



IMF POLICY PAPER

STRENGTHENING INFRASTRUCTURE GOVERNANCE FOR CLIMATE-RESPONSIVE PUBLIC INVESTMENT

December 2021

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International Monetary Fund
Washington, D.C.



December 3, 2021

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EXECUTIVE SUMMARY

Countries have committed, through the Paris Agreement and the Sustainable Development Goals (SDGs), to pursue climate targets and policies that would limit global temperature rise to well below 2 degrees Celsius, compared to pre-industrial levels. A shift toward green public investment will help to mitigate greenhouse gas (GHG) emissions. In addition, substantial public investment will be necessary to build public infrastructure that makes economies more resilient to climate change and related natural disasters.

Climate change mitigation and adaptation challenges thus compound preexisting needs for public investment to foster the economic recovery from the pandemic and to meet the SDGs in a broader range of areas, often in a context of limited fiscal space. Against this backdrop, a priority for all countries is to manage their public investment efficiently and effectively. To help countries improve the institutions and processes for infrastructure governance (the planning, allocation, and implementation of public investment), the IMF developed in 2015 the Public Investment Management Assessment (PIMA), which has already been applied in over 70 countries. However, the current PIMA does not provide a sufficiently tailored assessment of how public investment management can support climate change mitigation and adaptation.

To fill this gap, the present paper introduces a new module to the PIMA, the "Climate-PIMA" (C-PIMA), whose goal is to help governments identify potential improvements in public investment institutions and processes to build low-carbon and climate-resilient infrastructure. The C-PIMA is designed around five pillars of public investment management that are key for climate-smart infrastructure: planning, coordination across government, project appraisal and selection; budgeting and portfolio management, and risk management. The C-PIMA also provides prioritized recommendations to strengthen climate-responsive aspects of infrastructure governance. The C-PIMA has been tested in eleven countries, providing early lessons on its efficacy.

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INTRODUCTION

1. **Green infrastructure investment will be critical for an inclusive, sustainable, and climate goals-focused recovery.** Green public investment in energy, water, transport, agriculture, or other priority sectors will help countries make progress toward meeting their Paris Agreement targets and the UN's Sustainable Development Goals (SDGs). Public investment in these sectors and other basic infrastructure will also make economies more resilient to climate-related risks¹. Ensuring that such public investments are well-chosen and provide longer-term economic and social returns will be essential to preserve macroeconomic stability as countries rebuild their economies after the COVID-19 pandemic.
2. **Green and resilient investment is a main part of countries' commitments under their Nationally Determined Contribution (NDC).** Green and resilient investment is defined in this paper as an investment that is aligned with long-term climate goals as defined in the NDC or overarching national climate strategies.² This includes investment in infrastructure that is low-/zero-carbon and withstands climate-related impacts, that addresses climate-related risks in infrastructure design and operation, incorporates natural disaster preparedness and responsiveness, and/or has positive impacts on the local environment (such as water and air quality) and natural resources (such as forests, ecosystem, and biodiversity), among others.
3. **Although the scale, financing, and exact nature of climate-related public investments will vary across countries, the need to ensure efficient use of resources is a common priority to all.** For some countries, such as those in the European Union, major financing has already been identified and the priority is to scale up investment quickly while ensuring value-for-money. For other countries, including most low-income countries, financing constraints imply that "doing more with less" will be an even more important piece of the puzzle. IMF research has shown that, on average, countries lose one-third of the resources spent on public investment to inefficiencies in their public investment management (PIM) institutions (Schwartz and others, 2020). Although levels of inefficiencies vary across income levels, all countries can benefit significantly from improvements in at least some specific aspects of public investment planning, allocation, or implementation. As countries invest their resources more efficiently, they can do it with an appropriate focus on climate.
4. **This paper introduces a new module to the current Public Investment Management Assessment (PIMA) framework dedicated to address climate-responsive public investment.** The new module aims to identify the main PIM institutions—defined as processes and practices—that are critical for developing climate-smart infrastructure. These institutions relate to climate-focused national planning, coordination within the public sector, appraisal and selection, budget

¹ See, e.g., Stern 2021 and The Global Commission on Adaptation 2019.

² This paper also uses to the terms "climate-aware", "climate-responsive" and "climate-smart" investment interchangeably with "green and resilient investment".

and portfolio management and risk management. These five institutions, and their components, are key in developing PIM practices that support climate goals on mitigation and adaptation. The Climate PIMA—or C-PIMA module—assesses to what extent countries are ready to manage their public investment with a focus on building green and resilient infrastructure and provides them with a reform roadmap in that direction.

5. The development of an institutional framework for climate-responsive investment is an important component of a climate-responsive expansion of public financial management tools. The C-PIMA is complementary to other existing green public financial management (PFM) and macroeconomic diagnostic tools (Box 1).

Box 1. Synergies Between Climate PIMA and Other Climate PFM and Macroeconomic Tools

The C-PIMA is complementary to other existing climate-focused PFM and macroeconomic tools.

- The *Public Expenditure and Financial Accountability (PEFA) Climate* diagnostic developed by the PEFA Secretariat assesses the responsiveness of the overall PFM framework to a country's climate objectives. Climate PEFA is a set of supplementary indicators that builds on the PEFA framework to collect information on the extent to which a country's PFM system is ready to support and foster the implementation of government climate change policies. Two PEFA Climate indicators are particularly complementary for the C-PIMA: *climate responsive revenue administration*, which ensures that revenue instruments support climate change responses, and *climate responsive procurement*, which assesses the extent to which government's purchases of goods, services and works cause minimal adverse impacts on climate change.
- The IMF's *Green PFM* goes beyond the PEFA assessment and aims at adapting existing PFM practices to support climate-sensitive policies in key stages of the budget cycle, as well as transparency of public finances and coordination with state-owned enterprises and subnational governments.
- The IMF's *Climate Macroeconomic Assessment Program (CMAP)* builds upon its predecessor, the Climate Change Policy Assessment (CCPA) and focuses on the macroeconomic implications of climate change. The CMAP has an expanded mitigation section, including the design of carbon pricing and its associated distributional impacts. CMAP also includes a standardized macro-modelling framework that has explicit feedback from adaptation on investment to growth and debt sustainability. The CMAP uses a condensed version of the C-PIMA to assess PIM readiness.
- The IMF's *Climate Change Indicators Dashboard (CID)* includes data that could help monitor the impact of public investment on climate change and other indicators of climate-change related fiscal policy.

Source: IMF staff.

6. The rest of this paper is organized as follows. Section II discusses how climate change affects public infrastructure and how public investment can provide an important contribution to mitigation and adaptation. Section III describes the new C-PIMA that has been developed and piloted by IMF staff over the last two years through desk assessments and pilots in member

countries. Section IV describes the main findings from these reviews and pilots. Section V concludes with recommendations and next steps. Annex I presents the detailed C-PIMA questionnaire.

CLIMATE CHANGE AND PUBLIC INVESTMENT

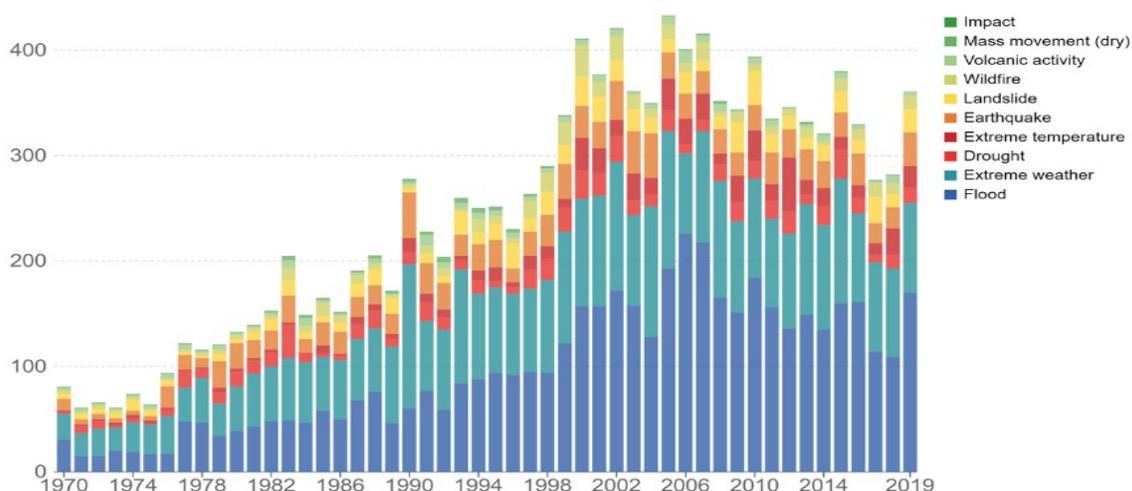
7. The relationship between climate change and public investment goes two ways.

Climate change and natural disasters cause direct damage to infrastructure and disrupt infrastructure services—imposing billions of dollars of economic cost a year. At the same time, choices made today about the types of infrastructure will have major implications for both the level of global GHG emissions and countries' resilience to natural disasters for decades to come.

A. Climate Change Impact on Public Infrastructure

8. **Climate change and natural hazards are already having adverse impacts on critical infrastructure and economies around the world.** Natural disasters claim tens of thousands of lives every year, displace millions of people, and cause significant economic losses (CRED-UNDRR 2020). Most natural disaster events are climate-related and/or exacerbated by climate change, with floods and storms being the most impactful. The occurrence of extreme weather, extreme temperature, flood and drought has increased sharply over the past decades (see Figure 1). Natural disasters cost about US\$18 billion a year in low- and middle-income countries through direct damages on infrastructure assets and impose US\$391-US\$647 billion of economic cost a year through service disruption.³ Climate-related damage of infrastructure will also have a significant impact on vulnerable populations and increase inequalities.

Figure 1. Global Reported Natural Disasters by Type, 1970-2019



Source: Our World in Data and EM-DAT.

³ World Bank, 2019, Lifelines: The Resilient Infrastructure Opportunity. World Bank, Washington D.C.

9. Damages from natural disasters impose large and variable costs on public finances.

Disasters disrupt the economy and require government funds for reconstruction. They also disproportionately affect the poor and vulnerable. The macroeconomic effects of climate change could result in loss of government revenues and trigger greater spending on climate mitigation and adaptation. Infrastructure that is not climate-resilient will require additional routine and emergency maintenance over its lifespan and could lead governments to reallocate resources from productive capital to adaptation capital. Investing in retrofitting traditional technologies to adapt to climate change is usually more costly than the initial cost of ensuring climate-resilient infrastructure.⁴

B. Role of Public Investment in Addressing Climate Change

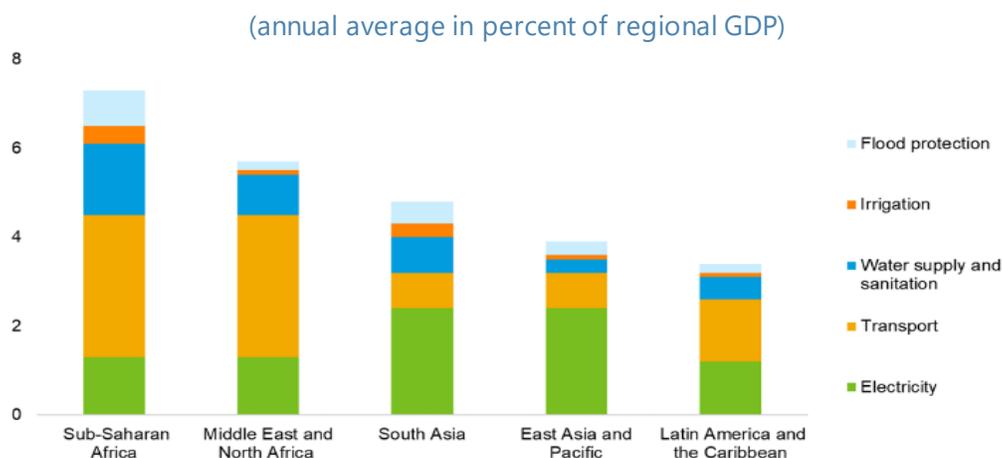
10. Attaining the SDGs while getting on track to achieve Paris Agreement goals requires significant infrastructure investment. Before the pandemic, it was estimated that low income developing countries (LIDCs) would need to spend about 4.5 percent of annual GDP on average by 2030 to meet their combined targets, through public and private investment (Fay and Rozenberg 2019). The need for infrastructure investments in low-carbon and climate-resilient projects will vary from region to region, country to country (with island economies being particularly vulnerable), and across sectors. Energy-related and water resources management which are a major part of the SDG infrastructure agenda are examples of sectors that will require additional, transition-focused, investments (Figure 2). Global annual infrastructure investment will have to accelerate beyond pre-COVID levels to address historic underinvestment and to transform systems towards a net-zero emissions and climate-resilient economy (Box 2). The respective shares that the public and private sectors will have in this will depend on government policies and the relative development of the private sector in the infrastructure sector. In general, low-income and emerging market economies will have to rely more on the state for their infrastructure needs.

11. Climate-responsive investment is an important enabler for a sustainable recovery.⁵ The urgent need to *scale-up* infrastructure investment creates a unique opportunity to *shift* investments towards green and resilient infrastructure. Public investment can stimulate private sector investment, which is crucial for the recovery from the pandemic. Green and resilient public investment has multiple benefits—it promotes economic growth, creates jobs, and addresses climate change. The multiplier of green investment projects is higher than those associated with fossil fuel energy investment if benefits and costs, including impact on climate and environment, are taken fully into account (Batini and others, 2021).

⁴ Gonguet and others, 2021.

⁵ IMF, 2021. G20 Note on Environmentally Sustainable Investment for the Recovery. April 2021.

Figure 2. Capital Investment Requirement by 2030—SDG and Paris Agreement Compatible Scenario



Source: Rozenberg and Fay 2019.

Box 2. The Cost of Green and Resilient Infrastructure

Global infrastructure investment needs to be scaled up and sustained above pre-pandemic levels by US\$3-3.8 trillion (2-3 percent of GDP per annum) over the present decade to deliver a robust, sustainable and green recovery. There are significant opportunities for investing in green and resilient infrastructure to pave the way for a low-carbon and climate resilient economy. The Table below (based on Stern, 2021) provides an overview of pre-COVID-19 annual investment levels and estimated gross annual investment requirements during 2021-2030, by type and sector.

Annual Global Investment by 2030 Toward Net-Zero Emission and Climate-Resilient Economy

Sector	Current investment p.a. (\$ trillion)	Gross investment p.a., 2021-30 (\$ trillion)	Increase
Physical capital (large-scale infrastructure)			
Energy (incl. energy efficiency in buildings)	1.9	2.8-3.3	0.9-1.4
Transport	1.3	2.7	1.4
Water and sanitation	0.6	0.9	0.3
Telecoms and digital	0.7	1	0.3
TOTAL (rounded to nearest 0.5)	4.5	7.5-8	3-3.5
Adaptation and resilience			
Adaptation and resilience in developing countries	0.02	>0.1-0.3	>0.1-0.3
TOTAL	0.02	>0.1-0.3	>0.1-0.3

Source: Stern 2021.

The actual pre-COVID annual global investment is estimated at \$4.5 trillion in energy, transport, water and sanitation, and telecom and digital infrastructures during the 2020s, while gross annual investment

Box 2. The Cost of Green and Resilient Infrastructure (concluded)

opportunities in these sectors to support a sustainable recovery and green transformation are estimated at \$7.5–8 trillion on average in the same period. The need for investment increase across these opportunities in physical infrastructure is estimated at \$3–3.8 trillion per annum on average. This increase is essential to address historic underinvestment and to restructure systems towards a net-zero emissions and climate-resilient economy.

Key investment areas include: (i) clean electricity generation, storage and networks; energy efficiency in buildings and industry; electric vehicle charging infrastructure; green hydrogen; investment to decarbonize heavy transport (aviation and shipping) and industry; and a decline in fossil fuel investment, (ii) investment in light rail; enhancing road infrastructure, airports and ports, including investments to ensure that these infrastructures are climate resilient, (iii) urban and (to a lesser extent) rural water services, including to support climate resilience and adaptation, and (iv) investment to scale up data centers globally. Furthermore, an estimated \$0.1–0.3 trillion increase in investment per year is required in developing countries to support adaptation and resilience.

Source: Stern 2021.

12. Given constraints on fiscal space it is important that green investment is supported by strong enabling PFM institutions. Strong institutions provide assurances that every dollar is spent in the best possible way, and that waste and corruption are avoided. Green investment requires a number of specific institutional capacities to ensure that investments are aligned with climate objectives. More specifically, integrating “green” requirements into PIM institutions will enable the development of quality climate-aware investment and also open the door for developing countries to unlock financing from both traditional concessional sources and the various climate funds which are focused on making the green transition a reality. In addition, as many developing countries, including small island states face significant challenges in accessing climate funds due to weak public financial management institutions, strengthening PFM and PIM practices may help unlock access to climate funds (Fouad and others (2021) and Annex I).

THE CLIMATE-PIMA FRAMEWORK

A. Background

13. The IMF established the PIMA diagnostic in 2015 in response to the need for countries to strengthen their infrastructure governance.⁶ The PIMA is a comprehensive and standardized framework to assess PIM and infrastructure governance for countries at all levels of economic development. It evaluates infrastructure governance using 15 key institutional features across the three phases of the public investment cycle: (i) planning sustainable investment across the public sector; (ii) allocating investment to the right sectors and projects; and (iii) implementing projects on time and on budget. The PIMA assesses the institutional design (“what is on paper”) and

⁶ The PIMA framework was introduced in 2015 updated in 2018. The revised 2018 PIMA framework strengthened the assessment of maintenance, procurement, independent review of projects, and the enabling environment (e.g., adequacy of the legal framework, information systems, and staff capacity).

effectiveness (“what is in practice”) of each PIM Institution. PIMAs also include a qualitative assessment of three cross-cutting enabling factors that often impact the overall effectiveness of infrastructure governance institutions: the legal and regulatory framework, supporting information systems, and public sector staff capacity to implement the institutional framework. The PIMA’s in-depth analysis and customized action plans, complemented with cross-country comparisons, raises awareness, and builds a shared understanding amongst key stakeholders of PIM reforms needed to improve efficiency of public investment and achieve quality infrastructure. To date, PIMAs have been carried out in over 70 countries and have provided useful benchmarks for governments’ reform agendas.

14. Climate change creates additional challenges and opportunities for PIM with respect to both mitigation and adaptation. The current PIMA framework does not explicitly address climate-related aspects of public investment. The C-PIMA module presented in this paper aims to fill this gap. It focuses on institutions that are critical for building climate-resilient and low-carbon infrastructure. It identifies five priority areas for the integration of climate considerations in the PIM cycle—in procedures, policies or methodologies; they could also be enshrined in the legal framework:

- **Planning:** Aligning national and sectoral plans and associated investment portfolios to climate objectives is essential in transforming public sector infrastructure in the direction of climate-resilience and sustainability. The planning phase is also seen as particularly relevant for incorporating climate into spatial planning and construction requirements.
- **Coordination:** Public investment can involve various layers of government, state-owned enterprises, and public-private partnerships (PPPs). Integrating green considerations into PIM thus means coordinating across all parts of the public sector, and on joint-ventures with the private sector.
- **Appraisal and selection:** This is a crucial phase in the decision-making process on major infrastructure projects. It determines which projects get done. It is essential that climate-related analysis of mitigation and adaptation impacts of investments are included in this phase.
- **Budget and portfolio management:** Green investment and maintenance allocations should be budgeted for and reported on through the annual budget and other fiscal instruments such as the medium-term expenditure framework and the government’s financial statements. Asset management and ex-post audit and review should similarly take into account climate objectives.
- **Fiscal Risk Management:** Climate change involves risks that will have potential impacts on public infrastructure and the budget. It is important that natural disaster management strategies and fiscal risk analyses incorporate such risks, and that risk mitigation strategies also take climate considerations into account.

B. Overview of the Climate PIMA

15. The C-PIMA follows the same general structure and logic of the PIMA to assess how a country's PIM system incorporates climate change policies. The module is designed using the structure of institutions (or practices) involved in the PIM cycle. The C-PIMA involves an assessment of the five institutions that incorporate the most critical climate-relevant elements from the PIMA. Each institution is further analyzed along three dimensions that reflect the institution's key features, similar to the approach in the regular PIMA. Figure 3 illustrates the coverage of PIMA and the C-PIMA.

16. The C-PIMA follows the same evaluation approach as the PIMA. Three possible scores—fully met, partially met, or not met—are assigned to each dimension, and the average of the three dimensions within an institution produces a score for that institution. Scores are presented for institutional design in all countries. The C-PIMA can include discussion of the effectiveness of these institutions where there is adequate information, but there is no explicit scoring of effectiveness at this stage. The C-PIMA also assesses the same three cross-cutting issues evaluated in the PIMA, as they are equally important to managing climate-relevant PIM institutions (the legal and regulatory framework, information systems, and government staff capacity). Recommendations to improve climate-aware institutions, taking into account the country's circumstances and capacity, are also presented in the C-PIMA as a roadmap of reform priorities.

Figure 3. PIMA and C-PIMA Framework



Source: IMF staff.

C. Detailed Design of the C-PIMA Module

17. This section discusses the five C-PIMA institutions (Figure 4). Institutions are defined as the practices and frameworks for planning, allocating, and implementing infrastructure investment spending. As each institution is further drilled-down into 3 dimensions, the questionnaire has a total of 15 dimensions (Annex I).

Figure 4. An Overview of the Climate PIMA



C.1: Climate-Aware Planning - Is Public Investment Planned from a Climate Change Perspective?

18. Climate-aware planning assesses the extent to which public investment plans take into account the factors needed to mitigate climate change and adapt to its consequences. This allows the national and sectoral planning processes to ensure that infrastructure is climate-resilient. This is the stage where opportunities to attract international climate financing are identified, win-win approaches to climate investment are pursued (e.g., investments are pursued in renewable energy that reduce GHG emissions, reduce operating costs, and improves energy security), and adverse mitigation and adaptation impacts of public investment are avoided.

Dimension C.1.a: Are national and sectoral public investment strategies and plans consistent with NDC or other overarching climate change strategy on mitigation and adaptation? This dimension assesses the extent to which public investment is planned in a manner that is consistent with the government's climate change objectives and international commitments such as the NDC. "Consistent with" means that implementation of current public investment

strategies and plans can be expected to result in outcomes that contribute positively to achievement of the government's mitigation and adaptation objectives and targets, and on a time path that implies targets are likely to be achieved. Climate-aware planning covers both mitigation and adaptation as included in the NDC or overall climate strategy and the relevance of both will be considered in assessing subsequent dimensions unless otherwise specified in the questionnaire.⁷

Dimension C.1.b: Do central government and/or sub-national government regulations on spatial and urban planning, and construction address climate-related risks and impacts on public investment? This dimension assesses the extent to which government regulations—either from central or sub-national government—are mitigating exposure to climate-related risks and disasters, which are location-specific in nature. Government regulations have a key role to play in influencing the location and design of new public investments, which in turn influence the government's direct exposure to climate risks as the owner of the assets. New public infrastructure investments also influence the location of new private investments that will use the services – hence the importance of spatial regulations including urban development, and construction regulations (such as building codes).

Dimension C.1.c: Is there centralized guidance/support for government agencies on the preparation and costing of climate-aware public investment strategies? This dimension assesses whether central government ministries, departments, and agencies that plan public investment are provided with appropriate guidance and support in incorporating climate change considerations into their planning activities.

C2: Coordination Between Entities - Is There Effective Coordination of Decision Making on Climate Change-Related Public Investment Across the Public Sector?

19. This institution focuses on the need to adopt a whole-of-government approach to climate change by coordinating actions across all the components of the public sector. Such coordination needs to take place within government, between different layers of government and between government and the wider public sector. This institution assesses the extent to which decisions on public investment planning are taken across different parts of the public sector in isolation or whether there are practices that act to coordinate decision making. Climate change obligations are national obligations.

Dimension C.2.a: Is decision making on public investment coordinated across central government from a climate-change perspective? This dimension assesses the reach of coordination on climate change across the central government sector - budgetary central government, externally financed projects, and extra-budgetary entities - and with PPPs.

⁷ This dimension considers national circumstances and country-specific priorities on climate mitigation and adaptation, as determined in their NDC in accordance with the principle of “common but differentiated responsibilities” of the Paris Agreement.

Dimension C.2.b: Is the planning and implementation of capital spending of sub-national governments coordinated with the central government from a climate-change perspective?

This dimension assesses whether climate-related public investments by sub-national governments are undertaken in coordination with national processes. The types of coordination will depend on the constitutional, legal and regulatory framework defining the competencies and mandates of sub-national governments vis-a-vis central government related to climate change mitigation and adaptation. Mechanisms may include information sharing, publication, discussions, intergovernmental fiscal transfers, and central government direction. The design of intergovernmental transfers for public investment and the coordination on their use between central and sub-national government is one of the important instruments that countries have used to ensure that climate considerations are taken onboard in decentralized PIM systems (Box 3).

Dimension C.2.c: Does the regulatory and oversight framework for public corporations ensure that their climate-related investments are consistent with national climate policies and guidelines?

Public corporations play an important role in climate-relevant public investment in many countries. This dimension assesses whether there are mechanisms in place to encourage, support, facilitate, or require consistency between public investments by public corporations and the government's climate policies.

Box 3. Designing Intergovernmental Fiscal Transfers to Support Subnational Climate Actions

Intergovernmental fiscal transfers can be an effective way to promote climate sensitive public investment at the subnational level and an array of countries have already put these arrangements in place.

- **Brazil:** Currently, 18 of the 26 Brazilian states have adopted the *Imposto sobre Circulação de Mercadorias e Serviços* (ICMS) a revenue sharing mechanism with three-fourths shared on derivation basis (based on where the 'Impost' tax is collected) and the other one-fourth according to the percentage of preserved land that the municipality had set aside, rewarding the states that ensure a balance between public infrastructure and environment.
- **India:** The current weighted index formula for the equalization grant for the poorer states in India uses a number of variables including population and land area as approximation of the states' expenditure needs. One variable provides funding on the basis of the extent of forest areas in the states, encouraging environmental conservation and locking in GHGs.
- **Portugal:** In its 2007 Portuguese Local Finances Law (LFL) it introduced an ecological fiscal transfer for land conservation. The transfer provides significant incentives for those local governments that set aside a large proportion of their land under protected status.
- **United Kingdom:** Local authorities can bid for dedicated grant funding for work related to climate change targets. Additionally, local authorities can also make use of wider funding instruments that is targeted at other or more general outcomes, but which require, encourage or allow climate change spending.

Source: Adapting Fiscal Decentralization Design to Combat Climate Change, Jorge Martinez-Vasquez, Georgia State University, Andrew Young School of Policy Studies, forthcoming. An Analysis of Ecological fiscal transfers in *Brazil*, Pedro Comoes and Felipe de Paulo, *Environmental Development Vol. 37*, 2020.

C3: Project Appraisal and Selection - Do Project Appraisal and Selection Include Climate-Related Analysis and Criteria?

20. A climate focus during the project appraisal and selection phases of the PIM cycle is key to ensuring that climate-resilient and low-carbon projects are developed and selected.

This institution assesses whether the appraisal and selection of public investment projects is undertaken using appropriate and adequate climate-related analysis and methodologies, including for projects implemented through PPP procurement. Inclusion of such criteria weighs them together with economic, fiscal, social, and other environmental factors in the overall appraisal and selection process.

Dimension C.3.a: Does the appraisal of major infrastructure projects require climate-related analysis to be conducted according to a standard methodology with central support? This dimension assesses whether the possible impacts of projects on GHG emissions, and the exposure of projects to damage from climate-related disasters, are identified and analyzed in the project preparation stage before projects are included in a public investment plan or pipeline of projects, or when selected for funding in the budget. Relevant methods for this type of assessment include, for instance, climate risk screening, GHG accounting, and the use of social cost of carbon and quantification of climate-related risks in the project economic analysis. This is a crucial reform for countries to align their investment projects with mitigation and adaptation objectives.

Dimension C.3.b: Does the framework for managing longer-term public investment contracts, such as PPPs, explicitly address climate-related challenge? PPP and other long-run infrastructure contracts commit the government over the term of the contract, typically 20-30 years. This means that risks from climate change – either adaptation exposures or mitigation risks such as lock-in of high emitting infrastructure, or both – are likely to arise at some point during the term of the contract depending on the nature of the project. It is important that careful analysis of climate-related risks is conducted at the design and appraisal stages of PPPs, as well as for the portfolio of existing PPPs when they are large, and that contract management consider these.

Dimension C.3.c: Are climate-related elements included among the criteria used by the government for the selection of infrastructure projects? This dimension assesses whether, at the key project gateway of selection for funding in the budget, climate-related elements are explicitly included among the list of decision criteria used by the government. These criteria normally include elements such as consistency with government's policy priorities, expected net benefits, and fiscal affordability. The criteria should also include consistency with government's climate change mitigation objectives, and appropriate design to mitigate exposure to climate risks.

C4: Budgeting and Portfolio Management - Is Climate-Related Investment Spending Subject to Active Management and Oversight?

21. Managing public investment resources with an eye on climate considerations throughout the budget cycle is essential part of "green" public financial management. This institution assesses how the government's portfolio of climate-related public investment projects is

managed, from budgeting and reporting through to maintenance and the management of completed assets.⁸ This institution provides the essential link between the planning and implementation phases of climate-related public investment projects.

Dimension C.4.a: Are planned climate-related public investment expenditures, sources of financing, outputs and outcomes identified in the budget and related documents, monitored, and reported? This dimension assesses whether the government has systems in place to identify budgeted climate-related investment projects and to track expenditures and how they are financed. Having an operational definition of what constitutes climate-related investment spending enables identification of the quantum of budgets and outturns allocated to climate-related projects, facilitates external financing, tracking of trends over time, and evaluations of the results achieved by these expenditures.

Dimension C.4.b: Are ex-post reviews or audits conducted of climate change mitigation and adaptation outcomes of public investments? Ex-post reviews or audits are exercises conducted after the completion of the construction stage of a project and during the service delivery phase. Their purpose is to compare climate mitigation or adaptation outcomes of climate-related investment projects against the outcomes in approved planning and project documents. Reviews may be ad hoc or part of a systematic process and include reviews by government entities and performance audits by the Supreme Audit Institution.

Dimension C.4.c: Do the government's asset management policies and practices, including the maintenance of assets, address climate-related risks? Climate change is likely to result in increased maintenance requirements in specific sectors while also resulting in increased incidence of disaster-related damage to infrastructure assets. This dimension assesses the government's practices in incorporating climate considerations in monitoring and maintaining the service delivery potential of assets.

22. As with other types of fiscal risk, governments need to be aware of climate-related risks of public investments and their potential impact on public finances. This institution takes stock of how the government identifies and manages its exposures to climate-change related fiscal risks in public investment, recognizing that a growing number of mechanisms are available to countries to mitigate these risks. These risks are increasing in significance, are expected to be chronic sources of fiscal risk in all countries, and therefore warrant explicit attention.

C.5: Risk Management - Are Fiscal Risks Related to the Impact of Climate Change on Infrastructure Incorporated in Budgets and Fiscal Risk Analysis and Managed According to a Plan?

Dimension C.5.a: Does the government publish a national disaster risk management strategy that incorporates the projected impact of climate change on public infrastructure assets and networks? This dimension assesses governments' readiness to manage disaster-related

⁸ Allen and others, 2020, discusses the importance of the integrating the planning and budgeting functions.

risks to existing and new public infrastructure. This covers a range of elements from location-specific data on hazards and asset exposures through to arrangements for rebuilding infrastructure after a disaster. A National Disaster Risk Management Strategy (DRMS) generally covers exposure to disasters; disaster risk governance at the national and sub-national levels; disaster risk reduction approaches; and disaster preparedness and response.

Dimension C.5.b: Has the government put in place ex-ante financing mechanisms to manage the exposure of the stock of public infrastructure to climate-related risks? How a government meets the fiscal cost of damage to public infrastructure caused by climate-related disasters is increasingly important for service delivery, fiscal sustainability, and efficient public investment. This includes the extent to which ex-ante mechanisms are in place to meet the costs of smaller more frequent events as well as to finance infrequent major disasters. This includes budget contingencies, insurance mechanisms, and capital market access. Indonesia is a country prone to natural disasters, including ones related to climate change. In recent years it has taken steps to insure public assets through private sector insurers (Box 4). As with insurance of private sector assets, insurance schemes for public assets should guard against incentives to build excessively in disaster prone areas, for example through appropriate zoning regulation.

Dimension C.5.c: Does the government conduct and publish a fiscal risk analysis that incorporates climate-related risks to public infrastructure assets? Governments should formulate their fiscal policy with knowledge of the potential exposure of the budget to the impacts of climate change on public infrastructure. This may include analysis of the potential cost to government of damage to public infrastructure from climate-related disasters, or it may combine the risk of macroeconomic or other shocks with the impact of a major climate-related natural disaster in a fiscal stress test.

Box 4. State Asset Insurance Scheme in Indonesia

Indonesia's asset management policies and practices address climate-related risks. The country has put in place a State Asset Insurance Policy program to insure public assets against climate and disaster risks, in the context of the National Disaster Risk Financing and Insurance strategy (DFRI). In 2019 the government introduced a state building insurance scheme, as the first phase of the State Asset Insurance mechanism. The scheme provides insurance for natural disasters, funded by a pool of private insurers. This scheme was introduced for the Ministry of Finance's buildings in 2019 and extended to buildings belonging to other ministries in 2020. The estimated insurance value of the government buildings to be covered by this scheme amounts to IDR371 trillion, approximately 13 percent of GDP. The insurance premium for disaster risks is estimated to be 0.2 percent of building values. The overall scope of assets to be covered in future includes buildings, bridge, transportation modes, and other government properties. The assets covered have to be located in disaster-prone areas, have high probability to be damaged or lost in case of natural disaster, and have significant contribution to public services.

Source: Indonesia Ministry of Finance.

Cross-Cutting Issues

23. Infrastructure governance requires support frameworks to make it effective. The three cross-cutting institutions that apply for the overall PIMA, need to be also looked at from the lens of climate-aware investment management:

- **Legal framework:** While legal aspects of C-PIMA institutions are discussed under each institution, it is important to also consolidate and summarize common legal themes. Relevant themes can include: legal gaps; legally binding climate targets; oversight responsibilities and reporting requirements; legal tools for policy-makers to enhance climate governance systems' functioning and sustainability; PIM laws and regulations covering the public investment functions that can embed consideration of mitigation and adaptation; and legislation for specific climate change-related aspects of PIM, such as energy (efficiency) acts, spatial planning acts, and building codes.
- **Information systems:** Information systems support PIM by capturing relevant climate-related data. They can include IT systems or other databases that capture project and asset level information, which may be integrated with other government financial management information systems. Assessments related to adaptation are often particularly data heavy. Therefore, the ability of the country to capture, organize and make this information accessible for infrastructure planning, appraisal, evaluation and asset management are key enablers of strong performance.
- **Staff capacity:** Staff capacity—in terms both skills and available resources—should also be adequate to support the incorporation of climate change policies (mitigation and adaptation) into PIM. The availability and uptake of staff training and support on the technical aspects of climate change is relevant as many long-serving staff are unlikely to be trained in this area. Where relevant, the settings should also support, and create incentives for, change management to embed climate in project preparation, decision making and delivery.

LESSONS FROM PILOTS AND DESK ASSESSMENTS

24. The C-PIMA framework has been tested through 11 pilot missions and desk studies.⁹ These exercises provided the basis for assessing the robustness of the framework and the findings informed the final design of the C-PIMA module. Some of the key findings are presented below together with some examples of good practices that were highlighted in the pilots.¹⁰

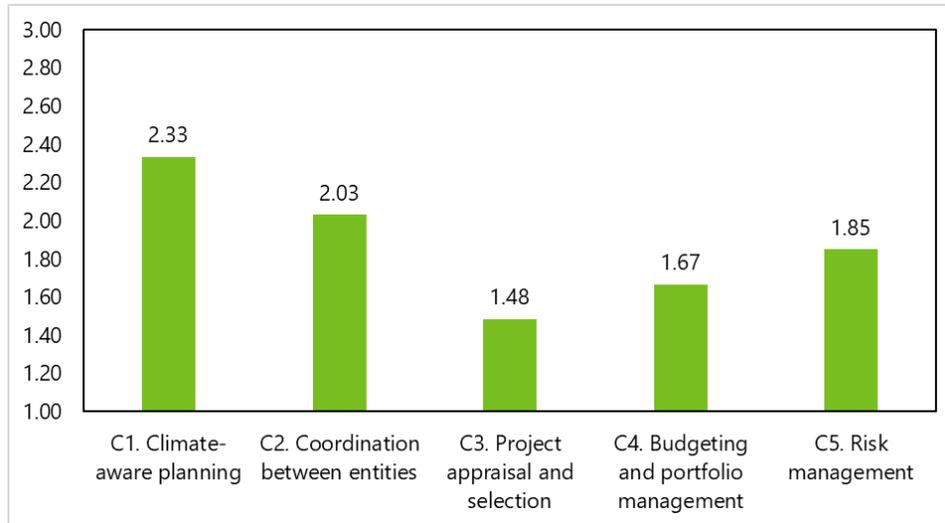
25. Overall, countries seem to be better prepared at the planning phase compared to other phases (Figure 5). Figure 6 illustrates that countries had above average scores for dimensions on integration of climate considerations into national and sectoral planning, coordination across central government, and development of disaster risk management strategies. Below average scores

⁹ Pilot PIMAs were undertaken in Anguilla, Croatia, Nepal, and the UK in response to requests from the authorities. Desk studies were undertaken for Bangladesh, Belize, The Gambia, Indonesia, Madagascar, Mauritius, and the Netherlands, on the basis of data availability and familiarity with the countries' PIM systems.

¹⁰ The findings draw on scores generated by the desk and pilot studies, which differ slightly from the final C-PIMA framework presented in this paper which was revised to take into account feedback from the pilots.

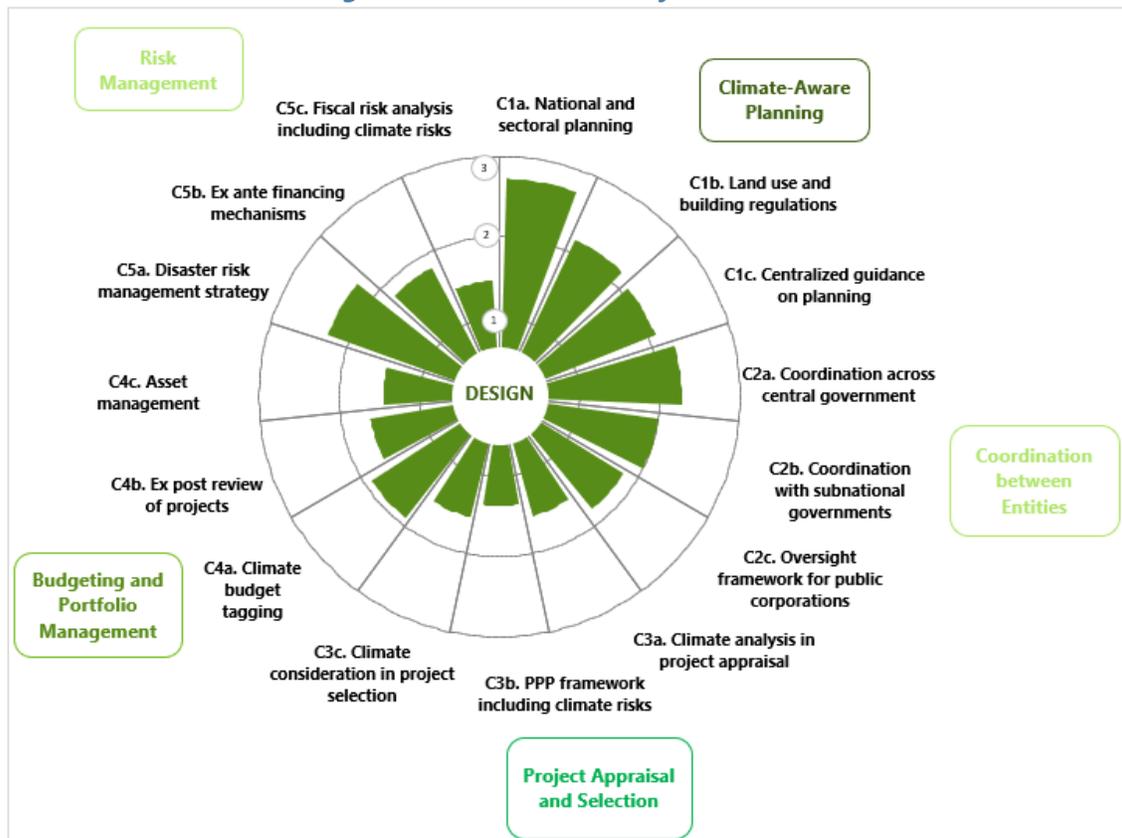
were evident on project appraisal and integration of climate aspects in PPP policy frameworks, asset management and fiscal risk analysis.

Figure 5. C-PIMA Scores by Institution



Source: IMF staff calculations.

Figure 6. C-PIMA Scores by Dimension

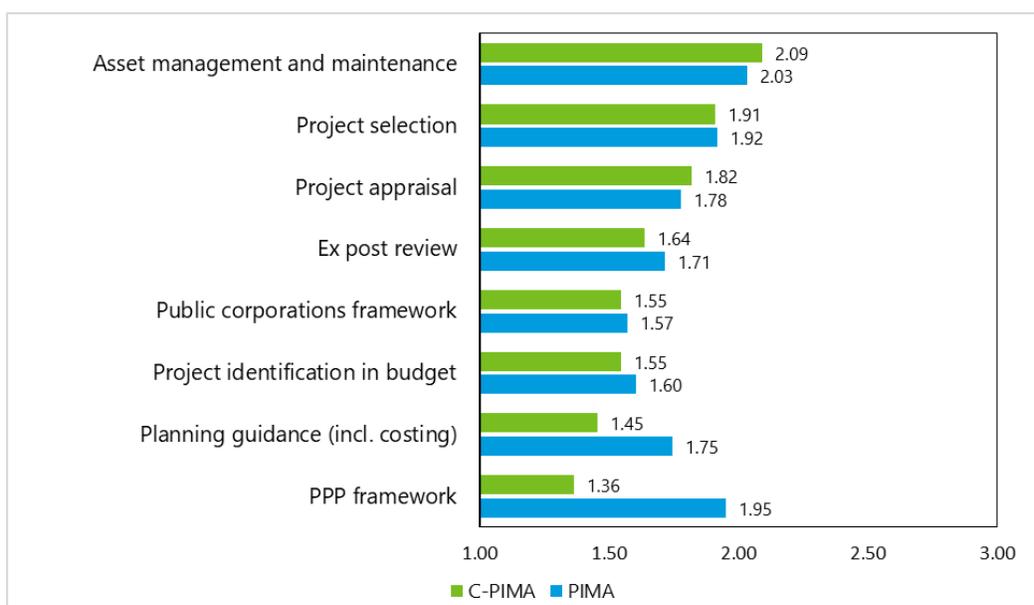


Source: IMF staff calculations.

A. Key Findings

26. C-PIMA desk studies and pilots show that general public investment institutions provide sound foundations for incorporating climate consideration. The C-PIMA scores to date show similarities to PIMA results (Figure 7). For example, if a country is weak in project appraisal, it generally follows that incorporating climate considerations in its project appraisal is also weak or has not taken place at all. Such findings apply also for dimensions on coordination across the public sector, project selection, ex-post review and identification of projects in budget. In some cases, when it comes to incorporating climate considerations, C-PIMA average scores are lagging significantly behind PIMA scores, for example in the case for the PPP framework and asset management. Like the PIMA, the C-PIMA results to date show stronger results in planning compared to the allocation and implementation phases of public investment. Key findings for each of the institutions are covered in sequence below.

Figure 7. C-PIMA Score Correlation with PIMA Score



Source: IMF Staff Calculations. The data covers the average of 11 C-PIMA pilot missions and desk studies and 63 PIMA missions.

27. On climate aware planning, almost all countries had national and sectoral sector public investment plans that were fully consistent with national climate goals on climate mitigation and adaptation.¹¹ Spatial planning aspects of public investment (e.g., land-use regulations and

¹¹ It should be noted that the institution does not evaluate the appropriateness of a country's national or international commitments which relates to policy rather than an institutional capacity issue.

building codes) and support by the central government to agencies preparing investment plans could, however, be strengthened to better address mitigation and adaptation.

- Nepal is a developing country that has successfully aligned its national and sectoral plans with its national and international climate objectives and commitments (Box 5).

Box 5. Climate-Aware Public Investment Planning in Nepal

Nepal has committed to ambitious climate actions that are in line with the Paris Agreement objectives, despite its relatively low GHG emissions. Nepal submitted its second NDC and is currently formulating a long-term low GHG emission development strategy aiming to achieve net-zero GHG emission by 2050.

Nepal's climate change goals are well reflected in its national development plan and national climate change policy. Nepal has published the 15th Periodic Plan for 2019/20—2023/24. Key elements of the NDC, such as acceleration of clean and renewable energy investments, scaling up electric vehicles and associated infrastructure, development of electric rail network, and forest conservation, are well integrated in the Plan. Also, the Plan contains a dedicated section on climate change, which places an emphasis on the implementation of climate actions at all levels of government and the preparation of local-level adaptation plans in accordance with the NDC. Climate adaptation considerations are also explicitly addressed in relevant sectors including agriculture, tourism, water supply and sanitation, as well as in the context of disaster risk reduction and management.

The Table below shows the alignment between the 15th Plan, sector strategies, and the NDC in terms of public investment trajectory and direction. Sectoral plans are consistent with the NDC's mitigation objectives including (i) the energy sector's plan to ramp up hydro and renewable power capacity, (ii) the transport sector strategy to increase the shares of electric vehicles and develop an electric rail network, and (iii) the national forest policy to maintain the current level of Nepal's forest cover.

Key Climate-Related Targets in Nepal's Plans and Strategies

Plan/Strategy	15th Plan	Energy White Paper 2018	NDC 2020	15th Plan (Long-Term Vision)
Target year	2024	2027	2030	2044
Hydropower (MW)	5,000	12,000	13,500	35,000
Renewable (MW)	767	930	1,500	5,000
Forest cover (% of total area)*	45%		45%	
Local Adaptation Plans (number)	460		753	
Transport**	Scaling up electrification of road and rail in NDC, 15 th Plan, and sector strategy			

Source: NDC, 15th Plan, Energy White Paper, National Environment Friendly Transport.

Note: *Forestry Sector Strategy aims to maintain at least 40% of forest cover; **This is also consistent with the Environment Friendly Transport Policy.

Source: IMF. 2021. Nepal: Public Investment Management Assessment Climate Change Module.

- Croatia has made good progress in incorporating spatial planning and zoning into land use decisions and supporting regulatory frameworks that help ensure that public investment is resilient to threats including coastal flooding (Box 6).

Box 6. Spatial Planning, Land Use, and Building Codes in Croatia

Spatial planning and building and energy regulations in Croatia help ensure that public infrastructure is located and designed in light of climate risks. Croatia's Spatial Development Strategy outlines specific measures to address climate mitigation and adaptation. These include, for example, spatially explicit solutions to reduce flood risks to public infrastructure; construction of a flood defense system, green urban infrastructure, and green spaces; integrated spatial and energy planning to improve energy efficiency in buildings; and spatial plans for renewable energy scale-up.

Furthermore, Building and Physical Planning regulations promote energy efficiency improvements in buildings, requiring energy certification and compliance with energy performance standards. The latter includes minimum requirements for the energy performance of buildings, minimum obligatory shares of renewable sources in the total energy consumption of buildings, and criteria for assessment of carbon-neutral heated buildings. The regulations apply nationwide and to all public investments.

Source: IMF. 2021. Croatia: Public Investment Management Assessment: Climate Change Pilot (draft).

28. Coordination of public investment on climate issues across the public sector scored medium on average. In general, coordination across the central government is more advanced, relative to coordination between the central government and sub-national governments and oversight of public corporations. Some of the countries reviewed have made significant strides in developing green investment coordination mechanisms (Box 7).

Box 7. A Governance Approach for a Nationwide Energy Transition in the Netherlands

In order to develop a locally grown, national carbon-neutral energy system that will be approved by local legislature, all 12 provinces, 21 district water boards, and 352 local governments in the Netherlands are working together with regional and national energy network managers and social stakeholders on 30 regional energy strategies. These regional strategies aim to deliver a coordinated (public) investment strategy in renewable energy, energy transition in the built environment and an accompanying upgraded energy system. If these combined results are insufficient, all the relevant government entities have agreed on formal mechanisms to seek compliance with the overall climate targets according to previously agreed decision-making methodology that, as a last resort, could involve the central government intervening judicially to ensure compliance.

A national platform was set up to facilitate the entire process and acts as process coordinator, develops a clear delivery framework for all stakeholders, builds a common data and information base, supports capacity building of involved entities, and develop communities of practice to share knowledge and experiences.

Source: IMF Staff analysis.

29. Reforms are most urgently needed in the integration of climate change considerations in project appraisal and selection processes, including in the risk allocation of PPP projects.

Again, this mirrors the low scores for appraisal and selection in the regular PIMA. Ensuring that climate considerations are included in these processes adds an additional layer of complexity and many countries have not yet taken this step. Many countries do require environmental impact assessment as part of project appraisal, including in principle for climate change impacts. But clear national methodologies and guidance on how to incorporate the climate-related analyses consistently across project appraisals are mostly lacking. The UK is an example of a country that provides detailed guidance on project development and appraisal from a climate perspective (Box 8). Selection methodologies for investment projects also require clarification of the impact of climate-related elements.

Box 8. Guidance on Incorporating Climate Impacts into Project Development and Appraisal in the United Kingdom

The Green Book: Central Government Guidance on Appraisal and Evaluation produced by the UK's Treasury establishes requirements for project development. It sets out the requirements for options analysis, approach to cost-benefit analysis, and monitoring and evaluation. It includes climate mitigation and adaptation examples and information on accounting for GHG emissions, the approach to environment, natural capital, and biodiversity.

The department responsible for climate mitigation, the Department of Business, Industry, Energy and Industrial Strategy, issues supplementary Green Book guidance on the valuation of energy use and GHG emissions and provides a supporting toolkit. The guidance supports the assessment of proposals that have a direct impact on energy use and supply, and those with an indirect impact through planning, land use change, construction or the introduction of new products that use energy. It helps users undertake options appraisal for use in building business cases and to conduct impact assessments. An excel-based calculation toolkit is provided to convert increases or decreases in energy consumption into changes in GHG emissions and value these changes. Data tables containing the latest published assumptions for carbon values, energy prices, long-run variable energy supply costs, emission factors and air quality damage costs are provided.

The department with responsibility for adaptation, the Department for Environment, Food and Rural Affairs, issues supplementary guidance on accounting for the effects of climate change which helps proponents identify how climate impacts and challenges can affect a project. It outlines how to approach climate risk assessment, considering direct and indirect effects, and supports the development of alternative policy options in response to climate challenges, focusing on adaptation. It also provides guidance on incorporating climate change risks into baseline and sensitivity analysis.

Source: UK Treasury, [The Green Book: Central Government Guidance on Appraisal and Evaluation](#), updated December 2020; UK Department for Business, Industry, Energy and Industrial Strategy, [Valuation of energy use and greenhouse gas \(and supporting toolkit\)](#), updated July 2021; UK Department for Environment, Food and Rural Affairs, [Accounting for the Effects of Climate Change Supplementary Green Book Guidance](#), updated November 2020; UK Department for Environment, Food and Rural Affairs, [Enabling a Natural Capital Approach](#), updated August 2021.

30. In low-capacity environments, multilateral development banks (MDBs) can play an important role in strengthening project appraisal (Box 9). In pilot countries it was recognized that appraisal practice for investments funded by these institutions did generally incorporate adequate consideration of climate risk, impact and alignment with climate commitments.

Box 9. Multilateral Development Bank Practices in Integrating Climate Change in Project Appraisal

The World Bank Group (WBG) mainstreams climate change into the analysis of infrastructure project proposals, through (i) screening for climate risks and building in appropriate risk mitigation measures, (ii) conducting GHG accounting, and (iii) applying a shadow carbon price for all material investments.

- *GHG accounting* is about quantifying the impact of a project on GHG emissions and disclosing both gross and net GHG emissions of a project. Over the last few years, three World Bank funded projects in Nepal have undertaken GHG accounting and this resulted in net emission reduction relative to baselines.
- *Shadow price of carbon* puts a price on the project's emissions and includes the carbon externality in the economic analysis.
- *Climate and disaster risk screening* is an initial, but essential, step to ensure that climate risks are assessed and managed in development projects. The screening exercise maps out climate risk exposures and suggested options for risk mitigation measures in project design.
- The new *Environmental and Social Framework* (ESF) enables the World Bank and borrowing countries to better manage environmental and social risks and to improve development outcomes. The ESF integrates climate change and disaster risks into its environmental and social due diligence process.

The Asian Development Bank (ADB) also has a comprehensive practice in mainstreaming climate change and disaster risks in lending operations. The main elements are: (i) climate risk management and climate proofing of ADB projects in the agriculture, energy, transport, and water sectors, (ii) GHG emission accounting for energy and transport projects, (iii) application of social cost of carbon in economic analysis of projects, and (iv) integration of climate risk and GHG emissions into the bank's safeguards policy.

ADB's and WBG's practices on climate change and disaster risk mainstreaming are consistent and form part of the broader collaboration and joint efforts between the multilateral development banks to align their investments with the Paris Agreement goals.

Sources: ADB; World Bank; <https://climatescreeningtools.worldbank.org/>.

31. Climate considerations are not yet systematically reflected in PPP contracts. Public infrastructure funded through PPPs procurement accounts for a sizeable share of the total capital stock in some countries, making it important to integrate green investment considerations. Private partners may be reluctant to take onboard climate considerations if not compensated for the upfront and operational costs. They may also be reluctant to accept responsibilities for climate risks in the risk sharing agreement, as these risks are influenced by national and global public policies not under the control of the private partners. To ensure that climate considerations are included in the PPP contract, it is important that governments clarify climate change requirements, support a "green" project design and are open to absorb relevant risks.

32. Countries are making progress on identifying and tracking climate-related public investment expenditures. Many budgets and fiscal reports indicate the climate relevance of capital expenditures in quite some detail. However, the methodologies used are often still relatively crude and based on broad judgments and/or bureaucratic deliberations rather than standard methodology. Sometimes, the climate relevance of expenditure is only identified in broad terms, i.e.,

fully relevant, partially relevant and not relevant. Also, in some countries broad categories of expenditure are identified as climate relevant, such as capital grants to local government. Such expenditure is required to be climate-relevant by law or instruction, but verification systems are not always in place. In general, countries do not identify expenditures/projects in their budget that are detrimental to climate change. An important element for methodological improvement is the need to link capital and other expenditure to concrete climate outputs and outcomes.¹² For some countries, international or local taxonomies of green expenditures will be important for attracting climate finance (e.g., the UK's plans to develop a taxonomy for reporting on the use of "green gilts" that builds upon the EU framework).

33. Ex-post reviews of public investment projects generally do not include a thorough review of climate considerations. In many LIDCs ex-post reviews and audits by the Supreme Audit Institution do not have a project focus or are not focused on policy impacts. The methodology for climate impact assessment is only now being developed, often as part of a broader environmental impact assessment framework. Such assessments are difficult given the long-term and uncertain nature of climate change. Some advanced countries, however, are now developing methodologies to integrate climate considerations in the ex-post review of major projects and in the management of public assets that are exposed to climate risks. Publication of such reviews, where it takes place, aids transparency and informs future investments.

34. Incorporation of climate-related risks in the reporting and management of public infrastructure assets is at an early stage in many countries. In general countries have progressed more in assessing the climate-resilience of new projects than in evaluating the climate-sensitivity of the overall infrastructure portfolio. Asset registries often have only partial coverage of the government infrastructure portfolio and valuations are not updated regularly. Better integration of climate considerations in asset management would greatly benefit the alignment of the public investment portfolio with national climate and development goals. The system and processes for this still need to be developed, with the exception of some advanced countries.

35. Most countries have prepared national disaster risk management strategies. These strategies generally take into account climate change considerations to the extent applicable for the country in question. However, there is a need in some countries to put in place forward-looking financing strategies to better manage climate-induced disaster risks.

36. Advanced economies in the pilot and desk study group scored a fully met on the majority of the dimensions, suggesting that the framework provides realistic benchmarks for good international practice. Most LIDCs have a significant way to go in incorporating climate

¹² France has been a pioneer in developing an advanced climate-tagging system. It has adopted a comprehensive classifications system for environmentally friendly, neutral and potentially harmful budget measures. The approach considers six environmental aspects: climate change adaptation, mitigation, biodiversity, the circular economy, water and air quality. It also assesses spill-over effects across environmental spheres. This methodology was applied for the first time for the budget law 2021 and enhanced further in the 2022 budget law.

change in their PIM cycles, and in general, the strength of institutions was aligned with income level. The sample size did not allow an adequate assessment of regional patterns.

B. Observations and Lessons Learned

37. **Piloted countries expressed their appreciation of the C-PIMA framework to guide them in developing reform agendas on climate-relevant institutional issues in the PIM cycle.**

Self-assessments using the questionnaire were conducted by some piloted countries and proved useful. Most pilots focused only on institutional design although the recommendations often implicitly included consideration of effectiveness. One pilot that involved mature institutions for climate-aware public investment did include an assessment of effectiveness, drawing on the approach to measuring effectiveness used in the PIMA.¹³ For most countries that are still in the development stage of their climate-aware investment management it appears too early to assess effectiveness of nascent institutions.

38. Some pilot countries acknowledged the validity of the C-PIMA framework as a capacity development tool to access climate funds (CFs). Access to CFs is increasingly tied to the inclusion of climate considerations in project appraisal, approval and implementation. The Green Climate Fund, the largest of the multilateral climate funds, extends the requirements even to more general PIM and PFM requirements (Annex II). While the C-PIMA assessment will not coincide directly with the detailed PIM requirements of climate funds, it provides guidance on institutional reform that would support access to climate finance.

39. **Development partners took part in some C-PIMA pilots and viewed the outcome as a useful benchmark to assess progress in green institutional reform in the PIM area.**¹⁴

Development partners were briefed on the intention and results of some pilots and availed staff to participate in the analysis. Their expertise in various areas of green PIM was very valuable. Like with the PIMA, the main MDBs will be invited to take part in future C-PIMA exercises.

40. The C-PIMA can be done as a standalone exercise, but a thorough understanding of the country's overall PIM system is necessary to do the C-PIMA effectively. In many cases, the climate aspects of dimensions and institutions could only be assessed if the assessment team understood how relevant parts of the overall PIM system worked. This was the case for example on coordination with sub-national governments, in appraisal and selection, and asset management. This means that there is some preference for doing the PIMA and the C-PIMA jointly or as a sequenced two-part exercise. When a PIMA assessment has been done earlier or the PIM system of a country is well documented, a C-PIMA could be envisaged as a standalone exercise.

41. **Country institutional scores are useful on an aggregate basis to analyze trends and guide reform priorities but will not be used to rank countries.** By adding up dimensions and

¹³ As is frequently the case for PIMA results, effectiveness was found to lagging behind institutional design in some areas.

¹⁴ This included staff from the World Bank, Asian Development Bank, and the Interamerican Development Bank.

subsequently institutions on a country basis, one implicitly assumes that each dimension and institution is of equal weight in the cycle. Although the framework is designed to provide a balanced assessment, country circumstances and the climate challenges they face may be significantly different from one another. The relative weight given to mitigation and adaptation in assessing the dimensions will vary between countries, making direct comparisons more difficult. For example, natural disaster risk management systems are much more important in countries prone to natural disaster influenced by climate change. The scale of climate ambition also varies between countries. However, comparisons against aggregate results for countries with similar characteristics can be useful as it shows countries how they compare approximately against their peers.¹⁵

42. High-level reform action plans produced in the C-PIMA should align with wider PFM reforms—and reflect the complexity of incorporating climate into PIM and the country context. It is important to note that the sequencing of reforms on climate aspects of PIM should tie into the ongoing reforms in the wider PFM and infrastructure governance sphere and not be viewed in a silo. The reform action plan should also take into account capacities to implement the reforms and the policy priorities of government in the climate area. Prioritized and sequenced action plans should also consider elements such as overall impact, ease of implementation, and ability to unlock climate financing.

NEXT STEPS AND RESOURCES

43. Several countries have indicated their interest in a C-PIMA to improve their institutional framework and deliver on their green investment ambitions. Given the importance of global climate change mitigation and adaptation goals, FAD will accommodate capacity development requests in this area as much as possible, in coordination with area department priorities. The diagnostic on climate-readiness of countries' PIM systems could also form part of the area department policy dialogue with IMF membership and recommendations going forward. FAD anticipates that the number of C-PIMAs to be undertaken annually at the request of IMF member countries would be about ten—consistent with the resource augmentation for climate change, combined with external funding from donor sources.

44. Where relevant, the delivery of the diagnostic will be coordinated with development partners, and MDB staff will be invited to actively participate in the assessment teams. Considerable outreach will also continue to take place on the new diagnostic tool. This will help raise awareness for countries on whether the tool can be helpful for their reform agenda and will provide development partners wider opportunity to provide feedback on the framework. It will also be important to discuss with development partners how the tool can form a useful input to their

¹⁵ This exercise will become more meaningful as more C-PIMAs are undertaken, as this will expand the comparator groups.

capacity development delivery so that duplication of review and assessment activities can be avoided.¹⁶

45. For a harmonized assessment across countries, a draft field guide will be developed, similar to the forthcoming PIMA Handbook. The core work in this area will rely on the existing in-house expertise supplemented by a pool of trained experts from FAD's roster. Assessment teams, including short-term experts, need to be trained in the methodology and a quality control system to verify the accurate application of the diagnostic will be essential. The cost of required training is included in the resource augmentation for climate change.

46. While the effectiveness of institutions will generally not be evaluated at this stage, where relevant, it may be a point of discussion with country authorities and included in the assessment. A formal scoring system on institutional effectiveness will be developed over the course of the next two years, consistent with the approach to incorporating effectiveness into the PIMA.

47. Similarly, the present framework for assessing institutional design will be reviewed in light of its implementation in more countries. It is possible that some of the institutions and/or dimensions will need to be amended based on experience and feedback from country authorities, development partners and assessment teams. FAD will undertake an overall evaluation of the framework in 2024 and report back to the Board in due course in case of substantive changes. At that time an updated PIMA framework may be presented.

¹⁶ See for example, the recently published paper "Green Budgeting: Towards Common Principles" jointly prepared by staff from the IMF, European Commission, and OECD (Battersby and others).

Annex I. Climate PIMA Questionnaire

C1. Climate-aware planning: Is public investment planned from a climate change perspective?				
	QUESTION	NOT MET	PARTIALLY MET	FULLY MET
C.1.a	Are national and sectoral public investment strategies and plans consistent with NDC or other overarching climate change strategy on mitigation and adaptation?	National and sectoral public investment strategies and plans are not consistent with NDC or other overarching climate change strategy.	National public investment strategies and plans are consistent with NDC or other overarching climate change strategy for some sectors.	National and sectoral public investment strategies and plans are consistent with NDC or other overarching climate change strategy for most sectors.
C.1.b	Do central government and/or sub-national government regulations on spatial and urban planning, and construction address climate-related risks and impacts on public investment?	Central government and/or sub-national government regulations on spatial and urban planning, and construction do not address climate-related risks and impacts on public investment.	Central government and/or sub-national government regulations on spatial and urban planning, or construction (through building codes) addresses climate-related risks and impacts on public investment.	Central government and/or sub-national government regulations on spatial and urban planning, and construction (through building codes) address climate-related risks and impacts on public investment.
C.1.c	Is there centralized guidance/support for government agencies on the preparation and costing of climate-aware public investment strategies?	There is no centralized guidance/support for government agencies on the preparation and costing of climate-aware public investment strategies.	There is centralized guidance/support for government agencies on the preparation of climate-aware public investment strategies.	There is centralized guidance/support for government agencies on the preparation and costing of climate-aware public investment strategies.

C2. Coordination between entities: Is there effective coordination of decision making on climate change-related public investment across the public sector?				
C.2.a	Is decision making on public investment coordinated across central government from a climate-change perspective?	Decision making on public investment is not coordinated across central government from a climate-change perspective.	Decision making on public investment is coordinated across budgetary central government from a climate-change perspective.	Decision making on public investment is coordinated across all central government, including externally financed projects, PPPs and extra-budgetary entities , from a climate-change perspective.
C.2.b	Is the planning and implementation of capital spending of SNGs coordinated with the central government from a climate-change perspective?	The planning and implementation of capital spending of SNGs is not coordinated with the central government from a climate-change perspective.	The central government issues guidance on the planning and implementation of capital spending from a climate-change perspective and information on major climate-related projects of SNGs is shared with the central government and is published alongside data on central government projects.	The central government issues guidance on the planning and implementation of capital spending from a climate-change perspective, information on major climate-related projects of SNGs is shared with the central government and is published alongside data on central government projects, and there are formal discussions between central government and SNGs on the planning and implementation of climate-related investments.
C.2.c	Does the regulatory and oversight framework for public corporations ensure that their climate-related investments are consistent with national climate policies and guidelines?	The regulatory and oversight framework for public corporations does not promote consistency between their climate-related investments and national climate policies and guidelines.	The regulatory and oversight framework for public corporations promotes consistency between their climate-related investments and national climate policies and guidelines.	The regulatory and oversight framework for public corporations requires that their climate-related investments be consistent with national climate policies and guidelines.

C3. Do project appraisal and selection include climate-related analysis and criteria?				
C.3.a	Does the appraisal of major infrastructure projects require climate-related analysis to be conducted according to a standard methodology with central support?	The appraisal of major infrastructure projects does not require climate-related analysis to be conducted according to a standard methodology.	The appraisal of major infrastructure projects requires climate-related analysis to be conducted according to a standard methodology.	The appraisal of major infrastructure projects requires climate-related analysis to be conducted according to a standard methodology, and a summary of appraisals is published or subject to independent external review.
C3b	Does the framework for managing longer-term public investment contracts, such as PPPs, explicitly address climate-related challenges?	The referred framework does not include explicit consideration of climate change for risk allocation or contract management.	The referred framework includes explicit consideration of climate change with respect to how risks are allocated between the parties in infrastructure contracts.	The referred framework includes explicit consideration of climate change with respect to how risks are allocated between the parties in infrastructure contracts, and contract managers in government departments and agencies are mandated to address climate-related challenges.
C.3.c	Are climate-related elements included among the criteria used by the government for the selection of infrastructure projects?	Either there are no explicit selection criteria or climate-related elements are not included among the criteria used by the government for the selection of projects for financing.	Climate-related elements are included among the criteria used by the government for the selection of all major budget-funded projects , and the criteria are published.	Climate-related elements are included among the criteria used by the government for the selection of all major projects, including externally financed projects, projects financed by extra-budgetary entities, and PPPs , and the criteria are published.

C.4 Budgeting and portfolio management: Is climate-related investment spending subject to active management and oversight?				
C.4.a.	Are planned climate-related public investment expenditures, sources of financing, outputs and outcomes identified in the budget and related documents, monitored, and reported?	Planned climate-related public investment expenditures are not identified in the budget and related documents.	Some planned climate-related public investment expenditures are identified in the budget and related documents, including investment expenditures funded externally, by extra-budgetary entities, and PPPs.	Most planned climate-related public investment expenditures, sources of financing, and outputs and outcomes are identified in the budget and related documents, including investment expenditures funded externally, by extra-budgetary entities, and PPPs, and expenditure on these projects is monitored and reported.
C.4.b.	Are ex-post reviews or audits conducted of the climate change mitigation and adaptation outcomes of public investments?	No ex-post reviews or audits are conducted of the climate change mitigation and adaptation outcomes of public investments.	Ex-post reviews or audits are conducted for selected major public investments of either the climate change mitigation or adaptation outcomes.	Ex-post reviews or audits are conducted and published for selected major public investments of both the climate change mitigation and adaptation outcomes.
C.4.c.	Do the government's asset management policies and practices, including the maintenance of assets, address climate-related risks?	Neither the government's asset management policies and practices nor methodologies for estimating the maintenance needs of climate change-exposed infrastructure assets address climate-related risks.	Methodologies prepared by the government for estimating the maintenance needs of some climate change-exposed infrastructure assets address climate-related risks.	Methodologies prepared by the government for estimating the maintenance needs and associated costs of most climate change-exposed infrastructure assets address climate-related risks, and government asset registers include climate-related information of these assets.

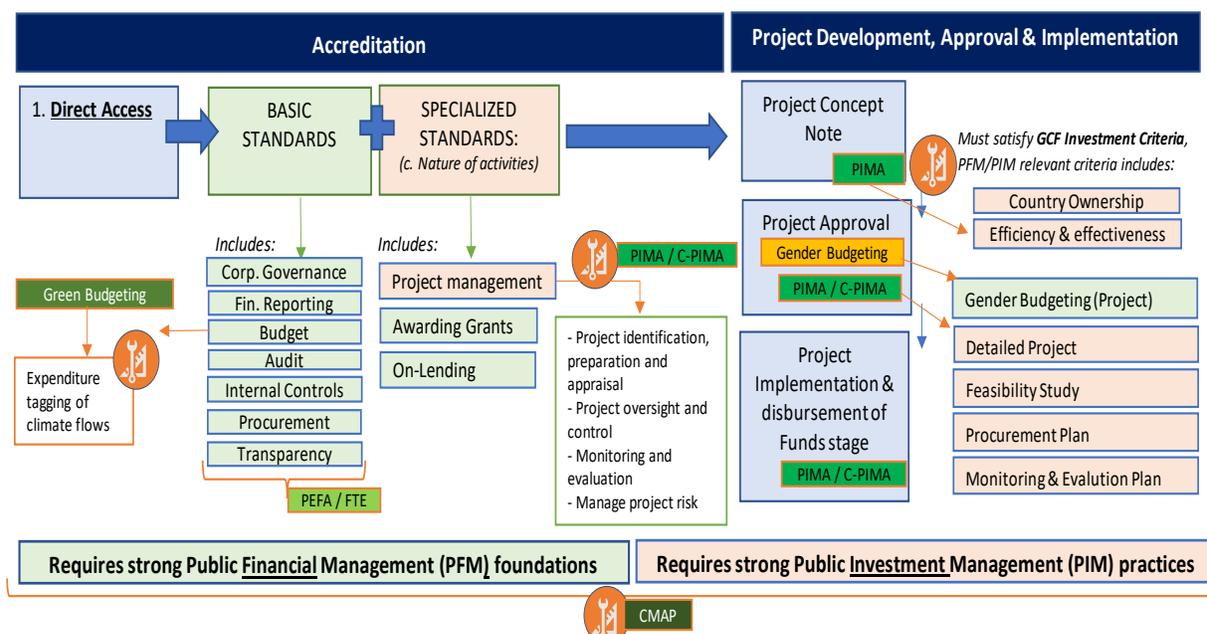
C5. Risk management: Are fiscal risks relating to climate change and infrastructure incorporated in budgets and fiscal risk analysis and managed according to a plan?				
C5.a.	Does the government publish a national disaster risk management strategy that incorporates the potential impact of climate change on public infrastructure assets and networks?	Either there is no published national disaster risk management strategy, or the strategy does not identify the key climate-related risks to public infrastructure assets and networks.	The government publishes a national disaster risk management strategy that identifies the key climate-related risks to public infrastructure assets and networks in terms of hazards, exposure, and vulnerability.	The government publishes a national disaster risk management strategy that identifies and analyses the key climate-related risks to public infrastructure assets and networks in terms of hazards, exposure and vulnerability, and includes the government's plans to mitigate and respond to these risks.
C5.b.	Has the government put in place ex ante financing mechanisms to manage the exposure of the stock of public infrastructure to climate-related risks?	The government has not put in place any ex ante financing mechanisms to manage the exposure of the stock of public infrastructure to climate-related risks.	There is an annual contingency appropriation in the budget or other financing mechanisms that is available to meet the costs of climate-related damages to public infrastructure.	There is an annual contingency appropriation in the budget and other financing mechanisms that are available to meet the costs of climate-related damages to public infrastructure.
C5.c.	Does the government conduct and publish a fiscal risk analysis that incorporates climate-related risks to public infrastructure assets?	The government does not conduct a fiscal risk analysis that incorporates climate-related risks to public infrastructure assets.	The government conducts and publishes a fiscal risk analysis that incorporates a qualitative assessment of climate-related risks to public infrastructure assets over the medium term.	The government conducts and publishes a fiscal risk analysis that incorporates a quantitative assessment of climate-related risks to public infrastructure assets over the medium term and policies to mitigate these risks, and a qualitative assessment of the risks that may arise over the long-term.

Annex II. PFM Requirements for Accessing Climate Finance – Green Climate Fund¹

Climate funds (CFs) like the Green Climate Fund (GCF) have put in place various safeguards for the use of their resources to provide assurance to GCF shareholders that beneficiary countries can manage their funds effectively and aligned with national and international climate commitments. Of the multilateral CFs, the GCF has both the largest global pool of resources and the most detailed access requirements. PFM requirements demanded by the GCF vary across the climate finance lifecycle, access modality, and the scale and nature of activities.

PFM and PIM requirements of the GCF as they apply to phases of the climate finance lifecycle are explained schematically in the Figure below. The requirements can be split into those for the accreditation phase - getting access to the Fund in principle and those required for submission and development of investment projects.

GCF’s PFM and PIM requirements and Capacity Building Tools



The GCF “basic” PFM-related accreditation requirements are principle-based standards, that have been categorized across seven core areas of PFM capability: corporate governance, financial reporting, budget credibility and monitoring, internal and external audit, internal controls, procurement, and transparency and accountability. The C-PIMA could play an important role in enhancing governments’ capacity in PIM, in particular for accreditation of entities, in the areas of project identification, preparation and appraisal, project oversight and control, monitoring and evaluation, and project risk management.

¹ This Annex is based on Fouad, M., Novta, N., Preston, G., Schneider, T., and Weerathunga, S. 2021.

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