



FISCAL AFFAIRS

HOW TO

NOTES

How to Make the Management of Public Finances Climate Sensitive—“Green PFM”

Prepared by Ozlem Aydin, Bryn Battersby, Fabien Gonguet, Claude Wendling,
Jacques Charaoui, Murray Petrie, and Suphachol Suphachalasai

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Names: Aydin Sakrak, Ozlem, author. | Battersby, Bryn, author. | Gonguet, Fabien, author. | Wendling, Claude, author. | Charaoui, Jacques, author. | Petrie, Murray, author. | Suphachol Suphachalasai, author. | International Monetary Fund. Fiscal Affairs Department, issuing body. | International Monetary Fund, publisher.

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HOW TO MAKE THE MANAGEMENT OF PUBLIC FINANCES CLIMATE-SENSITIVE—“GREEN PFM”

Introduction

Fiscal policies are a key element of governments' integrated strategies to combat climate change. To be implemented efficiently, nationally determined contributions (NDCs) resulting from the 2015 Paris Agreement should be translated into precise and granular government policies. Similarly, climate dimensions of Sustainable Development Goals (SDGs)¹ should be reflected in countries' development priorities and be incorporated into medium-term planning and annual budget allocation decisions. In most countries, climate commitments have already fed into domestic expenditure and tax policies, through various measures supporting climate change mitigation or adaptation, as well as biodiversity preservation efforts and wider environmental protection. The urgent and existential nature of the threats, their potential impact on the macroeconomic and macro-fiscal outlooks, and the scope of the required changes make policies to fight climate change and increase resilience among the biggest challenges of our times. How countries tackle the post-COVID-19 recovery—via infrastructure investment in particular—will shape the environment and the climate in the long term (IMF 2020a).

Fiscal policies should be supported by sound public financial management (PFM) processes and frameworks to ensure their effective design and implementation. PFM addresses the laws, organizations, systems, and procedures available to governments to secure and use public resources effectively, efficiently, and transparently (North 1991). In a nutshell, PFM is “what makes fiscal policy work” (Hemming 2013, 18).² It is about the institutional and practical arrangements that

can ensure that fiscal policies are optimally designed and implemented.³

Although this relationship is valid for all policy areas and sectors, the importance and specificities of climate change call for adapting existing PFM frameworks. Arguably, every policy adopted by the government has a climate impact, be it direct or indirect. These effects may be significant and should be considered in the context of creating budgets—not doing so can easily undermine climate commitments. Such consideration requires methodologies for climate impact assessment; procedures to ensure that these steps are systematically carried out to inform budget preparation and allocation; information technology (IT) systems to consolidate and manage information throughout the budget cycle; and transparency requirements regarding the oversight bodies, such as parliaments and supreme audit institutions (SAIs), financial markets, donors, and the public—all of which are within the realm of PFM.

The concept of “green PFM” can be defined as the integration of a climate-friendly perspective into PFM practices, systems, and frameworks—especially the budget process—with the objective to promote fiscal policies that respond to climate concerns.⁴ Green PFM does not require a novel approach to PFM but rather an adaptation of existing PFM processes and tools. Like other types of priority-based budgeting, which seek to mainstream specific priorities or concerns into PFM practices and processes (see Box 1), the implementation of green PFM does not require new and separate PFM systems that could undermine the effectiveness and the centrality of the existing PFM or budget processes; rather, only a modification and a reinforcement of existing PFM practices with elements sensitive to green priorities are necessary. This approach

¹At least half of the SDGs (6, 7, 9, 11, 12, 13, 14, and 15) are directly meaningful to environmental issues.

²Richard Hemming (2013) explains the fundamental distinction between PFM and fiscal policy as follows: “While fiscal policy focuses on the choice of instruments used to achieve its objectives, PFM is more about the practical arrangements that have to be put in place and capacity that has to be developed to ensure that fiscal instruments are used to their full advantage. In other words, PFM is what makes fiscal policy, or at least a significant part of it, work.”

³For more information, please register for IMF's free, self-paced PFM online course at <https://www.imf.org/en/Capacity-Development/Training/ICDTC/Courses/PFMx>.

⁴Green PFM does not encompass the design of fiscal instruments that would contribute to achieving green objectives, such as carbon taxation or green subsidies.

Box 1. Interaction with Other Types of Priority-Based Budgeting

Green PFM is one example of a class of approaches sometimes referred to as “budgeting for high-level priorities” or “priority-based budgeting.” This approach intentionally elevates a government’s chosen strategic priority or set of strategic priorities in the preparation of the budget, and it highlights them at key stages of the budget cycle. Other prominent examples of this approach have been gender-responsive budgeting and, more recently, SDG budgeting.

The IMF (2017a) defines gender budgeting broadly as an approach that uses fiscal policy and PFM instruments to promote gender equality and girls’ and women’s development. In this broad definition, the approach encompasses both the adoption of fiscal policies related to gender equality and the adoption of gender-responsive PFM. According to the latter part of the approach, each stage of the budget cycle becomes an entry point for elevating and incorporating gender-responsive measures.

Some countries have also begun to mainstream SDGs into their budget process; this is like green or gender budgeting, but with a much more comprehensive set of strategic priorities. Considering the indivisibility of the 17 SDGs, the full set of goals is integrated holistically into the budget cycle (for example, *Mexico*), and priorities emerge from the specific country needs, accelerators, and bottlenecks to achieve the 169 targets. One challenge in this approach is the need to account for interactions and conflicts between the different SDGs, as a given budget decision can directly or indirectly contribute to several SDGs— either positively or negatively. Green PFM and gender-responsive budgeting are implicit elements of an SDG budgeting approach because several of the goals are focused on green targets (for instance, “13: Climate Action,” “14: Life below Water,” and “15: Life on Land”) and gen-

der equality (for instance, “5: Gender Equality” and “10: Reduced Inequalities”).

The experiences and lessons learned in the implementation of gender budgeting and SDG budgeting can be drawn on in the application of other priority-based budgeting approaches, like green PFM. In some cases, countries and organizations have sought to bring different priority-based budgeting approaches together. For instance, UN Women (2016) highlights that gender equality considerations can be incorporated in climate projects, leveraging the co-benefits between gender equality and climate action for sustainable development. In *Ireland*, the approach to green budgeting has been built on the frameworks developed for equality budgeting and draws on the lessons learned during that process.

Elevating and mainstreaming specific high-level priorities in the PFM process can be challenging. Often there is no single agency responsible for decision making, so a coordination mechanism must be established to facilitate a collective approach. The capture of information about the chosen priorities and how the budget affects those priorities usually requires that existing systems and processes, like the chart of accounts (CoA) and the financial management information system (FMIS) adapt. Integrating new targets and measures in the budget can also be challenging because of the increasing complexity in the interactions between conventional macro-fiscal objectives and the new strategic priorities. As the number of strategic priorities to be mainstreamed expands, the interactions between priorities become increasingly complex and institutionally burdensome. Countries should avoid overburdening existing systems and processes; instead, they should focus on mainstreaming the critically important priorities—in line with their institutional capacity and resourcing.

is akin to “green budgeting,”⁵ but green PFM adopts a different scope, as (1) it excludes the design of green

⁵According to the Organization for Economic Cooperation and Development (OECD, n.d.b), “Environmentally responsive or green budgeting means using the tools of budgetary policymaking to help achieve environmental goals. This includes evaluating environmental impacts of budgetary and fiscal policies and assessing their coherence towards the delivery of national and international commitments. Green budgeting can also contribute to informed, evidence-based debate and discussion on sustainable growth.” Hence, green budgeting is designed to drive improvements in the alignment of public expenditure and revenue processes with climate and other envi-

tax and expenditure policies and focuses solely on the adaptation of PFM frameworks and practices; and (2) it explicitly considers broad PFM functions that cut across or go beyond the scope of the budgetary cycle, such as coordination with other public sector entities or fiscal transparency.

About a decade ago, a handful of countries launched successful efforts to “green” the budget cycle. After a

ronmental goals, and to mainstream an environmentally informed approach into the national and subnational budgetary frameworks.

Box 2. The IMF’s Recent Engagement in Areas Related to Green PFM

Launched in 2021, the IMF’s Climate Macroeconomic Assessment Program (CMAP) is a successor to the joint IMF–World Bank Climate Change Policy Assessment tool. It covers climate risk and preparedness, national strategy, mitigation, risk management, adaptation, macroeconomic implications of climate policy, and national processes (PFM). The CMAP report for Samoa was published in early 2022.

The Fiscal Affairs Department’s recent analytical outputs include book chapters on building resilience to natural disasters and climate change through infrastructure governance practices (Schwartz and others 2020), a note on greening the post–COVID-19 recovery (IMF 2020a), a paper on access to green finance (Fouad and others 2021), a staff climate note

on green PFM (Gonguet and others 2021), and a [joint paper with the OECD and European Commission on common principles for green budgeting](#) (2021).

Regarding capacity development, recent initiatives include a seminar on the role of fiscal policy and PFM in strengthening climate resilience in small island states (2019), various workshops on climate change and fiscal policy and the design of a Public Investment Management Assessment module on climate change (IMF, 2021).

The IMF also contributes to the work of the Coalition of Finance Ministers for Climate Action with a focus on mainstreaming climate change in fiscal policy and public finance (Helsinki Principle 4).

few initial efforts in the 1980s to highlight the importance of the budget in reaching environmental goals (*France, Norway*), the first concrete examples of green PFM practices took place in the late 2000s—most notably in developing economies in Asia (*Bangladesh, Nepal*) that were facing strong climate challenges—with the support of development partners such as the United Nations Development Program (UNDP). In the past few years, green PFM has gained significant exposure thanks to innovative global cooperation platforms such as the Coalition of Finance Ministers for Climate Action, which was launched in 2019 to foster collective engagement for a transition toward low-carbon and resilient development. The Coalition’s work supports the implementation of the Helsinki Principles, which promote national climate action—notably through fiscal policy. The fourth principle (“Mainstream”) is closely related to the green PFM agenda, as it aims to “take climate change into account in macroeconomic policy, fiscal planning, budgeting, public investment management (PIM), and procurement practices.” The IMF is an institutional partner in the coalition and has stepped up its engagement on climate issues (Box 2).

However, green PFM practices remain nascent or nonexistent in most countries, including in advanced economies. According to a recent OECD survey on green budgeting practices (2021a), 60 percent of the OECD membership are not implementing any green budgeting. This scarcity of green PFM practices in many countries so far could be explained by the lim-

ited connection made between fiscal policy and NDCs, limited appetite for changes to the budget process, and, in the case of low-income developing countries (LIDCs), preexisting PFM capacity limitations and uncertainty about where to start.

At the same time, governments are showing increasing interest in green PFM. Although there is empirical evidence of the effectiveness of other types of priority-based budgeting in improving outcomes (for gender budgeting, see Chakraborty, Ingrams, and Singh 2019), there is growing evidence of the actual impacts of green PFM practices, mostly on outputs. In *Bangladesh*, for instance, climate-related expenditure in the national budget has increased since the first implementation of the climate budget in 2017. Green PFM reforms can also foster better access to climate finance, especially in countries most immediately exposed to climate-related disasters and in LIDCs (IMF 2016, 2019c; Fouad and others 2021). Such reforms are an important feature of climate change financing frameworks, adopted with UNDP support, notably in several Asia-Pacific countries in the past decade (for example, *Bangladesh, Indonesia, and Pakistan*; UNDP 2017).

Green PFM, as presented in this how-to note, is concerned primarily with integrating climate objectives into PFM practices. However, climate change is closely interconnected with other environmental concerns. Land degradation is a major contributor to climate change, while climate change is a source (among others) of biodiversity loss. Consequently,

several countries (for example, *France*) have opted for considering broader environmental concerns in this approach—including the loss of biodiversity or prevention of pollution. The relevant PFM processes and frameworks are largely the same; the framework and principles underlying green PFM as presented in this note are also applicable to governments interested in broadening the focus beyond climate change.

This how-to note proposes a holistic approach to green PFM applicable to all countries interested in green PFM reforms, regardless of capacity. The how-to note provides a complete picture of entry points and areas of interaction, supported by country examples that offer opportunities for deeper integration of green priorities (Figure 1). Two complementary approaches are adopted: (1) identifying entry points within the budget cycle and (2) identifying interactions with PFM functions that go across and beyond the scope of the budget cycle. The how-to note then proposes a set of guiding principles for countries interested in embarking on green PFM reforms, whatever their capacity level. The note also identifies key principles for effective implementation of a green PFM strategy: securing political backing for the reform and ensuring that basic PFM practices are in place, relying on a strong stewardship role of the Ministry of Finance (MoF), integrating the strategy within the existing PFM reform agenda, ensuring appropriate sequencing of green PFM reforms, and communicating to ensure buy-in from stakeholders and to manage expectations.

Identifying Entry Points within the Budget Cycle

The IMF envisions the budget process as a four-step cycle anchored by a legal framework:⁶

1. The setting of strategic and fiscal policy goals and targets
2. The preparation of the annual budget and its approval by the legislature
3. The control and execution of the approved budget and the preparation of accounts and financial reports
4. The independent oversight and audit of the budget

⁶The public investment management cycle is integrated with the budget cycle and follows a similar pattern—planning, allocation, execution, and control. For entry points of climate considerations into this cycle, see Annex 1 and IMF 2021.

In this section, the note identifies the most significant points of entry for green priorities into each of these steps and its underpinning legal framework and illustrates them with country experiences.

Strategic Planning and Fiscal Framework

The strategic planning and fiscal framework stage is an opportunity for governments to define and describe the climate targets and objectives for the country and to ensure that plans and targets are well aligned.

Green priorities and concerns should be taken on board during the strategic planning and fiscal framework phase, which sets the broad policy framework and overall fiscal constraint for the budget. The budget process is normally undertaken in the context of a broader policy framework, which is often called a national development strategy. The key steps in this phase are the creation of a strategic or development plan; the preparation of a medium-term fiscal framework (MTFF) with macroeconomic and macro-fiscal forecasts; the identification of fiscal risks, including those emanating from climate change, that could disrupt the fiscal policy objectives; and the design and description of fiscal policy in the context of the strategic plan and medium-term framework. This strategic framework could include elements on how to mobilize green financing to address climate change mitigation and adaptation targets. The strategic planning and fiscal framework stage provides not only quantitative targets and forecasts but also a descriptive narrative that contextualizes the budget.

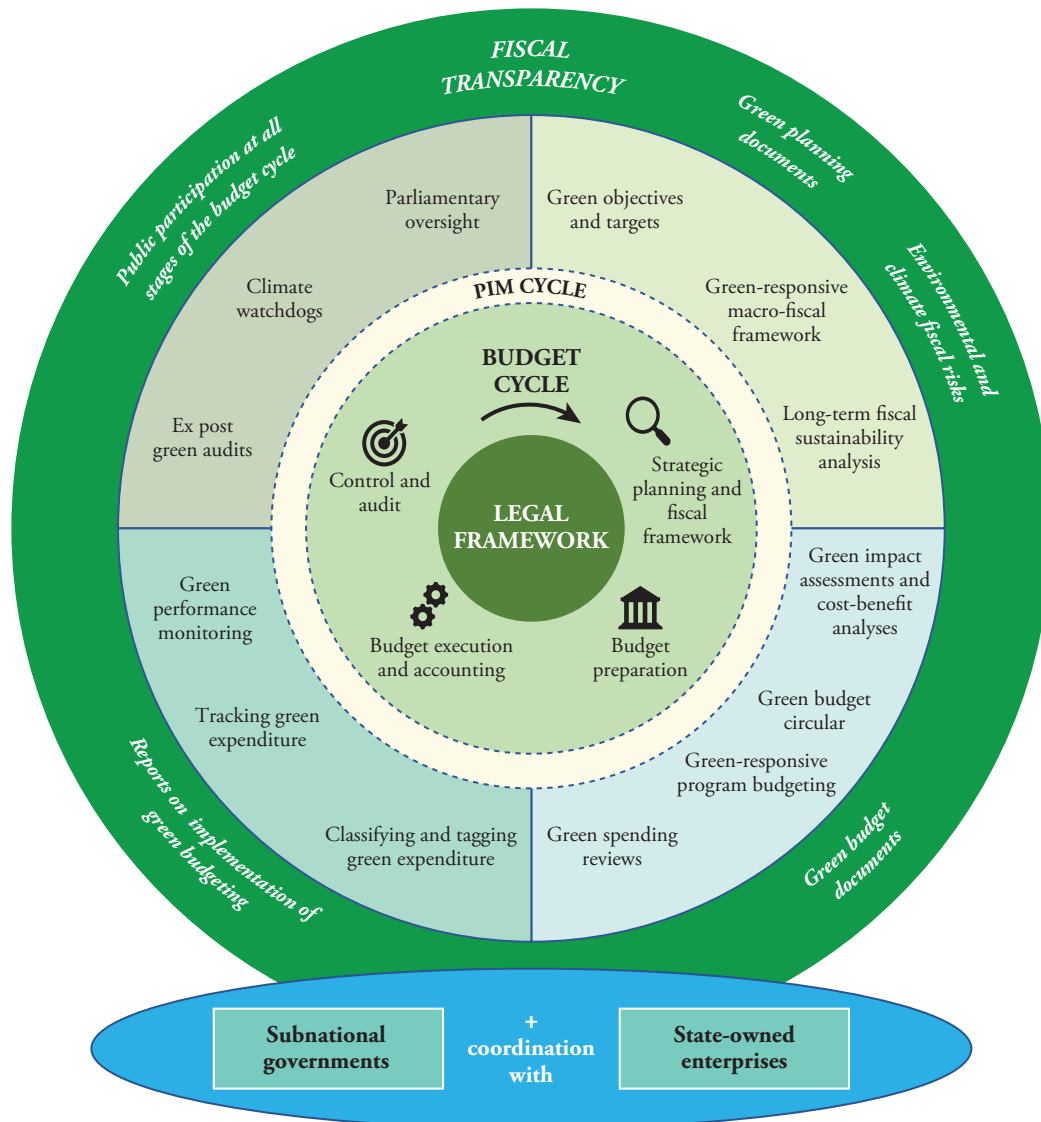
NDCs⁷ can help anchor climate adaptation and mitigation in the planning stage. A total of 193 countries have submitted NDCs. NDCs span at least until 2025; most cover the period until 2030 and quite a few cover the period until 2050.⁸

Strategic or national development plans are a good place to highlight and project a government's green plans, in coherence with the country's NDC. Many countries are increasingly incorporating green goals and targets in these plans, providing justification and

⁷NDCs are national climate plans highlighting climate actions, including climate-related commitments, targets, policies, and measures governments aim to implement in response to climate change and as a contribution to global climate action.

⁸Latest version of the NDC Synthesis Report, published in October 2022, available under <https://unfccc.int/ndc-synthesis-report-2022>.

Figure 1. A Holistic View of Green PFM Practices



Source: IMF staff.
 Note: PIM = public investment management.

context for decisions taken in later stages of the budget process.

- *Indonesia* encourages ministries and subnational governments to integrate a green dimension in their budgeting and planning by highlighting the top six policy areas and 21 priority programs for achieving the greatest green benefits.⁹
- *China's* 14th Five-Year Plan (2021–2025) contains precise goals on sustainable energy to put the

⁹Green Planning and Budgeting Strategy for Indonesia's Sustainable Development, 2015–2019.

country on a pathway toward achieving its carbon neutrality goal by 2060.

- Two of ten strategic objectives in the *Irish* national development plan (2021–2030) have a green focus, providing guidance on a transition to a low-carbon and climate-resilient society and the sustainable management of water and other environmental resources.
- The Green Deal of the *European Union (EU)* sets out a roadmap to make Europe climate-neutral by 2050, with an explicit commitment to foster green budgeting practices in the EU.

- *Nepal's* 15th Plan (covering FY 2019/20–2023/24) includes a dedicated chapter on climate change, with the overarching objective of building a climate-resilient society, and mainstreams climate change concerns into several policy areas, including agriculture, water, transport, and tourism.
- The national development plan process of *South Africa* also sets out a long-term strategy to guide the country's transition to an environmentally sustainable, climate-resilient, low-carbon economy and just society.
- *Fiji's* 5-year and 20-year national development plans are closely articulated with the National Climate Change Policy (2017–2030).

The MTFF can provide an integrated green-fiscal pathway to achieving the long-term targets set in the development plan or strategy. An MTFF is a top-down specification of a government's aggregate resource envelope. When well defined, it serves as an interface between the long-term strategic goals of a national plan and the spending, revenue, and financing plans contained in a budget. Traditionally, the path reflects an effort to optimize fiscal sustainability, employment and income growth, and price stability; however, it may be appropriate to include in the design of this aggregate fiscal path green objectives, such as reductions in greenhouse gas (GHG) emissions. These particular objectives are considered to be “macro-critical”¹⁰ and responsive to macroeconomic conditions and fiscal policy. This greening of the MTFF offers a helpful entry point for strategically important and macro-relevant green forecasts like GHG emissions reductions because they can guide both fiscal policy and the downstream budget preparation processes.

The degree to which climate change is incorporated in the fiscal framework depends on political commitment to the incorporation of climate targets and capacity to integrate these targets in the framework. A first step would be to integrate narrative elements on green priorities in those budget documents that traditionally provide context for the budget, such as economic and fiscal outlook documents, and to highlight the compatibility of fiscal policy with the green objectives. In addition, fiscal risk statements could discuss the anticipated impact of climate change on the prevalence

of natural disasters in the country (see section on fiscal risks).

A more detailed and concrete step would be to include green forecasts (such as GHG emissions reductions) in the preparation of the fiscal framework and to present these forecasts and the related analysis in the budget framework documents. GHG emissions are especially well suited for inclusion in the fiscal framework because they can be modeled and forecasted using tools like those already employed in the preparation of the macroeconomic forecasts. There are already several examples of countries incorporating climate targets in macro-fiscal forecasting tools and models that underpin the budget process. A paper by the OECD¹¹ recently took stock of progress in this field in advanced economies, but there are also some examples in less advanced economies:

- *Denmark* is currently developing a model called GreenREFORM, which will integrate the emission of air pollutants from all Danish businesses and households and the public sector. It will also describe the effect on emissions from environmental taxes, subsidies, and regulation. The model is expected to provide yearly forecasts for each year from 2015 to 2100.¹²
- The *Scottish* government provides a carbon footprint assessment of its draft budgets, which estimates the GHG emissions associated with planned government purchases of goods and services.
- In *Bangladesh*, work is ongoing to prepare a climate-inclusive medium-term macroeconomic framework (MTMF) using a macroeconomic model that includes climate change variables. Moreover, it is also feasible to use the model to directly forecast and present the government's GHG emissions.
- *Samoa's* MTMF is closely aligned to meeting climate objectives, and climate considerations are also well reflected in the government's strategic plans and in sectoral strategies.¹³

Although the fiscal framework is yet to be used explicitly for this purpose, it could be instrumental in defining explicit medium-term fiscal targets or numerical fiscal rules that are internally consistent with green priorities. For example, a government could establish a binding target on total GHG emissions, which may be

¹⁰“Macro-critical” means critical to the achievement of macroeconomic stability.

¹¹OECD 2021d.

¹²This effort was summarized in OECD 2021d.

¹³See Kinoshita and others 2022.

highly responsive to fiscal policy if emissions have not been decoupled from economic activity.¹⁴ A forecast breach of the limit could trigger a tightening of fiscal policy (curbing the growth of emissions), a realignment of expenditure away from emissions-intensive activities, or adjustments to tax policy (such as a carbon tax). A variant would be to set rules or targets for public expenditure and public investment that would allow the country to reach green targets over the medium term while ensuring fiscal discipline and accounting for the reality that most of the expenditure required for mitigation purposes would have to occur in the private sector and would be steered by carbon prices. These approaches could be complex and constraining, particularly in countries where the investment needs associated with adaptation are high and might lead to wrong incentives and unintended consequences (Caselli and others, forthcoming).

Fiscal rules should remain flexible enough to allow for a fiscal response in case of a climate change–related emergency. For example, fiscal rules are often accompanied by an escape clause that allows for their suspension in the wake of large natural disasters, although even here an option exists to require that the activation of an escape clause be undertaken using environmentally and climate-sensitive principles.

- *Germany's* fiscal rule includes an escape clause triggered by natural disasters or unusual emergency situations that are outside government control and have a major impact on the financial position of the government. The clause can be activated only after a majority vote in parliament.
- *Brazil's* fiscal rule likewise includes an escape clause for natural disasters, which can be invoked only with congressional approval.

Fiscal risks associated with climate change should also be assessed at this stage of the budget cycle to inform the fiscal strategy. Risks related to the environment are already an integral part of the fiscal risk analysis in many countries, particularly those highly

susceptible to natural disasters. However, climate change is creating new and diverse risks that all governments need to carefully analyze and manage so that the fiscal framework remains credible. These risks include (1) the uncertainty of the costs and benefits associated with mitigation and the global transition to a low-carbon economy, including side effects for a given country of measures adopted by other countries (for example, impact of a possible border adjustment tax on exports to important trade partners or of restrictions on air travel on the tourism sector) and (2) the potential costs of adaptation due to the increased prevalence of natural disasters, the expected rise in sea levels, and long-term changes in weather patterns as well as the exposure of infrastructure assets to these factors. This content is covered in more detail in the section on fiscal transparency.

Green priorities should also be factored into long-term fiscal sustainability analysis. Long-term fiscal sustainability analysis that accounts for climate and other environmental factors can help to identify the savings from early mitigation and adaptation efforts that might otherwise appear fiscally burdensome and difficult to reconcile with overall fiscal sustainability. The OECD (2021e) has also provided useful guidance on the impact of climate change on long-term fiscal sustainability analysis. Incorporating these impacts in such analysis and conducting sensitivity analysis can help to place into context the immediate budget decisions in the same vein as the consideration of long-term demographic factors for countries with aging populations.

- For instance, in its 2021 Report on the Long-Term Sustainability of Public Finances, *Switzerland* identified four main channels (prevention of climate change, damage remediation and adaptation, international commitments, impact on receipts) through which long-term fiscal sustainability could be negatively affected.¹⁵
- *Georgia* is quantifying the long-term fiscal implications of climate change scenarios, including the Paris Agreement, a business-as-usual scenario, and a more volatile climate scenario. Technical assistance from the IMF has projected debt-to-GDP to rise by about 18 percentage points over the next 50 years under the volatile scenario.¹⁶

¹⁴This would require, among other prerequisites, a clear definition of the scope of GHG emissions attributable to government operations—for example, direct GHG emissions (emissions from sources that are owned or controlled by government) or also indirect GHG emissions (emissions from the generation of purchased electricity, heat, and steam consumed by government, or emissions that occur as a consequence of the government's activities but from sources not owned or controlled by government, capturing the impacts of government policies such as fossil fuel subsidies or carbon taxes on the private sector).

¹⁵<https://www.efd.admin.ch/efd/en/home/fiscal-policy/report-long-term-sustainability-public-finances.html>.

¹⁶Harris and others 2022.

- *New Zealand's* 2016 Long Term Fiscal Statement was prepared using a new “living standards framework” and included a chapter on the path of natural capital.¹⁷
- *The European Commission* has included stress tests of extreme weather and climate-related events in its 2021 Fiscal Sustainability Report.¹⁸

Once green priorities are identified and embedded in strategic plans, it is important to assess the financing gap and prepare a strategy for green financing. Planning documents should be linked to this strategy, thus contributing to the credibility of objectives, outcomes, and targets. Meeting the ambitious climate goals requires systematically leveraging all sources of finance, including traditional loans, grants, debt swaps, national and international climate funds, carbon markets, green bonds, and insurance instruments. As of May 2021, among OECD countries, 19 sovereigns had issued green bonds to finance green projects in governments' budgets, exceeding \$130 billion, although sovereign green bonds still account for only 0.2 percent of all government debt securities (OECD 2021c). Examples include the following:

- *Ireland*, where the Irish National Treasury Management Agency launched in 2018 the first Sovereign Green Bond. It stipulated that any proceeds raised can be devoted only to eligible green expenditure, with the obligation for the government to report to investors on an annual basis on the disbursement of these sums.
- The *United Kingdom (UK)* launched its Green Gilts and Green Savings Bonds in 2021 to support projects with clearly defined environmental benefits. More than £16 billion has been raised through this process.

Budget Preparation

The budget preparation phase—crucial for the inclusion of green concerns into the budget—can be defined as a collaborative process, led by the MoF, that aims at producing the optimal resource allocation across sectors and policies under an overall fiscal constraint. The budget preparation process addresses the

next fiscal year but is often underpinned by the preparation of a medium-term budget framework (MTBF) with a time horizon of several years. This phase of the budget cycle can be greened through a variety of tools, but their real effectiveness is contingent on their actual impact on budget decision-making.

“Mainstreaming” climate-related considerations into the budget process with an effective impact on decision-making is difficult. The risk is that the greening of the budget preparation process focuses only on reporting, producing useful information and transparency on climate issues but with little or no impact on actual budget choices. To avoid such a trap, thorough changes in the budget discussion and decision-making process may be required.

- In *France*, the decision-making process on the COVID-19 recovery plan announced as part of the 2021 budget clearly factored in environmental concerns, based on the tagging system implemented as part of France's green budget.¹⁹
- In the *UK*, the government's Net Zero targets were used as one of the five missions formulated by the prime minister to drive change throughout the Spending Review 2021 period and beyond.²⁰

Greening the budget circular is an accessible step that helps to send a clear signal to stakeholders on the importance of climate-related issues. The budget circular, also known as “budget call circular,” is typically produced by the Budget Directorate and is the key vehicle for identifying the orientation of governmental policies as well as operational guidelines and targets to sectoral ministries before preparing the budget. Providing climate indications in the circular (for example, stating that climate change will be a major criterion for budget allocation, asking line ministries to identify climate-related spending or link spending to strategic climate priorities or to justify all new policy proposals regarding their climate or wider environmental impact) compels line ministries to take them into account during the preparation of their budget submissions and helps the MoF gather useful information and improve understanding of sectoral needs. In some countries, budget guidelines or circulars have been the very first line of action to incorporate a green perspective in the budget process. They are also critical instruments to

¹⁷McLiesh 2021.

¹⁸https://ec.europa.eu/info/publications/fiscal-sustainability-report-2021_en.

¹⁹See Government of France 2020.

²⁰See United Kingdom 2021.

communicate instructions for green tagging processes when they are implemented.

- *Bangladesh* modified its budget circular to provide guidance to all line ministries on supplying information related to climate change priorities and actions in their MTBFs—notably, in line with the six thematic areas identified in the Bangladesh Climate Change Strategy and Action Plan and the Bangladesh Delta Plan. These elements must be considered in budget submissions to inform the budget decisions.
- In *Burkina Faso*, annual budget guidelines in 2019 and 2020 have included an obligation for ministries to take climate risks into account in their budget submissions.
- *Kenya’s* budget circular specifies several priority interventions, both for mitigation and adaptation to climate change. It also provides instructions for the climate budget tagging process.

Assessing climate (and wider environmental) implications of new budget measures is among the most common good green PFM practices. This effort may be mandated by legislation, which requires the systematic inclusion of the environmental and climate dimension in impact assessments and cost-benefit analyses (see Legal Framework section). In the same vein, environmental and/or climate impact assessments should inform the process for evaluation and selection of public investment projects, integrating a strong climate dimension for the sectors that have the most impact on GHG emissions (infrastructure, energy, and transport; see Annex 1).

- For example, in *France*, an impact assessment of budget measures has been made compulsory since a 2008 constitutional reform and includes an environmental dimension.
- In the *EU*, impact assessments—including on new spending programs financed by the *EU* budget—must address environmental issues.
- Similarly, *Thailand*, with UNDP support, developed a manual for climate change cost-benefit analysis²¹ that has been used in cost-benefit analyses of new budget measures since 2015.

This focus on new measures can be usefully complemented by green spending reviews. Focusing on new measures or new projects is essential but allows

only for incremental changes and does not entail revisiting baseline (ongoing) spending. Developing the climate dimension of overall expenditure analysis is very important in this respect. This is why a number of countries, mostly within the OECD, have found it useful to develop spending review processes (Doherty and Sayegh 2022), both to allow for a more in-depth analysis of baseline spending and to develop a bespoke mechanism to identify and adopt savings measures that can be incorporated in the budget. Hence, conducting green spending reviews where spending is analyzed not only based on value for money but also based on contribution to climate and environmental goals can be an important tool (OECD, forthcoming). It is especially relevant when fiscal space is scarce—provided that authorities resist the risk of “greenwashing” and take a hard look at the environmental impact of recurrent expenditures.

- For example, *Ireland* conducted a National Biodiversity Expenditure Review (2018) to identify overall spending on biodiversity over the 2010–2015 period and to assess potential avenues for further resource mobilization.
- *Bangladesh* has also launched a review of existing policies (taxes, subsidies, and pricing) to identify areas where (1) revenue measures will recognize the effects of climate change and strengthen tax incentives for low-carbon green development, (2) the government can provide subsidies for green products and conversely reduce harmful subsidies, and (3) the government should adjust its energy pricing policy to promote renewable energy generation options.

Climate change should be a key consideration in the appraisal and selection of investment projects as well as in the risk management of projects. If green concerns are not taken on board at the outset, the public investment management system is very likely to yield suboptimal outcomes.

- In *Peru*, with the support of the German Agency for International Cooperation, a new multiyear programming and investment management scheme—INVIERTE.PE—came into force in February 2017. The new minimum requirements applicable to all public investment projects include climate risk management. This builds on research conducted following an extreme weather event (El Niño) to identify the key characteristics of infrastructure that had remained intact.

²¹See UNDP 2015.

- *The Netherlands* requires that the effects of public investment projects on the climate, circular use of energy, climate adaptation, and a healthy environment be considered during all stages of the public investment cycle.²²

Tagging climate-related expenditure in the budget preparation phase has gained traction over the past decade and is a tool accessible to low-income countries. Giving an overall picture of climate-related expenditure helps highlight the true importance of climate concerns in resource allocation and monitor changes in spending levels and composition from one year to the next. Green budget tagging does this by assessing each individual component of the budget based on its climate impact and giving it a “tag” according to whether it is helpful or harmful to the achievement of green objectives. The success of a tagging exercise ultimately rests on the capacity to analyze and classify expenditure in an adequate and reliable manner,²³ and it is an important factor in attracting international climate finance. There is no single, widely accepted international standard for tagging green expenditure. Governments have used different taxonomies and classifications as foundations for their tagging methodologies; however, countries should strive for robustness and clarity of the classification implemented as well as consistency with their overall budget system and environmental policies.

- Although many countries such as the *Philippines* and *Nepal* have implemented some form of green budget tagging or climate budget tagging,²⁴ a recent example is provided by France, which has, starting with its 2021 budget, designed and published a green budget with a high degree of ambition: it covers the whole budget (including tax expenditures) and tracks spending not only against climate change objectives but also against other environmental objectives such as fighting waste or protecting biodiversity, based on the EU Taxonomy of Sustainable Environmental Outcomes. Moreover, the tagging system also tracks expenditures that are detrimental to the achievement of environmental goals.

The green dimension can be mainstreamed into program and performance budgeting processes.

Program-based budgeting frameworks are a critical tool in operationalizing green budgeting. By using outputs and outcomes to inform the allocation of budget envelopes, these frameworks allow for decisions to better respond to policy objectives and to report progress toward targets. The approaches developed for gender budgeting are a useful reference—gender-specific programs, or full integration of gender priorities through gender performance indicators defined under each program (for example, *Austria*).

- Under *Uganda’s* performance-based budgeting framework, budget entities can set their own performance indicators; however, the Ministry of Water and Environment and the Office of the Prime Minister provide guidance on setting climate-related performance indicators. The Uganda Bureau of Statistics supports this process by coordinating the collection of data related to climate change.

The growing importance of the multiannual dimension in budget preparation means that efforts must be made to green not just the annual budget but also the MTBF. The long-term dimension of climate change challenges makes a narrow focus on the annual budget preparation inadequate. Where such a phase exists, green concerns must also be fully reflected in the multiannual phase of budget preparation, which leads to the adoption of an MTBF outlining expenditure plans over several years per ministry or policy area. This is, however, still at a nascent phase, as efforts so far have rather prioritized work on the annual budget. That said, the elaboration of the MTBF should ideally incorporate green concerns in the determination of sectoral ceilings and present the scope and impact of green spending per broad policy area.

- *Indonesia’s* 2012 Mitigation Fiscal Framework as well as *Morocco’s* climate medium-term expenditure framework are examples of early promising, albeit one-off, efforts.
- A more recent example is *Bangladesh*, where since the 2018/19 budget, the MTBF integrates for each line ministry a figure for the total climate-relevant amount included in its budget for each of the three years covered by the MTBF, as well as a narrative report on the expected impact of this spending on climate change.

²²Ministerie van Infrastructuur en Waterstaat 2020.

²³See, notably, UNDP 2019.

²⁴See OECD 2021b.

Budget Execution, Accounting, and Reporting

The next stage of the budget cycle—which covers budget execution and associated accounting and reporting tools—is crucial to hold authorities accountable for implementing their green expenditure goals and ambitions.

Tracking green expenditure during the budget execution phase is an important component of a tagging system; otherwise, the green or climate budget tagging system remains purely aspirational. Its real impact cannot be measured, and its effects can be undermined by possible reallocations within the budget year toward actions with lower climate relevance. This situation could give rise to perverse incentives whereby line ministries and the MoF agree to “boost” green expenditure in the preparation of the budget for communication purposes, while actually sticking to other spending patterns, possibly climate-neutral or even detrimental to the environment, during the budget year.

Tracking of green expenditure should ideally be factored in from the outset when putting in place a tagging system. Options include the following:

- *Adapting the chart of accounts (CoA):* The CoA provides a coding structure for the classification and recording of relevant financial information (both flows and stocks) within the financial management and reporting system and is a critical element of the PFM architecture. It is important that the CoA allow for the possibility of adequately reporting on green expenditure.
 - In *Bangladesh*, the CoA includes a four-digit climate change budget code segment to enable tracking of government expenditure across the six themes and 44 programs of the Bangladesh Climate Change Strategic Action Plan.
 - In the same vein, *Kenya* expanded the CoA in its Integrated Financial Management Information System by introducing an analytical segment to capture climate-related expenditures. Once rolled out, this eighth segment of the CoA is expected to be made up of four digits: the first two digits refer to the subject of tagging (in this case climate change, but it can also be other cross-cutting issues, such as gender), the third digit shows the focus (adaptation, mitigation, or both/cross-cutting), and the fourth digit the relevance level (principal, significant, or not targeted).
- *Ensuring that the financial management information system (FMIS) can be used for green reporting purposes:*

The FMIS is the IT backbone of the expenditure chain and should enable monitoring and reporting of climate-related spending.

- In *Bangladesh*, the local FMIS, called iBAS++, enables the monitoring of green or climate change expenditure and the production of relevant information.
- *Setting up specific reporting systems if needed:* Some countries may rely not on FMIS but on ad hoc reporting by line ministries to track actual green spending; however, this approach may be time consuming and may increase the risk of error.

This information may then feed into a dedicated implementation report. The report allows direct comparison between budget and actuals, as is the case for the Climate Expenditure Report in *Indonesia* or for the Climate Budget Reports prepared by the Climate Change Expenditure Tracking Unit in the *Philippines*. Depending on the degree of performance information available, such a report may also feature outputs and outcomes during the budget year.

- For example, in *Nepal*, climate change–relevant ministries need to prepare sector-specific climate change–related key performance indicators to monitor the financial and physical progress periodically on a trimester and annual basis, such as installation of domestic solar power systems or domestic bio-gas plans for the ministry in charge of energy.
- *Pakistan* has implemented a climate change expenditure tracking system where users can generate reports to track and measure the effectiveness of green expenditures on outputs and outcomes.
- In *Bangladesh*, the MoF prepares and presents before parliament a climate budget report with the budget documents every fiscal year. This report captures climate-relevant allocations and actual expenditure information to compare the performance of each ministry regarding spending. The report tracks progress of key national climate investment plans against the financing targets.

Because the number of climate change–related emergencies may increase in the years to come, governments should look to strengthen the in-year responsiveness of PFM systems while preserving financial integrity. Risk management mechanisms can help reduce exposure to fiscal risks related to climate change and mitigate their potential impact. However, in the event of severe disasters, governments might still have to urgently reprim-

oritize spending during the year, possibly by swiftly adopting a supplementary budget and ensuring short-term cash availability as well as business continuity. Preparing PFM systems for the challenges associated with emergency responses—as was the case at the start of the COVID-19 pandemic (IMF 2020b)—is critical for tackling climate-related emergencies.

Accounting practices may also need to reflect green concerns. Environmental financial accounting (that is, an approach to financial reporting whereby entities report on their exposure to and management of the financial and nonfinancial impacts resulting from environmental degradation and/or climate change) is still at an early stage of conceptualization and practical use in the public sector. Although disclosure of high-level information on how public entities are affected by climate change is increasingly common, the measurement—and recognition—of climate-related financial impact is still rare. The ongoing work by the International Public Sector Accounting Standards Board on sustainability reporting may help further progress.²⁵

- *Auckland (New Zealand)* has adopted financial accounting practices in line with the recommendations of the Task Force on Climate-related Financial Disclosures, which was established in 2015 following a G20 initiative. Although the task force’s mission is to develop voluntary and consistent recommendations for disclosing climate-related financial risk by private sector entities, these recommendations can obviously be a source of inspiration for public sector entities whose advanced accrual accounting frameworks mirror those of private standards.

Finally, green public procurement (GPP), or green purchasing, can help governments achieve their climate-based environmental policy objectives. Public procurement constitutes about 12 percent of global GDP, or \$11 trillion per year (Bosio and others 2020). Integrating climate change and other environmental considerations into the guidance, procedures, and methodologies for government procurement is therefore recognized as a powerful tool to address climate change. The fourth of the Helsinki Principles indicates that finance ministries should take climate change into account in procurement practices to reduce public sector impact and catalyze markets through GPP.

²⁵International Public Sector Accounting Standards Board 2022.

The European Commission (2008) defines GPP as “a process whereby public authorities seek to procure goods, services, and works with a reduced environmental impact throughout their life-cycle when compared to goods, services, and works with the same primary function that would otherwise be procured.” GPP requires public purchasing of those products and services that are less environmentally damaging over their whole life cycle. Clear and verifiable green criteria for products and services can be integrated into the procurement process at each stage of procurement, including supplier selection criteria, technical specifications, award criteria, and contract performance (World Bank 2021).²⁶ Credible standards make it easy to identify which products or services count as green, such as eco-labels.

GPP is becoming an essential part of modern procurement systems.²⁷ The *European Commission* and several European countries have developed guidance in this area. Several countries in Latin America and the Caribbean, such as *Ecuador*, *Nicaragua*, and *Uruguay*, also developed policies to promote green public procurement (OECD 2020).

- Since 2008, the *European Commission* has developed more than 20 common GPP criteria (such as GPP criteria for the wastewater infrastructure, road design, construction and maintenance, and electricity). The EU GPP criteria aim to facilitate the inclusion of green requirements in public tender documents while ensuring a balance between environmental performance, cost considerations, market availability, and ease of verification.²⁸
- The *Dominican Republic* developed a National Policy of Sustainable Public Procurement in 2021. It includes provisions explicitly supporting environmental and social criteria in bid assessment and awards. A draft procurement law prepared in 2020 incorporates binding environmental sustainability criteria.²⁹

²⁶See World Bank 2021.

²⁷According to OECD (n.d.a.), almost all OECD countries have developed strategies or policies to support GPP, and 69 percent of OECD countries are measuring the results of GPP policies and strategies.

²⁸European Commission, n.d.

²⁹Coalition of Finance Ministers for Climate Action 2022.

Control and Audit

Control and audit (internal and external) aim at giving reasonable assurance to stakeholders that the processes are implemented in compliance with rules, funds are used for their intended purpose, and information provided is accurate and complete. Incentives for actors within the administration to indulge in “greenwashing” (to enhance their popularity with the wider public so it will back their claim for additional resources) give a strong relevance to this aspect of the budget cycle.

Controlling and monitoring green expenditure involves several actors. There is a usual distinction between internal control and audit and external audit:

- *The internal control and audit* functions are performed by the MoF, as the overall controller of budget systems and processes, and line ministries and agencies. Internal audit or inspection bodies, especially within the MoF, can be the first line of defense against inefficiencies if they adopt a climate focus in their work program. Internal control and audit functions can allow for close inspection of the effectiveness of an organization’s processes and systems and assess their compliance with the climate-related objectives and requirements. Such functions can help to identify climate risk and contribute to the improvement of climate risk management processes. Line ministries and agencies can also monitor and assess the climate outputs attached to their budget actions.
 - In the *UK*, the National Audit Office’s good practice guide for Audit and Risk Assurance Committees (ARACs) highlights the role of internal audit in managing climate change risk. It suggests that ARACs assess whether internal controls are in place for effective monitoring of climate-related risks and whether the organization’s internal audit function includes climate-related issues in its planned work.³⁰
 - In *Australia*, the New South Wales’s Internal Audit and Risk Management Policy for the General Government Sector requires organizations to consider climate-related risks when assessing risks that might prevent an organization from achieving its objectives and makes audit and risk committees responsible for seeking assurance from management that climate change risks are being identified and addressed.³¹

- *The external audit* function is carried out independently of the executive branch of government. It is the supreme audit institution (SAI)³² in charge of assessing and auditing compliance of project proposals and transactions with the climate-related objectives and requirements; the parliament, which is the main oversight body, is responsible for examining external audit and evaluation reports on green or climate strategies.

All these stakeholders should be involved in examining and monitoring the climate impact of the government’s policies and evaluate the efficiency and effectiveness of all mitigation and adaptation policies.

After the budget has been executed, the SAI can undertake audits of the impact and effectiveness of green-related policies. The SAI has a crucial role to play in managing the increasing funds allocated to climate change by ensuring transparent and effective use of public funds through financial and compliance audits as well as performance audits. Although these three types of audits can address environmental and climate issues,³³ specific expertise must be built up to successfully integrate climate change in audit methodologies. This could include assessing whether the impacts (such as GHG reductions) are in line with the stipulated climate goals in NDC and development plans. The International Organization of Supreme Audit Institutions (INTOSAI) has recognized that climate change audit requires deep understanding of the technical details for auditors to design an effective audit approach.³⁴ Green PFM is a cross-cutting issue, and many SAIs are mandated to review a range of policy fields to enhance government functions. In 2017, the INTOSAI Working Group on Environmental Auditing published a research paper on potential criteria for conducting performance audits of specific government initiatives to strengthen resilience and adaptive capacity; the paper also included examples of

³²In some countries, an individual (the auditor general or head of the audit office) is the main decision-making authority for external audit; in other countries, it operates as a collegial body.

³³According to the 10th INTOSAI (The International Organization of Supreme Audit Institutions) Working Group on Environmental Auditing survey on environmental auditing, almost all (89 percent) respondent SAIs have conducted environmental performance (value-for-money) audits during 2018 to 2020. Over half of them (57 percent) have carried out environmental compliance audits, and over a third (37 percent) environmental financial audits. See Niemenmaa and others 2021.

³⁴Wong and Roenhorst 2017.

³⁰National Audit Office 2021a.

³¹See New South Wales. 2020.

how SAIs have employed these criteria in practice.³⁵ In some countries, a specific expertise is established within the auditor general's office to assist the auditor general in auditing the implementation of green policies.

- In *Canada*, the Commissioner of the Environment and Sustainable Development, appointed by the auditor general for a seven-year term, is responsible for providing parliamentarians with independent analysis and recommendations on the federal government's efforts to protect the environment and foster sustainable development. The commissioner conducts performance audits related to the environment and sustainable development on behalf of the auditor general.

Setting up external audit mechanisms is essential to examine, measure, and monitor the efficiency and effectiveness of green policies. One approach is to make green policies the focus of performance audits; this tactic would be appropriate when the government is delivering climate-specific programs (such as the climate action plan in *Ireland*).³⁶ Another approach is to make green PFM an area of investigation within the audit. The examination of green PFM issues could result in important findings and recommendations related to government commitments and obligations in greening their PFM practices.

External auditors have an important role in highlighting shortfalls and risks and communicating them to the public in an understandable way; this task is even more critical for policies that would affect future generations. Performance audits, which try to specifically assess the link between policy outcomes/ outputs and the means affected to a given policy, can offer insights into complex problems and risks that cut across government programs, levels of government, and sectors. A few countries with extended green PFM experience include climate considerations in their performance audits.

- In 2016, the European Court of Auditors published a special report on *the EU's* target to spend at least 20 percent of its budget on climate-related action. The report highlights the progress made and identifies weaknesses related to the tracking methodology and the lack of distinction between mitigation and adaptation measures.³⁷

³⁵INTOSAI Working Group on Environmental Auditing 2019.

³⁶Government of Ireland 2019.

³⁷See European Court of Auditors 2016.

- In the *UK*, the National Audit Office has been working on a range of climate audits covering a diverse set of topics. Among the most recently issued reports are (1) a report to support parliamentary and public scrutiny of government's arrangements for achieving net zero, highlighting the main risks government needs to manage to achieve net zero efficiently and effectively (including the roles and responsibilities within government and the coordination arrangements)³⁸ and (2) a report examining how effectively central government and local authorities in England are collaborating on net zero target.³⁹
- In *Austria*, there is no specific mandate or priority for climate in the audit program of the auditor general; however, the auditor conducts performance audits that include climate-related issues. In 2020, the auditor general issued a report questioning the effectiveness of the energy industry measures against energy poverty.⁴⁰
- In *Bangladesh*, guidelines for climate performance audit have been introduced by the Office of the Comptroller and Auditor General.

Parliament has a central role in holding governments accountable for their green policies and actions—or lack thereof. Parliament or its committees can scrutinize the government's performance in responding to climate issues by examining relevant audit and evaluation reports on climate strategies and recommending corrective measures in case of deviation from the approved targets.

- In *Pakistan*, a parliamentary Standing Committee on Climate Change deals with issues related to the environment. Its mandate includes reviewing the impact of the national strategy to counter climate change and ensuring the application of laws pertaining to all aspects of climate change.
- In *Nepal*, parliament, with the technical support of UNDP, is developing a handbook to provide a practical guide for members of parliament in scrutinizing the funds during the various stages of budgeting. This toolkit aims to support the federal parliament and provincial assemblies in engaging

³⁸National Audit Office 2020.

³⁹National Audit Office 2021b.

⁴⁰<https://www.rechnungshof.gv.at/rh/home/home/Energiearmut.pdf>.

in climate change finance, analyzing allocation, and monitoring its use.

- In *Uganda*, parliament’s Natural Resources Committee is tasked with scrutinizing the government’s climate policies. Its chairman is also a member of the Budget Committee; this arrangement helps to ensure that climate priorities are reflected in the budget.

Many countries support the implementation and oversight of climate policies by setting up an independent special body. This body is typically an independent government body such as a national climate change advisory council, committee, or panel, typically bringing together subject matter experts from the public and private sectors and from academia. The key to success for these institutions is to have a formal mandate that is seen both by the political players (government and opposition) and by the public as an objective source of information, analysis, and advice to government and/or parliament on the consistency of current policies with government targets and commitments and what must be done to achieve targets, including through interim carbon budgets.

- In *Ireland*, the Climate Change Advisory Council, an independent advisory body, assesses and advises on how Ireland can achieve the transition to a low-carbon, climate-resilient, and environmentally sustainable economy established under the Climate Action and Low Carbon Development Act 2015. In 2018, the council expressed its disappointment at the Budget 2019 decision not to increase the carbon tax in Ireland.
- The Committee on Climate Change is the official climate watchdog in the *Philippines*. An autonomous body under the Office of the President, the committee coordinates, monitors, and evaluates government programs and ensures mainstreaming of climate change in national, local, and sectoral development plans toward a climate-resilient and climate-smart Philippines.
- In the *UK*, the Climate Change Committee— an independent statutory body that proposes carbon budgets and monitors the progress toward their achievement—reports to parliament on the progress made in reducing GHG emissions and adapting to the impacts of climate change.
- In *The Netherlands*, the Advisory Division of the Council of State assesses the adequacy of the climate goals, administrative and executive aspects,

economic and budgetary considerations, and legal aspects of the climate plans of the Dutch government considering the climate targets stipulated in the Climate Act.⁴¹

Legal Framework

With clearly established rules, procedures, and responsibilities, a comprehensive, well-defined, and transparent legal framework guides PFM practices at each stage of the budget cycle. The PFM legal framework is therefore a key tool to translate climate objectives into actions in a transparent and accountable manner.

Environmental-related rights and protections have been enshrined in national constitutions since the 1970s and given statutory meaning through environmental laws over the past few decades.⁴² These traditional environmental laws set the foundation for early green PFM practices, such as requiring environmental impact assessments to be carried out for individual infrastructure projects. However, with the growing importance of climate change, countries started to strengthen their legal frameworks to address specific challenges posed by climate change and implement commitments under the Paris Agreement. Several countries articulated climate considerations in their constitutions, which usually provide a broad promise to tackle climate change. For instance, *Thailand*, *Vietnam*, and *Zambia* included dedicated climate-relevant provisions in their constitutions.⁴³

- *Ecuador’s* constitution includes a more specific climate-related provision. It has a dedicated section on biosphere, urban ecology, and alternative sources of energy, which lists a set of climate actions to be adopted.⁴⁴

⁴¹See Government of The Netherlands, n.d.

⁴²Environmental rights are composed of substantive rights (such as rights to a healthy environment, life, and water) and procedural rights (such as rights of access to information and public participation). According to the UN’s first global assessment of environmental rule of law, as of 2017, 150 countries have enshrined environmental protection or the right to a healthy environment in their constitutions. See UNEP 2019.

⁴³London School of Economics and Political Science and Grantham Research Institute on Climate Change and the Environment 2021; see also Grantham Research Institute on Climate Change, n.d.

⁴⁴Article 414 of the constitution of Ecuador states that “the State shall adopt adequate and cross-cutting measures for the mitigation of climate change, by limiting greenhouse gas emissions, deforestation,

To translate their international obligations into national legal frameworks, countries have also started to enact dedicated climate laws. Climate laws usually include climate targets that are often the translation of international agreements embedded in the legal framework. They also outline mitigation and adaptation objectives, mechanisms to achieve and monitor these objectives, and institutional duties and powers to this effect, including establishing an independent body to give advice on setting and meeting carbon budgets.⁴⁵

- The UK's Climate Change Act of 2008,⁴⁶ the *Philippines'* Climate Change Act of 2009, *The Netherlands'* Climate Act of 2019, and *Kenya's* Climate Change Act of 2016 are examples of comprehensive national climate laws.
- Also, several EU countries recently enacted climate action laws to comply with European targets and fulfill obligations under the Paris Agreement, such as *Germany's* Federal Climate Change Act of 2019.

Although the evolving legal framework that supports climate action offers guidance to kickstart green PFM reforms, green PFM practices are still relatively new on countries' legal agendas. The legal foundation and design of existing green PFM practices vary across countries, reflecting differences in both legal and political traditions. Countries tend to introduce green PFM practices in their specific climate laws (for example, *Sweden*) or through amending their existing public finance law (for example, *New Zealand*, *Mexico*), or a combination of those (for example, *Uganda*). In some countries, like *Austria*, green PFM practices were embedded in the law during the budget law reform,⁴⁷ while in others, like *Italy*, the practice was built on the existing legal provisions on environmental focus with-

and air pollution; it shall take measures for the conservation of the forests and vegetation, and it shall protect the population at risk.”

⁴⁵The term “carbon budget” refers to the setting of a limit on the total quantity of GHG that can be emitted over a specified time frame. Carbon budgets are used to translate long-term emission reduction targets into intermediate targets and allow countries to monitor their progress toward long-term targets. A carbon budgeting approach of intermediate targets was first implemented in the UK through its Climate Change Act. A carbon budget is also embedded in legislation in France and New Zealand. See World Bank 2020.

⁴⁶Amended in 2019 to reflect the shift to a net zero target by 2050, instead of the previous target of a reduction by 80 percent of GHG emissions.

⁴⁷The new Federal Budget Law 2013 of Austria includes a requirement to assess the environmental impact of individual budget measures (BHG 2013, section 17).

out any further legislative amendments.⁴⁸ Countries also applied green PFM practices through government decrees or directives (for example, *Finland* and *Canada*).

Although countries took a range of approaches in introducing legal requirements for green PFM elements, in most cases the law mandates incorporating green goals during budget formulation, producing green budget documents at the budget submission, and controlling and monitoring the implementation of green policies at the audit stage. Box 3 illustrates the breadth of green PFM approaches in legal reforms.

As seen in the following examples, providing a legal basis for green PFM throughout the whole budget cycle, including the strategy setting stage, has yet to be developed. Some good examples of more comprehensive approaches in integrating green practices into the PFM legal framework are still evolving:

- *New Zealand's* Public Finance (Wellbeing) Amendment Act of 2020 amended the Public Finance Act of 1989 to introduce well-being objectives in its PFM framework.⁴⁹ The Amendment Act introduced several new requirements for the government to report on how their well-being objectives (including environmental well-being), together with their fiscal objectives, guide its budget and fiscal policy. The act requires an explanation in the Budget Policy Statement (presented before the budget) and the Fiscal Strategy Report (presented with the budget) on how these objectives have guided the government's budget decisions. The latter should also state if there have been any changes in the well-being objectives since the Budget Policy Statement. Additionally, the Minister of Finance is required to present to parliament a report on New Zealand's well-being indicators at least every four years.

⁴⁸In Italy, Law 196/2009 requires the publication of a specific ex post report (as an annex to Final Statement of Accounts) illustrating the outturns of environmental expenditures in the budget programs. Although there was no legal requirement to report in the budget planning stage, parliament also requested green budget tagging in ex ante phase for improved transparency on environmental expenditure. The government enhanced the practice beyond the legislative requirement and an additional report providing a classification of the budget spending items with respect to their environment-related content has been attached to the Draft Budget Law. This ensured reporting on the budgetary execution of the same expenditure items in the annex of Final Statement of Accounts.

⁴⁹The well-being objectives are defined as social, economic, environmental, and cultural well-being and any other matters that the government considers as supporting long-term well-being in New Zealand.

- Beyond the update of the Fiscal Responsibility Law in 2012 to include a cross-cutting budget of climate change into the budget documents, *Mexico* also reformed its National Planning Law in 2018 to integrate SDGs (including climate-related ones) into national development plans. Through its connection to the budget programs in a performance budgeting framework, the National Planning Law also links SDGs with budget funding.⁵⁰

Although the choice of legal design is largely based on individual country circumstances, including legal and institutional context, countries should consider a strong legal basis (that is, binding legislation) for green PFM practices. The effectiveness and continued application of the green PFM practices usually depend on their being grounded in law, and they benefit from supportive regulations and administrative practices. Having a binding legislative requirement to implement green PFM would reduce the risk of arbitrary decisions arising from changes in the economic or political environment (in particular, in times of crises) and achieve more efficient resource allocation and sustainability.

Countries should carefully evaluate the existing PFM legal framework to assess whether it provides a legal basis for green PFM practices and whether a new law or revision of existing laws (or both) would be more efficient to ensure harmonized development of green considerations in a country’s legal framework. Particularly, when enacting a new climate framework law, the consistency of the new provisions with existing PFM laws should be examined—and overlaps and ambiguity should be avoided.⁵¹ This can be done, for example, by providing cross-references to PFM laws as well as subsequent amendments to PFM laws, when needed.

Adjustments may be needed to countries’ legal frameworks to integrate the green approach in all stages of the budget cycle and for PFM functions beyond the budget cycle. This integration would not require developing a parallel legal framework but rather adjusting the PFM laws and secondary legislation to

provide a legal basis for green PFM tools and supplementing existing procedures.

Particularly, it would be important that key elements be backed by primary PFM legislation. These elements would include (1) defining the legal mandate of the MoF to promote and implement green PFM practices; (2) giving legal powers to the Minister of Finance to carry out this mandate (such as collecting information and taking actions for monitoring); (3) imposing obligations on public sector entities; (4) defining key terms (such as “green,” “mitigation,” “adaptation,” “climate-relevant revenue” and “expenditure”); (5) outlining key objectives and institutional roles (such as the specific role of the Ministry of Environment in setting standards, for example, for assessing the climate impact of new budget proposals or for identifying climate risks); and (6) prescribing budget principles and key stages to implement green practices (such as key dates and minimum content of green PFM deliverables).⁵²

The overall PFM legal framework should be flexible enough to afford the executive the possibility to amend procedural requirements as circumstances change, such as in the case of climate-related emergencies. This could be ensured by delegating to the secondary legislation details—such as operational processes, roles, and responsibilities of internal units—and a comprehensive description of the contents of green reports and documents.

Whatever approach countries adopt, a clear ex ante underlying legal framework is important to guide the operation of PFM systems while supporting green practices. The preexistence of a sound PFM law with broad coverage, clear definitions, well-defined institutional roles and procedures, and a robust sanction regime for the enforceability of such provisions can help in the design and implementation of green PFM practices in a transparent and accountable manner. Also, the legal framework should be the link between the fiscal framework, the national development plan, sectoral plans, and annual budgets, and ensure coherence with other budget initiatives, such as gender budgeting.⁵³ The existence of a sound legal frame-

⁵⁰Article 22 of the National Planning Law (*Ley de Planeación*) states that all climate change programs need to be compatible with the National Development Program.

⁵¹See World Bank 2020. The reference guide does not present a model law and advises that framework legislation should avoid overlapping with existing legislation, creating ambiguity, notably in areas such as public finance, disaster risk management, and intergovernmental relations in developing institutional mandates.

⁵²Matters of operational procedures and detailed contents of green PFM documentation can be left to secondary legislation to allow adjustments during the evolving green PFM reforms.

⁵³For instance, section 3 of Kenya’s Climate Change Act (2016) mainstreams intergenerational and gender equity in all aspects of climate change responses by the national and county governments. The Climate Change Action Plan also incorporates and addresses gender issues.

Box 3. Green PFM as Part of the Legal Framework: Country Examples

Budget Formulation

Kenya's Climate Change Act of 2016 mandates the integration of the National Climate Change Action Plan into sectoral strategies. The act also empowers the coordination body, the National Climate Change Council, to identify priority strategies related to climate change each year and advise the president to require the incorporation of these priority strategies and actions into functions and budgets of each state department, state corporation, and other national government entities.

Sweden's Climate Act (2018) establishes that the government's climate policy must be implemented in a manner that enables climate targets and budgetary targets to interact. To make sure that climate policy goals and budget policy goals work together, the act requires the government to present a climate report in its budget bill each year and draw up a climate policy action plan every fourth year to describe how the climate targets are to be achieved.¹

In the *Philippines*, the Climate Change Act (2009) requires all relevant government agencies and local government units to allocate from their annual appropriation adequate funds for the formulation, development, and implementation of their respective climate change programs and plans. After the act's 2012 amendments, the Department of Budget and Management is now responsible to “undertake the formulation of the national budget in a way that ensures the appropriate prioritization and allocation of funds to support climate change-related programs and projects in the annual program of government.”²

Norway's Climate Change Act (2018) requires the government to include a statement in its budget proposal for the following year on how Norway can achieve the climate targets set out in the act and the expected effect of the proposed budget on GHG emissions. The act also stipulates that the government will provide to parliament each year an account of how Norway is preparing for and adapting to climate change.³

Budget Submission

After enacting the General Law on Climate Change (2012), Mexico subsequently amended its organic budget law to include provisions specifically related

to green budgeting. The Budget and Fiscal Responsibility Federal Law introduced a new mandate for the government to integrate a cross-cutting budget (the *Presupuesto de Egresos de la Federación*, or PEF) that presents information on budget programs contributing to specific policy goals, including a “climate change annex” on climate change adaptation and mitigation. The climate change (adaptation and mitigation) cross-cutting budget annex is incorporated in each annual budget (since 2013), and spending is reported quarterly.⁴

In the *UK*, Scotland's Climate Change Act (2009) includes a specific provision on the impact of budget proposals on emissions. The act requires submission of an assessment report to the Parliament of Scotland on the direct and indirect impact on GHG emissions of expenditure proposals in any financial year.⁵

In *France*, Energy and Climate Law (2019) required government to submit a report to parliament on positive and negative effects of the 2020 budget bill on climate change. Subsequently, the first report (“Green Budget”), including an assessment of the “green impact” of all state budget expenditures on all environmental domains, has been prepared in accordance with article 179 of the 2020 Budget Act and published as an annex to the 2021 Finance Bill.⁶

Uganda's Public Finance Management Act (PFMA) 2015 was amended by the National Climate Change Act (2021) to include climate considerations in the budget processes. The amendments require that each accounting officer, in consultation with the relevant stakeholders, prepare a budget framework paper that considers climate change (in addition to balanced development and gender responsiveness) and submit this paper to the Minister of Finance. The PFMA then mandates that the minister, in consultation with the chairperson of the National Planning Authority, issue

⁴Budget and Fiscal Responsibility Federal Law of Mexico 2006, articles 2, 41. The 2021 National Budget Law also included a provision to tighten the reporting requirements by requiring that “the Federal Executive, through the Ministry of the Environment and Natural Resources, must report on its website the actions that the Federal Government is implementing for mitigation and adaptation to climate change. The information must be reported in open data format and updated on a quarterly basis.”

⁵Climate Change (Scotland) Act 2009, section 94. See “Carbon Assessment of the 2020–21 Budget.”

⁶Article 179 of the 2020 Budget Act 2019-1479 of December 28, 2019, stipulates that the government submit to parliament, as an appendix to the budget bill, a report on the environmental impact of the budget.

¹The Swedish Climate Act 2018, sections 3, 4, 5.

²Climate Change Act (Republic Act 9729), sections 15, 18.

³Climate Change Act entered into force January 1, 2018; see section 6.

Box 3. Green PFM as Part of the Legal Framework: Country Examples

a certificate stating that the budget framework paper is responsive to climate change and contains adequate allocation for funding climate change measures and actions.⁷

Budget Execution and Accounting

In *Italy*, the Government Accounting and Public Finance Act (Law 196/2009) requires that the Final Statement of Account (which sets out the results for the fiscal year) will contain, in a special annex, a description of the outturns of expenditure for programs of an environmental nature to highlight the resources employed for environmental protection and activities involving the safeguarding, conservation, restoration, and sustainable use of natural resources and the natural heritage. To this end, the ministries involved are required to provide the Ministry for the Economy and Finance with the necessary information in accordance with the accounting statements. The

⁷Uganda Climate Change Act 2021, article 30 amended section 9 of the Public Finance Management Act, 2015.

annex presents the execution of environmental spending with information by activity and spending phase.⁸

Control and Audit

In *Canada*, the Auditor General Act was amended to provide the auditor general a specific mandate related to the environment and sustainable development. This mandate is carried out by the Commissioner of the Environment and Sustainable Development and includes conducting performance audits, overseeing the environmental petitions process, auditing the federal government’s management of environmental and sustainable development issues, and reporting annually to parliament its independent analysis and recommendations on the federal government’s efforts to protect the environment.⁹

⁸Government Accounting and Public Finance Act (Law 196/2009), article 36 (6).

⁹The Auditor General Act (R.S.C., 1985, c. A-17), articles 7, 15, 21.

work should be accompanied by other factors such as political and institutional setting and enforceability mechanisms.

Identifying Interactions with PFM Functions across and beyond the Budget Cycle

Some important PFM functions touch on every step of the budget cycle and constitute critical elements of a successful green PFM strategy—including fiscal transparency. And some aspects are only partly addressed through the budget cycle, such as coordination with state-owned enterprises and with subnational governments.

Fiscal Transparency

Credible green budgeting requires that green commitments, targets, forecasts, costs, outputs, and outcomes be transparently reported and available in a clear and timely fashion to the civil society and the public while giving the public an opportunity to participate in shaping the budget choices.

Transparency refers to the comprehensiveness, clarity, reliability, timeliness, and relevance of public

reporting on the state of public finances. It is critical for effective fiscal management and accountability. This helps to strengthen the credibility of the effort to mainstream green elements into the budget—by ensuring that legislatures, markets, and citizens have the information they need to hold the government accountable for the announced commitments and targets and that these stakeholders understand the climate impact of fiscal policies.

Numerous entry points exist for green elements in budget and fiscal reporting, which have been highlighted in earlier sections on each stage of the budget cycle. Some overarching principles from these sections emerge; they are summarized here:

- Budget documentation should include evidence on the climate impacts of fiscal policies and the link between fiscal policy and climate change. For instance, documentation can highlight the link between NDCs, GHG emissions targets, the economy, and fiscal policy. Documentation should also identify where fiscal policies might improve climate and/or wider environmental outcomes.
- Budget documentation should include elements on fiscal risks related to environmental degradation and climate change (see next section).

- The positive and negative climate impacts of the forthcoming budget should be clear and readily available in the budget documentation. In the first instance, documentation can highlight where expenditure is expected to have an impact on climate or wider environmental outcomes, notably through a “tagging” system. Estimates of the carbon emissions resulting from the budget could also be provided.
 - For instance, the *Italian Eco-Budget* provides an annual breakdown of government spending by environmental objective. More advanced budget reporting can document the impact of budget decisions on the environment.
 - In the *Philippines*, a National Climate Budget Brief is published annually, based on the climate tagged expenditure data. A government website⁵⁴ also allows monitoring of data generated by the tagging system.
 - In *Honduras*, detailed tables on climate-relevant expenditure have been presented in a dedicated analytical report (most recent iteration dates to 2019).

Public participation should be encouraged at all stages of the budget cycle. Public participation is increasingly recognized as a key element of fiscal transparency because it helps to strengthen the link between the budget and outcomes for citizens, improves the quality of policy advice and its legitimacy, and acts as an accountability mechanism. Public participation in green budgeting can build on existing mechanisms, including (1) the inclusion or elevation of green outcomes in participatory national planning mechanisms and prebudgeting consultations; (2) the empowerment of independent fiscal councils or climate change commissions to independently assess, report, and consult on green budgeting targets and outcomes; and (3) public consultation on social, environmental, and climate impacts of the budget.

- Each year *Canada* holds pre-budget consultations as part of its budget process, for which the ministers select different policies to discuss and receive inputs from the public. In the consultation of 2020, one of the policies selected was climate change and protection of the environment.⁵⁵ Additionally, in 2021 the Department of Finance of Canada opened a public

consultation, “Tax Reduction for Zero-Emission Technology Manufacturing.”⁵⁶

- A different approach can be found in *South Korea*, which opens a yearly form of participatory budget.⁵⁷ The public can send project proposals, which are then analyzed to assess their eligibility for integration in the budget by the related thematic ministries. When proposals are deemed eligible, they go through a project maturation process and are integrated in the budget proposal that is sent to the parliament. Although this example is not focused on environmental projects per se, several projects do relate to environmental issues.

Fiscal Risk Management

Climate change creates fiscal risks through the costs of adaptation and mitigation; it also poses transition risks.⁵⁸ The costs of adapting to climate change are incurred to prevent the likely increased incidence and severity of natural disasters and the increased exposure of assets to disasters particularly in middle- and low-income countries.⁵⁹ These costs include preventive costs (such as building infrastructure to higher standards)⁶⁰ and recovery costs (such as replacing damaged infrastructure). With respect to mitigation, building new clean infrastructure generally entails higher capital expenses, although the cost of renewables has fallen, and operating costs may be lower. Transition risks are the risks arising from the shift to a low-carbon economy due to policy, technological, and other changes such as loss of value of public coal-fired power stations (“stranded assets”) as carbon prices increase; from the failure of a country to meet its GHG-reduction commitments, which might create reputational costs or lead to sanctions; or from side effects for a given country of measures adopted by other countries (for example, impact of a possible carbon border tax on exports to important trade partners, or of restrictions on air travel on the tourism sector).

Significant fiscal risks also arise from loss of biodiversity and other environmental risks, including

⁵⁴National Integrated Climate Change Database Information and Exchange System, n.d.

⁵⁵Government of Canada 2020.

⁵⁶Government of Canada 2021.

⁵⁷The submissions and responses by the government are publicly available at <https://www.mybudget.go.kr/#none>.

⁵⁸See Office for Budget Responsibility 2019, notably Chapter 9 for an application of this categorization of fiscal risks from climate change.

⁵⁹Le, Leow, and Seiderer 2020.

⁶⁰Hallegatte, Rentschler, and Rozenberg 2019, chap. 6.

increased threat of pandemics. Destruction of biodiversity, one of the leading causes of infectious disease outbreaks and pandemics, poses a significant risk to supply chains, business, and the global economy.⁶¹ Other environmental risks that can create fiscal costs include pollution, site degradation associated with natural resource extraction or nuclear power production, pest infestation and animal diseases, and the storage or transportation of hazardous substances.

A range of methodologies exist for estimating economic and fiscal costs from environmental and climate-related fiscal risks. A starting point is to conduct an analysis of historical economic losses from disasters and, as data allow, of the associated fiscal costs.⁶² Forward-looking hazard assessments must be linked to the location of assets and networks to estimate exposure to risks and vulnerability to damage in a changing climate. The government’s explicit obligations to give fiscal support after a disaster should then be assessed and its implicit exposures estimated.⁶³ A variety of modeling, assessment, and qualitative risk classification tools can be used to estimate and communicate the economic and fiscal impacts of disasters.⁶⁴ In cases where quantification is too difficult, risk classification such as “probable,” “possible,” and “remote” may be used.⁶⁵

Country examples of estimating the economic and fiscal costs of climate change and natural disasters include ex post assessments and forward-looking estimates of exposures. Ex post assessments include the Post-Disaster Needs Assessment methodology developed by the EU, World Bank, and the UN,⁶⁶ estimation of past fiscal costs from one-off analysis of selected programs,⁶⁷ and information on fiscal losses compiled from government financial statements.⁶⁸ Forward-looking estimates include the following:

- An estimate by the government of *Colombia* of the value of its implicit contingent liability from disaster damages to private property.⁶⁹

⁶¹OECD 2020, 3.

⁶²See Le, Leow, and Seiderer 2020.

⁶³See Gamper and others 2017.

⁶⁴Cevik and Huang 2018, box 1.

⁶⁵IMF 2017b.

⁶⁶See for instance Government of Odisha. 2019.

⁶⁷The United States government has estimated its exposure to climate risk by compiling data across selected expenditure programs.

⁶⁸The New Zealand government provided a detailed disclosure in its 2011 Financial Statements of the direct impacts of a major disaster on its revenues, expenditures, assets, and liabilities.

⁶⁹Government of Colombia. 2011.

- The *Philippines*’ 2015 fiscal risk statement, which included a debt sustainability analysis, incorporating a scenario involving the occurrence of large natural disasters.⁷⁰
- The 2015–2017 Multiannual Macroeconomic Framework in *Peru*, which considered the macroeconomic and fiscal consequences arising from a severe weather episode (El Niño).⁷¹
- The *UK* 2021 Fiscal Risks Report, which contains a chapter on the fiscal risks from climate change, including the economic and fiscal implications of alternative paths to meeting the government’s legislated goal to reduce net GHG emission to zero by 2050 and alternative scenarios and sensitivities.⁷²
- *Ireland*’s 2021 Budget Economic and Fiscal Outlook document, which rates climate change and renewable energy targets as presenting a high fiscal risk for the government, because failure to meet the state’s climate change obligations could result in significant financial costs or sanctions.⁷³

Governments should have strategies in place to mitigate the expected increase in fiscal risks from climate change. A risk management strategy should address climate-related fiscal risks and can include enhancing disaster preparedness, creating fiscal buffers, ensuring budget flexibilities (for example, contingencies for natural disasters, provisioning), and using risk transfer instruments (for example, insurance). With respect to fiscal risks from climate change, governments need to integrate climate change issues in their public investment management systems, as outlined *supra*. The UN Sendai Framework for Disaster Risk Reduction 2015–2030 sets out a widely adopted framework for mitigating risks. Elements include (1) understanding disaster risk, (2) strengthening disaster risk governance, (3) investing in disaster risk reduction, and (4) enhancing disaster preparedness.

- *Côte d’Ivoire* publishes an annual fiscal risk statement as part of budget documentation. A section on specific risks presents a qualitative analysis of the fiscal consequences of the materialization of natural disaster risks, followed by information on the mit-

⁷⁰See Republic of the Philippines 2015–16, 32.

⁷¹See IMF 2015, p. 68.

⁷²See Office for Budget Responsibility 2021, chap. 3.

⁷³Government of Ireland 2021. <https://www.gov.ie/en/collection/62f05-budget-publications/>

igation measures envisaged by the government to tackle these risks.⁷⁴

- *Turks and Caicos* identifies in its Fiscal and Strategic Policy Statement 2022–2026 natural disasters resulting from climate change as a primary source of fiscal risks and describes risk reduction measures (for example, improving building codes, strengthening reefs), risk financing (catastrophic risk insurance and mandatory private insurance), and possible post-disaster responses.

Governments should identify other potential fiscal risks from non-climate-related sources, such as biodiversity loss and pollution, and invest as appropriate in risk analysis and mitigation.

Coordination with Other Public Sector Entities

Within the public sector, the central government is not the sole contributor to achieving green and climate objectives. Depending on the institutional setting, sub-national governments (SNGs) and state-owned enterprises (SOEs) can play a major part in the delivery of public services and in the construction or financing of infrastructure. Hence, it is important that their actions also be harnessed toward meeting green objectives.

Many of the entry points in the national budget cycle covered in the previous section are also valid for the SNGs' own budget cycles. A critical hurdle is the often-weaker PFM capacity at the subnational level, especially in emerging markets and developing economies. Central governments have a responsibility to support local-level capacity development, including through training, study tours, and financial support for hiring.

Further, the central government can create incentives for SNGs to deliver their share of the green strategy while not infringing on their degree of financial autonomy.⁷⁵ Although SNGs enjoy varying degrees of autonomy (both institutional and financial), the central (or federal) government can encourage or sometimes even require SNGs to follow national green or climate objectives. Conversely, the central government may also need to adapt fiscal transfers to compensate local governments, which bear a disproportionate burden

because of climate change. The burden may include heightened exposure to natural disasters and impact of climate mitigation policies on specific economic sectors such as fossil fuel production or other “brown” industries.

- For instance, part of budget transfers to SNGs can be explicitly targeted at low-carbon investments or green policies, as piloted by the Indonesian government or in *India* (through a variable in the equalization grant that promotes forest conservation).
- In *China*, the central government imposes on provincial governments environmental requirements via reporting obligations and monitoring of performance indicators.
- Softer mechanisms used to foster compliance with fiscal objectives, such as *France's* partnership contracts with local governments, could also be effective vehicles for green objectives, as shown by the *Danish* Partnership for Green Public Procurement between the Ministry of the Environment and municipalities and regions.

The role of SOEs makes them highly relevant in achieving green objectives. SOEs can be among the largest companies, especially in emerging markets and in climate-relevant sectors such as electricity, oil, and gas (for instance, *China's* PetroChina, *Russia's* Gazprom, *Brazil's* Petrobras). And financial public corporations can be significant providers of financing for development. The central government, through its regulatory powers and financial relationship with these entities (as a shareholder or provider of transfers and subsidies), has a key role in ensuring their full commitment to green and climate objectives. As a start, all entities of the public sector—SNGs, public corporations (both central or local)—should be involved in the preparation of national and sectoral strategies to ensure a common understanding of their role in implementing them. And there should be regular reporting to the central government so that performance against overall strategic green objectives can be measured.

A range of PFM practices by the central government can influence SOEs (both financial and nonfinancial) in taking green priorities and climate change into account in their strategies and activities. Here are a few examples of such PFM practices that may act as influence channels. These channels are more effective if there is a strong centralized financial oversight and control function, either at the MoF or at a specialized agency. These are complementary to existing regu-

⁷⁴Côte d'Ivoire 2022.

⁷⁵In some countries (particularly in federal systems), states have started implementing green PFM practices ahead of the central government (for example, *India* and *Indonesia*).

lations applicable to all companies, for instance in environmental, social, and corporate governance.

- The government’s ownership policy⁷⁶ document, the publication of which is considered good practice according to the IMF’s Fiscal Transparency Code, is a useful vehicle for the central government to convey the cross-cutting importance of green objectives in the way the state portfolio is managed.
 - For instance, in its State Ownership Policy, *Norway* explicitly expects SOEs to act as “exemplary corporate citizens” regarding climate and the environment, on top of delivering on financial targets.
- As a shareholder, the government can in theory directly affect the strategic choices of its SOEs and the way they operate.⁷⁷ In practice, SOEs may still enjoy a high level of operational independence and influence, depending on their size, their strategic importance, and their market share. The transparent issuance of resolutions or directives to the board of directors (for example, on requiring a commitment to lower emissions) may be an important first step. The central government can impose transparency and reporting practices for all SOEs, such as the publication of a climate and/or wider environmental strategy or the regular assessment of the potential financial impact of climate risks. Green or climate efficiency can also be explicitly set as a criterion in the technical and financial appraisal of SOE investment plans, to be reviewed by the central government, for example through the establishment of a shadow carbon price for cost-benefit analyses of investment projects submitted by SOEs.

The fight against climate change could be part of the SOE’s quasi-fiscal activities. Contrary to private firms, SOEs may not be driven solely by profit making, and their activities may include operations pursuing a public policy objective that may worsen their financial position. If green objectives influence SOE pricing policies, that effect should be made explicit, and the SOE should be appropriately compensated.

⁷⁶The ownership policy should notably provide a clear statement of the government’s policy and financial objectives as shareholder of public corporations and its commercial and noncommercial policy objectives (Fiscal Transparency Handbook).

⁷⁷Climate-related conditionalities set by the government as part of SOE bailout packages, as seen in some countries during the COVID-19 pandemic, are an extreme expression of that influence the state can have as shareholder.

How to Implement Green PFM: Some Guiding Principles

This section provides general guidance on implementing green PFM reforms. Five guiding principles can be proposed for the successful design and implementation of a green PFM reform strategy. These principles are applicable to all countries regardless of their level of development or PFM capacity. Figure 2 presents an overview of these principles. Capacity development activities, through IMF’s Fiscal Affairs Department or other partners, notably those associated with the work of the Coalition of Finance Ministries for Climate Action, can of course play a key role with respect to support for design and implementation of green PFM reforms. Capacity development may be instrumental in sharing experience—positive or negative—from other countries and may especially help in fighting a few common misconceptions about green PFM (see Box 4) that could hamper its diffusion and impact.

A strategy is necessary to successfully implement green PFM reforms. As illustrated in the previous sections, entry points to integrate the green dimension into the budget cycle are many. Taking advantage of all entry points at once to implement green PFM is not realistic—especially by LIDCs facing tight capacity constraints. All governments interested in green PFM reforms should, early on, make strategic decisions on which practices they wish to prioritize, consistent with their national priorities and level of capacity. They should also know which stakeholders to involve and how to plan and monitor implementation; capacity development needs should be identified and tackled, possibly supported by development partners, think tanks, and/or academia. High-level support and commitment to reform are crucial to the success of the strategy. Existing diagnostic tools, such as the IMF’s Climate Macroeconomic Assessment Program, the World Bank’s Country Climate and Development Report, the UNDP’s Climate Public Expenditure and Institutional Review, or the climate-responsive Public Expenditure and Financial Accountability, can help governments identify green PFM reform priorities and design a realistic reform strategy.

These five principles are general in nature and do not preclude the need for a country-specific approach to green PFM reform, depending on the vulnerability to climate change or the level of sophistication of any existing PFM system.

Figure 2. Five Guiding Principles for the Implementation of Green PFM Reforms

Source: IMF staff.

Principle 1. Several prerequisites should be in place for successful green PFM reforms.

Greening PFM systems makes sense only if the elements of a functional PFM system are in place. Priorities in this respect are ensuring basic financial compliance, with sound budget preparation and budget execution processes, ideally underpinned by a functional FMIS. Such fundamental PFM features are also required to access climate finance (such as the Green Climate Fund; see Fouad and others 2021). It is important that countries ensure these prerequisites are in place or in the process of being implemented, especially in LIDCs that are particularly vulnerable to climate change. Further, it could be counterproductive to strive to implement sophisticated green PFM practices in countries where basic standards of PFM performance are not met or where the capacity to absorb new PFM practices and system is limited. There are, however, opportunities to incorporate some green PFM practices as the core systems are developed (see Principle 3).

Strong political backing and ownership are even more necessary than for a standard PFM reform agenda. To some extent, improving the overall PFM framework to enhance its effectiveness and efficiency is the “core business” of the central budget authority within the MoF. Political buy-in is necessary both to overcome resistance from other stakeholders and to induce them to spend some time and energy on designing and implementing reforms rather than on current activities. However, the MoF has a direct stake in the changes, and the reform impetus may be to some extent self-sustaining.⁷⁸ This is not the case with respect to green PFM reforms, since incorporating green concerns into the PFM system is not a natural part of the mandate of the MoF. Hence, the MoF will move only if there is a clear political signal. Political

⁷⁸This was, for example, very much the case in France for the introduction of a MTBF (2007–8), which was really initiated at the level of the Budget Directorate that had by itself come to realize the limitations of annual budgeting and managed to convince political decision makers that it was in their interest to establish a proper MTBF.

Box 4. Some Misconceptions about Green PFM

Before implementing green PFM, governments should have an accurate understanding of its objectives, the opportunities it presents, and the basic institutional ingredients for success. Some misconceptions should be resolved before implementation.

- *Misconception 1. Treating green PFM as an end in itself.* Green PFM reforms do not occur in a vacuum; they belong both to a wider PFM reform agenda and to an overall national strategy to mitigate and adapt to climate change and to minimize environmental degradation. This means, on the one hand, that green PFM cannot be left only to environmental or climate experts and, on the other hand, that green PFM is merely one building block of an overall strategy that includes other instruments (such as laws and regulations and taxes applicable to private sector entities).
- *Misconception 2. Considering that green PFM is a nice add-on for advanced economies only.* While the work undertaken by the international community to advance the green PFM agenda, notably the OECD’s Paris Collaborative on Green Budgeting and the Coalition of Finance Ministers for Climate Action, has often been led by advanced econo-

mies and a handful of large emerging economies, important aspects of green PFM reforms can be implemented by smaller emerging or developing countries. Indeed, climate budget tagging provides a mechanism to attract international climate finance transfers to LIDCs and emerging markets. Ample evidence is provided by examples listed in the previous sections. They point to the importance of the support of regional or local development partners and to the high degree of political ownership in those LICs where climate change creates macro-critical and even existential economic and social threats.

- *Misconception 3. “Cutting and pasting” green PFM practices adopted in other countries.* While there is a lot to learn from other country experiences in implementing green PFM reforms, a one-size-fits-all approach to green PFM is bound to fail because each PFM system has its own specificities and environmental circumstances also vary. A country-specific assessment of PFM capacity and prerequisites is needed to enable the design of a suitable and realistic action plan for green PFM reforms.

leadership is important, particularly at the beginning of the reforms, to embed green PFM tools in the legal framework and successfully implement them. In some countries, policy documents reflecting green commitments are instrumental in aligning green PFM with existing PFM frameworks or ongoing PFM reforms.

- In *France* the first green budget appended to the 2021 budget law resulted from a clear political commitment at the level of the Minister during the 2020 budget discussion one year earlier. It built on the momentum generated by France’s participation in the OECD’s Paris Collaborative on Green Budgeting.
- In *Bangladesh* the MoF published the Climate Fiscal Framework, which sets out the principles and tools for integrating climate finance into the country’s PFM system and provides the foundation for pursuing the agenda of a climate-inclusive PFM reform agenda.⁷⁹

Some degree of green expertise must be developed for key actors in the PFM processes. Staff in the MoF are, by definition, not climate experts; however, these staff members cannot rely solely on outside expertise from the Ministry of Environment, which will have little if any grasp of the constraints of PFM processes. A nucleus of staff with some degree of expertise on climate change needs to be set up within the MoF. This will require either additional training for existing MoF staff (whose background is mostly in accounting, law, general economics, or public administration) or hiring staff from the outside, or a mix of both. Creation of this core expertise resource must be complemented with a strategy to build capacity and explain the new tools to other stakeholders both within the MoF and in other line ministries and agencies. This effort also includes putting in place elements for collecting and monitoring environmental data that can inform and feed into this green expertise and making sure that other actors—in particular, the ministry and agencies in charge of climate and/or environment policies—are adequately equipped to perform environmental mon-

⁷⁹See Government of Bangladesh, 2019.

itoring and reporting, engage in policy analysis, and interface with fiscal policies and budgeting.

- Nepal set up in its MoF a Climate Change Finance Unit, mandated to deal with all climate finance issues with line ministries; staff from this unit received specific training in climate change and climate finance coordination, including analyzing reports on expenditure from a climate change standpoint.
- Fiji embedded into the Ministry of Economy a Climate Change Unit as a focal point of expertise on this topic, notably to support macroeconomic and fiscal processes.

Principle 2. Although green PFM reforms constitute a whole-of-government undertaking, the MoF, as the custodian of public resources, should be the primary driver.

At the central level, green PFM reforms involve an array of stakeholders:

- The Ministry of Environment, which oversees the overall green or climate change agenda—noting that adaptation and mitigation policies might be split across ministries and agencies.
- Line ministries, which would have to integrate green PFM reforms in their own processes and build capacity for monitoring and evaluating their own activities and programs.
- Parliament and independent fiscal institutions, which need to adapt their scrutiny of fiscal strategy setting and budget matters to account for green PFM concerns.
- Climate change committees, which are usually mandated to coordinate, advise on, and evaluate government climate change policies and monitor progress toward their achievement.
- The Supreme Audit Institution, whose working methods must be adjusted to assess the effectiveness of green PFM practices.

However, against this diverse backdrop, the MoF must be solidly in the driver's seat. Only the MoF has the requisite knowledge and skills to instill green practices into PFM processes and the overall vision of the tools (budget legislation and regulation, manuals and guidance documents, IT tools such as FMIS) that may need to be adjusted for this purpose. The MoF also has the institutional leverage required to have line ministries and agencies implement such green practices and

achieve sound coordination, contrary to the Ministry of Environment.

- In the *Philippines*, while the Climate Change Commission participates in the technical budget hearings (discussions with line ministries on budget preparation), leadership is held by the Department of Budget and Management (in charge of fiscal issues) and the National Economic and Development Authority (in charge of the overall development strategy).

This central role of the MoF also means that it can assess what changes are realistic without hampering the effectiveness of PFM processes. The budget preparation process, in particular, is bound by tight (often constitutional) constraints and involves multiple stakeholders with competing interests. There is often a tendency by all actors to make the budget preparation process more complex, in an attempt to reach more informed decisions. This can definitely be one of the risks of green budgeting—contributing to a “Christmas Tree” approach whereby the budget preparation process becomes more complex (and even unmanageable) in an effort to incorporate more information. The MoF is best placed to avoid falling into this “complexity trap” and keeping PFM processes manageable.

Principle 3. Green PFM reforms should be integrated with the existing PFM reform agenda.

Green PFM reforms and the overall PFM reform agenda can be mutually reinforcing. For example, introducing program budgeting or a targeted program budgeting approach focused on climate policies can provide an avenue to improve assessment of climate outputs and outcomes. Likewise, strengthening fiscal risk management and disclosure can enable an increased coverage of climate risks. In more advanced systems, adopting an overall public sector balance sheet approach may similarly improve the ability to track changes in asset values linked to climate developments.

Moreover, developing and steering green PFM reforms draw on the same skill set as the design and implementation of an overall PFM reform agenda. It requires intimate knowledge of PFM processes, good project management skills, change management capabilities, and a capacity to prioritize. These are all skills that are relatively scarce and usually located in a dedicated project management office within the central budget authority or the broader MoF. Lodging responsibility for green PFM reforms at the same place

ensures consistency with the PFM reform agenda and helps leverage project management skills that have already been put to good use.

Principle 4. Countries should look for an appropriate sequencing of green PFM reforms.

Countries should prepare sequenced action plans for the implementation of green PFM reforms. These action plans should identify the key stakeholders in charge of each action and a timeline for reform implementation, including adaptation of the legal framework where relevant. The sequencing of the legal reform usually depends on different legal traditions as well as political willingness and capacity level. Although legal changes may be required early in the reform process to pilot the green PFM practices in some countries, in other jurisdictions, laws may be changed later in the process to codify the new practices. The timeline should be updated on a regular basis by the body in charge of coordinating the reform, based on actual progress and on discussions with said stakeholders.

It is logical for governments to start with green PFM reforms affecting the upstream portion of the budget cycle before moving downstream. Developing the capacity to assess and analyze green or climate impacts of fiscal policies (notably through an explicit link with NDCs) should be the immediate priority to kickstart a green PFM reform process. Similar to gender budgeting reforms (PEFA 2020), green PFM reforms should ideally first focus on actions fostering awareness among agencies and institutions and on the development of methodologies for the production of ex ante green impact assessments and analyses. As a next phase, governments can move to the downstream part of the cycle—measuring actual results and effects and comparing them to ex ante assessments. Once confidence in the new tools and processes has been sufficiently built up, governments can gradually be made accountable for their performances relative to their initial assessments. From there, the green dimension can become fully mainstreamed, with the emergence of a culture of green PFM. This general process does not preclude the possibility for governments to take advantage of opportunities opened by existing PFM practices or ongoing PFM reforms, to focus on low-hanging fruit at first, or to prioritize practices that could attract climate financing. Countries with experience in other types of priority-based budgeting, such as gender bud-

geting, may be able to fast-track the implementation of certain practices (see Box 1).

It can be beneficial to roll out green PFM reforms gradually, starting with a few pilot ministries or agencies, or with reduced forms of the target practices. Rollout strategies include the following:

- *Test runs.* Taking the time to test operability of new processes and frameworks allows for course correction before fully rolling them out.
 - In *France*, the preparation of the first green budget in 2020, as part of the 2021 budget process, was preceded by a test run in 2019, led by the internal audit body of the MoF, covering only four policy areas, and a second test run in early 2020, co-led by the MoF and the ministry in charge of the environment, applied this time to the whole budget.
- *Pilot institutions.* In countries with across-the-board capacity constraints or with large differences in capacity between ministries, opting for a gradual rollout, starting with a few pilot ministries or agencies with the most negative environmental footprints or with the most capacity and senior management buy-in, allows to build up skill sets over time. In countries with weak capacity and limited resources, implementing a reform in only the most relevant ministries could be a cost- and skill-effective solution. COVID-19 recovery packages can also constitute a good opportunity to kick-start or test new green PFM practices (see Box 2).
 - Countries such as *Bangladesh*, *Indonesia*, and *Nepal* have started implementing green budget tagging in a few green-intensive pilot ministries before a wider rollout.
- *Central versus subnational governments.* Implementation of green PFM reforms commonly starts at the national level before being piloted at the subnational level. There are even instances of large federal systems where green PFM practices have been spearheaded by subnational levels first (state of California in the *US*, state of Punjab in *India*). A substantial training effort is often required, making the rollout to the subnational level longer.
 - In the *Philippines*, local government units started experimenting with climate investment tagging in 2014, a year after the process started at the central level.

Principle 5. Communicating on the progress of green PFM reforms is important to ensure buy-in from all stakeholders and manage expectations.

Communicating on green PFM reforms and gathering feedback early on are important to gradually build awareness among internal and external parties. Initial consultation meetings and workshops can be helpful to engage internal as well as external stakeholders in the design of the reform strategy—while training them on its basic objectives. There is also value in consulting with parliament and the civil society while designing the reform strategy to understand their needs—especially from the standpoint of fiscal transparency.

- In 2014, a brainstorming workshop on green budgeting took place in the *Indian state of Punjab*, which brought together civil servants, civil society, and private sector experts.
- In *France*, the National Assembly adopted an amendment to the 2019 budget law requesting the government to merge all existing budget documents on environment-friendly expenditure into a single document. The “bundle” document was finally replaced by the first green budget document in 2021.

The authorities can make use of a broad spectrum of communication devices to provide updates on the reform.

- *Internally*, the entity in charge of steering the reform should regularly update the various stakeholders on the reform efforts. Useful practices for the dissemination and exchange of information internally include the organization of ad hoc steering committee or working group meetings on the reform itself as well as meetings, seminars, and conferences held as part of the budget process itself.
 - Orientation meetings on climate expenditure tagging are held annually in the *Philippines*.
- *Externally*, governments may choose to leverage existing documents to communicate on the progress of the green PFM strategy. Progress reports on the overall PFM reform strategy can also be complemented by a section on green PFM. Green strategies and budget documents may also include a section on the green PFM strategy itself. Alternatively, the entity in charge of steering the reform can produce ad hoc progress reports on green PFM reforms.

Annex 1. Climate-Sensitive Public Investment Management

Public investment plays a key role in economic growth and recovery and the transformation to a more inclusive, green, and resilient economy. Although private investment, fostered by public policies such as regulation and carbon pricing, will certainly play a prominent role, a massive and targeted public investment effort will also be necessary to meet the conditions for fulfillment of environmental objectives. To make the best use of this public investment effort, conditions must be met across the entire budget cycle.

The economic and social impact of public investment depends crucially on the efficiency of public investment. IMF analysis shows that, on average, about 30 percent of public investment value is lost due to inefficiencies and that better infrastructure governance—strong public sector institutions that effectively plan, allocate, and implement public investment—can reduce inefficiencies by half. Looking forward, low-income developing countries (LIDCs) and emerging market economies have looming infrastructure needs in most sectors, while many advanced economies have aging infrastructures and see urgent needs for their upkeep and modernization. The investment needed to close the infrastructure gap globally is estimated at \$94 trillion by 2040—equivalent to about 3.5 percent of annual global GDP. To achieve the SDGs, an estimated 8.5 percent of annual global GDP would be needed by 2030 for infrastructure investments in roads, electricity, water, and sanitation in LIDCs and about 3 percent of GDP in emerging market economies.

Climate change poses a significant challenge to public investment management. Climate change and natural disasters are adversely affecting critical infrastructure around the world, thus compromising energy, water, transportation, and telecommunication infrastructure that deliver basic and essential services. It is estimated that natural disasters cost about \$18 billion a year in low- and middle-income countries, through direct damages to infrastructure assets. These events also disrupt infrastructure services and impose a cost between \$391 billion and \$647 billion a year in these countries. At the same time, infrastructures are currently emitting a large amount of GHG emissions. Approximately 70 percent of global GHG emissions come from infrastructure construction and operations. In this context, countries face sizable risks that arise from changes in policies, technology requirements,

market conditions/demands, and consumer behavior as the world transitions toward a low-carbon future. For example, fossil-fuel infrastructures are at risk of becoming stranded assets and financially unviable under a new policy environment.

Through its capacity development work the IMF helps member countries strengthen infrastructure policies and governance. A key component is the Public Investment Management Assessment (PIMA)—a comprehensive framework to assess infrastructure governance and to develop action plans to strengthen it. The Climate PIMA diagnoses infrastructure governance from the climate change perspective to help ensure that climate-related risks and opportunities are appropriately considered in public investment. The Climate PIMA will support IMF member countries in making their infrastructure low carbon and climate resilient through mainstreaming climate change considerations in five key components of public investment management: (1) climate-aware planning, (2) coordination between entities, (3) project appraisal and selection, (4) budgeting and portfolio management, and (5) risk management. International experiences, notably from the Climate PIMA pilots and desk studies, show that countries tend to be better at integrating climate change at the planning stage than the implementation stage. It is therefore important to target climate mainstreaming efforts in the project development and implementation cycle. Coordination across different sectors and levels of government is also essential for climate-relevant public investments.

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