Network for Greening the Financial System

Technical document

Guide on climate-related disclosure for central banks

Second edition

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Central Banks and Supervisors
Network for Greening the Financial System

Foreword

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In December 2021, the Network for Greening the Financial System (NGFS) published its first guide on climate-related disclosure for central banks. With this second edition, the NGFS fulfils its commitment from the previous report to update and expand the guide with the newest developments and experiences gathered by NGFS members.

The NGFS' support for a robust and internationally consistent climate-related disclosure framework reaches back to the NGFS' first comprehensive report – "A call for action", published in April 2019 – and the "NGFS Glasgow Declaration", published in November 2021. With this second edition, the NGFS reaffirms its support for globally recognized disclosure standards based on the work of the Task Force on Climate-related Financial Disclosures.

The second edition builds on experience gathered by NGFS members that have already published climate-related disclosure reports. The guide includes a new chapter on metrics and targets to align the guide's structure with the four-pillar framework of the TCFD. The guide also provides additional support in disclosure of internal operations, building on research conducted by the subgroup Greening Central Banks' Own Operations *within the workstream* Net Zero for Central Banks.

The Guide's main objective is to offer practical support and inspiration to central banks that are taking their first steps in climate-related disclosure. In addition, we hope that it can provide insights for those that are already at an advanced state.

Additional work lies ahead in the preparation of recommendations on nature-related disclosure and transition planning as well as a broader disclosure on sustainability-related risks and opportunities. We welcome the ongoing work of the Taskforce on Nature-related Financial Disclosures *and that of the* International Sustainability Standards Board *to unify global sustainability reporting rules.*

We are convinced that greater transparency is an essential component of the transition to a climate- and nature-friendly economy. Recognising the central position NGFS members hold within the financial system, and the growing urgency of the need to combat the climate crisis, we take responsibility for, and are committed to, doing our part to ensure such transition will be realised.

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Executive Summary

In December 2021, the Network for Greening the Financial System (NGFS) published its first guide on climate-related disclosure for central banks. This second edition of the guide updates and revises this previous edition, taking developments in international standards for disclosure into consideration. The guide builds on disclosure recommendations by the Task Force on Climate-Related Financial Disclosures (TCFD)[1], and aims to serve as a complement to the original TCFD recommendations, providing additional guidance for central banks.

The guide is aimed to central banks that are in the process of, or considering, disclosing their climate-related exposures. In several respects, central banks are different from private companies and other public sector institutions and require specific guidance. The guide acknowledges that there is no one-size-fits-all solution and, as such, presents a range of disclosure options that central banks may choose to follow, depending on their specific circumstances. Although the nexus between climate- and nature-related issues is becoming increasingly apparent, the understanding of nature-related implications for central banks was still at an early stage when the NGFS began drafting this guide and the relevant issues could not be integrated in the current edition.

Organised around four thematic areas (Governance, Strategy, Risk management, and Metrics and targets), the guide introduces a distinction between "baseline" and "building block" disclosure recommendations. *Baseline recommendations* relate to simpler and/or more foundational pieces of information that central banks "are recommended to" or "should" disclose. *Building block recommendations* relate to more advanced pieces of information that central banks "are encouraged to" or "could" disclose. This differentiation reflects that central banks operate under different circumstances and that they should decide on the scope and depth of their disclosures accordingly. The baseline and building block recommendations are summarised below.

Governance

Key takeaway

Disclose the institutional climate-related goals, targets, and processes for informing the board and management on climate-related issues as well as climate-related governance structures for specific areas and functions.

Overall governance: Central banks are recommended to disclose the institutional goals and targets, as well as the process for informing the board and management on climate-related issues (baseline). As part of this disclosure, central banks should describe the articulation of climate-related goals and targets with their legal mandates (baseline). In addition, central banks are encouraged to disclose the frequency of board discussions on climate-related risks and opportunities and how these issues are addressed within the various functions and areas across the central bank (building block).

Governance for specific areas and functions: Central banks are encouraged to disclose how governance structures for specific areas and functions address climate-related risks and opportunities (building block).

Strategy

Key takeaway

Disclose climate-related impacts related to the central bank as well as the strategy – in terms of adaptation, capacity building and communication – for handling these impacts.

Description of climate-related risks and opportunities: Central banks are recommended to describe material risks to the central bank across its areas and functions, including their approach to identifying and assessing the risks (baseline). Central banks are encouraged to disclose climate-related impacts of the central bank on the climate and climate-related opportunities for the central bank (building block).

1 Although the guide does not encompass the recently issued IFRS Sustainability Disclosure Standards, we note that the TCFD recommendations have been incorporated by the ISSB into its climate standard, IFRS S2 *Climate-related Disclosures*. As a result, those applying the guide should be well placed to move to ISSB disclosures in the future.

Adaptation of areas and functions: Central banks are recommended to disclose how they adapt their areas and functions to address climate-related risks and opportunities (baseline). Key items include changes to operational frameworks resulting from climate-related adaptation and the circumstances and prioritization that led to this adaptation (baseline). Central banks are encouraged to describe the robustness of their general strategy against climate-related risk scenarios, to inform on the resilience of the central bank's strategy (building block). Central banks could also disclose challenges faced and lessons learned in the process of adapting areas and functions as well as their transition plans (building block).

Capacity building and communication: Central banks are recommended to disclose their approach to internal capacity building around climate-related issues (baseline). This includes describing the upskilling of existing staff and the training plans to accommodate future knowledge needs (baseline). Central banks are encouraged to disclose their external communication strategy, including how they raise awareness on climate-related risks in the financial system (building block).

Risk management

Key takeaway
Disclose the processes for managing climate-related risks at the central bank, focusing on identification, assessment, and integration into risk management.

Identification and assessment: Central banks are recommended to disclose how they identify and assess their exposures to material climate-related risks (baseline). Key items include whether a quantitative or qualitative approach is used for identification (baseline). Central banks are encouraged to disclose if and how interactions of climate-related risks are assessed and whether backward- or forward-looking metrics are used (building block). Central banks could also describe the internal models used for identification and assessment (building block).

Integration into risk management framework: Central banks are recommended to disclose how climate-related risks management processes are integrated into their risk management framework (baseline). As part of this, they should disclose the management of material climate-related risks, including information on how to mitigate, transfer or accept them(baseline). Central banks are encouraged to disclose if they use a top-down or bottom-up approach in integrating climate-related risks in risk management frameworks (building block).

Metrics and targets

Key takeaway
Disclose metrics and targets relating to the central bank's management of climate-related risks and exposure to climate-related risks and opportunities.

Monetary policy and financial stability/supervision: Central banks are recommended to disclose metrics describing possible adjustments to their monetary policy framework as well as to financial regulation and supervision for climate-related reasons (baseline). Central banks are encouraged to disclose the estimated impact of the adjustments and metrics for resources dedicated to climate-related monetary and financial analysis (building block).

Financial portfolios: Central banks are recommended to disclose metrics for transition risk in their financial portfolios, including coverage and limitations of the metrics as well as a description and interpretation of the metrics (baseline). Central banks are encouraged to disclose forward-looking metrics for physical and transition risks and metrics at a granular level (building block). With respect to forward-looking metrics, central banks could disclose the different scenarios to demonstrate the range of potential outcomes for their portfolios, including worst-case tail scenarios (building block). Finally, central banks that have adopted intermediate and/or final climate-related targets for their investment portfolios are recommended to disclose the targets (baseline), and they are encouraged to disclose their progress and periodical review of the targets (building block).

Internal operations: Central banks are recommended to disclose the greenhouse gas (GHG) emissions from their internal operations separately from emissions related to financial portfolios (baseline). Central banks should include scope 1 and 2 emissions in their disclosure (baseline), and they could include scope 3 emissions (building block)[2]. Central banks are encouraged to disclose the intermediate and final targets for their own GHG emissions (building block).

2 The GHG protocol employes the follwing definitions of the three emission scopes:
Scope 1: All direct GHG emissions.
Scope 2: Indirect GHG emissions from consumption of purchased electricity, heat or steam.
Scope 3: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

1. Introduction

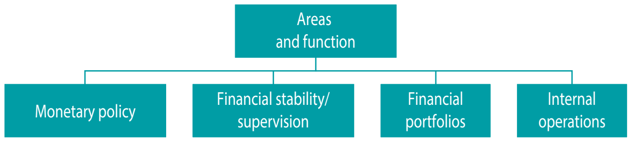
In December 2021, the Network for Greening the Financial System (NGFS) published its first guide on climate-related disclosure for central banks. This second edition updates and revises the previous guide, including a new chapter on metrics and targets. The guide is solely focused on the disclosure perspective and does not offer recommendations beyond this perspective.

The guide builds on existing recommendations by the Task Force on Climate-Related Financial Disclosures (TCFD)[3]. The TCFD recommendations on (i) governance, (ii) strategy, (iii) risk management, and (iv) metrics and targets are summarised in Figure 2. The present guide provides additional guidance on implementing the recommendations[4] in the context of a central bank and follows a similar structure to the TCFD.

Broadly adopted and internationally consistent climate-related disclosure by financial institutions has important benefits. First, it is a key condition for an efficient capital market, as disclosure can improve the pricing mechanisms for climate-related risks. Second, it enables market participants to identify and capitalise on climate-related opportunities, thereby contributing to the scaling up of climate finance[5]. Third, preparation of disclosure reports requires institutions to establish the necessary procedures to identify and assess climate-related risks, thus imposing discipline that ultimately leads to better outcomes.

The guide aims to complement existing climate-related disclosure standards with a central bank-specific view, acknowledging that there is no one-size-fits-all solution for central banks. While most central banks are not subject to climate-related reporting obligations, some may be mandated to do so while others disclose to "lead by example". In this sense, the preparation of a disclosure report can help central banks better understand the extra-financial reporting standards that financial institutions must comply with, as well as strenghten their own sustainability strategy. The guide presents a range of disclosure options that central banks may choose to follow, depending on their specific circumstances (e.g., mandates, disclosure obligations, balance sheet composition, and resources). Data availability, internal capabilities, and possible unintended effects of policy implementation should also be considered when examining the disclosure options.

Figure 1 **Functions and areas within central banks**



The content of each chapter is tailored to central banks. In several respects, central banks are different from private companies and other public sector institutions and require specific guidance. Disclosure recommendations within each chapter are grouped across the areas and functions of central banks: *monetary policy, financial stability/supervision, financial portfolios,* and *internal operations* (see Figure 1). Financial portfolios comprise all central bank portfolios, including monetary policy portfolios (e.g., asset purchase programs and FX reserve portfolios) and investment portfolios (e.g., own fund portfolios, pension fund portfolios, other FX portfolios, and third-party portfolios). Box 1 outlines some key steps in designing a disclosure process.

The disclosure recommendations are divided into baseline and building block recommendations. *Baseline recommendations* relate to simpler and/or more foundational pieces of information that central banks "are recommended to" or "should" disclose. *Building block recommendations* relate to more advanced pieces of information that central banks "are encouraged to" or "could" disclose. This differentiation allows central banks to flexibly decide on the scope and depth of their disclosure, enabling a stepwise approach. Disclosures can range from a broad overview to narrow and detailed descriptions.

3 The TCFD was disbanded in 2023 upon fulfilling its mandate and the FSB asked the IFRS Foundation to take over the monitoring of the progress of companies' climate-related disclosures. The TCFD recommendations have been incorporated by the ISSB into its climate standard, IFRS S2 *Climate-related Disclosures*, and as a result those applying the present guide should be well placed to move to ISSB disclosures in the future.

4 For TCFD guidance on implementing the recommendations see TCFD (2021b).

5 See NGFS (2022), "Enhancing market transparency in green and transition finance".

The guide focuses on climate-related risks, leaving nature-related issues aside. Although the nexus between climate- and nature-related issues is becoming increasingly apparent, the current understanding of nature-related implications is still at an early stage and the relevant issues cannot be integrated in the guide. The NGFS has begun to address these issues at a conceptual level[6], and will aim to provide guidance on their integration in its future work on disclosure. Central banks are encouraged to consider nature-related aspects in their disclosure whenever appropriate and feasible. Some central banks have already started to disclose in this area[7].

The report is organised as follows. Chapter 2 is devoted to governance, chapter 3 to strategy, chapter 4 to risk management and chapter 5 to metrics and targets. Each chapter begins with a table summarising the relevant key recommendations. Some questions providing additional guidance are also presented.

Box 1

Designing a climate-related disclosure process

Who should be involved in the drafting process?

Central banks are recommended to ensure a holistic treatment of climate-related risks and opportunities. To guarantee the full disclosure, central banks are recommended to involve all relevant functions for institutional tasks and internal operations at an early stage. Broad involvement could raise awareness internally about the cross-cutting implications and the importance of disclosures. Key in-house functions include the areas in charge of monetary policy, financial stability/supervision, financial portfolios, and internal operations, as well as external engagement and communication. A key steering and coordination role for the design of the disclosure should be taken by the central banks' board or any high-level internal committee on climate change and sustainability.

Disclosure format

Central banks can choose the form and frequency of their disclosure. Some central banks may decide to publish stand-alone reports, while others might add climate-related information to their overall reporting, e.g., in their annual report. Central banks can also use a dedicated section on their websites to disseminate climate-related information.

Planning for the review and validation process

As climate-related materiality evolves, a dynamic review of its consequences for central banks is needed. Different measures might be used for materiality assessment (e.g., share of overall GHG emissions). Climate-related disclosure reporting should be subject to an appropriate internal governance process to identify and monitor climate-related materiality for central banks. The process is likely to include governance structures, controls, compliance functions, and assurance specialists. Early guidance by, and the regular involvement of, senior management is recommended to bolster ownership of the process and ensure that benefits can trickle down to all areas and functions.

Time management

Time management is an important consideration when preparing disclosure reports, especially if the central bank wishes to publish the report together with the institution's annual report. Sufficient time needs to be earmarked for the review and governance process and for the assurance process.

6 See NGFS (2023c), "Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors".
7 E.g., the French central bank provides a detailed estimate of the biodiversity impact of its financial portfolios (Banque de France, 2022).

Figure 2 **Recommendations and supporting recommended disclosures of the TCFD**

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	**Recommended Disclosures**	**Recommended Disclosures**	**Recommended Disclosures**
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opporunities the organization has identified over the short, medium, and long term.	a) Describe the organization's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	b) Describe the organization's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2 °C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures.
Source: TCFD (2021b), p. 15.

2. Governance

Table 1 **Summary of disclosure recommendations on governance on climate-related issues**

Topic	Guidance
Overall governance	Baseline disclosures: • Institutional objectives, including specific climate-related goals and targets, and how they articulate with legal mandates. • Processes for informing the board and management on climate-related issues. • Monitoring of climate-related issues by the management (e.g., committees or dedicated units). Building block disclosures: • Frequency of discussions on climate-related risks and opportunities by board and management. • Information on how the board(s) and management ensure the integration of climate-related materiality into their processes and decision making.
Governance for specific areas and functions	Building block disclosures: • Governance structure around climate-related risks and opportunities in relation to monetary policy, financial stability/supervision, financial portfolios, and internal operations.

This chapter outlines the recommendations for governance disclosures. Stakeholders (e.g., governments, the financial sector, and the public) are interested in understanding the role of governance bodies at board and management levels in overseeing climate-related risks and opportunities. Transparency about governance structures, accountability, and oversight could enhance public confidence that the central bank is adequately addressing the economic and financial consequences of climate change and the transition to a net-zero economy.

In their disclosure, central banks should clarify the motivation and drivers of their approach to climate-related risks and opportunities as well as its governance. Disclosures could also describe climate-related governance structures for specific areas and functions in the central bank[8]. The following questions provide guidance for disclosure on governance:

- Does the central bank consider climate-related factors in its institutional policies and objectives? Is there an explicit or implicit legal basis for dealing with climate-related issues?
- How often do the board(s) and management discuss climate-related risks and opportunities or review climate-related policies?
- What is the role of the board(s) and management in the design, implementation, and oversight of the climate-related policies?
- Has the central bank established specific structures (e.g., dedicated units and committees) to address issues around climate-related integration into areas and functions? Which bodies are these, and how are the responsibilities allocated?
- What is the governance structure around climate-related risks and opportunities under each area and function?
- How does the central bank ensure that all relevant functions and areas are adapting to climate-related risks, are included in the implementation of climate-related strategy, and involved in the ongoing management of climate-related risks and opportunities?
- Does climate-related performance play a role in the remuneration of management and staff or other incentive schemes?

2.1 Overall governance (baseline)

Central banks are recommended to disclose the institutional climate-related goals and targets and decision-making process for institutional climate-related policies. This information constitutes a first step towards more comprehensive disclosure of climate-related governance.

8 See BIS (2009) and IMF (2021).

Articulation with institutional mandate (baseline)

Central banks are recommended to disclose the articulation of their climate-related goals and targets with their legal mandates. Mandates define the legal parameters under which a central bank can act. Mandates may constrain certain climate-related actions altogether. Differences in mandates may thus explain why central banks make different decisions regarding climate-related risks and opportunities. These differences might be significant between central banks with and without formal supervisory responsibilities. If a central bank has not set climate-related goals and targets, it should explain the reasons why and on which horizon it plans to formulate these goals and targets.

The mandates of central banks impact their climate-related action. The mandates of most central banks are centred around ensuring price stability as well as, in some cases, full employment, financial stability, or exchange rate stability. Fulfilling these mandates may be challenged by climate-related risks. In some cases, central banks also have mandates that require them to support the transition to a net-zero economy. This can be the case if the central bank has an active sustainability mandate[9], a mandate to support its government's economic policies[10], or it takes the view that supporting an orderly net-zero transition is a factor in the achievement of its institutional mandate. Interpretation of the mandate in terms of climate change should be clear from disclosure reports.

Processes for informing the board and management on climate-related issues (baseline)

Central banks are recommended to disclose the processes by which board and management is informed of climate-related issues. The processes will depend on the specific organization of each central bank as well as to the specific climate-related goals and targets.

Monitoring of climate-related issues (baseline)

Central banks are recommended to disclose the monitoring process of climate-related issues by the management, including the specific positions and/or management committees. The disclosure should include how climate-related responsibilities are assigned to board- and management-level positions or committees (e.g., climate change centre). The disclosure should also describe how governance structures have been adjusted over time to accommodate climate-related goals and targets.

Frequency of discussions at board level (building block)

Central banks are encouraged to disclose the frequency of discussions regarding climate-related risks and opportunities by the board(s). As part of this disclosure, central banks could disclose how often they review and update their key policies. In addition, central banks are encouraged to disclose the processes and timing for the discussions. The aim of this is to provide information on how the board(s) and management oversee, assess, and monitor their climate-related activities.

Integration into processes and decision making (building block)

Central banks are encouraged to disclose how their board(s) and management ensure the holistic integration of climate-related risks and opportunities into processes across the central bank. The NGFS encourages central banks to integrate climate-related considerations systematically and consistently into their activities, namely on guiding and reviewing the major action plans, risk management policies and business policies.

9 See Dikau and Volz (2021).

10 NGFS (2020d) found that about one-fifth of the central banks reviewed have been assigned different types of (mainly secondary) sustainability mandates.

2.2 Governance for specific areas and functions (building block)

Central banks are encouraged to disclose how governance structures for their specific areas and functions encompass climate-related risks and opportunities. Disclosures could describe the specific decision-making framework and responsibility for the specific areas and functions to address climate-related risks and opportunities.

Monetary policy (building block)

Earlier NGFS reports document first attempts to address climate-related issues via monetary policy[11]. A recent NGFS survey finds that, although central banks have acted across credit operations, collateral frameworks, and asset purchases over recent years, taking climate change into account in the context of monetary policy is still at an early stage[12].

Central banks are encouraged to disclose the governance structure around climate-related risks and opportunities in relation to monetary policy. If no adaptation to climate-related considerations has occurred, central banks could disclose the reasons for this. Disclosed information could indicate which decision-making bodies are responsible for the conduct of operations and definition of frameworks, as well as for any decisions to adapt operations and frameworks. Governance disclosure also includes information on the checks and balances around the decisions to integrate climate-related considerations into operations. When making disclosures, central banks could clarify the implications of the climate-related policies and objectives for different type of accounts and portfolios.

Financial stability/supervision (building block)

A functioning economy requires a stable financial system. The NGFS acknowledges that climate-related risks are a source of financial risk and that it is within the mandates of central banks and supervisors to ensure the resilience of the financial system to these risks. Financial supervisors are therefore entrusted with monitoring financial institutions´ business activities and maintaining investors' confidence. Financial institutions must take climate-related considerations into account in their business organisation, when implementing their business strategy and in their frameworks for risk management and good governance.

Central banks are encouraged to disclose the governance structure around climate-related risks and opportunities in relation to financial stability and supervision. Central banks could disclose which bodies are responsible for managing climate-related risks to financial stability and for micro-prudential supervision. Some central banks have a financial policy committee and/or are members of interagency financial stability councils. Central banks could explain the frequency and procedures with which decision on climate-related risks are discussed in these forums.

Financial portfolios (building block)

Central banks are encouraged to disclose the governance structure around climate-related risks and opportunities in relation to financial portfolios. Central banks are encouraged to cover both monetary policy portfolios and investment portfolios, including investment portfolios that are externally managed. In the disclosure, central banks are recommended to distinguish between monetary policy portfolios and investment portfolios.

Central banks are encouraged to describe the governance around sustainable and responsible investment (SRI)[13]. Climate-related disclosure can play an important role at various stages of the decision-making process for investment portfolios. The disclosure could include whether a formalised SRI policy exists as well as how it is approved and periodically reviewed. The disclosure may also contain information on the business areas responsible for developing and monitoring compliance with investment guidelines. Central banks could describe whether there are provisions in the mandate, constraints, or any other specific risk that influence the decisions on SRI principles from being applied to certain portfolios.

Internal operations (building block)

Central banks are encouraged to disclose the governance structure around climate-related risks and opportunities in relation to internal operations. Relevant functions for disclosure include energy consumption, procurement, business travel and cash production and distribution. For example, central banks might disclose their guidelines for public tenders, including the weight attached to sustainability considerations.

11 See NGFS (2021a).

12 See NGFS (2023).

13 Detailed recommendations on SRI can be found in NGFS (2024b), (2024c), and (2024d).

Box 2

Disclosure on climate-related governance: examples

Several central banks have recently published climate-related disclosures covering governance. Examples of this are listed below:

- Bank Indonesia describes its mandates and initiatives, including those related to climate issues in its annual and quarterly reports. Bank Indonesia incorporates climate-related considerations in its policy mix formulation and decisions. This include policies to support the development of sustainable finance (e.g., macroprudential incentives to banks financing priority and green sectors and small- and medium-sized enterprises) and sustainable investment allocation for Bank Indonesia's FX reserves portfolio. In its disclosure reports, Bank Indonesia describes collaboration with other authorities and institutions to promote development of sustainable economy and finance (e.g., collaboration with Indonesia's Ministry of Finance and Financial Services Authority in establishing Sustainable Finance Committee and developing Green Taxonomy of Indonesia).

Other central banks have disclosed the governance structure around responsible investment and corporate and social responsibility. Examples are again listed below:

- Banca d'Italia publishes a report on sustainable investments and climate of its own non-monetary policy portfolios. In the report, a three-layer governance is disclosed for managing climate and sustainability issues. Such governance structure is articulated with a high-level committee, a hub and a working group of experts gathering all central banking functions.
- Banco de España has been reporting on the integration of sustainable and responsible investment principles in its non-monetary policy portfolios since 2019 in its institutional reports and in public addresses by members of its governing bodies. In 2023, Banco de España started to publish a dedicated report that follows the recommendations of the TCFD regarding these portfolios. This report is prepared by the Directorate General on Operations, Markets and Payments Systems, which is responsible for the integral management of the investment portfolios and whose Director General submits the relevant proposals to the Executive Commission for its approval, based on the work of the Investments Sub-Committee and the Financial Risk Sub-Committee.

3. Strategy

Table 2 **Summary of disclosure recommendations on strategy**

Topic	Guidance
Description of climate-related risks and opportunities	Baseline disclosures: • Description of material climate-related risks to the central bank across its areas and functions. • Approach for identification and assessment of climate-related risks across areas and functions. Building block disclosures: • Description of material climate-related impacts of the central bank on the climate across its areas and functions. • Description of material climate-related opportunities for the central bank across its areas and functions.
Adaptation of areas and functions	Baseline disclosures: • Adaptation of areas and functions to take climate-related risks and opportunities into account, including changes to operational frameworks. • Areas and functions that are prioritised for adaptation as well as the circumstances that led to the prioritisation. • Cooperation with external entities. Building block disclosures: • Evaluation of strategy against climate-related scenarios that differ from the reference Paris-aligned scenario[1]. • Challenges faced and lessons learned in adaptation of areas and functions. • Description of transition plan and insights on the development, monitoring and review of the plan.
Capacity building and communication	Baseline disclosures: • Approach to internal capacity building around climate-related risks and opportunities. Building block disclosures: • Approach to external communication, outward capacity building, and education. This includes the research and educational publications and seminars given to the public and specific audiences on climate-related issues. • Use of external consultants and the type of information received.

1 Limiting temperature increase to "well below 2 °C" above pre-industrial levels (Paris agreement art. 2.1(a)).

This chapter outlines recommendations for disclosures relating to central banks' strategies. It should be clear from a central bank's disclosure how it is affected by climate-related risks and opportunities, as well as the actions that it has implemented through its strategy for handling these impacts. The following questions provide guidance for disclosure on strategy:

- What are the climate-related risks and opportunities material to the central bank?
- How are material climate-related risks and opportunities identified and assessed?
- How does the central bank integrate climate-related risks and opportunities into its monetary policy, financial stability/supervision, financial portfolios, and internal operations?
- How does the central bank prioritise its consideration of climate-related risks? How do these priorities shape the central bank's strategies for carrying out its core functions?
- How is the resilience of the central bank's approach under alternative climate-related scenarios assessed?
- How does the central bank approach internal capacity building, external communication, education, and cooperation with external entities on climate-related issues?

3.1 Description of climate-related risks and opportunities (baseline)

Climate-related risks to the central bank (baseline)

Central banks are recommended to describe material inward risks across areas and functions in their disclosures. Inward risks to central banks' areas and functions can be both physical- and transition-related. For example, an inward risk to monetary policy is climate-induced supply shocks that cause food or energy price to rise. Inward risks to financial stability include flooding or sea level rise that cause hazards to real estate and increase the probability of default among mortgage holders, and carbon taxes[14] that render fossil-fuel-related activities uncompetitive and strand the associated assets. Inward risks to internal operations include natural disasters or supply disruptions that compromise the central bank's payment systems or banknote production.

Central banks are recommended to disclose their approach to identifying and assessing climate-related risks across areas and functions. Where approaches differ in relation to a given area or function, these distinctions should be made explicit.

Disclosure should reflect the time horizon in which climate-related risks are estimated to materialise. Climate-related risks can materialise over short-, medium-, and long-term time horizons. In many cases, climate-related physical risks are likely to become more severe over a longer time horizon than other risks, given the long-term nature of climate change. Transition risks may occur in a less predictable manner and over shorter time frames. Central banks are encouraged to consider the specific useful life of their assets and infrastructures.

Climate-related impacts and opportunities (building block)

Central banks are encouraged to describe outward climate-related impacts and climate-related opportunities in their disclosures. Outward climate-related impacts refer to the effect that a central bank has on the climate through, for example, the GHG emissions that result from its financial portfolio investment and its physical operations. Opportunities for central banks in this context include diversifying their financial portfolios into securities or sectors that support the transition to a net-zero economy or installing solar panels or energy-saving devices on their premises, among other things.

3.2 Adaptation of areas and functions (baseline)

Central banks are recommended to disclose whether they adapted their core functions to climate-related risks. For example, a central bank may disclose that it has developed a separate climate-related strategy, which adapts core functions over time, or it may disclose that is integrates climate-related considerations into its existing strategies for core functions in a holistic way.

Overall adaptation and prioritisation (baseline)

Central banks are recommended to disclose the adaptation areas and functions to climate-related risks and opportunities. Central banks should also disclose the prioritisation for adaptation as well as the circumstances and rationale that led to the prioritisation. Central banks should disclose separately for each area and function as well as changes to operational frameworks resulting from the adaptation. For instance, concerning financial stability/supervision, the central bank should describe the strategic objectives of any adaption, adjustment to regulation and supervisory practices (e.g., climate stress testing), recommendations issued to supervised entities and parts of the supervisory dialogue with supervised entities, relevant associations, and regulatory authorities.

Cooperation with external entities (baseline)

Central banks are recommended to disclose collaboration with external entities on climate-related risks and opportunities. Central banks play a key stewardship role in the financial system. As part of this stewardship role, central banks collaborate externally on climate-related

14 In this report, carbon tax should be broadly interpreted to also include other systems of carbon pricing such as the European emission trading system (EU ETS).

issues. External collaboration takes place with other central banks, regulatory bodies and standard setters, international peer organisations and networks as well as in financial sector forums.

Evaluating resilience of chosen approach (building block)

Climate-related risks and opportunities may evolve in different ways over time depending on various factors, with diverse impacts on the central bank's approach through time. The NGFS scenario architecture provides examples of the types of risks and opportunities that central banks may encounter in the future. These scenarios can provide useful test environments within which resilience can be assessed by internal stakeholders. The knowledge about climate and the economy is rapidly developing[15].

Central banks are encouraged to describe the robustness of their general strategy against climate-related risk scenarios. This would inform on the resilience of the central bank's strategy against worse outcomes than expected in the central bank's reference Paris-aligned climate-related scenario.

Challenges and lessons learned (building block)

Central banks are encouraged to disclose challenges faced and lessons learned in the adaptation of areas and functions. Central banks face many common challenges when integrating climate-related considerations into their strategies for core functions and mandate-related activities. These insights might include how central bank mandates spur strategic intervention on climate, the extent to which existing strategies have been adapted to fulfil this purpose, and how stakeholders were engaged in integrating climate-related factors within strategies.

Transition plan (building block)

Central banks are encouraged to disclose transition plans. Transition plans should be considered as part of the central bank's overall climate-related approach. Disclosure of the transition plan could provide information on how the transition planning process was undertaken, how it articulates with the central bank's wider climate-related approach, and how it will be monitored and reviewed as circumstances change. Previous NGFS publications on transition planning[16] highlight the relevance of this topic.

15 Useful information is available in the NGFS Scenarios Portal, accessible through the following link: https://www.ngfs.net/ngfs-scenarios-portal/.
16 See NGFS (2024a), "NGFS publishes a package of reports relating to Transition Plans".

Box 3

Climate-related transition plans: examples

A few central banks have formalised transition plans, the scopes of which differ. Internal operations may be a natural starting point.

The Bank of England's transition plan was published in 2023 and targets net zero GHG emissions from physical operations by 2040. With interim milestones in 2025, 2030, and 2035, the plan is aligned with a 1.5 °C pathway and covers emissions from internal operations. The plan considered actions to decarbonise buildings, travel, notes production, and the supply chain. The content and format were informed by several standards including the UK Transition Plan Taskforce framework, SBTi Targets, and the ISO Net Zero guidance. As standards evolve and are better able to accommodate the financial operations of a central bank, it will be necessary to iterate and update the plan over time. Key lessons include the importance of working with finance, risk, and audit colleagues to ensure the correct skill sets are in place for ratifying and publishing the decarbonisation pathway. It was also beneficial to engage with high-level stakeholders early in the process for them to consider the strategic climate-related actions necessary for the plan, some of which extend beyond typical business planning cycles.

Transition plans from some central banks go beyond internal operations.

- In the 2023 update of its sustainable finance strategy for 2021-2025, De Nederlandsche Bank announced its intention to publish its own transition plan towards 2050 that will contain specific ambitions for all core functions and internal operations. Such an approach is consistent with what supervisors, including relevant central banks, may expect from the financial institutions they supervise.
- In October 2023, the Monetary Authority of Singapore consulted on its proposed guidelines for financial institutions on transition planning which, while not referring to its internal operations, provides its regulated entities with additional supervisory guidance. The draft guidelines set out supervisory expectations on how FIs should navigate changes to their risk profile and business models as they navigate the transition to a lower GHG emissions economy and the expected physical effects of climate change.

3.3 Capacity building and communication (baseline)

Climate-related risks and opportunities are new ground for some central banks. Central banks need to develop capabilities internally and in the financial and economic system at large. Internal capability and capacity building is likely to be based on a combination of targeted recruitment and training programmes to upskill existing staff, with the NGFS Climate Training Alliance as a useful resource in this regard[17].

Internal capacity building (baseline)

Central banks are recommended to disclose their approach to internal capacity building around climate-related risks and opportunities. This should include describing the strategy to upskill existing staff and how training plans accommodate new knowledge needs in the future.

17 See NGFS "International financial organisations unite with the central bank and financial supervisory community to launch the Central Banks' and Supervisors' Climate Training Alliance (CTA) ahead of COP26".

External communication and education (building block)

Central banks are encouraged to disclose their approaches to external communication, outward capacity building, and stakeholders' education. Central banks have an important role to play in leading the financial sector good practice in the management of risk. Central banks can disclose how they identify knowledge gaps among financial system members. Communication approaches may also involve education programmes to raise awareness and literacy of climate-related issues among households and firms.

Use of external consultants (building block)

Central banks that use external consultants in developing and implementing climate-related approach are encouraged to disclose their practices. Such disclosures will naturally be subject to contractual restrictions. Central banks might also disclose the nature of information and methodologies shared by external consultants, if allowed.

4. Risk management

Table 3 **Summary of disclosure recommendations on risk management**

Topic	Guidance
Identification and assessment	Baseline disclosures: • Use of qualitative and quantitative approaches for identification and assessment of climate-related risks. • Reliance on qualitative assessment and motivation for doing so. Building block disclosures: • Identification and assessment of different types of climate-related risk in combination with each other. • Use of backward- and forward-looking methodology, including advantages and limitations of applied methodology. • Information on internal models that are used to identify and assess climate-related risks, including material assumptions of the models.
Integration into risk management framework	Baseline disclosures: • Management of material climate-related risks. This includes information on how to mitigate, transfer or accept these risks. • Integration of processes to manage material climate-related risks into the risk management framework, differentiating between central bank areas and functions. Building block disclosures: • Information on whether the integration of climate-related risks into risk management follows a top-down or bottom-up approach.

This chapter outlines recommendations for risk management disclosures. Disclosed information helps stakeholders evaluate a central bank's climate-related risk profile and management of its activities. Depending on the central bank legal context, the emerging regulatory requirements related to climate-change (e.g., limits on emissions) might be relevant to a few central banks but this factor is not addressed in this chapter. Central banks are recommended to disclose the current state of their climate-related risk management across its areas and functions. The following questions provide guidance for disclosure on risk management:

- Which approaches does the central bank take in identifying, assessing, and managing its exposure to climate-related risks?
- To what extent does the central bank have climate-related risks within its statements on risk appetite?
- Does the central bank treat climate-related risks as a separate risk category or as an amplifier of conventional risk categories, such as market and credit risk?
- To what extent does the central bank apply limits to its climate-related exposures?
- Does the central bank, and its regulated entities, hold additional finance resources to account for the manifestation of climate-related risks?

4.1 Identification and assessment of climate-related risks (baseline)

Central banks are recommended to disclose how they identify and assess their exposures to climate-related risks. Table 4 elaborates on the differences between these approaches. Qualitative approaches typically rely on expert judgements. These judgements can be added as an overlay to quantitative analysis or used as an alternative in the event of data, methodological or conceptual gaps. Qualitative reporting can also be an option in initial disclosure reports for communicating results from quantitative analyses that rely on assumptions that the central bank considers inappropriate for reporting. **If a qualitative approach is used, central banks are recommended to explain the background for doing so[18].**

18 See BCBS (2021a).

Table 4 **Approaches in climate-related risk identification**

Approach	Methodology	Examples of data
Qualitative	Backward-looking	Qualitative categorisation, e.g., high-low emissions, high-low flooding risk
	Forward-looking	Expert judgements, e.g., about future pathways
Quantitative	Backward-looking	Historical data, e.g., on natural disasters or GHG emissions
	Forward-looking	Scenario projections, e.g., NGFS scenarios

Methodologies for risk identification and assessment (building block)

Central banks are encouraged to disclose how different types of climate-related risk are identified and assessed in combination with each other. For instance, combinations of physical risks can have a greater impact than if each source of risk is evaluated separately, because of interactions between climate events and feedback-loop mechanisms (e.g., climate tipping points) that compound climate change. In many cases, the degree of adaptive capacity available to the financial system to cope with the physical impacts of climate change will interact with transition impacts, so coherently integrating both physical and transition risks in the analysis will provide useful insights.

Central banks are encouraged to disclose whether they use backward-looking and forward-looking methodologies to identify and assess climate-related risks. As part of this disclosure, central banks are encouraged to disclose inherent limitations of the chosen methodologies.

Backward-looking methodologies allow climate-related risk assessment based on historical data. Central banks could start by identifying and disclosing climate-related risks using backward-looking methodologies. This may provide stakeholders with information on financial materiality across the spectrum of climate-related risks that could materialise in the future. However, historical climate-related losses are likely to underestimate potential future losses, as climate change and the transition to a net-zero economy intensify. An understanding of past climate-related impacts could nevertheless serve as a starting point to disclose future impacts, on the assumption that these will increase in frequency and severity[19].

Forward-looking methodologies assess potential future outcomes based on a combination of historical data and projections for future climate and transition pathways. One key advantage of forward-looking methodologies is that they account for increases in the frequency and severity of climate-related events. As such, they are designed to provide a better insight into the future risks and plans to mitigate these risks. Despite these benefits, forward-looking methodologies tend to be more complex and sensitive to the assumptions used in the calculations, in comparison with backward-looking methodologies. In addition, forward-looking methodologies are under development, and data providers are refining their approaches.

Central banks are encouraged to disclose information about the internal models that they use to identify and assess climate-related risks. As part of this disclosure, central banks could disclose assumptions that are crucial for the outcomes of the models.

19 See EBRD-GCECA (2018).

Table 5 **Sample of risk categories, risk types, and climate-related mapping**

Scope	Type	Example of climate-related mapping
Assets in financial portfolios	Credit risk	Climate-related company-specific costs or losses that lead to a credit downgrade or default on credit obligations
	Market risk	Asset supply and demand imbalances that increase market volatility and negatively impact asset prices
	Liquidity risk	Lower market liquidity due to changes in investor preferences associated with climate-related risks
Institutional functions	Strategic or policy risk	Diminished ability to stabilise inflation due to weaker monetary policy transmission and a smaller monetary policy space
	Reputational risk	Public awareness of central banks' (financing of) GHG emissions
Internal operations	Operational risk	Disruption of physical operations or impairement of premises and infrastructure due to natural disasters caused by climate change
Transversal	Liability risk	Litigation[1] aimed at central banks for decisions to mitigate climate-related risks or for (financing of) GHG emissions

1 See NGFS (2023b).

4.2 Integration into risk management framework (baseline)

Central banks are recommended to disclose how they integrate climate-related risks into their risk management frameworks. The NGFS recommends central banks to integrate climate-related risks with other risks[20]. A risk taxonomy that maps climate-related and other risks is shown in Table 5, which may guide central banks in this disclosure.

Risk management (baseline)

Central banks are recommended to disclose the initiatives taken to manage climate-related risks that have been assessed as material. This includes information on how they mitigate, transfer or accept these risks. Risk management at central banks takes a range of different types of risk into consideration. Central banks should disclose how their processes for identifying, assessing, and managing climate-related risks are integrated into their overall risk management.

Top-down and bottom-up approach to risk management (building block)

Central banks are encouraged to disclose whether they use a top-down or bottom-up approach, or a mix of the two approaches, to integrate climate-related risks into risk management[21]. Integration of climate-related risks can follow a top-down or bottom-up approach:

- **Top-down approach:** The central bank treats climate-related risks as a stand-alone source of risk that is distinct from other sources. Assessment and management consequently take place separately, with bespoke tools being used to assess and manage the climate-related risks.
- **Bottom-up approach:** The central bank treats climate-related risks as amplifiers of other risks. Climate-related factors are identified, assessed, and managed as sub-components within a standard risk management framework for each class of assets, by adapting the existing tools.

The distinction between top-down and bottom-up approach is important. The choice of approach might reflect whether the central bank interprets climate-related risks as a stand-alone source of risk or as an amplifier of other risks. In doing so, central banks could differentiate across their areas and functions. Moreover, the choice could reflect the granularity of risk categories used within the central bank, as well as the materiality of climate-related financial risks relative to other sources of financial risk.

20 See NGFS (2021c).

21 See NGFS (2021c).

Box 4

Bank of England's disclosure on the risk management process: example

The Bank of England has a risk management framework that spans all its functions. The risk management framework specifies the risk tolerance for financial and non-financial risks. The Bank of England uses its risk management framework to monitor exposure to climate-related risks and assess how those risks could impact the resilience of its financial and physical operations. To help analyse climate-related risks in both these areas, the Bank of England focuses on impacts emanating from two climate-related risk drivers: physical and transition risks.

The risks are assessed across the near-term horizon, through regular Risk and Control Self Assessments, prepared by each of the Bank of England's key functions. They are also assessed through the climate-related risk metrics, and, for risks which are more uncertain or less proximate, through regular analysis of emerging risks. The Bank of England discloses the process of monitoring the materiality of these risks. The Bank of England is taking a forward-looking approach and assesses the impact of the risk events under specific scenarios.

In the climate-related risk reporting on its financial asset holdings, the Bank of England discloses analysis of its sovereign and corporate asset holdings. In doing so, the Bank of England uses static, backward-looking measures of the climate-related risks, as well as forward-looking scenario analysis to estimate potential financial impacts across the Bank of England's portfolios in the future. The Bank of England is continuing to deepen the range of forward-looking scenario-based analyses it uses to assess the financial impact of transition and physical risks and moving forward with incorporating these into its risk frameworks.

The limitations of both approaches (backward- and forward-looking) are also disclosed, stating that point-in-time metrics are limited by being snapshots in time, which do not consider the likelihood, or effectiveness of future events and plans. On the other hand, although forward-looking metrics bridge some of the gap to decision usefulness, they are still limited by not being expressed in terms which can be integrated into financial risk frameworks.

The metrics draw on both publicly available data and on data and methodologies from external data providers used by the Bank of England. The Bank of England discloses the sources on data and pledges to monitor developments in climate-related risk data and methodologies to adapt its approach in line with emerging best practice.

5. Metrics and targets

Table 6 **Summary of disclosure recommendations on metrics and targets**

Topic	Guidance
Monetary policy	Baseline disclosures: • Metrics describing adjustments to the monetary policy framework for climate-related reasons. Building block disclosures: • Estimated impacts of adjustments to the monetary policy framework for climate-related reasons. • Metrics for resources dedicated to climate-related work (e.g., number of FTEs – Full Time Equivalent positions – working on climate-related monetary analysis or number of documents published on the topic).
Financial stability/supervision	Baseline disclosures: • Metrics describing adjustments to financial regulation and supervision for climate-related reasons. Building block disclosures: • Estimated impact of adjustments to financial regulation and supervision for climate-related reasons. • Metrics for resources dedicated to climate-related work (e.g., number of FTEs working on climate-related financial/supervisory analysis or number of documents published on the topic).
Financial portfolios	Baseline disclosures: • Backward-looking metrics for transition risk: weighted average carbon intensity, total carbon emissions and carbon footprint. • Portfolio share covered by metrics. • Description and interpretation of disclosed metrics. • Intermediate and final climate-related targets (if adopted). Building block disclosures: • Forward-looking metrics for physical and transition risk. • Different scenarios to demonstrate the range of potential outcomes, including worst-case tail scenarios. • Metrics at a granular level, e.g., specific physical risks or by sectors. • Progress against targets and periodical review.
Internal operations	Baseline disclosures: • Scope 1 and 2 emissions. Additional building block disclosures: • Scope 3 emissions considering the relevant value chain of internal operations. • Intermediate and final targets for GHG emissions.

This chapter outlines recommendations for metrics and targets disclosures. The metrics used to measure and manage climate-related opportunities should be provided for historical periods to allow for trend analysis. Where feasible, central banks should provide a description of the methodologies used to calculate or estimate climate-related metrics. The chapter is divided into four sections: monetary policy, financial stability/supervision, financial portfolios, and internal operations. The following questions provide guidance for disclosure on metrics and targets:

- Has the central bank adjusted monetary policy operations for climate-related reasons?
- What is the number of FTEs working on climate-related financial analysis and supervision?
- What is the weighted average carbon intensity, total GHG emissions and carbon footprint for the central bank's equity, corporate bond and sovereign bond portfolios?
- Does the central bank have a target for the weighted average carbon intensity associated with specific financial portfolios?
- Does the central bank have an intermediate target for the scope 1-2 emissions associated with the central bank's internal operations?

5.1 Monetary policy (baseline)

Adjustment to monetary policy (baseline/building block)

Central banks are recommended to disclose metrics describing possible adjustments to their monetary policy framework that may have been made for climate-related reasons (baseline). Central banks might have adjusted their framework (e.g., collateral frameworks or asset purchase programs) for different reasons[22]. Central banks should also disclose the objectives they want to achieve with the adjustment, as part of their disclosure on targets. **Central banks are encouraged to disclose the estimated impact in financial markets of adjustments to monetary policy (building block).**

Allocated resources (building block)

Central banks are encouraged to disclose metrics for resources devoted to climate-related monetary analysis. For instance, central banks could disclose the number of FTEs working on climate-related economic analysis for monetary policy purposes, as well as the output of this work, and the number of research documents published on the topic.

5.2 Financial stability/supervision (baseline)

Adjustment to financial stability/supervision (baseline/building block)

Central banks are recommended to disclose metrics describing possible adjustments to financial regulation or supervision that may have been made for climate-related reasons (baseline). Metrics may include the frequency with which a central bank or supervisor raises climate-related risks in its supervisory engagements or the guidance that the central bank has issued to regulated entities. For instance, central banks might have asked supervised institutions to increase capital buffers or adjust borrower-based requirements for climate-related reasons. Central banks should also disclose the goals they want to achieve with the adjustment, as part of their disclosure on targets.

Central banks are encouraged to disclose the estimated impact in financial markets of adjustments to financial regulation and supervision (building block).

Allocated resources (building block)

Central banks are encouraged to disclose metrics for resources devoted to climate-related financial analysis and supervision. For instance, central banks could disclose the number of FTEs working on climate-related financial analysis and supervision as well as the output of this work, and the number of supervisory and/or regulatory documents published on the topic as well as their titles.

5.3 Financial portfolios (baseline)

The term "financial portfolios" comprises all central bank financial portfolios, i.e., monetary policy portfolios and investment portfolios. Although the metrics used in both types of portfolios are similar, central banks are recommended to distinguish between monetary policy portfolios and investment portfolios in their disclosures. Monetary policy portfolios support central banks' policy mandates and generally constitute the largest pool of financial assets on the balance sheet. As central banks have distinct legal mandates, the use of central bank portfolios varies widely across central banks.

Disclosure of metrics for physical and transition risks associated with financial portfolios has been gaining traction recently. One reason for this are laws and regulations (that might not be directly applicable to central banks) requiring such disclosure. Another reason is voluntary disclosures due to increasing consciousness of the importance and relevance of disclosing financed emissions[23], including the disclosures by the central bank community. Guidance on the use of backward- and forward-looking metrics for investment portfolios are discussed in NGFS-SRI cover report and two NGFS Technical Documents related to sovereign and corporate securities[24].

22 See ECB ("ECB provides details on how it aims to decarbonise its corporate bond holdings") or BOE (Greening our Corporate Bond Purchase Scheme (CBPS)).

23 According to PCAF, financed emissions are GHG emissions associated with loans and investments. For more information, see also: PCAF – Financed Emissions (https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf).

24 See NGFS (2024b), (2024c) and (2024d).

Information on measurement can also be found in the Global GHG Accounting and Reporting Standard from the Partnership for Carbon Accounting Financials (PCAF)[25].

Central banks are recommended to disclose the share of the portfolio that each metric applies to as well as other material limitations of the data. Good quality climate-related data with a proper sectoral detail and time-frequency are difficult to obtain. Furthermore, methodologies are insufficiently standardised and often inconsistent. Examples of data limitations are the lack of coverage (e.g., lower coverage for listed vs. private corporations), granularity (e.g., sectoral estimates vs. company-reported) and quality of the data (e.g., non-standardised estimates of scope 3 emissions).

Central banks are recommended to provide a description and interpretation of disclosed metrics. Where metrics are disclosed periodically, central banks may choose to reference previous publications to avoid repetition.

Metrics for physical risk (building block)

Backward-looking metrics for physical risk describe the exposure of financial portfolios to current physical hazards. Backward-looking metrics for physical risk are less insightful than forward-looking metrics since they may not capture the effects of future changes in the frequency and severity of climate change. Thus, historical backward-looking data are likely to underestimate future climate change losses. Despite this, backward-looking metrics might be able to provide partial information about the location of future exposures, to the extent that current exposures are accentuated by climate change in the future.

Central banks are encouraged to disclose forward-looking metrics to assess the impact of physical risks on a financial portfolio. Central banks could additionally disclose the different physical risk scenarios used to illustrate the range of potential outcomes. They could also disclose metrics broken down to a more granular level (e.g., into specific chronic and acute risks, or by sectoral impact and local geographies). This is useful to provide an indication of concentration risks.

Box 5

Central banks' disclosures on physical risks: case study

In 2023, the Bank of England analysed the potential impact of physical climate risks on the probability of default of issuers within the Bank of England's corporate bond portfolio. The analysis was based on data from the Bank of England's data provider and considered three NGFS scenarios. The use of a range of scenarios, including a worst-case tail scenario, provided an indication of the range of possible impacts between a worst- and best-case scenario. Analysis was presented based on impacts at different time horizons, to provide an indication of how risks change over time, and for different sectors, to provide an indication of how risk was distributed across the portfolio. The analysis found that the probability of default increased the most in the worst-case current policies scenario and at longer time horizons. The evolution of data provider methodologies affected the results, and the effects of this were explained in the disclosure report.

25 See PCAF (2022).

Backward-looking metrics for transition risk (baseline)

Measuring GHG emissions associated with central banks' financial portfolios is a starting point for assessing its exposure to transition risk. This metric is a measure of transition risk because securities of GHG intensive issuers are potentially more severely affected by future mitigation of climate change (e.g., carbon taxation and changes in consumer preferences) than the securities of their relatively less-GHG intensive peers.

Central banks are recommended to disclose the *weighted average carbon intensity* (WACI) and *total carbon emissions* (TCE) and *carbon footprint* (CF) for equity, corporate bond, and sovereign bond portfolios. This recommendation is in line with the recommendations provided by the TCFD and PCAF. Many central banks today disclose metrics related to their equity, corporate and sovereign bonds portfolios. By contrast, complex measurement and a lack of standards with regards to metrics for supranational and agency securities, physical gold, cash, deposits, and repos prevent most central banks for disclosing from these asset classes.

Forward-looking metrics for transition risk (building block)

Central banks are encouraged to disclose forward-looking metrics on transition risk in their financial portfolio. Forward-looking metrics for transition risks account for differences across countries and firms in their ability and plans to reduce emissions in the future as well as differences in future regulatory, market, consumer, and technology trends. Forward-looking information can be useful as governments and companies announce policies and strategies that commit to reducing emissions in line with climate goals.

Central banks are encouraged to disclose a range of different transition scenarios, including a worst-case scenario to demonstrate tail risks from a risk management perspective. Disclosing a range of metrics ensures a holistic view of the risks the central bank is exposed to and reduces reliance on individual metrics.

Box 6

Forward-looking metrics and targets for transition risk: case study

The Bank of England reports a range of forward-looking metrics. For example, in 2023, the Bank of England disclosed issuer target alignment for its corporate bond portfolio, finding that 47 pct. of issuers had a 1.5 °C aligned science-based target. The Bank of England also disclosed an implied temperature rise of 2.2 °C for 2023 for its corporate bond portfolio, based on data provider analysis, and 1.8 °C for its sovereign asset portfolios (assuming current policies and actions), based on the Bank of England's own analysis.

In 2023, the Bank of England also disclosed for the first-time scenario analysis, which considered the impact of projected changes in interest rates across NGFS scenarios on the value of the Bank of England's sovereign asset portfolio. The analysis found that up to 7 pct. of the value of one of its sovereign portfolios could be lost in the Divergent Net-Zero scenario, which was the most stressful interest rate scenario used.

Targets (baseline)

Over recent years, some central banks have committed to align their investment portfolios with the goals of the Paris Agreement, setting a long-term target aiming to reach portfolios' net-zero GHG emissions by 2050. Setting a net-zero target is challenging due to uncertainties around issuers' decarbonisation efforts, future climate and socio-economic scenarios and the risk-return trade-offs and implications of the climate strategies[26].

Central banks that have adopted intermediate and/or final climate-related targets for their financial portfolios are recommended to disclose them. The disclosure could comprise the following elements:

- **Description:** Which metric is the target defined against, and how the target is linked to the central bank's climate-related objective and strategy?
- **Target type:** Is the target an intermediate or final target?
- **Base year:** What is the reference year used to measure the progresses over time?
- **Target year:** In which year does the central bank intend to achieve the target?
- **Target value**: What is the targeted emission reduction for the relevant metric (in either absolute or intensity terms)?

Progress against targets (building block)

Central banks that decide to adopt targets are encouraged to disclose their progress against targets and periodical review. Central banks should adopt a reviewing process to periodically verify the consistency and validity of the targets based on the new evidence provided by climate science, updated climate scenarios, and relevant market dynamics. The process could lead to an update or a modification of the target that afterwards will be communicated in the central bank's disclosure, along with a description on potential progress made on achieving targets.

5.4 Internal operations (baseline)

Metrics (baseline)

Central banks are recommended to disclose the GHG emissions from their internal operations separately from emissions related to financial portfolios. Central banks may be required to disclose emissions by national regulation or international standards. For some central banks, disclosing their own emissions might be the first step in a stepwise approach to climate-related disclosure. Disclosure of central bank's internal emissions would also mean that they gain concrete experience in measuring emissions. This might enable central banks to better understand the financed emissions associated with their credit facilities and investment portfolios.

Central banks are recommended to disclose GHG emissions following the principles provided by the GHG Protocol Corporate Standards (version 2004 or later version). Central banks may also use Global Reporting Initiative Standard 305 (version 2006), which is directly based on the requirements of the GHG Protocol, ISO 14064 or any other national standard. Reported emissions should be expressed as metric tonnes of CO_2 equivalents (CO_2e)[27]. In addition, for better transparency, central banks should consider disclosing the uncertainty assessment of their own carbon footprint, outlining the quality of data and emissions factors available at the time of reporting. Central banks should get their emissions verified by a third party.

Scope 1-2 emissions (baseline)

Central banks are recommended to include scope 1 and 2 emissions in their disclosure. The disclosure on gross scope 2 emissions should include both location-based and market-based emissions. Central banks are recommended to follow the GHG Protocol Scope 2 Guidance (version 2015).

26 Detailed recommendations on SRI can be found in NGFS (2024b), (2024c) and (2024d).

27 Central banks may use emission factors either provided by suppliers (e.g., if these suppliers have conducted a reliable cradle-to-gate GHG inventory) or from trusted national or international sources to convert activity data (e.g. heating fuel consumption) to GHG emissions.

Scope 3 emissions (building block)

Central banks are encouraged to include scope 3 emissions in their disclosure[28]. A minimum boundary should include indirect emissions arising from: purchased goods (e.g. water and paper), waste generated, business travel, employee commuting, fuel and energy related activities not included in scope 1-2. Some examples of broad and comprehensive scope 3 emissions' disclosure are reported in the box. Central banks are recommended to follow the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Version 2011).

Emissions related to financial portfolios can be disclosed as part of the central bank's scope 3 emissions from internal operations if the two categories of emissions can easily be distinguished. In some cases, central banks may be required to disclose financial emission as part of their scope 3 emissions. If this is the case, it is still important that the two categories of emissions can easily be distinguished as emissions related to financial portfolios differ in substance from scope 3 emissions from internal operations.

Box 7

GHG scope 3 disclosure for internal operations: examples

The European Central Bank, the Bank of Italy and the Reserve Bank of New Zealand have been disclosing for several years their GHG emissions arising from internal operations.

In addition to scope 1 and 2 emissions, the central banks disclose several categories of scope 3 emissions like: purchased goods and services (e.g., office paper, paper for publications, water, toner, office supplies, meals at staff canteens, gardening, consultants, advertisement and marketing, legal, architectural and engineering, communication, printing and cleaning services, and others); capital goods (e.g., furniture, IT equipment, building construction amortisation); fuel and energy related activities not included in Scope 1 or 2; upstream transportation and distribution (e.g., rented shuttle services, logistics vehicles); waste generated and waste water treatment; business travel, including hotel stays and the Radiative Forcing Index for flights (some central banks also include travel by participants in conferences organised at their premises, and Well-to-Tank for aviation and automotive transport); employee commuting, including emissions arising from staff working from home (the Bank of Italy also includes emissions from external workers' commuting); downstream leased assets (like emissions from properties leased to other organisations).

The Bank of Italy and Reserve Bank of New Zealand disclose assorted GHG emissions arising from banknotes' and coins life cycle like: production and transportation of raw materials (paper and ink, metals), energy use in producing banknotes and coins, waste from production process, transportation of banknote to the Banks' branches, waste consisting of shredded banknotes.

The three central banks also provide an uncertainty assessment of their carbon footprint – to show uncertainty surrounding activity data and emission factors – and the European Central Bank and Bank of Italy provide details about the methodology used to calculate emissions.

28 When defining reported emissions under Scope 3, central banks should perform a boundary assessment exercise and consider the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Version 2011). Central banks may revise their reporting boundary to expand their reporting scopes in line with new knowledge, availability of data, new impacts, etc.

Targets (building block)

Central banks are encouraged to disclose the intermediate and final targets for their own GHG emissions. Central banks may set and disclose quantitative targets to limit emissions from their internal operations, as setting targets encourage public institutions and private companies to take a more active role in reducing emissions. Central banks could define targets for annual emissions in absolute terms, rather than intensity targets[29]. Intensity targets may moreover be appropriate for irregular emission sources like construction.

Central banks that make use of GHG removals, carbon credits, or avoided emissions as a means of achieving the emission reduction target are encouraged to disclose these contributions separately. As part of the effort to reduce emissions, if possible, targets related to internal operations could be broken down by operational function, based on transparent criteria and recognised metrics, and a defined time horizon by which targets are intended to be achieved. Central banks are encouraged to disclose such metrics and targets in the context of their transition plan.

29 GHG emission reduction targets may be disclosed at least in absolute value (either in tons of CO_2 equivalent or as a percentage of the emissions of a base year).

6. Looking ahead

Since the publication of the first guide on climate-related disclosure for central banks, central banks have increasingly disclosed their climate-related exposures, whether to demonstrate best practice, to lead by example, or as a requirement of the jurisdiction in which they operate. Doing so has for many served as a platform for improving the analysis and management of the climate-related risks and opportunities they face. The NGFS will build on the second edition by serving as an internal forum for central banks to share their practical experiences, identifying peers with relevant knowledge and supporting each other in enhancing disclosure capabilities.

The environment in which central bank disclosures are being made is evolving, with the proliferation of international and jurisdictional disclosure standards and guidance, such as the *International Sustainability Standards Board* and the *European Sustainability Reporting Standards*. Alongside growing investor appetite for climate-related transparency, most financial institutions are expected to credibly demonstrate the extent to which they have assessed and accounted for climate-related risks and opportunities. Central banks have in many cases played prominent roles in bringing about or codifying these expectations. In the future, the NGFS will aim to help central banks navigate this space and identify how these standards may be relevant to them, while accounting for the specificities of their role (e.g., by facilitating information sharing sessions with key standard setters and international agencies).

Finally, central banks may consider nature-related risks in their future disclosures, considering the increasing evidence for the materiality of such risks[30]. Pursuing its objective to mainstream the consideration of nature-related financial risks across its areas of action, the NGFS will explore whether the guide could be complemented with an addendum on nature-related disclosures, which may be particularly relevant for the Metrics and Targets chapter.

30 See NGFS (2022) and NGFS (2023c).

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