm's financed emissions footprint, and the volume of climate financing provided to specific projects and industries.

6. Complete each required disclosure under the IFRS S2

The requirements of IFRS S2 are natural checkpoints as the report is being developed. Disclosures can be compared against the requirements and against the example disclosures featured in Part 3 of this report. It is important to recognise that many of the disclosures are interrelated and, as a result, they may be completed in parallel. For example, disclosures on incorporating climate into strategy will also connect with the specific climate targets that the firm sets.

7. Submit report to senior management for signoff

Once a full draft of the report is developed, it should be shared with senior management for sign-off. Earlier in the process, it can be helpful to socialise the report with relevant internal stakeholders to ensure their understanding and agreement with the key messages. As the report intends to reflect a firm's holistic practices of climate risk management, it should have buy-in from across the organisation. Returning to the governance pillar, senior leadership should be accountable for the content expressed within the report, which means they must have sufficient familiarity with the disclosures being made. Many firms may have an executive committee sign-off on the report, or a designated senior officer who is directly responsible. This mirrors the accountability process regarding traditional financial statements.

8. Assurance/Audit

While external assurance requirements are not explicitly mandated by the ISSB, their incorporation into regulatory initiatives for implementing ISSB standards is plausible, given the escalating demand for report assurance to bolster credible reporting and disclosures. The ISSB standards, which could facilitate third-party verification, align with the increasing emphasis on verifiability as a crucial qualitative characteristic of valuable sustainability-related financial information. For instance, IFRS S2 ([IFRS, 2023d](#)) strongly recommends reporting companies to prioritize verified Scope 3 greenhouse gas emissions data (B53–B54), underscoring the significance of data verification, whether conducted internally or externally. This underscores the ISSB's recognition of the crucial role of data and information assurance, enhancing the reliability and credibility of climate-related financial disclosures.

9. Publish

After assurance, the climate disclosure should be released publicly. The firm should engage with its main stakeholders to solicit feedback on the report and answer any questions about its practices. This transparency will allow both internal and external stakeholders to make the most effective use of the report.

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