TECHNICAL ASSISTANCE REPORT

REPUBLIC OF MOLDOVA

Climate Module of the Public Investment Management Assessment

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Prepared By

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Abbreviations and Acronyms

ANRE	National Agency for Energy Regulation
C-PIMA	Climate Module of PIMA
DRM	Disaster Risk Management
EIA	Environmental Impact Assessment
EU	European Union
FAD	Fiscal Affairs Department
FRS	Fiscal Risk Statement
GD	Government Decision
GDP	Gross Domestic Product
GHG	Greenhouse Gas Emissions
IFI	International Financial Institution
LEDP	Low Emission Development Program
MAPS	Methodology for Assessing Procurement Systems
MoF	Ministry of Finance
MTBF	Medium-term Budget Framework
NCCAP	National Climate Change Action Plan
NCCC	National Commission on Climate Change
NDC	Nationally Determined Contributions
NDS	National Development Strategy
NSDRR	National Strategy on Disaster Risk Reduction
PC	Public Corporations
PIM	Public Investment Management
PIMA	Public Investment Management Assessment
PPA	Public Property Agency
PPP	Public-Private Partnerships
RPIP	Register of Public Investment Projects
SC	State Chancellery
SNG	Subnational Governments
SSP	Shared Socioeconomic Pathways
UNFCCC	United Nations Framework Convention on Climate Change
WSS	Water Sanitation and Supply

Preface

At the request of Ms. Veronica Sireteanu, Minister of Finance of the Republic of Moldova, a team from the IMF's Fiscal Affairs Department (FAD) undertook the Climate Module of the Public Investment Management Assessment (C-PIMA) during the period from June 14 to 22, 2023. The mission team was led by Arturo Navarro and comprised Katja Funke, Eivind Tandberg (all FAD), and Murray Petrie (FAD expert), and was joined by Marina Marinkov, Senior Economist for Moldova (EUR).

The tasks of the mission were to: (i) assess progress in implementing the recommendation of the 2019 PIMA in areas relevant to the Climate PIMA assessment; (ii) assess the sensitivity of Moldova's public investment practices to climate objectives using the C-PIMA analytical framework; (iii) identify the main gaps and weaknesses in public investment management and its climate sensitivity and propose a prioritized action plan for addressing them; and (iv) recommend follow-up areas of technical support that could be provided by FAD or other development partners.

The team met the Minister of Finance, Ms. Sireteanu to discuss the key findings and recommendations of the assessment. The team also met with several staff of the Ministry of Finance, including Mr. Ion Gumene, State Secretary; Mr. Viorel Pană, Head of Division, Ministry of Finance; Ms. Lilia Taban, Deputy Head of Division, Public Investments Division; Ms. Natalia Sclearuc, Head of Policies and Budget Synthesis Division; Ms. Veronica Chirilă, Head of State Budget and National Public Budget Section; and Ms. Elena Matveeva, Head of Public Debt Division. The team also met with officials from Mr. Adrian Băluțel, State Secretary, State Chancellery; Ms Marian Ghenadie, State Secretary, Mr. Veaceslav Șipitca, State Secretary, and Ms. Natalia Eremia, State Secretary from the Ministry of Infrastructure and Regional Development; Mr. Nicolai Mîndra, Executive Director, State Road Administration; Ms. Carolina Novac, State Secretary, Ministry of Energy; Mr. Vasile Leu, General Director of the Company, JSC "Termoelectrica"; Mr. Sergiu Carmanschi, Deputy Director General and Popa Oleg, Financial Director, , SOE "Moldelectrica"; Mr. Andrei TARAN, Director of National Agency for Energy Regulation; Mr. Grigore Stratulat, State Secretary and Mr. Radu Cazacu, Deputy Director of the "Apele Moldovei" Agency, , Ministry of Environment; Mr. Adrian Digolean, State Secretary and Ms. Liliana Martin, Head of the Directorate for the Coordination of Public Policies and European Integration, Ministry of Agriculture and Food Industry; Mr. Bobu Valerian, Deputy General Director, Public Property Agency; Ms. Tatiana Șevciuc, member of the Court of Accounts, Court of Accounts of Moldova; Ms. Irina Gutnic, Vicemayor, Government of Chisinau. The mission also met with Klas Sander, Senior Environmental Economist and Thomas Farole, Lead Economist, of the World Bank.

The mission is grateful for the efficient support provided in organizing and facilitating the discussions from Mr. Pana, Ms. Taban and Ms. Sclearuc. In addition, the mission is grateful to the IMF Resident Representative Mr. Rodgers Chawani and his staff, Octavian Scerbatchi and Veaceslav Buicli for the efficient support and coordination provided before and during the mission; and to Ms. Natalia Ghies and Ms. Natalia Conovca for their excellent translation services.

Executive Summary

Moldova is exposed to climate change and natural hazards that can weigh on economic growth and pose significant risks to public infrastructure. Droughts, floods, and hail have been the main sources of natural hazards in recent years. These events have a particularly strong impact on the agriculture sector and on rural population, which represent about 10 percent of GDP and close to 60 percent of total population, respectively. Climate projections for Moldova vary greatly within the Shared Socioeconomic Pathways (SSP), underscoring the uncertainty within which fiscal policy will be required to operate. Investing in climate-resilient infrastructure and developing climate-aware public investment management (PIM) can play a key role in managing the uncertainty of climate change impacts.

Moldova has committed to an ambitious climate change mitigation and adaption agenda despite its small share of global emissions. In the country's updated Nationally Determined Contribution (NDC) submitted in 2020, the government committed to reduce greenhouse gas (GHG) emissions by 2030 to less than 70 percent of the 1990 emission level; the target could be increased to 88 percent with additional measures. Moldova aims to become climate neutral by 2050 as included in the draft Law on Climate Action, as part of its EU accession process. These objectives are supported by a Climate Change Adaptation Strategy and Action Plan and a Low Emission Development Program. A central measure is to increase the share of renewable energy sources given that a majority of the country's GHG emissions stem from the energy sector. Investment priorities through 2040 of USD 4.2 billion across multiple sectors have been identified as part of climate change related strategies.[1]

Moldova has introduced important changes to strengthen its public investment management (PIM) framework, which offers an opportunity to include climate-related considerations. The 2019 Public Investment Management Assessment (PIMA) highlighted that Moldova had a strong PIM framework from an institutional design perspective but that it was not effective due to its limited coverage of major capital projects. A new Government Decision (GD) on capital investment projects that increased the coverage of the PIM regulation to all projects, irrespective of funding source or sponsoring entity, was adopted in 2022 as a structural benchmark of the ongoing Fund-supported program. The framework proposed in this regulation will support a more transparent and consistent management of public investments and establishes criteria to ensure that projects are appropriately identified, appraised, and formulated before being considered for inclusion in the budget. A new Order of the Ministry of Finance with the instructions to implement this new GD is yet to be issued and could be updated to strengthen climate change considerations in PIM. The findings and recommendations presented in this Climate PIMA (C-PIMA) report aim to complement the government's reform efforts by incorporating a stronger climate change perspective.

Climate sensitive PIM is at a nascent stage in Moldova. The authorities have taken steps to increase climate change awareness across government institutions, and new regulations and strategic documents have been recently adopted, are under consultation, or being drafted. However, these initiatives are generally at early stages and are yet to be incorporated into PIM practices and the management of

[1] World Bank. 2016. Moldova - Climate adaptation investment planning technical assistance (English). Washington, D.C.: World Bank Group. (World Bank. Moldova-Climate Adaptation Investment Planning TA)

climate-related risks. The findings in this assessment are therefore primarily a baseline against which to measure future progress.

The C-PIMA identifies good emerging practices across several areas. Climate considerations have been consistently introduced into key planning documents at the national level, which are expected to guide sectoral policies currently under preparation. Existing regulation requires that environmental impact assessments (EIA), including climate implications, are undertaken during project preparation. In a few key economic sectors—such as energy—the regulatory framework for state owned enterprises (SOE) and public corporations (PC) guides climate change related decision-making. In addition, there are budget reserves that can be used to cover some of the fiscal impacts of natural disasters, including those on infrastructure.

Some pressing reform priorities are needed to ensure that a climate-sensitive approach to public investment becomes operational. Currently, public investments are not coordinated across the central and local governments, among others, due to the lack of specific guidance and regulation on the matter. Selection of projects does not consider climate-related issues although project appraisal may include relevant assessments. There is also a limited understanding of the risks to public infrastructure from climate change due to lack of centralized asset information and of a proactive disaster risk management strategy, which places the government in a reactive position. Finally, there are gaps in the framework for managing climate implications that could be addressed by adopting existing draft plans, strategies, and legislation. This includes the 2015 draft Disaster Risk Management Strategy or the regulation for implementing the National Commission on Climate Change. Figure 1 and Table 1 present the summary results of the C-PIMA assessment; Table 2 presents the high-priority recommendations and short-term actions; and Annex I proposes an indicative action plan for the implementation of the recommendations.

Table 1. Moldova C-PIMA Summary Assessment

Phase/Institution		Institutional Strength	Reform priority
C1	**Climate-aware planning**	**Medium.** Public investment is systematically planned from a climate change perspective at the national level, but sectoral strategies do not yet reflect national climate targets.	**Low**
C2	**Coordination between entities**	**Low.** Public investment is not coordinated across the central government and with subnational governments from a climate change perspective. Climate considerations starting to influence major investment decisions of public corporations.	**Medium**
C3	**Project appraisal and selection**	**Low**. Law requires project appraisals to include EIA, including climate implications, but no climate-related criteria considered for project selection. Allocation of climate-related risks is not clearly defined in PPP regulation.	**High**
C4	**Budgeting and portfolio management**	**Low.** No mechanisms in place to ensure systematic identification in the management and oversight of climate-related investment. Asset registers do not include information on the condition of assets nor exposure to climate change related risks.	**High**
C5	**Risk management**	**Low.** Disaster risk management does not consider the exposure and vulnerability of public infrastructure to climate-related disasters. Limited information on the impact of climate-related disasters on infrastructure in Note on Fiscal Risks.	**Medium**

Figure 1. Moldova C-PIMA: Institutional Design

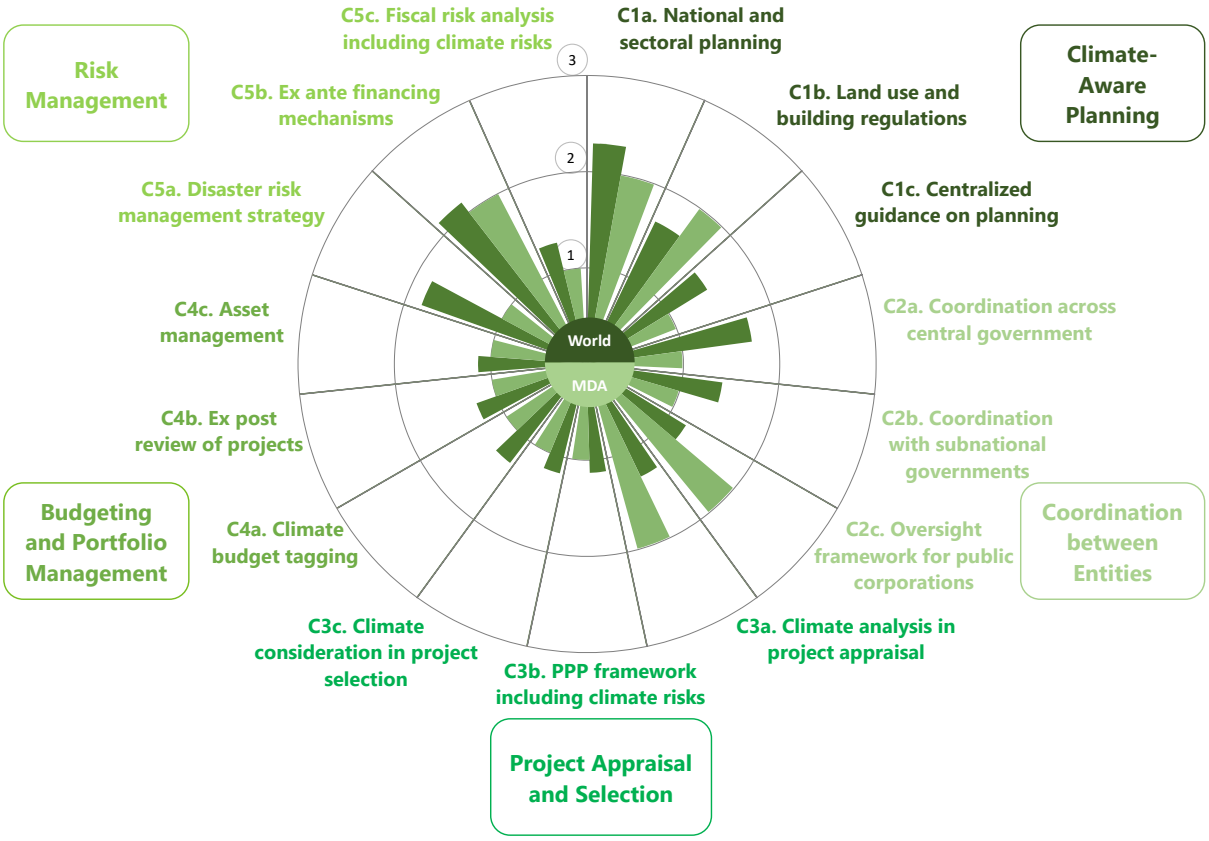


Table 2. High Priority Recommendations and Detailed Short-Term Actions

Issue. *There is weak coordination across the public sector of decisions on climate-related public investment.*	
Recommendation. Strengthen coordination and reporting channels to improve coordination on climate policy and investment.	MoE; MoF
▪ Require line ministries sponsoring major new public investment projects to provide data in their budget submissions on the estimated climate impacts and climate vulnerability of these projects when they are first incorporated in the state budget.	2024
▪ Review the information provided by line ministries on the climate impact and vulnerability of proposed major new public investment projects and on the aggregation of this data across each annual budget.	2024
▪ Provide guidance to local authorities on incorporating climate change adaptation and mitigation into public investment planning and include discussion of consistency with national policies in the process of oversight of local government capital spending projects by the central government.	2024
▪ Introduce climate considerations into the project reviews conducted by the PPA including exposure to transition risks.	2024
Issue. Climate change impacts are not accounted for in project appraisal and project selection	
Recommendation. Develop project appraisal and selection methodologies (i.e., scoring criteria) and incorporate analysis of the impacts of climate change.	MoF, MoE
▪ In the forthcoming PIM regulation, include climate vulnerability as part of the total cost reflected in the cost-benefit assessment and not only in the risk assessment.	2023
▪ As part of the project appraisal, introduce a traffic light system for identifying projects with a positive, neutral, and negative impact on emissions (to be refined with growing experience).	2024
▪ Explore including in the CBA a shadow price on carbon emissions, as part of the project appraisal (drawing on EBRD and EIB methodology) or appropriately priced GHG emission charges.	2025
▪ In the medium-term, develop a quantitative approach to inform project selection based on a shadow price of carbon; the assessment could enter in the evaluation as a yes/no, or 'need to explain' assessment and not as part of the score.	2026
Issue. Climate change considerations are not well integrated in the budgetary process.	
Recommendation. Identify important climate-related spending in the budget.	MoF
▪ Analyze current budget to identify major climate-related investment projects, based on inputs from ministries (2023).	2023
▪ Prepare a summary table indicating which investment projects have major climate impacts and include this table in future budget documentation.	2024

I. Introduction

1. This C-PIMA evaluates Moldova's PIM practices in the context of climate change. The assessment builds upon the 2019 Public Investment Management Assessment and provides an update on the progress made in PIM reform in Moldova since then. The report examines the areas identified as weaker in the previous assessment and highlights the recommendations that have been acted upon.

2. The C-PIMA assesses five key PIM practices from a climate change perspective. These practices include climate-aware planning, coordination across the public sector, project appraisal and selection, budgeting and portfolio management, and risk management. The assessment aims to ensure that public investment aligns with climate objectives, facilitates effective decision-making and prioritization, incorporates climate-related analysis and criteria, identifies climate-related investment spending, and integrates fiscal risks associated with climate change and infrastructure into budgeting and risk management processes.

3. The document is structured into four main sections. The first section examines the progress made in PIM reform since the 2019 assessment. The second, “Climate Change in Moldova”, analyzes the impacts of climate change and the climate change goals and strategies, including its Nationally Determined Contribution (NDC) and National Climate Change Action Plan (NCCAP). The third section provides the detailed evaluation using the Climate PIMA framework and the fourth offers recommendations for strengthening Moldova’s PIM practices in the face of climate change.

A. 2019 Public Investment Management Assessment

4. The 2019 PIMA acknowledged the strength of the PIM framework from a design perspective, which included multiple aspects of good international practice. The PIM framework – government decision and MoF Order – included detailed provisions to ensure appropriate preparation and monitoring of public investments, including sound project appraisal requirements, transparent criteria for project selection, and specific project management functions to guide project implementation. The PIM framework were complemented by a relatively comprehensive medium-term budget framework that ensured that all investments were covered in the state budget.

5. However, the effectiveness of the framework was undermined by its limited coverage of public investment regulations, as these were applied to a small share of all public projects. The first article of the Instructions on the Management of Capital Investment Projects (MoF Order 185 2015) excluded most public investments from the procedures described in the instructions. The 2019 PIMA identified that only 16 percent of all investments in the 2019 budget were covered by the regulation, given the significant number of projects that were externally funded or executed through funds. This exclusion led to projects following different procedures depending various factors, as for example, the funding source. Table 1 provides a summary of the heatmap assessment in the 2019 PIMA, underscoring the relatively strong institutional design where all institutions met the basic requirements, but weak effectiveness, especially in the appraisal stage and in budgeting.

Table I.1. 2019 PIMA – Summary Heat Map Assessment

Phase / Institution			Design	Effectiveness	Reform Priority
Planning	1	Fiscal targets and rules			Low
	2	Planning			Medium
	3	Coordination			High
	4	Project appraisal			High
	5	Alternative infra. provision			High
Allocation	6	Multi-year budgeting			High
	7	Budget comp. & unity			Low
	8	Budgeting for investment			High
	9	Maintenance funding			Low
	10	Project selection			Medium
Implementation	11	Procurement			Low
	12	Availability of funding			Low
	13	Portfolio mgt & oversight			High
	14	Project management			Medium
	15	Monitoring of public assets			Low

Source: PIMA 2019

B. Recent Developments in Public Investment Management

6. Despite the challenging financial and geopolitical environment that Moldova has faced over the last few years, there have been important improvements in PIM. Successive governments have continued to emphasize this reform area. The authorities' commitments under the previous and the ongoing IMF programs, as well as the EU accession process have been key drivers for many ongoing reform efforts.[2] Several IFIs and development partners have supported these efforts.

7. The 2019 PIMA assessed that the five institutions in the Planning phase were the weakest, in particular for effectiveness. There has been some progress, but with limited impacts so far:

- **Institution 1. Fiscal principles or rules**: The 2019 PIMA found that there was a detailed medium-term budget framework (MTBF) including recurrent and capital expenditures, and fiscal rules for central and local government, but with limited links to debt sustainability. Escape clauses in the fiscal responsibility law and the limited reliability of MTBF ceilings undermined general government debt sustainability. Recent budget documents, including the FRS, show that there are still significant discrepancies between MTBF estimates, budgets, and outturn, for both revenues and expenditures. The impact of the pandemic, the energy crisis and the Russian war against Ukraine led the authorities

[2]The IMF through its ECF/EFF program has contributed to improving PIM practices with the aim of promoting fiscal transparency.

to the derogation of the fiscal rules for the last three years, as stated in the 2023 -2025 MTBF.[3] Capital budget estimates have become more predictable, though there is still substantial room for improvement.

- **Institution 2. National and sectoral plans:** The 2019 PIMA indicated that investments in roads and energy were based on detailed national and sectoral strategies, but not fully costed. The national strategy Moldova 2020 did not provide a full picture of national priorities and the effectiveness of strategies was mixed across sectors. The new national strategy Moldova 2030 highlights important priorities but is not costed, not reconciled with available resources, and does not identify specific investment projects. Many of the sector strategies that would identify public investment priorities and initiatives are still under development, as is the case for the transport sector.

- **Institution 3. Coordination between entities**: Rule-based capital transfers was introduced but local governments were notified about expected transfers late in the budget process; and local government investment plans were not published as part of the State budget documentation. Ad-hoc programs for local projects, which were introduced prior to elections, followed different budgeting and monitoring processes, and undermined the effectiveness of central-local coordination. The recent GD 684/2022 "On the Approval of the Regulation Regarding Public Capital Investment Projects" requires that capital projects funded by budgetary programs use similar procedures as central government projects, but the implementation of this provision is delegated to the institutions that manage the programs and the MoF is not involved in this.

- **Institution 4. Project appraisal**: The previous legal framework (GD 1029/2013 and MoF order 185/2015) supported technical, financial, and economic analysis of major projects for domestically funded projects, including risk analysis. However, this legal framework was not applied in practice. Most major capital investments were externally funded and not required to follow the appraisal process defined in the framework. GD 684/2022 has strengthened and clarified appraisal requirements for all capital projects, including foreign-financed, funds and programs. Implementation guidelines providing detailed methodological guidance on project appraisal are now ready for government approval.

- **Institution 5. Alternative infrastructure financing**: The 2019 PIMA found that state-owned enterprises with legal monopolies played major roles in infrastructure provision. In practice, there was limited competition in many markets for infrastructure provision, including for construction services. There was a comprehensive legal framework for public-private partnerships (PPP), but several PPP projects had been suspended. Since then, the electricity market has been opened to private producers of renewable energy. Competition in the construction market has improved, with many stalled contracts cancelled and retendered contracts now being effectively executed. According to the Public Property Agency (PPA), there are now 45 PPPs in the operational phase, mainly in local governments, but the Parliament declared a moratorium on new PPPs in 2019. PPP proposals are

[3] Article 15 (para. (2) and (3)) of the Law on Public Finances and Fiscal Budgetary Responsibility no. 181/2014, admits the derogation from the budgetary-fiscal rule in case of exceptional situations, which endanger national security.

required to be reviewed by a technical committee to see if they should be exempted from the moratorium.

8. **The Allocation phase of the public investment cycle was also found to be quite weak**. There have only been a few changes related to these institutions:

- **Institution 6. Multi-year budgeting:** The PIMA concluded that multi-year ceilings were not binding beyond the first budget year; and projections for capital expenditure did not have sectoral breakdowns. The credibility of medium-term projections and ceilings was also undermined by inaccurate cost estimates for projects included in funding programs. Capital budget execution has improved somewhat in recent years, making medium-term capital budget projections more credible. Figure 1.1 describes capital budget execution for 2004 – 2022 and indicates that under execution of capital expenditure in 2021 and 2022 declined with respect to the levels seen in 2018 and 2019 – due to the impact of the pandemic, the deterioration of 2020 is not comparable. However, deviations continue to be high and efforts to improve public investment planning and budgeting should remain a priority.

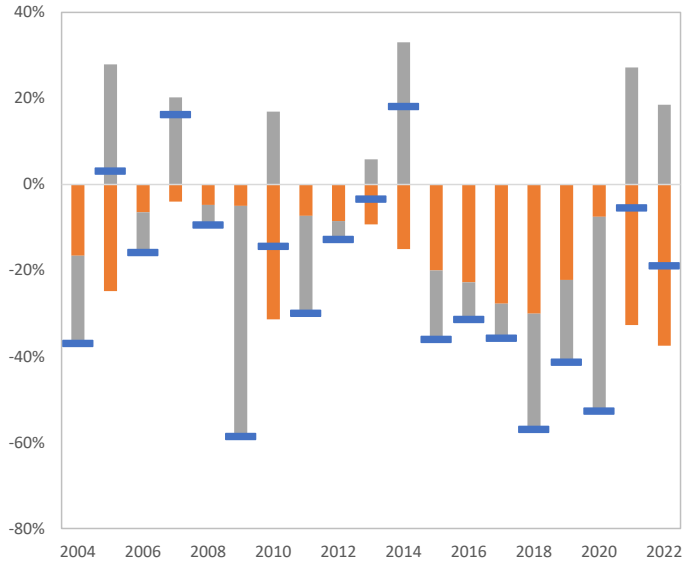
- **Institution 7. Budget comprehensiveness and unity**: This was the institution with the highest scores in the 2019 PIMA. Capital spending and related recurrent spending was largely undertaken through the budget. Extra-budgetary public institutions created some uncertainty about overall public investment, but not significant. There have been no material changes in this area since 2019.

- **Institution 8. Budgeting for investment**: The 2019 PIMA found that multiyear commitments of projects were not published; and only part of capital expenditure was protected from reallocation. There were large deviations from the public investment budget that could be related to inaccurate baseline estimates and ad-hoc programs for local projects. There have been no major structural changes in this area, but as shown in figure 1.1 capital budget execution has improved, giving more credible medium-term capital budget projections.

- **Institution 9. Maintenance funding**: There is no significant change since 2019. Maintenance estimates are required to be made available during project preparation and are presented separately in the budget. Maintenance can be identified in the budget and sectors responsible for large investments (roads and electricity) have developed maintenance plans that to some extent reflect asset condition.

- **Institution 10. Project selection**: MoF Order 185/2015 required central review of major capital investments following standardized criteria, but this did not cover externally financed projects. In practice, there was no pipeline of appraised projects, selection depended mostly on the availability of fiscal space and initiatives funded through donors, and projects were selected in an ad-hoc fashion. Decree 684/2022 is a significant improvement. It clarifies the procedures to define projects that are eligible for funding consideration and extends these procedures to all capital projects. The implementation guidelines will include a detailed scoring framework.

Figure I.1. Moldova Budget Execution (in percent)



Note:

- Orange bar: difference between the outturn and the revised budget as percent of original budget.
- Gray bar: difference between the revised and original budgets as percent of original budget.
- Blue marker: difference between outturn and original budget, as percent of original budget.

A negative number indicates that outturn was lower than the original or the revised budget and that the revised budget was lower than the original budget. A positive gray bar implies an increase in the capital budget during the year.

Source: Ministry of Finance, Report on the execution of the state budget; IMF staff estimates

9. The Implementation institutions were the strongest in the 2019 PIMA. There has been some progress here as well:

- **Institution 11. Procurement**: According to the 2019 PIMA, there were several mechanisms in place to promote transparency in procurement, including an e-procurement system. There were some inconsistencies between primary and secondary regulations that created confusion among public entities, providing them room for interpretation. The 2021 MAPS (Methodology for Assessing Procurement Systems) report by the World Bank is an important milestone. It provides detailed assessment of the procurement system, with several recommendations to improve effectiveness.

- **Institution 12. Availability of funding**: This PIMA institution received a high score in 2019, with effectiveness somewhat lower than institutional design. Since 2016, the framework for financing capital spending had been predictable and payments had generally been timely. In practice, cash releases are prioritized during the month and the MoF established an ad-hoc moratorium on certain 2019 commitments. There are no relevant changes in this institution.

- **Institution 13. Portfolio management and oversight**: The 2019 PIMA found that there was a comprehensive framework for oversight of budget-funded investment and that externally financed projects were covered by IFI rules. In practice, many of the legal requirements for portfolio management had not been operationalized and project oversight arrangements focused on the externally financed projects. The extended scope of public investment procedures in GD 684/2022 facilitates more coherent portfolio oversight. However, monitoring reports are only required annually, undermining the possibilities for proactive portfolio oversight. There is no detailed guidance on portfolio monitoring and oversight in the draft implementation guidelines for GD 648/2022. It is not clear if the new register of public investment projects (RPIP) that is being developed with the support of an EC-funded CD program, will include monitoring and oversight data.

- **Institution 14. Project implementation**: MoF Order 185/2015 specified rules and procedures for project adjustment but did not cover externally financed projects which followed donors' rules as specified in loan agreements. According to the Road Agency, there have been improvements in project implementation in their sector for externally financed projects that were very low in the past.

- **Institution 15. Management of public assets**: In 2019, asset registers were regularly updated but were fragmented and did not reflect non-financial assets value accurately. The PPA consolidates asset information in a public asset register that covers central government and central PCs but exclude Defense Ministry and local government assets. There are no developments in this regard.

- **Cross-cutting issues:** Limited technical capacity continues to be a key concern across government undermining public investment preparation. The adoption of GD 684/2022 on public investments strengthens the coverage of the legal framework which was a key concern of the PIMA. However, issuing a new MoF Order to provide guidance on the PIM process would ensure thorough implementation. A pilot IT system to support the new PIM procedures has been developed and successfully tested, and its adoption should support a stronger PIM.

10. The PIMA provided nine main recommendations to improve public investment management. There has been progress on many of these recommendations. Table 1.2 summarizes the status of the different recommendations.

Table I.2. Implementation status for 2019 PIMA recommendations

Recommendation	Institution	Implementation status June 2023
Ensure that the new strategic planning framework provides clear prioritization and clear linkages between strategies, plans and key investment projects	2	Updated planning framework is work in progress. Moldova 2030 provides vision and main priorities, but no specification of major projects. Strategies of key sectors – transportation – are still under development.
Integrate all local projects that are financed through the State budget into the same budget and monitoring process.	3, 6, 8, 13, 14	No changes in budgeting and monitoring of local projects, but responsible agencies are required to apply GD 684/2022 rules for project appraisal and selection.
Adjust regulation to ensure that all projects have reached a minimum level of appraisal before selection.	4, 10	GD 684/2022 provides a process to ensure that projects are adequately appraised before selection, though supporting regulation is not adopted.
Strengthen competition and promote development of infrastructure markets by developing a comprehensive action plan for improvements in private sector provision of infrastructure services and in the markets for construction services.	5	Electricity generation is being opened to private entities. Construction market has become more competitive and effective. There is a comprehensive SOE reform program, including some SOEs are restructured as joint-stock companies under corporate law.
Ensure the transparency in baseline costing of projects included in basket financing programs.	6, 7, 8	Ex-post information on the use funds (Road, Regional and Local Development, Ecologic) and externally financed projects is now presented with budget documents
Develop a phased approach to implement the selection process defined in the Order 185.	10	Draft implementation guideline for GD 684/2022 provides detailed methodology for determining if projects are eligible for funding consideration.
Develop a comprehensive framework for reporting and monitoring that covers all major projects regardless of their financing sources.	13	GD 684/2022 specifies that all major projects are covered by reporting and monitoring framework, but monitoring reports are only annual and there is no detailed guidance on the monitoring and portfolio oversight process.
Complete the ongoing MAPS Assessment with the World Bank that will help identify the key reforms required to improve procurement practices in Moldova.	11	MAPS report was published in 2021 and provides several specific steps to strengthen procurement.
Amend existing regulation to Increase the scope of application of the capital investment management framework to ensure that it covers a larger share of capital projects, with particular focus on major projects.		GD 684/2022 specifies that all projects involving the state, including externally financed projects, programs and funds, are covered by the capital investment management framework. Implementation of the provisions is delegated for programs and funds.

II. Climate Change in Moldova

A. Climate Change and Public Infrastructure

11. Moldova is vulnerable to natural hazards, which are expected to be aggravated by the implications of climate change. Droughts, floods, late spring frost, and hail have caused significant socio-economic costs. The most vulnerable sectors are agriculture, human health, water resources, forestry, transport, and energy. Natural hazards can have a severe impact on agricultural production, with average annual losses from hydrometeorological hazards of about three percent of GDP.[4] Natural hazards have a severe impact upon the rural population of Moldova, which accounts for 60 percent of the population and is highly dependent on agriculture. Natural hazards are likely to become more frequent or more intense when temperature increases, and rain fall patterns change due to climate change (Box II.1).

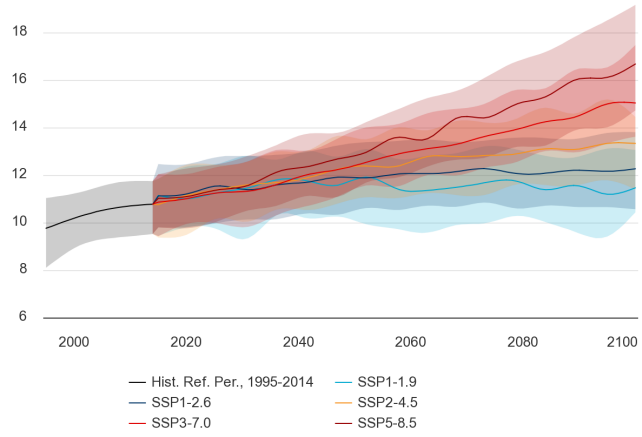
Box II.1. Moldova Climate Change Implications

Historical Data

The climate of Moldova is moderately continental, characterized by relatively mild winters with little snow, long warm summers, and low humidity. The average annual temperatures vary between 6.3°C in the North to 12.3°C in the South. Warm weather lasts about 190 days. The average annual precipitation varies between 307 mm – 960 mm per year. Most of the precipitation occurs in the form of rainfall, as snow accounts for as little as 10 percent.

The annual mean temperature rose by one degree Celsius on average (1887-2014), with the upwards trend particularly evident following the early 1980s. Precipitation rates have not varied as significantly. Nationally, average precipitation increased slightly (54.7 mm more in 2014 compared to 1887) following the trends in the north and center of the country, while the south recorded a slight decrease in precipitation.

Figure II.1.1. Projected Mean Temperature Multi-Model Ensemble, Reference Period 1995-2014)



Source: World Bank, Climate Change Knowledge Portal

[4] Moldova - Vulnerability | Climate Change Knowledge Portal (worldbank.org)

Climate Projections

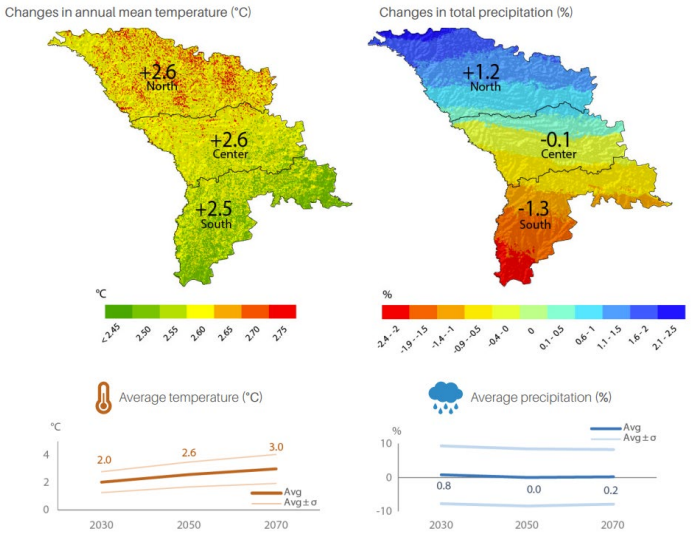
Climate projections vary greatly depending on the SSPs, which are scenarios that anticipate socioeconomic and climatic global changes. Also, under all SSPs, there is considerable uncertainty in the projection (Figure II.1.1).

Under the “middle of the road scenario”, known as SSP2-4.5, average global temperature is expected to increase by 2°C by mid-century. However, there is considerable uncertainty, with the 10-90 percentile range spanning from a decrease of -0.5°C and +3.6°C (Figure II.1.2).

There is also considerable seasonal variability in the expected warming, with warming greatest in July and August where maximum temperatures could increase by as much as 6°C by mid-century and 8°C by 2100 (Figure II.1.3. panel a and b). The number of “hot” days (temperature above 35°C) is expected to increase by 12 by 2050.

Changes in precipitation is also seasonal and uncertain, retaining dry summers (June–August), and leading to wetter winters (December–March) with more variable precipitation (Figure II.1.3 panel c and d). Climate change is expected to lead to an increase in the frequency and severity of extreme events such as droughts and floods.

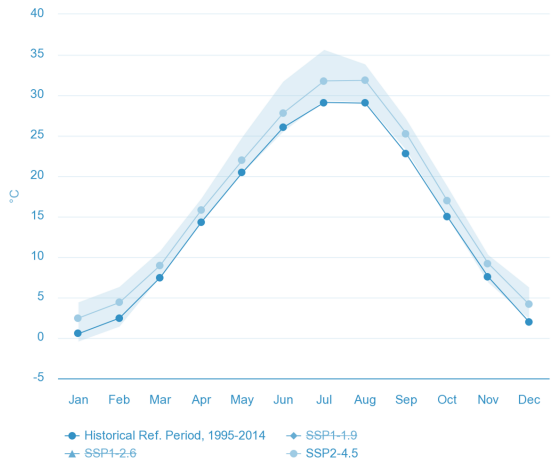
Figure II.1.2. Projected Changes in Temperature and Precipitation in Moldova by 2050



Source: World Bank (2019)

Figure II.1.3. Projected Maximum Temperature

a. 2040-2059 compared to reference period



b. 2080-2099 compared to reference period

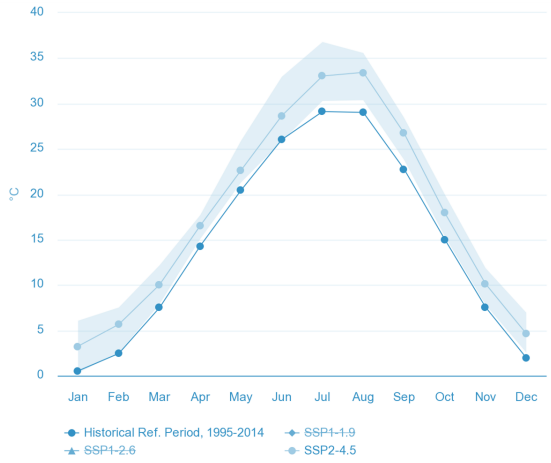
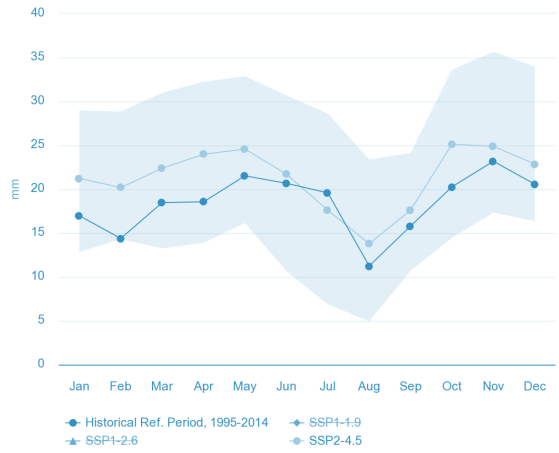
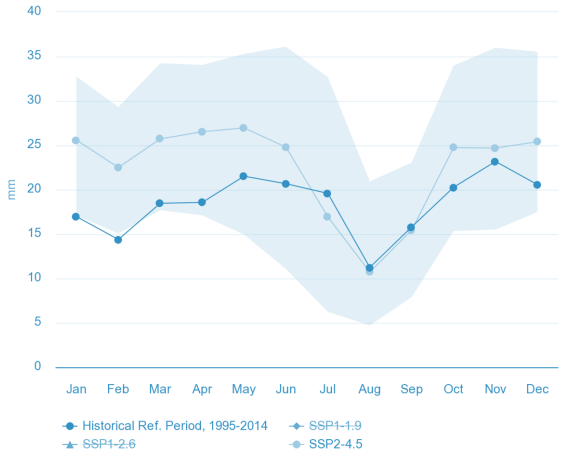


Figure II.1.3. Projected Precipitation Amount During Wettest Days

c. 2040-2059 compared to reference period



d. 2080-2099 compared to reference period



Source: World Bank, Climate Change Knowledge Portal

12. Climate-related hazards have impacted the population and the economy. Erratic weather patterns have resulted in loss of life and income through rising food prices (Table II.1/ Figure II.1). One of the most severe droughts on record occurred in 2007, affecting more than 75 percent of the population and resulting in significant damage to the economy. The following year, floods from torrential rains caused USD 120 million in damage to houses, bridges and roads and flooded 7,500 hectares of agricultural land. Given Moldova's location between the Black Sea and two mountain ranges, Moldova is also prone to hail events, which cause severe localized yield losses.[5]

[5] World Bank, 2019

Table II.1. Natural Disasters in Moldova 1994-2022

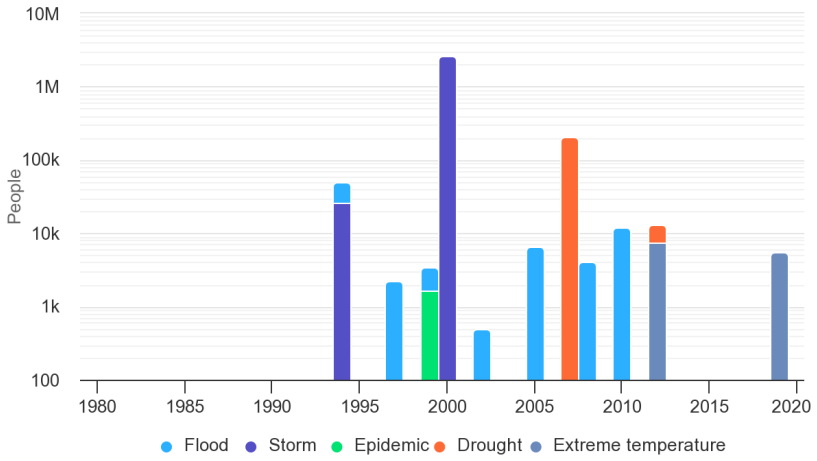
Type	Subtype	Events Count	Total Deaths	Total Affected	Total Damages Adjusted ('000 USD)[3]
Floods	Riverine Flood[2]	4	51	47,500	603,936
	Other	3	10	4,457	99,542
Drought[1]		3	2	216,194	573,051
Storm		2	3	2,625,580	53,704

Source: EM-DAT, the International Disaster Database contains information on natural disasters in the world from 1900 to present. https://public.emdat.be/

Notes: 1/ total damages of droughts for USD 406 million (9 percent of 2007 GDP approximately) only reflects the costs of one event in 2007, information for the other two events is not available. 2/ Total damages for the 1994 riverine flood reached USD 300 million (17 percent of GDP, approximately). 3/ total damages estimates are available for a subset of all the events shown in this table.

13. Climate change-related events pose a major challenge to Moldova's public infrastructure. The multi-faceted impacts of climate change and natural disasters could cause significant damage and disruption to public infrastructure and adversely impact key sectors across the economy, including agriculture, transport, water, and energy. A key infrastructure challenge in Moldova is the disparity between rural and urban areas. Access to adequate infrastructure services such as clean piped water, transportation services, electricity and district heating differs widely between cities and rural regions. For instance, only about ten percent of rural residents in Moldova have access to modern heating compared to nearly 80 percent in urban areas.

Figure II.1. Number of People Affected by Natural Disasters 1980-2020



Source: World Bank

14. The impact of climate change on public infrastructure goes beyond the cost of rebuilding assets impacted by natural disasters. Climate change increases public investment costs, through three channels: 1) the costs of adapting to a changing climate; 2) the costs of mitigating (reducing) GHGs; and 3) transition costs, which are the risks arising from the shift to a low carbon economy due to policy, technological, and other changes e.g., the loss of value of carbon emitting power stations as carbon prices increase due to an emissions trading scheme or carbon taxes. The long lifetime of infrastructure assets means it is important to consider the risk of 'stranded assets.' Stranded assets refer in this context

to infrastructure that is no longer used before the end of its anticipated economic lifetime as the economy transitions away from high-carbon activities. Factors that could lead to assets becoming stranded include new government policies that limit the use of fossil fuels (such as carbon pricing or carbon taxes) or technological developments that change relative costs.

15. Climate-resilient public investments yield multiple benefits and reduce or avoid significant costs from climate change. While climate-resilient infrastructure may not fully eliminate the risk of climate change related disruptions, it will reduce the risks and costs that climate hazards pose for the country and its economy. The risk of climate hazards to public infrastructure can be reduced by climate sensitive spatial planning and construction. The location and design of public infrastructure also affects the risk from climate related hazards for the population and the economy. For example, the location of infrastructure has implications for the severity of and the resilience to flooding events. Finally, public infrastructure has an impact on climate change though the emissions caused by the construction and operation, as well as through externalities, including for example the impact a new road has on traffic flow and thus on emissions. See Box II.2 for the multiple facets of environmental and climate sensitivity, both positive and negative.

Box II.2. Environment, Climate Adaptation and Climate Change Mitigation

As countries increase their focus on sustainability, it is helpful to distinguish policy objectives regarding the environment, climate change mitigation and climate adaptation, and their interaction with public investment.

Improved environmental outcomes have been a focus of government policy for many decades. ***Environmental impact assessment of infrastructure*** typically considers factors such as noise, air quality, water quality, flora and fauna, visual impacts, habitats and could also include socio-economic impacts. A requirement to assess new projects in terms of these impacts is legally enshrined in many countries around the world and there are specific requirements in EU Member States.

Although generally complementary,[6] climate and environment should be seen as distinct issues and the mere adherence to environmental planning regulations will not be sufficient to achieving climate-informed public investment management in the future.

Under the C-PIMA framework, the interactions of public investment and climate change are understood in two ways:

Climate change mitigation refers to actions to limit the magnitude and/or rate of long-term climate change. Mitigation can take two forms:

- Reductions in human-caused emissions of GHGs, for example through a move to renewable energy from fossil-fuel dependence.
- Increases in the use of carbon sinks, for example through afforestation or the use of new carbon-capturing technologies.

[6] There are instances where climate and environment objectives have come into conflict, for example where the construction of electricity transmission lines - which are vital for achieving a shift to renewable energy - have been delayed or cancelled owing to challenges in planning relating to environmental impacts. Hardiman, A, 2022, Climate, Energy – and Environment? Reconciliation of EU Environmental Law with the Implementation Realities of EU Climate Law.

Climate-change adaptation refers to the process of adjustment to actual or expected climate change. Thus, climate-change adaptation requires that the resilience of infrastructure assets to changing conditions is fully understood and appraised when planning, allocating and executing public investment projects.

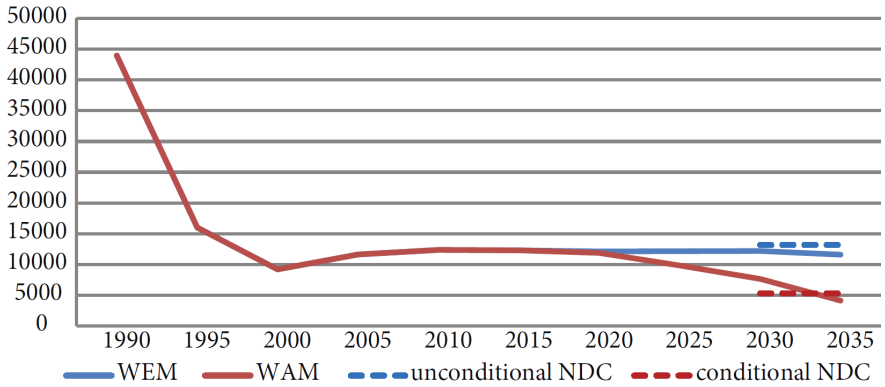
Source: IMF Staff

B. Climate Change Objectives and Strategies

16. Moldova is embracing the need for action to address climate change related challenges despite its small contribution to global emissions. The country's share of global GHG emissions is less than 0.026 percent. In its updated Nationally Determined Contribution (NDC), submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2020, the country has committed to reduce its GHG emissions by 2030 to less than 70 percent of 1990 emission level (unconditional target). With access to international low-cost financial resources, technology transfer, and technical cooperation, the target could aim at a reduction of 88 percent (conditional target) (Figure II.2). While the NDC does not include a net zero target, Moldova aims to become climate neutral by 2050, as expressed in the draft Law on Climate Action[7]. To this end, the NDC highlights adaptation priorities across all sectors, which are derived from the country's Climate Change Adaptation Strategy and the Action Plan for its implementation and from its Fourth National Communication to the UNFCCC. As a Contracting Party of the Energy Community, Moldova has transposed EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources. The 2030 Energy Community target adopted in 2022 sets an objective of 27 percent of the national gross final energy consumption to come from renewable sources.

Figure II.2. Moldova's Total Net GHG Emissions, 1990-2035

Kilotons of Carbon Dioxide Equivalent



Source: Third Biennial Update Report of the Republic of Moldova to the UNFCCC

Note: Total net GHG emissions projections were developed for two scenarios: (1) with existing measures scenario (WEM) and (2) with additional measures scenario (WAM). The business-as-usual scenario (BAU) is not needed due to the fact that Moldova has specified its emissions targets relative to the 1990 reference year.

17. To achieve these objectives, the Government plans to leverage mitigation co-benefits from adaptation actions across key economic sectors. More than 2/3 of the national net direct GHG

[7] Concept of Law on Climate Action, Article 5 on Climate Neutrality and Resilience Objectives.

emissions in 2019 originated from the energy sector, followed by the agriculture, and waste sectors (Figure II.3). Moldova plans to achieve the envisaged GHG emission reduction through coherent and effective adaptive action with mitigation co-benefits. Based on a 2016 World Bank technical assistance report, the 2020 NDC puts total adaptation investment needs at USD 4.22 billion to reach a sustainable social and economic development resilient to the impact of climate change. Out of this, investments of about USD 1.85 billion are being identified as high priority through 2040 (Figure II.4). The largest adaptation challenges and investment opportunities are in the agriculture sector where the rehabilitation and modernization of centralized irrigation systems and drainage infrastructure would make a major contribution to climate change resilience. Investments in flood and water supply and sanitation (WSS) infrastructure in rural areas will also be an adaptation option for improving water supply in the agriculture sector and for the rural population as well, creating resilience to the expected impact of increasing temperatures and erratic precipitation patterns caused by climate change.

Figure II.3 - Breakdown of the Republic of Moldova's Total GHG Emissions
By sectors, 2019

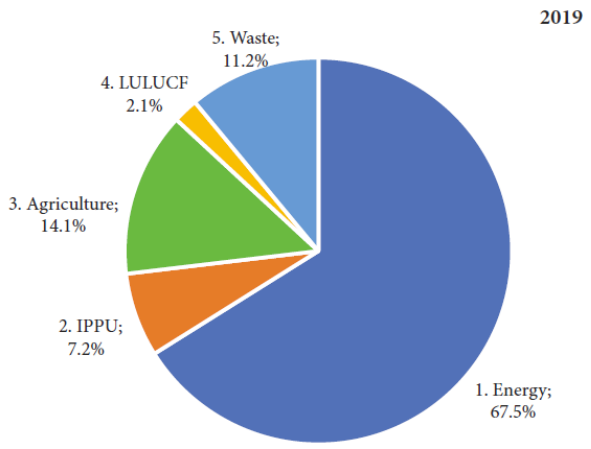


Figure II.4. High Priority Investments in Moldova's Economy's Sectors through 2040
Million USD

Sector	Investment	Investment period	Cost
Agriculture Water Management	Rehabilitate/modernize centralized irrigation systems	2017 to 2040	975
	Rehabilitation/modernization of drainage infrastructure in irrigated areas	2017 to 2026	120
	Institutional reforms/capacity building	2017 to 2024	140
Forestry	Ecological reconstruction of forests	2020 to 2029	91.3
	Ecological reconstruction of forest belts	2020 to 2029	4.9
Health	Heat health warning system	2017+	0.4[45]
Water Supply	Improving municipal & industrial water system efficiency by 10% reduction in loss	2017+	2.8-5.5
	Water storage in Lower Dniester (100 MCM)	2030+?	18.4
	Water storage in Reut (1 MCM)	2020	0.3
Flood Prevention	Structural measures	2020-2040	360.8
	Non-Structural measures	2020-2040	13.6
WSS	Rehabilitation of existing and construction of new WSS infrastructure	2020-2040	409 [350-439]
Disaster Response Management	Improved training facilities; Create N&S Emergency Command Centers; Improved emergency response capabilities	2020	11

Source: Third Biennial Update Report of the Republic of Moldova to the UNFCCC and Updated NDC for the Republic of Moldova
Note: LULUCF = Land Use, Land-Use Change and Forestry Sector; IPPU = Industrial Processes and Product Use

18. In addition to adaptation co-benefits, the government is also working towards increasing renewable energy capacity and containing energy demand. Achieving the envisaged share of renewable sources in energy consumption, as part of the Energy Community related obligations, will require investments in renewable energy capacity. Ensuring the security of supply of energy is an important aspect for capacity expansion. While it is expected that the expansion of production capacity will mostly be undertaken through private investment, public investment will be needed to ensure network stability and flexibility. There is also a need for investments in district heating infrastructure, including the insulation of distribution networks and new heat-generation plants.

19. Moldova is making progress in developing policies and investment measures to support its national climate change objectives. Table II.1 presents Moldova's climate-related policies, plans, laws, and the main stakeholder institutions, that are relevant for the PIM process. Key national and sectoral strategies have either been completed or are near completion. A multi-sectoral coordinating mechanism headed by high-level authorities has been adopted by a GD but is yet to be operationalized and may require a review of the Government decision given the changes in the structure of key ministries. Since 2014, the authorities have also advanced climate policy development through their cooperation with the EU (Box II.2). Moldova has prepared a National Disaster Risk Management (DRM) framework, a National DRM Strategy in 2015, and aimed at transforming the Republican Commission for Emergency Situations into a national DRM platform by revising relevant regulations (see World Bank, 2020). However, the DRM strategy is yet to be adopted. Several important milestones remain to be achieved in 2023, including drafting of the Law on Climate Action and adoption of the Low Emission and the Climate Change Adaptation Programs. With Moldova gaining EU candidate status in June 2022, concrete steps will be identified towards EU integration in all sectors, including climate.

Table II.2. Climate Change Strategies, Laws and Institutions in Moldova

Key Strategies and Plans	Coverage
Nationally Determined Contribution (NDC)	Moldova's updated NDC is a policy document aimed at achieving more ambitious targets than in its first NDC, specifically: (i) an unconditional target to reduce GHG emissions by 70 percent relative to their 1990 levels (compared to 67 percent in the first NDC), and (ii) a conditional target to reduce GHG emissions by 88 percent relative to their 1990 levels (compared to 78 percent in the first NDC). Moldova remains committed to the international agreement on climate change to maintain the average global temperature increase below 2°C. The country's climate change adaptation vision incorporates the concept of integrating climate adaptation into medium- and long-term development planning to foster adaptation action. It also aims to integrate climate risks into investment decision-making and business planning with the view to increase the resilience of economic sectors, land use and ecosystems, thereby accelerating the country's transition towards low carbon and resilient development.
Low Emission Development Program (LEDP)	Moldova's new LEDP up to year 2030 is aimed at achieving the GHG emission reduction targets set out in the country's updated NDC. The LEDP and the action plan for its implementation are undergoing internal consultations and are expected to be approved by Government in the second half of 2023. The LEDP identifies the key actions for key sectors of the economy[8] with a view to reducing GHG emissions relative to their 1990 level, emphasizing energy efficiency, developing renewable energy sources, application of performing cement and glass producing technologies, conservative agriculture, afforestation and efficient waste management. It will replace the existing (2016) LEDP.
National Climate Change Adaptation Program (NCCAP)	Moldova's new NCCAP up to year 2030 sets objectives aimed at increasing the climate resilience of six priority sectors: agriculture, health, transportation, energy, water, and the forestry sector. It is accompanied by an action plan for preventing and overcoming risks and vulnerabilities caused by climate change. The NCCAP and the action plan for its implementation are undergoing internal consultations and are expected to be approved by Government in the second half of 2023. It will replace the existing (2014) NCCAP.
National Development Strategy (NDS)	The National Development Strategy "European Moldova 2030" is a strategic document that outlines Moldova's poverty reduction strategy and long-term development vision. The strategy establishes ten general objectives that aim to bring Moldova closer to the

[8] Agriculture, energy, forestry, health, transport, and water.

	European Union standards, while recognizing that climate change poses risks and opportunities and that these need to be assessed as part of Moldova's development agenda. The National Development Plan (NDP) operationalizes the NDS over a three-year period. The NDP 2023-25 includes a climate change perspective.
Sector Strategies	Moldova has adopted the Strategy for Agriculture and Rural Development 2023-30, and is in the process of finalizing other strategies that are aligned with the NDS and which have implications for the NDC, including: (i) the Energy Strategy 2050 (concept note) which will build on the Energy Strategy 2030 adopted in 2013; (ii) the Mobility Strategy 2023-30 (planned by the end of 2023); and (iii) the Health Strategy 2030 (draft).
Climate Change Coordinating Mechanism	The Climate Change Coordinating Mechanism was approved by GD 444 in 2020 to ensure cross-sectoral coordination of all climate-related aspects, including adaptation and mitigation. The aim of the Mechanism is to foster dialogue, coordination, collaboration, and coherence across sectors and to oversee reporting on the planning and implementation of climate change adaptation actions by all stakeholders.
Key Laws	**Coverage**
Law on Climate Action	A draft climate law is being developed with the support of development partners and is expected to fully transpose EU climate legislation, enabling low carbon development and climate change resilience. It will establish a mechanism to implement strategies, policies and measures designed to meet the long-term and the intermediate GHG emission reduction objectives and targets for 2030 and beyond. The climate law will also establish a framework for enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change (in compliance with Article 7 of the Paris Agreement), as well as a mechanism to implement strategies, policies and measures towards achieving the national adaptation goal.
Institutions	**Climate Related Responsibility**
National Commission on Climate Change (NCCC)	The Climate Change Coordinating Mechanism provides the legal basis for establishing the NCCC as an inter-institutional body for the purpose of coordinating and promoting the measures and actions necessary for the unitary application of the provisions of the UNFCCC and of the Paris Agreement. Despite having a legal framework, the NCCC is yet to be formed.
Line Ministries	The Ministry of Environment, as coordinator, is responsible for monitoring, reporting and verifying the actions provided for by the LEDP. The Ministry of Energy, the Ministry of Finance, the Ministry of Education and Research, the Ministry of Infrastructure and Regional Development, the Ministry of Agriculture and Food Industry, the Ministry of Economic Development and Digitalization are the key line ministries involved in the implementation process. Under the NCCAP, the planning and implementation of climate change adaptation measures is a shared responsibility and requires the involvement of key public authorities, institutions subordinated to them, local public authorities, the private sector and civil society (also reflected in the composition of the NCCC).
Ministry of Finance	The Ministry of Finance plays a key role in planning for Moldova's adaptation and mitigation, as all national and sectoral priorities are defined and implemented through specific budget allocations that can facilitate the integration of the climate into actions at different levels of government.
Local Governments	At the local level, most districts and localities have socio-economic development plans, in which some activities and targets could be affiliated with adaptation to climate change. Some localities have submitted action plans for sustainable energy and climate, which are supported by the Covenant of Mayors, but adaptation to climate change is not explicitly addressed.

Note: grayed out rows signal documents that have not been adopted/approved or institutions not operationalized. Hyperlinks to official documents are provided in the text.

Source: IMF Staff, based on mission meetings and documentation provided by authorities.

Box II.3. Climate Change Related Obligations Under EU Cooperation

The Association Agreement between the European Union and the Republic of Moldova is a treaty that commits Moldova to economic, judicial and financial reforms to converge its policies and legislation to those of the EU. The chapter on climate change focuses on actions in six areas: (i) mitigation; (ii) adaptation; (iii) carbon emission trading; (iv) research, development, implementation and other related issues; (v) integrating climate aspects into sectorial policies and (vi) awareness-raising, education and training. The treaty is accompanied by an implementation Program of Action for European Integration: Freedom, Democracy, Welfare, which addresses adaptation to climate change and sets the framework for the congruence of Moldovan policies with European ones.

2014	▪ Association Agreement with the EU ▪ 3rd National Communication submitted to UNFCCC ▪ National Adaptation Strategy until 2020
2015	▪ Intended National Determined Contribution (INDC) 2016-2030 ▪ COP21 Paris Agreement ▪ Pledge to Sustainable Development Agenda 2030
2016	▪ Biennial Update Report 1 (BUR) submitted to UNFCCC ▪ Adopted LEDS (2016-2030) ▪ Revised National Renewable Energy Action Plan (NREAP) (2018-2020)
2017	▪ Low Emission Development Strategy (LEDS) 2030 entered into force ▪ Ratification of Paris Agreement ▪ Third GHG Inventory submitted to UNFCCC
2018	▪ Environment Agency set up ▪ 4th National Communication submitted to UNFCCC ▪ National Measurement, Reporting and Verification (MRV) System set up ▪ BUR2 submitted to UNFCCC
2019	▪ EU4Climate launched ▪ 3rd National Energy Efficiency Action Plan (NEEAP) (2019-2021)
2020	▪ Updated NDC (2021-2030) ▪ NAP 2 launched
2021	▪ Draft updated LEDS 2030 ▪ Enhanced Transparency Framework ▪ BUR3 submitted to UNFCCC ▪ Ministry of Environment set up
2022	▪ F-gases Law adopted ▪ National Development Strategy “European Moldova 2030” adopted ▪ MRV implementation capacity building ▪ Roadmap for Moldova alignment with climate acquis
2023	▪ Adoption of the Low Emission Development Program until 2030 and the Action Plan for its implementation ▪ Adoption of the National Climate Change Adaptation Program (until 2030) and the Action Plan for its implementation ▪ F-gases Law adopted ▪ Climate law designed ▪ NECP designed ▪ 5th National Communication submitted to UNFCCC ▪ Drafted Climate Law Concept ▪ Ministry of Energy set up

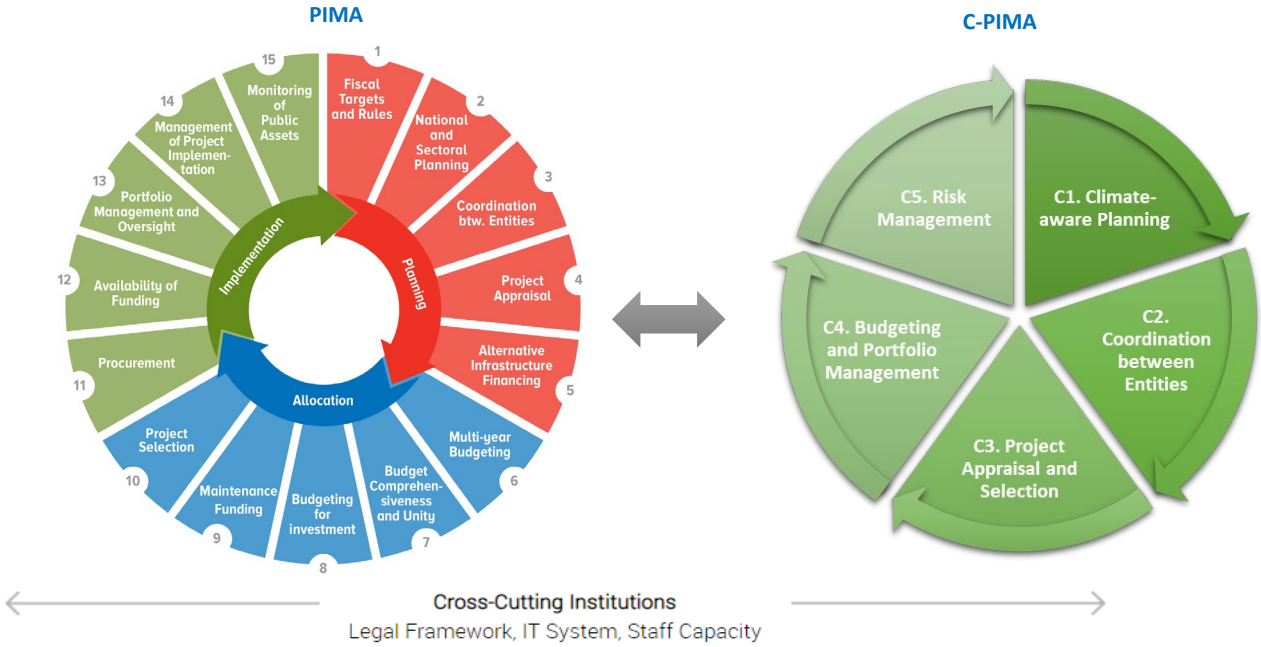
Source: EU4Climate

III. Moldova: Climate PIMA

A. Climate PIMA Framework

20. The Climate PIMA assesses five key public investment management practices from the climate change perspective and is an extension of the existing PIMA framework. Figure III.1. describes the main elements.

Figure III.1. Climate Public Investment Management Assessment Framework



Source: Strengthening Infrastructure Governance for Climate-Responsive Public Investment, IMF 2021

21. The Climate PIMA covers the following specific issues (see Annex II for the C-PIMA Questionnaire and Annex III for the detailed C-PIMA scores):

- ***C1. Climate-aware planning****:* Is public investment planned from a climate change perspective? This is necessary to ensure that long- and medium-term plans contribute to meeting climate objectives and facilitate effective prioritization and decision-making.
- ***C2. Coordination across public sector****:* Is there effective coordination of decision making on climate change-related public investment across the public sector? In addition to the central government, subnational governments (SNGs), PCs and private sector entities play key roles in realizing climate-related public investment.
- ***C3. Project appraisal and selection***: Do project appraisal and selection include climate-related analysis and criteria? This is necessary to ensure that the most effective and efficient investments are prioritized and serves to maximize the climate impacts of public investments with available resources.

- ***C.4 Budgeting and Portfolio management****:* Is climate-related investment spending clearly identified in the budget and subject to active management and oversight? Because the climate benefits may be less tangible and more difficult to quantify than other project benefits, systematic and consistent management, and oversight of benefits over the project lifecycle is critical.
- ***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? The likelihood of climate related disasters is expected to increase over time. The impacts of these risks on public infrastructure must be systematically assessed and monitored, to facilitate adequate and effective risk mitigation.

B. Detailed Assessment – Moldova

C1. Climate Aware Planning (Strength—Medium; Reform Priority—Low)

22. Public investment has been systematically planned from a climate change perspective at the national level, but sector strategies are still under development. The 2015 NDC targets are reflected in and/or consistent with the previous NDS (Moldova 2020), the Climate Change Adaptation Strategy (2013), the Strategy and Action Plan for Low-Emission Development (2016) and the Program on Promotion of Green Economy (2018). The NDS does not provide guidance on specific public investments, but the other long-term strategies mentioned above do. The NDC targets are not systematically reflected in existing sector strategies, which generally predate the national climate planning documents, although they may include some general references to climate considerations. There are no specific provisions for climate risks and vulnerability in spatial planning or construction legislation, but there is a legal provision that "Definitive or temporary construction bans can be established through urban planning… Definitive construction bans should be established for …. predictable natural risks: floods, landslides, land deformations caused by surprise, etc".[9] Currently, central authorities do not provide systematic guidance to government entities on developing climate relevant public investment.

23. The NDS Moldova 2030 reflects the updated NDC targets from 2021 and forms the basis for a new generation of climate and sector plans. The NDS 2030 is a high-level strategy, but the NDP 2023-25 includes specific major projects. Updated National Climate Adaptation and Low Emission plans are currently subject to public consultations and are expected to be issued during 2023. Key sectors, including agriculture, energy, transport, and regional development, are updating their plans with a clear objective of ensuring consistency with the relevant NDC targets, EU accession commitments, the National Climate Adaptation plan, and the Low Emission plan. The legal and regulatory framework for spatial planning and land use planning is also being updated, including a new Spatial plan for Moldova with sub-sections covering water and sanitation, roads, energy, and a new Construction Code. See Table II.2 above for a description of the different planning documents.

24. Improvements in climate-aware planning are a low priority. This process is already well underway and will necessarily take some time to finalize. It will be critically important to ensure that there is consistency between the different strategies and plans and that they provide adequate guidance on development of public investment projects. This may require some iterations in the planning process. To

[9] Law 835/1996 on Principles of Urbanism and Regional Development, article 47.

be effective, the national and sector plans should identify major public investment projects with indicative costing and planned outputs and outcomes.

C2. Coordination Between Entities (Strength—Low; Reform Priority—Medium)

25. There is limited coordination of decision making specifically on climate change-related public investment across central government. The planning and implementation of climate change adaptation measures in Moldova is a shared responsibility and requires the integration by key line ministries of adaptation measures in sector policies. The State Chancellery (SC) actively monitors the inter-ministry working group processes that develop strategies and policies including cross-cutting issues such as climate and is also involved in reviewing spending strategies that accompany the MTBF. The Ministry of Environment leads inter-departmental working groups that are finalizing the LEDP and the NCCAP. However, there is little project-level information and no project-related decisions are taken in either of these processes. The NCCC was established in July 2020 (GD 444/2020) to coordinate climate change adaptation and mitigation across central and local government, headed by the Minister of Agriculture, Regional Development and Environment but the necessary actions to implement the Decision were not taken and the Commission has not met.

26. The budget preparation process does not support coordination across central government with respect to climate-related public investments. MoF has a key coordinating role to play as national and sectoral climate priorities are implemented through budget allocations (Annex IV). However, at present the annual Budget Circulars do not refer to climate policies or commitments or require ministries to provide any climate-related information in their budget submissions. Nor has MoF put in place requirements or guidance with respect to key climate parameters for the appraisal of new projects, such as a shadow carbon price. The general process for externally financed projects is that they be reviewed by MoF and must be approved centrally, by the Inter-ministerial Committee on Strategic Planning. However, there is no climate-related element to this process from the government side, even though development partners supporting public infrastructure projects may have requirements on climate change mitigation and adaptation.

27. Climate change considerations have not been incorporated in the oversight framework for local governments. While local governments are required to submit their proposed new public investment projects to MoF for review and discussion if they require borrowing or central government support, to date this process has not incorporated climate considerations. The mandated role of the MoF is to authorize the local government to enter into a loan agreement with a commercial bank, or to sign the agreement on behalf of the local government with an international institution. Moreover, the formula used to allocate capital transfers to local governments does not incorporate a climate-relevant parameter, which is an approach to coordination of climate policies taken in some countries (Annex V).

28. Climate considerations have begun to influence investment by public corporations. The energy sector is the main driver of GHG emissions in Moldova and is regulated and monitored by the National Agency for Energy Regulation (ANRE). Following passage of the Law on the Promotion of Renewable Energy in 2018 (which harmonized Moldovan law with that of the EU) ANRE has approved 15-year contracts for smaller scale producers at a stable tariff, which contributed to the rapid rise in renewable energy production, consistent with the government's 2030 target of 27 percent of energy produced by renewables. The Ministry of Energy is currently finalizing the policy framework to implement

large scale renewable contracts. ANRE has started introducing climate change considerations in the regulatory framework. Regulated entities must submit development plans for the next 3-10 years (depending on the sector) and annual investment plans to ANRE for approval. Their activities and claims for approval of costs are required to be consistent with the approved plans. ANRE incorporates indicators for renewable energy and energy efficiency in the review process of this documentation. With respect to adaptation, transmission infrastructure is exposed to damage from high winds and icing and has resulted in changes in the specifications for overhead power lines. Infrastructure in generation and transmission has been upgraded to increase resilience to climate-related impacts. The PPA reviews the economic viability of major planned investment projects of all public corporations including those in the energy sector. This review incorporates the result of the EIA (which might include project impact on GHG emissions) but does not at this stage consider transition risks such as the possible future level of carbon prices or changes in technology or policy that could negatively impact on the economic viability of the project and potentially result in 'stranded assets' (paragraph 14).

29. Initiatives to strengthen coordination across the public sector on climate change mitigation and adaptation are a medium priority. The annual budget process is a key mechanism to aggregate information on climate change in relation to public investment management. Information on climate-related investments could be strengthened through requirements in the budget circular and as part of the approval process of external financing. Developing general guidance on key climate considerations to be used across government for project preparation and appraisal would enhance comparability and consolidation of climate impacts from projects being funded through the budget (Box III.1). The PPA's review function should include a more comprehensive analysis of climate considerations.

Box III.1. Examples of Government Actions to Enhance Coordination on Climate Change

There are different actions that Moldova could adopt to enhance coordination on climate change across government, which include leveraging existing or developing new processes. Examples to consider are:

- *Consolidate information on climate-related initiatives.* The budget circular regulating the submission of detailed budget proposals should incorporate guidance and instructions on the presentation of investment spending on major projects from a climate change perspective. Line ministries sponsoring new major projects should be required to provide data on the estimated climate impacts (e.g., on GHG emissions) and climate vulnerability of these new projects when they are first incorporated in the state budget.

- *Leverage international expertise.* Major climate change-related projects are likely to be financed by development partners, which might already include climate considerations in the project preparation documentation or have more expertise in preparing such information. Requiring that new externally financed projects assess climate considerations could strengthen the project appraisal process.

- *Develop specific guidance on climate-related issues for project planning, preparation and implementation.* Both central and decentralized levels of government would benefit from guidance (e.g., in an extended Circular) that details in general terms how to incorporate climate change adaptation and mitigation into the PIM cycle. This could also include pre-defined climate-related parameters, such as a shadow carbon price, to be used when appraising major projects. This would

improve coordination within and across levels of government. It would also contribute aggregation of the anticipated impact on GHG emissions of the new major projects being funded in the annual budget and support enhanced reporting on climate-relevant spending in the budget (see discussion in C.4.a).

- *Complete harmonization of Moldova's climate policies with EU policies.* This process should result in some direct alignment of local government climate targets with central government climate goals and targets relating to GHG emissions, renewable energy, energy consumption, and energy efficiency. Many local governments in Moldova are members of the EU Covenant of Mayors for Climate & Energy, which brings together thousands of local governments voluntarily committed to implementing EU climate and energy objectives.[10]

- *Enhance transparency and reporting on climate-related issues.* In addition, consideration could be given to requiring public corporations to publicly disclose climate-related information about their activities, such as their GHG emissions.

Source: Mission staff

C3. Project Appraisal and Selection (Strength—Low; Reform Priority—High)

30. The formal project appraisal process is designed to incorporate some aspects of climate change. The design of the process enables but does not yet fully implement the mainstreaming of climate mitigation and adaptation into project appraisal. GD 684/2022 defines the PIM process for all public investment projects. Under this unified process, climate impact as well as climate vulnerability considerations are introduced in the project appraisal as well as in the project selection process.

- **Climate impact in the project appraisal process**. GD 684/2022 defines the PIM process for all public investment projects. Under this unified process, climate impact as well as climate vulnerability considerations can be introduced in the project appraisal as well as in the project selection process. Article 22 (7) of GD 684/2022 and the PIM instructions (MoF Order 185-2015) require that all projects are subject to an environmental impact assessment (EIA) and Article 4(1)b of the 2014 EIA law (Law 86/2014), provides that the EIA covers climate-related aspects. The Ministry of Environment Order 1-2019 enacts the EIA guidelines, which define if and how climate aspects should be covered to provide a forecast of the project's effects on climate conditions and climate change.

- **Climate vulnerability in the project appraisal process.** A cost benefit or cost-effectiveness assessment is required under GD 684/2022 and Annex 1 to the law provides some guidance on how to perform such an assessment, though not enough on whether and how to incorporate climate change considerations. However, the GD requires a risk assessment – with Annex 1 of the GD providing further details on the assessment - including (i) the identification and description of all significant risks and uncertainties, (ii) risk scenario analysis, and (iii) proposals for risk monitoring and

[10] https://com-east.eu/en/about-us/covenant-of-mayors-east/moldova/ Signatory cities pledge action to support implementation of the EU 40 percent greenhouse gas-reduction target by 2030 and the adoption of a joint approach to tackling mitigation and adaptation to climate change.

risk mitigation measures. Though the law does not explicitly mention climate risks, it stipulates, that where significant, these risks should be included in the assessment.

31. The integration of climate change considerations in project appraisals could be strengthened by quantifying the costs and benefits of GHG emissions increases or emissions abatement caused by a project.[11] The current procedures for pricing pollutants could be improved to better reflect climate implications. The MoF is in the process of preparing a ministerial order on instructions for the appraisal of public investment projects, including guidance on cost benefit analysis. The costs considered in the assessment include emission charges.[12] However, key GHGs (CO2 and CH4 (methane), which are usually responsible for 3/4 or more of GHGs) are not included in the pollutants list. If GHGs were included in Law 1540-1998 and relevant regulations for emission charges and priced in line with their cost (social or abatement), the emission charges would provide a good first entry point for reflecting the climate implications of an investment project in the project appraisal. In the absence of an appropriately priced emission charge, a shadow price for GHG emissions could be included in the project appraisal to ensure that the climate implications are taken into consideration when assessing individual projects or when comparing project options (Annex VI). In 2019 the EBRD introduced a methodology for including carbon shadow prices in appraisal of major investment projects.[13] This approach already applies to major EBRD-financed projects in Moldova and could be extended to cover other projects with major GHG emissions. As an immediate but preliminary step, the impact of a project on GHG emissions could be rated according to a traffic light system, indicating whether a project has a negative, neutral, or positive impact on GHG emissions. Such a system could be refined as experience is gained.

32. The project selection procedure does not take into account climate aspects. The PIM instructions (Annex 5 of MoF Order 185-2015) provides for a scoring system, based on which capital investment projects are approved. However, the scoring is based on fulfilling formal requirements related to documenting project appraisal, with a focus on ensuring the readiness of projects for implementation rather than the prioritization of projects. Climate or environmental implications of projects or their vulnerability to climate hazards and climate change are not taken into consideration in the scoring.

33. Climate considerations should be explicitly included in project selection. A climate hazard vulnerability assessment should be mandatory (i) for projects above a certain value, (ii) for projects that tend to be vulnerable to climate related hazards, and (iii) for infrastructure that would be constructed in an area that is known to be subject to climate related hazards or expected to become subject to such hazards during the useful life of the infrastructure under consideration. The additional cost to be expected from vulnerability to current hazards and from the future impact of such hazards, which may be affected by climate change, should be considered as part of the cost benefit analysis. Given the uncertainty around climate projections (see section on climate situation and projections) and the implications different climate outcomes would have on climate related hazards, scenarios including reasonable extreme

[11] Directive 2011/92/EU of the European Parliament and of the Council (amended in 2014 by Directive 2014/52/EU) requires an assessment of the likely significant environmental effects of certain projects. Under Article 5(f) of the 2014 Directive, the EIA process includes an assessment of the impact of projects on climate (e.g., GHG emissions) and their vulnerability to climate change.

[12] Article 3(1)f of the 2014 EIA law provides for the polluter pays principle. Article (6) of Law 1540-1998 (amended in 2021), regulates that immobile polluters pay for emissions to the atmosphere based on the volume of the pollutant that is released, the aggressiveness of the pollutant, and the geographical location.

[13] https://www.ebrd.com/news/publications/institutional-documents/methodology-for-the-economic-assessment-of-ebrd-projects-with-high-greenhouse-gasemissions.html

outcomes should be run and their financial implications should be assessed. Defining methodologies and building capacity for making decisions under uncertainty (Box III.2) will be an important task for line ministries promoting projects as well as for the MoF to be able to assess project proposals.

Box III.2. Investment Decisions Under Increasing Uncertainty

When designing climate-sensitive investments, it is usual to use historical weather and climate data. Engineers use it in the design of infrastructure and buildings, the insurance industry to calculate premiums and capital needs, and farmers depend on it to choose crops and scheduling. Even national governments base their assessments of energy security requirements on such data. With the projected changes in climate, however, historical data is no longer as useful for planning.

Ideally, there would be well-behaved climate models that allow to produce climate statistics for the future. Unfortunately, two problems make it impossible to provide the equivalent of historical climate data for future climates:

First, there is a scale misfit between what can be provided by climate models (resolution of ~50 km for physical downscaling and ~ 10 km for statistical downscaling) and what is needed by decision-makers.

Second, and most importantly, climate change uncertainty is significant, due to both the inherent uncertainty of the earth's climate system and the limited understanding of that system as represented in climate model projections.

However, many decisions come with a long-term commitment and can be very climate sensitive. Examples of such decisions include urbanization plans, risk management strategies, infrastructure development for water management or transportation, and building design and norms. These decisions have consequences over periods of 50 to 200 years (see table). Urbanization plans influence city structures over even longer timescales. And infrastructure and urban plans influence the spatial distribution of activities even beyond their lifetime.

Table III.1. Illustrative List of Sectors with High Inertia and High Exposure to Climate Conditions

Sector	Time scale	Exposure
Water infrastructures (e.g., dams, reservoirs)	30–200 yr	+ + +
Land-use planning (e.g., in flood plain or coastal areas)	>100 yr	+ + +
Coastline and flood defenses (e.g., dikes, sea walls)	>50 yr	+ + +
Building and housing (e.g., insulation, windows)	30–150 yr	+ +
Transportation infrastructure (e.g., port, bridges)	30–200 yr	+
Urbanism (e.g., urban density, parks)	>100 yr	+
Energy production (e.g., nuclear plant cooling system)	20–70 yr	+

Source: World Bank

Forecasting long-term climate conditions

Climate models cannot predict with certainty climate projections and their implications. It is therefore essential not to over-interpret the results of these models over the short-term, and not to use their output as forecasts, without considering natural variability.

Reflecting uncertainty in project selection

Accepting uncertainty mandates a focus on robustness. A robust decision process implies the selection of a project or plan which meets its intended goals – e.g., increase access to safe water, reduce floods, upgrade slums, or many others– across a variety of plausible futures. As such, an initial step is to identify the vulnerabilities of a plan (or set of possible plans) to a field of possible variables. Then a set of plausible futures should be identified, incorporating sets of the variables examined, and evaluate the performance of each plan under each future. Finally, those plans that are robust to the more likely futures or otherwise important to be considered are identified and project design and selection can then be based on cost benefit considerations.

Source: World Bank

34. The PPP law does not include explicit consideration of climate change for risk allocation or contract management. However, according to the PPP Law (Law 179-2008) environmental aspects

are to be covered for project assessment and as part of the tender award process. The PPP law excludes regulatory changes in environmental norms from right of financial compensation for the private partner, thereby allocating the responsibility for environmental obligations to the private partner.

35. Given the long-term nature of PPPs and the expected aggravation of natural hazards due to climate change, the PPP framework should address long-term implications of climate change on the project. The framework would be strengthened by ensuring, possibly as part of implementing regulations, (i) that climate change related risks are explicitly covered and efficiently allocated as part of PPP contracts, and (ii) that the government has procedures in place for managing climate related aspects as part of PPP contracts (Annex VII).

36. Initiatives to integrate climate change adaptation and mitigation into project appraisal and selection are a high priority. The need to update MoF Order 185/2015 to ensure consistency with the GD 684/2022 offers an opportunity to strengthen the analysis of climate change-related implications for investment projects as well as to integrate climate considerations in project selection. This would ensure that the contribution of important public investment projects to the government's climate objectives, i.e., mitigation, adaptation, and transition, is well understood before a project is being approved. This information will be key for the government to manage its climate objectives proactively by identifying and selectin projects with their climate implications in mind. At the same time, reflecting the costs of climate change implications on projects and assets in the CBA, i.e., undertaking a climate vulnerability assessment, will allow the government to manage fiscal risks and cost related to the exposure of key projects and assets to climate change.

C4. Budgeting and Portfolio Management (Strength—Low; Reform Priority—High)

37. There are no mechanisms in place to ensure systematic management and oversight of climate-related investment. Budget documents do not indicate which programs or budget items are particularly climate relevant. Some potentially climate relevant programs or projects can be identified ad hoc based on the names, for instance *sub-program 6405 Development of railway transport* under the Transport Ministry, but this is not systematic. There is no legal or regulatory requirement for systematic ex-post review or audit of climate outcomes of investments. MoF order 185/2015 did require ex-post review and audit of major projects, and if projects have clear climate objectives these should be considered. However, so far there are no examples of such ex-post reviews or indications that such are conducted. Entities have asset registers, but these are often quite rudimentary, accounting registers and do not identify asset condition, climate vulnerability or risks. The PPA consolidates asset registers across central government and public corporations, but this does not include information that can be used to assess aggregate climate resilience or plan maintenance. Both the State Road Administration and Moldelectrica indicated that asset registers were maintained locally and not consolidated within the agency/corporation. Despite this, both the State Road Administration and Moldelectrica have long-term maintenance plans, based on occasional surveys.

38. There are no ongoing activities to strengthen climate-relevant budgeting and portfolio management. The United Nations Development Program has suggested the development of a climate tagging system in the budget, which would add codes for climate relevance to the current budget classification structure. MoF has indicated that this is not feasible due to technical limitations on the length of codes in the budget information system.

39. Improvements in budgeting and portfolio management are a high priority. Efforts to identify climate relevant spending in the budget should be justified by and be consistent with the expected benefits, and not be a technical exercise. A simple mechanism to identify budget programs and projects with major climate impacts should link these to NDC targets and could be introduced without any new coding scheme. If Moldova develops green bonds or similar instruments, the climate impact identification mechanism should be extended to reflect the eligibility thresholds for funding from these instruments. e.[14] Over time, budget programs and items could be realigned to reflect major climate impacts. GD 684/2022 reiterates the requirement for ex-post review of major projects, and it will be important to ensure that this is consistently applied and includes climate change elements where relevant. Efforts to improve asset registers will require improvements both at the decentralized and central levels and is likely to be a long-term endeavor, but it is important to initiate the process. Box III.3 describes the EU common methodology for tracking of climate-related expenditure.

Box III.3. Common EU Methodology for Tracking of Climate-related Expenditure

Tracking climate expenditure under the EU budget provides the means of assessing and monitoring progress towards the political commitment to devote at least 20 percent of the EU budget in support of climate change objectives. The common methodology allows the amount of the EU budget that is allocated and spent towards the achievement of climate mitigation and adaptation objectives to be quantified. The common methodology builds on the existing OECD Rio Markers approach already used by the Commission in the area of external aid.

- A 100 percent climate marker applies to expenditure supporting climate action as the primary objective. This means climate action is fundamental to the design and impact of the activity and is an explicit objective of the activity; e.g. wind farms, energy efficiency, adaptation to climate change measures, cycle tracks.
- A 40 percent climate marker applies to expenditure where climate action is a significant, but not predominant objective. Climate action, although important, is not the principal reason for undertaking the activity; e.g. air quality measures, enhancement of biodiversity, sustainable transport modes, such as railways, inland water ways, clean urban transport systems.
- A 0 percent climate marker applies to expenditure that does not target climate action, e.g. motorways and roads, airports, waste management

Source: The common methodology for tracking and monitoring climate expenditure under the European Structural and Investment Funds (2014-2020)

C5. Risk Management (Strength—Low; Reform Priority—Medium)

40. Moldova does not have a national DRM strategy linking climate-related hazards to the exposure of public infrastructure assets. In 2015 Moldova signed the UN Sendai Framework for Disaster Risk Reduction 2015-2030 and a national strategy on disaster risk reduction (NSDRR) was developed in 2015 but was not approved. Disaster management remains focused more on post-disaster recovery rather than measures to reduce the risk or impact of future disasters, although investments have been made in early warning systems.[15] GIS mapping of single hazards such as flood maps are also available, but these have not yet been linked to the physical location of infrastructure assets to enable analysis of asset exposure, vulnerability, and actions to reduce vulnerability, and have not been recently updated. A flood protection investment plan was developed previously but was not implemented (see

[14] It is reasonable to assume that green investors will want funding to be allocated to clearly identifiable projects and programs with significant impacts.

[15] Strengthening Moldova's disaster risk management and climate resilience, World Bank GFDRR, June 2020.

World Bank, 2020). Box III.4 presents the case of Nepal which is considered a good example of incorporating public investment considerations into disaster risk management.

Box III.4. Incorporating Public Infrastructure in Disaster Risk Management

Nepal's Disaster Risk Reduction National Strategic Plan of Action 2018-2030 and sector strategies identify and analyse the main climate-related risks to public infrastructure and include plans to mitigate and respond to these risks. These documents contain considerable discussion of the exposure of public infrastructure to the main climate-related disasters (floods and landslides) as well as plans to increase their resilience e.g., by retrofitting irrigation systems, government buildings, and water management infrastructure and building riverbank protection. The National Strategic Plan also contains a section on 'Promoting Build Back Better' in recovery, rehabilitation, and reconstruction. This refers to enforcing guidelines for resettlement and rehabilitation of infrastructure; preparing guidelines, policies, and institutional structures to make reconstruction more resilient; and promoting research and development of construction technology, infrastructure design and management for building back better in disaster risk reduction and climate change adaptation.

Following major flooding in 2017 the Post Flood Recovery Needs Assessment contained detailed analysis of the exposure of public infrastructure (mainly irrigation systems and road infrastructure) to flooding. The assessment discussed the need for repairs and reconstruction to be done in ways that reduce the exposure of public infrastructure to flood damages e.g., increase in the length and height of bridges, improve drainage through planning location of roads and increasing the number and width of culverts. In the water and sanitation sector the assessment referred to raising the level of hand pumps and deepening tube wells. Many mitigation actions had already been taken. For instance, early warning system for floods on rivers has worked well, and infrastructure in the road and water supply and sanitation sectors has been rebuilt to higher standards to withstand floods.

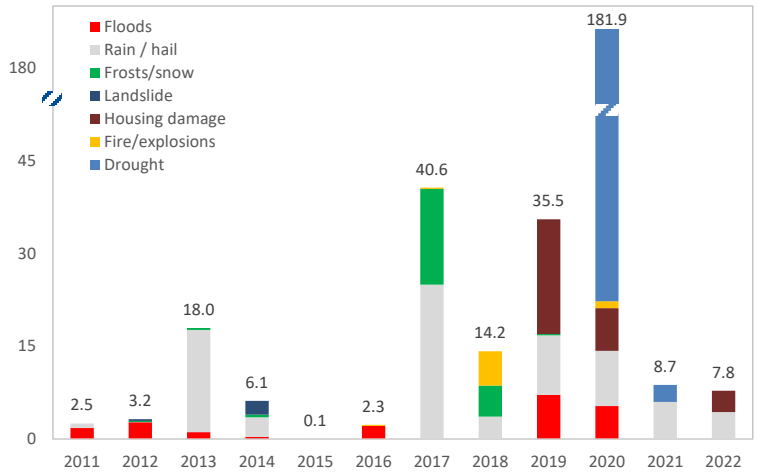
Source: IMF staff

41. There is a budget mechanism to meet some of the costs of disaster-related damages to infrastructure. There are two emergency funds in the central government's budget (the Intervention and the Reserve Fund) that are available, among other things, to respond to unexpected and exceptional financing needs that arise during the budget year.[16] They are increased through in-year supplementary appropriations when required and actual spending has averaged 1.2 percent of the total state budget spending over the last three years, when the country has been affected by substantial external shocks, not necessarily related to natural disasters. The government also requests support for disaster recovery from the international community, but the absence of loss and damage assessments limits this support.[17]

16 Local government budgets also have budget lines to meet unexpected and exceptional costs including those arising from climate-related disasters.

17 World Bank 2020, p. 35.

Figure III.2. Spending on Climate-Related Disasters from Emergency Funds



Source: MoF, Staff Estimates
Note: Graph not drawn to scale

42. The Note on budgetary-fiscal risks discusses the costs from disasters financed from emergency but does not refer specifically to damage of public infrastructure. Since 2017 the MoF has published a Note on budgetary and fiscal risks as part of the budget documents. The 2022 Note contained a general description of the amounts allocated to and spent from the emergency funds and the purposes for which they were spent.[18] The Note also included an extended section on financial risks from public corporations, but this did not cover risks to their infrastructure assets. Many countries now include an extended discussion of fiscal risks from disasters in their annual Fiscal Risk Statements while others are conducting detailed estimation of the fiscal risks. Box III.4 contains some details for the Philippines and Georgia.

18 Note on budgetary-fiscal risks, 2022, section 2.6 Other risks.

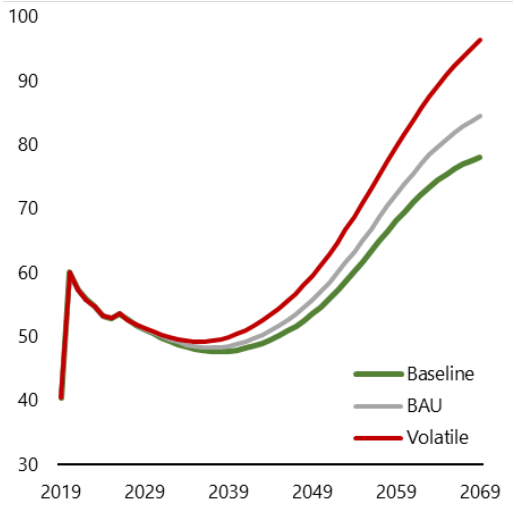
Box III.5. Climate change fiscal risk analysis in the Philippines and Georgia

The *Philippines* published its first Fiscal Risk Statement in 2011, including a section on fiscal risks and costs from natural disasters. This addressed notably climate-related disasters such as typhoons and floods. The annual Statement has been progressively enriched since 2011. The latest statement (2023) contains the following information on disasters:

- Country exposure to disasters
- Incidence of typhoons
- Impacts of disasters, including estimated cost of damages to infrastructure
- Slow-onset disasters from climatic changes
- Data on the National Disaster Risk Reduction and Management Fund
- Disaster Risk Financing and Insurance Strategy
- Climate change policies and initiatives

In *Georgia*, the Ministry of Finance, with the support of IMF technical assistance, assessed the fiscal impact of climate change from three complementary perspectives. They first examined the growing impact of higher temperatures on the macroeconomy through lower productivity and its consequences for public finances. Second, they then modelled the fiscal cost of more frequent and severe natural disasters, particularly floods, landslides, and droughts, which Georgia is already predisposed to. Third, they qualitatively reviewed climate change-related discrete fiscal risks such as long-run power contracts, guarantees and on-lent loans to state-owned enterprises that may be affected by changing weather patterns. Their analysis found that climate change could reduce GDP per capita by 13 percent by the end of the century and increase public debt levels by 18 percent of GDP, both relative to the baseline.

Long-Run Fiscal Sustainability Analysis with Climate Change - Georgia
(percent of GDP)



Sources: mission, on the basis of the website of the Philippines Department of Budget and Management; and Harris, J., et. al, "Georgia: Updating the Balance Sheet and Quantifying Fiscal Risks from Climate Change", IMF Technical Assistance Report, 2022.

43. Incorporating risks to public infrastructure assets in the disaster risk management arrangements and deepening the information in the Note on budgetary-fiscal risks should be a medium priority. Key elements of a disaster risk management strategy with respect to public infrastructure should be further developed to inform PIM. GIS mapping is being developed for example with respect to flood hazards. Next steps would be to incorporate information on the location of major infrastructure assets in relation to natural hazards and to develop cost-effective plans to reduce their vulnerability to disasters.[19] Hazard mapping incorporating the likely increased incidence and severity of

[19] Asset registers should also contain this information, as discussed in C.4.c.

climate-related hazards should also be used when deciding the location and design of new infrastructure. The good start made on including risks from disasters in the Note on fiscal risks should be deepened and increasingly quantified as capacity allows. Analysis should also be conducted on the adequacy of current disaster risk financing arrangements.

C. Cross-Cutting Issues

Capacity Building

44. There is a clear need to strengthen the knowledge of climate change issues and the capacity for climate-aware public investment across government. This knowledge and capacity will have to be developed gradually over several years and will require a sustained effort by public administration officials. There is also a need for a more general strengthening of the capacity for public investment management, as mentioned previously.

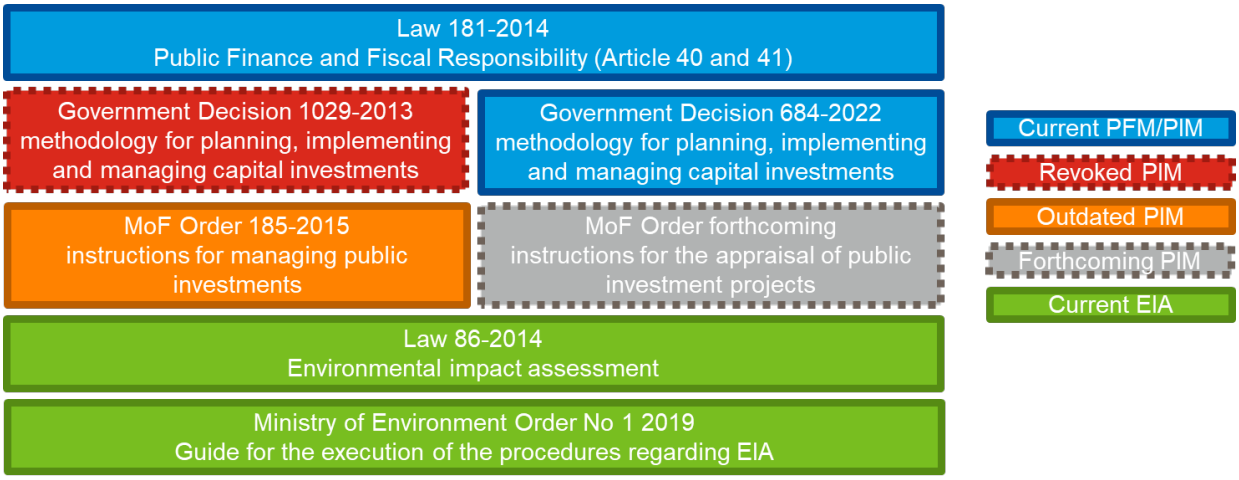
45. The government has taken important steps to strengthen the overall capacity of the central ministries. According to the SC, an ongoing assessment by OECD Sigma indicates that previous attempts to streamline the civil service have led to capacity gaps in the central ministries. There are plans to close these gaps, largely by reallocating resources from government agencies to the ministries and by making ministry positions more attractive.

46. Beyond strengthening climate change knowledge and capacity across the government, specific capacity development and training in climate-aware public investment management will be needed. The Government should explore the possibilities for support from EU countries and institutions in this area. Many countries have developed such skills to be able to prepare projects that are eligible for funding from EU financial mechanisms. The JASPERS (Joint Assistance to Support Projects in European Regions) program has helped countries develop their skills and has recently extended its activities to Moldova.

Legal and Regulatory Framework

47. Moldova's PIM related legal framework is being updated. The 2013 PIM Law (GD 1029/2022) is consistent with the Public Finance and Fiscal Responsibility Law (181-2014). The implementing instructions for GD 684/2022, which would be issued through an order of the Ministry of Finance are at an advanced stage of preparation but have yet to be issued. Thus, for the time being, the outdated instructions (Order 185-2015), which related to the revoked PIM legislation (Law 1029-2013) are still in place (Figure III.1). To implement the GD 684/2022, which introduced important changes to the PIM process (see PIMA update section), it would be important to finalize and approve the new instructions as soon as possible.

Figure III.3. Evolving Legal Framework for PIM and EIA



Source: IMF staff

48. The legal framework supporting climate-related issues is still being developed. GD 444/2020 provides for the mechanism for coordinating activities in the field of climate change. The GD establishes NCCC, defines its composition, and assigns its tasks with a view to introduce the institutional coordination framework in the field of monitoring, reporting and verification, as well as facilitating the integration of climate change aspects into national and sectoral programs and plans. The GD introduces the processes for mitigation and adaptation planning and implementation. However, the processes are not aligned with the budget process and the roles and responsibilities of main actors, including the implementing entities and the ministry of environment/NCCC are not clearly defined. To ensure that adaptation and mitigation plans will be implemented, it would be important to include clear allocations of roles and responsibilities as well as decision powers in a process that allows to channel the public sector projects included in the plans into the budget. Table III.1 shows a generic PIM process aligning climate-related planning processes with the budget cycle and allocating roles and responsibilities relevant to sectoral planning, cross government climate planning and resource allocations.

49. Payment for environmental pollutants. While the legislation for EIA has been in place since 2014/2019, it would be important to update parts of the framework for it to reflect climate change considerations. To this end, Law 1540 from 1998 and amended in 2021 on the payment for environmental pollution could be updated to include GHG emissions with an appropriate price as atmospheric pollutants.

Table III.3. Generic PIM Process Mainstreaming Climate-related Tasks and Decisions

	Project Manager (line ministry / supervising ministry)	Ministry of Environment (could be NCCC)	MoF
Project proposal	Prepare and submits project proposal to MoF and MoE.	Preliminary view on climate impact and climate vulnerability of project	Assess whether the proposed project is expected to be viable and affordable.
		MoE provide opinion on climate sustainability	**Finance Minister provide opinion on project based on review**
Project Preparation Period	Prepare and submit feasibility study and a project appraisal to the MoF. Preparing climate impact and climate vulnerability assessment as part of the project appraisal and sending it for approval to MoE.	Review of project proposal for climate sustainability	Review project appraisal and feasibility studies and assesses viability and affordability of the project. Unless there is a reason to believe that a project is not viable or unaffordable, the project proposed to be included in the list of projects that can be proposed for inclusion in budget.
		MoE provide recommendation/objection of project for climate sustainability	**Gateway 1: Minister approves / rejects project for inclusion in the pipeline**
Allocating funding for project	Include projects from the pipeline list in budget proposal based on sectoral priorities, and sectoral climate commitments/intentions.	Review of sectoral budgets for climate sustainability	Review sectoral budgets to ensure alignment with sectoral policy, with long-term fiscal sustainability, and that PPPs do not undermine long-term sustainability (breach PPP ceilings where these exist).
		MoE provide recommendation/objection of sectoral budget proposals for consistency with climate sustainability	**Gateway 2: Minister approves / rejects project to be included in budget proposal**
Council of Ministers approves projects as part of the budget proposal			
Parliament approves projects as part of the Budget Law			
Project procurement	Prepare and submit to the MoF / MoE tender documents for projects that are included in the budget.	Review of tender documents to ensure alignment with expected climate implication/vulnerability	Review tender documents to ensure project is within proposed scope and stays within approved expenditure, i.e., remains affordable.
		MoE provide recommendation/objection for project for climate sustainability	**Gateway 3: Minister approves / rejects tender documents**
Project Implementation	Submit project with contract negotiated with selected bidder to MoF / MoE	Review of contract to ensure alignment with expected climate implication/vulnerability	Review negotiated contract to ensure that the project remains viable and affordable.
		MoE provide recommendation/objection for project for climate sustainability	**Gateway 4: Minister provides non-objection / objection to negotiated contract**
Project adjustment	Submit proposal for any substantial changes to the contract for approval to the MoF / MoE	Review of proposal to ensure alignment with expected climate implication/vulnerability	Review the proposal to ensure that changes are viable and affordable.
		MoE provides recommendation/objection for project for climate sustainability	**Gateway 5: Minister approves / rejects adjustments**

IT Systems and Data Management

50. Integration of information technology (IT) systems is necessary to introduce climate considerations into PIM. As highlighted in the 2019 PIMA, multiple IT systems were being used to support different information needs, leading to fragmentation and lack of information sharing. There are three issues to note that relate specifically to the IT systems and requirements to support improved management of public infrastructure from a climate perspective:

- With the approval of GD 684/2022 an automated procedure is being introduced for the submission and scoring of public investment project proposals as part of the RPIP platform (as discussed in Institution 3). This will include online submission of project proposals. An EU-funded project is supporting this IT system development and completion of this new platform will increase capacity to public investment management.

- With respect to improving the management of risks to public infrastructure from climate-related hazards it is important to enhance current GIS mapping of hazards to incorporate multi-hazard maps and to integrate in them the location of physical infrastructure to facilitate analysis of asset exposure and vulnerability and actions to reduce risks (see section C5).

- With respect to budgeting systems, it is important to avoid unnecessary investments in IFMIS system capacity to track and report climate-related investments. As discussed in Institution 4, use should be made of the existing program classification and information in the program budget system to generate additional reports on climate-related spending, at this stage at least, rather than adding new codes to the budget classification system.

IV. Recommendations

Issue 1. *There is weak coordination across the public sector of decisions on climate-related public investment.*

Recommendation 1. Strengthen coordination and reporting channels to improve coordination on climate policy and investment. (MoE, MoF, PPA, LM)

- In the Budget Circular, require line ministries sponsoring major new public investment projects to provide data in their budget submissions on the estimated climate impacts (e.g., on GHG emissions) and climate vulnerability of these projects when they are first incorporated in the state budget (2024).
- MOF should engage the Ministry for the Environment to contribute to MoF's (i) review of the information provided by line ministries on the climate impact and vulnerability of proposed major new public investment projects and on the aggregation of this data across each annual budget; (ii) provision of guidance to local authorities on incorporating climate change adaptation and mitigation into public investment planning and (iii) include discussion of these issues in the process of oversight of local government capital spending projects by the central government (2024).
- Introduce climate considerations into the project reviews conducted by the PPA including exposure to physical and transition risks from climate change (2025).

Issue 2. *Climate change impacts are not accounted for in project appraisal and project selection.*

Recommendation 2. Develop project appraisal and selection methodologies (i.e., scoring criteria) and incorporate analysis of the impacts of climate change. (MoF, MoE)

- In the forthcoming PIM regulation, include climate vulnerability as part of the total cost reflected in the cost-benefit assessment and not only in the risk assessment. (2023)
- As part of project appraisal, introduce a traffic light system for identifying projects with a positive neutral and negative impact on emissions (to be refined with growing experience). (2024)
- Explore including in the CBA shadow price on carbon emissions, as part of the project appraisal (drawing on EBRD and EIB methodology) or appropriately priced GHG emission charges. (2025)
- In the medium-term, develop a quantitative approach to inform project selection based on a shadow price of carbon; the assessment could enter in the evaluation as a yes/no, or 'need to explain' assessment and not as part of the score. (2026)

Issue 3: *Climate change considerations are not well integrated in the budgetary process.*

Recommendation 3. Identify important climate related spending on mitigation and adaptation in the budget documentation (MoF)

- Analyze capital budget expenditures in the approved 2023 budget to identify major climate-related investment projects, based on inputs from ministries (2023).
- Prepare a summary table indicating which investment projects have major climate impacts and include this table in future budget documentation (2024).
- Update budget circular to specify how to identify investment projects and budget programs with major climate impacts during MTBF and budget processes (2024).
- Set the threshold for investment projects and budget programs with major climate impact to include those that are important to achieve NDC (2024).
- Consider the need to update program structure to identify climate relevant projects and programs more directly (2026).

Issue 4. *Information on exposure of assets to climate change-related impacts not being available undermines PIM.*

Recommendation 4. Update asset registers to include information about asset condition, climate impacts and vulnerability and consolidate this information across government and the public sector.

- Update regulations on state asset registers to include information about asset condition, climate impacts and vulnerability (2023).
- Carry out assessments and audits of state assets (2025).
- Publish consolidated report for state assets including this information (2026).

Issue 5. *Disaster risk management does not take sufficient account of climate-related risks to public infrastructure.*

Recommendation 5. Incorporate risks to public infrastructure assets in disaster risk management arrangements by:

- Use hazard mapping incorporating the likely increased incidence and severity of climate-related hazards when deciding the location and design of new infrastructure and when rebuilding damaged infrastructure (2024).
- Incorporate in GIS hazard maps information on the location of major infrastructure assets in relation to hazards (2024).
- Develop cost-effective plans to reduce the vulnerability of infrastructure assets to climate-related disasters (2025).

Recommendation 6. Deepen the information on the fiscal impacts of disasters in the annual Note on budgetary-fiscal risks. (MoF, MoE, LM)

- Using budget information, develop a backward-looking quantitative analysis the costs of natural disasters to be included in the next Note on Fiscal Risks (2023).
- Publish more details of the spending from the emergency funds on climate-related disasters, including information available on the associated damage to public infrastructure (2024)
- Develop a qualitative assessment of potential fiscal risks from climate-related events to complement the historical information for the 2025 Note on Fiscal Risks (2024).
- Provide information on actions that have been taken and actions planned to reduce disaster-related risks to public infrastructure (2025).
- Develop a quantitative assessment of these risk for the 2027 Note on Fiscal Risks (2026).

Issue 6. *There is limited technical capacity to assess and manage climate-change related risks to public infrastructure throughout the stages of the public investment cycle.*

Recommendation 7. Develop training programs to raise climate change awareness across government and specialized training to strengthen climate change aware public investment management.

- Explore the possibilities for support from EU countries and institutions to develop this capacity, including from JASPERS (2023).

Recommendation 8. Strengthen information systems to better support asset registers to better inform PIM and the management of climate-related risks on infrastructure.

- Update information systems for asset registers to facilitate new requirements (2023-2024).
- Launch the RPIP to strengthen PIM, following a phased approach that allows to test the system and the processes with a few key line ministries (2023-2024).

Annex I. Draft Action Plan

Recommendations /Actions	2023	2024	2025	2026	2027	Responsible Agency
Recommendation 1. Strengthen coordination and reporting channels to improve coordination on climate policy and investment						
▪ Introduce a requirement in the Budget Circular that two line ministries submit information on the estimated climate impacts and vulnerability of proposed new major public investments.		✓				MoF
▪ Submit climate related information on new major public investment projects to the MoF for the 2025 budget process.		✓				LM
▪ Review of the information provided by line ministries on the climate impact and vulnerability of proposed major new public investment projects.		✓				MoE
▪ Extend to other LM the requirement to submit climate-related information on new major investment projects.				✓		MoF
▪ Provide guidance to local authorities on incorporating climate change adaptation and mitigation into public investment planning.				✓		MoE
▪ Discuss climate change adaptation and mitigation of these issues in the process of oversight of local government capital spending projects by the central government.					✓	MoF, MoE
▪ Introduce climate considerations into the project reviews conducted by the PPA including exposure to physical and transition risks from climate change.			✓			PPA
Recommendation 2. Develop project appraisal and selection methodologies (i.e., scoring criteria) and incorporate analysis of the impacts of climate change.						
▪ Within the project appraisal process, include climate vulnerability as part of the total cost reflected in the cost benefit assessment.	✓					MoF
▪ As part of project appraisal, introduce a traffic light system for identifying projects with a positive neutral and negative impact on emissions (to be refined with growing experience).		✓				MoF
▪ Explore including a “shadow price for carbon emissions” as part of the CBA in the project appraisal until appropriately priced GHG emission charges are introduced.			✓			MoE
▪ Develop a quantitative approach to inform project selection based on a shadow price of carbon.				✓		MoF

Recommendations /Actions	2023	2024	2025	2026	2027	Responsible Agency
Recommendation 3. Identify important climate related spending in the budget. (MOF)						
▪ Analyze 2023 capital budget to identify major climate-related investment projects, based on inputs from ministries.	✓					MoF & MoE
▪ Prepare a summary table indicating which investment projects have major climate impacts and include this table in future budget documentation.		✓				MoF
▪ Update budget circular to specify how to identify investment projects and budget programs with major climate impacts during MTBF and budget processes.		✓				MoF
▪ Set the threshold for investment projects and budget programs with major climate impact to include those that are important to achieve NDC targets.			✓			MoF & MoE
▪ Consider the need to update program structure to identify climate relevant projects and programs more directly.				✓		MoF
Recommendation 4. Update asset registers to include information about asset condition, climate impacts and vulnerability and consolidate this information across government and the public sector						
▪ Update regulations on state asset registers to include information about asset condition, climate impacts and vulnerability.	✓					PPA, PC
▪ Carry out assessments and audits of state assets.			✓			CoA
▪ Publish consolidated report for state assets including this information.				✓		PPA
Recommendation 5. Incorporate risks to public infrastructure assets in disaster risk management arrangements.						
▪ Use hazard mapping incorporating the likely increased incidence and severity of climate-related hazards when deciding the location and design of new infrastructure and when rebuilding damaged infrastructure.			✓			
▪ Incorporate in GIS hazard maps information on the location of major infrastructure assets in relation to hazards.			✓			
▪ Develop cost-effective plans to reduce the vulnerability of infrastructure assets to climate-related disasters.			✓			
Recommendation 6. Deepen the information on the fiscal impacts of disasters in the annual Note on budgetary-fiscal risks.						
▪ Using available information, develop a backward-looking qualitative analysis the costs of natural disasters to be included in the next Note on Fiscal Risks.	✓					MoF
▪ Publish more details of the spending from the emergency funds on climate-related disasters, including information available on the associated damage to public infrastructure.		✓				MoF

Recommendations /Actions	2023	2024	2025	2026	2027	Responsible Agency
▪ Develop a qualitative assessment of potential fiscal risks from climate-related events to complement the historical information for the 2025 Note on Fiscal Risks.		✓				MoF & MoE
▪ Provide information on actions that have been taken and actions planned to reduce disaster-related risks to public infrastructure.			✓			MoE, LM
▪ Develop a quantitative assessment of these risk for the 2027 Note on Fiscal Risks.				✓		MoF, MoE
Recommendation 7. Develop training programs to raise climate change awareness across government and specialized training to strengthen climate change aware public investment management.						
▪ Explore the possibilities for support from EU countries and institutions to technical capacity on climate change-aware PIM, including from JASPERS.	✓					SC, MoE
▪ Develop a “train-the-trainer program” to ensure capacity within government officials to provide some basic trainings within government.		✓				SC
Recommendation 8. Strengthen information systems to better support asset registers to better inform PIM and the management of climate-related risks on infrastructure.						
▪ Update information systems for asset registers to facilitate new requirements		✓				PPA
▪ Pilot the RPIP with key line ministries to identify areas for improvement	✓					MoF
▪ Extend the coverage of the RPIP to cover al central budget entities			✓			MoF

Annex II. C-PIMA Questionnaire

Indicator		Scoring		
		1 = To no or a lesser extent	2 = To some extent	3 = To a greater extent
C1. Climate-aware planning: Is public investment planned from a climate change perspective?				
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.

Indicator		Scoring		
		1 = To no or a lesser extent	2 = To some extent	3 = To a greater extent
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

Indicator		Scoring		
		1 = To no or a lesser extent	2 = To some extent	3 = To a greater extent
				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 expenditure, sources of financing, outputs and outcomes identified in the budget and related documents, monitored, and reported?	Planned climate-related public investment expenditure are not identified in the budget and related documents.	Some planned climate-related public investment expenditure are identified in the budget and related documents, including investment expenditure funded externally, by extra-budgetary entities, and PPPs.	Most planned climate-related public investment expenditure, sources of financing, and outputs and outcomes are identified in the budget and related documents, including investment expenditure funded externally, by extra-budgetary entities, and PPPs, and expenditure on these projects is monitored and reported.
C4.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.
C4.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-	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

Indicator		Scoring		
		1 = To no or a lesser extent	2 = To some extent	3 = To a greater extent
		exposed infrastructure assets address climate-related risks.		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.
Cross-cutting issues				
A	**IT support**. Is there a comprehensive computerized information system for public investment projects to support decision making and monitoring?			
B	**Legal Framework**. Is there a legal and regulatory framework that supports institutional arrangements, mandates, coverage, standards and accountability for effective			
C	**Staff capacity.** Does staff capacity (number of staff and/or their knowledge, skills, and experience) and clarity of roles and responsibilities support effective			

Annex III. Detailed C-PIMA Scores

C1. Climate-aware planning	
C1.A.	National and sectoral planning
C1.B.	Land use and building regulations
C1.C.	Centralized guidance on planning
C2. Coordination between entities	
C2.A.	Coordination across central government
C2.B.	Coordination withsubnational governments
C2.C.	Oversight framework for public corporations
C3. Projection appraisal and selection	
C3.A.	Climate analysis in project appraisal
C3.B.	PPP framework including climate risks
C3.C.	Climate consideration in project selection
C4. Budgeting and portfolio management	
C4.A.	Climate budget tagging
C4.B.	Ex post review of projects
C4.C.	Asset management
C5. Risk management	
C5.A.	Disaster risk management strategy
C5.B.	Ex ante financing mechanisms
C5.C.	Fiscal risk analysis including climate risks

Score	1	2	3
Color			

Annex IV. The role of Ministries of Finance in Climate Change: Lessons for cross-government coordination

Ministries of Finance hold significant levers for accelerating the climate action needed to deliver on the goals of the Paris Agreement and drive sustainable, inclusive and resilient development and growth – but these levers are not yet being fully utilized. f

Bold climate action can help Ministries of Finance achieve their core priorities of macro stability, growth and responsible management of public finances and will bring at least four major benefits: 1) tackling fast escalating risks with macro-critical consequences, including economic and budgetary shocks, and rising cost of capital; 2) enhancing economic and financial resilience; 3) creating significant growth and development opportunities; and 4) delivering clean, secure and affordable energy.

Ministries of Finance will need to mainstream climate action within their core functions of economic strategy, fiscal and financial policy. This will involve broad-ranging changes to strengthen governance and leadership, coordination and human and analytical capabilities.

A big part of the role of Finance Ministers is contributing to and supporting climate action by other government departments, co-operating with stakeholders, and providing direction to government agencies.

The Ministry of Finance's coordination capability is therefore critically important if it is to drive effective collaboration across government and with the private sector, civil society and international financial institutions.

The Ministry of Finance's central role in the budget formulation process is potentially the most important entry point for driving climate action as part of a whole-of-government approach.

Mainstreaming climate in the budget requires:

- Using the budget to drive transformation across economy by mainstreaming climate action with medium term expenditure frameworks and annual budgets.
- Greening public investment management.
- Using public procurement to drive climate action.

To achieve this Ministries of Finance will need to collaborate closely with key line ministries.

Developing collaborative relationships with Ministries of Environment and Planning should therefore be a priority action for Ministries of Finance, alongside other major Ministries such as Energy, Transport, Water, Industry, and Housing. Formal inter-agency collaboration mechanisms in which both Ministries

participate are key to establishing sustainable modes of collaboration. As highlighted throughout the report, different modes of collaboration exist in practice:

- **Ministry of Finance leadership**: In Denmark, the Ministry of Finance chairs the Climate Task Force, where the Ministry for Climate, Energy and Utilities is a member.
- **Ministry of Environment leadership**: In Chile, the Ministry of Environment is the NDC lead agency, but a strong institutional framework enables the Ministry of Finance to participate throughout the process.
- **Joint leadership**: Uganda established a tripartite arrangement on climate between the Ministry of Finance, Planning and Economic Development (MOFPED), the National Planning Authority (NPA) and the Ministry of Water and Environment (MWE-Climate Change Department).

In addition to building up or strengthening formal inter-agency collaboration, there are several other steps that Ministries of Finance can take to improve collaboration with line ministries:

- **Adapt the Ministry of Finance mandate** to explicitly include climate action and **develop an internal climate change strategy** (Capabilities 2 and 3). Both can provide clarity on roles and responsibilities with respect to other departments and identify areas where collaboration is essential. This can help bring ministries closer by default, by providing a common ground and incentives to align their respective work.
- **Establish dedicated focal points** in the Ministry of Finance and relevant line ministries, so that staff have clear points of contact.
- **Ensure early communication and information sharing and continuity of engagement:** In one country interviewed for this report, Ministry of Finance officials hold weekly exchanges with their counterpart in the Environment Ministry. This ensures that each department is aware of the work happening in the other, and potential disagreements can be scoped early and escalated if necessary. It also allows for working relationships to be built between staff. Similarly, another interviewee noted that that it is key to “bring other ministries to the table as soon as possible even though we may think that they may not have anything to add at that point”.
- **Recognizing their mutual differences in backgrounds, relative strengths and constraints:** During interviews, officials noted that they have more internal capacity and expertise to work on economic issues, whereas staff at the Ministry of Environment have more expertise on climate change. Recognizing their mutual differences in backgrounds can help Ministries of Finance to improve collaboration with Ministries of Environment.
- **Hiring former Ministry of Environment staff,** or staff with a background in environmental economics, ecology or similar can help translate between the different ‘languages’.
- **Holding joint seminars, training or informal discussions:** These can be used to share latest developments on the relevant policy instruments or learning from past projects, to bridge potential differences in expertise and learn from each other, which can facilitate future joint work.

- **Regularly seeking updates on climate finance negotiations** and other related topics under the UNFCCC, providing input and guidance where negotiations strategies might intersect with programs of reform already underway within the Ministry of Finance.

Source: Strengthening the Role of Ministries of Finance in Driving Climate Action: A Framework and Guide for Ministers and Ministries of Finance. The Coalition of Finance Ministers for Climate Action, 2023.
https://www.financeministersforclimate.org/

Annex V. 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:

- 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.
- 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.

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.

Annex VI. The social cost of carbon and how to reflect GHG emissions in the CBA.

The social cost of carbon (SCC) is the central concept for the inclusion of climate change damages in the CBA of public policy and public investments. It measures the present value in monetary terms of the damages incurred when an additional ton of carbon (or any other GHG) is released into the atmosphere. The SCC can be added as a cost item for projects that induce carbon emissions, and as a benefit item for projects which induce a net reduction in carbon emissions. Most public projects have an impact on carbon emissions, but energy, transport and agriculture are key areas of concern where it will be important that the SCC is considered. In environmental policy, the SCC informs the optimal carbon price and the optimal level of emissions abatement. Implementation of carbon price (e.g., via a tax or permit system) will provide incentives for reduced carbon emissions across all sectors of the economy. Many countries now recognize the importance of the SCC and, as a result, have their own approaches to the estimation of the SCC.

Since emissions of carbon have global impacts, which vary across time and space, and in many different sectors, calculation of the SCC is complex, requiring inputs from many different disciplines ranging from climate science, to agronomy, to social science, including economics. Yet the importance of climate change as a global problem, and the need to implement policies in line with commitments under international agreements means that many countries have already implemented carbon taxes or use the SCC routinely in their regulatory analysis.

Abatement costs reflect how much it costs to reduce or eliminate a ton of CO2. The cost varies by emission source or intervention as well as due to geographic factors.

SCC and abatement cost estimates allow assessing the cost of additional emissions or of failing to reduce emissions, and the benefits of reducing emissions. However, underestimating the SCC or abatement cost encourages weak climate actions and will not encourage the necessary stringency of investment decisions.

Examples of current international practice for introducing carbon pricing in the CBA:

Several countries have enacted legislation or policies to ensure that carbon emissions are incorporated into the analysis of public projects and regulations (e.g., United States, United Kingdom and Canada). In some cases, carbon emissions are regulated by carbon taxes (Finland, Sweden) or cap and trade instruments (e.g. European Emission Trading Scheme (ETS), California (ETS) in the United States, Alberta ETS Canada).

- The **United States** uses the SCC in CBA of public projects and regulations. A review showed that several decisions including in the transport and energy sector, had been influenced by including SCC in CBA.
- The **UK** government changed the way it included carbon values in CBA in 2009 from the SCC approach towards values based on the European Emissions Trading System (ETS) if the source was included in the ETS, or an abatement cost approach otherwise.

- In **France** the “carbon value”, which is the estimate of the SC-CO2, is the “unit values” that appears in the CBA guidance alongside the value of statistical life and the discount rate.

The ideal policy mix would include pricing carbon, including cutting fossil fuel subsidies, along with alternative measures that can achieve equivalent outcomes, such as feebates and regulations. To complement domestic policies, an international carbon price floor agreement would provide one way of galvanizing action: asking large emitters to pay a minimum price of $25-$75 per ton of carbon depending on their national income level. With alternative policies, this does not mean taxes per se. It would be collaborative, pragmatic, and equitable.

Source: OECD, 2018, Cost-Benefit Analysis and the Environment

Annex VII. Managing climate risks in PPPs

The traditional risk allocation frameworks for PPPs include limited consideration for climate change risks. This failure to consider climate risks is further exacerbated by a lack of knowledge and appropriate incentive structures in dealing with adaptation and long-term resilience for infrastructure PPP arrangements. The table below shows how climate risk, when filtered through the 'PPP Value Drivers', affect a project's risk adjusted cost and revenues.

Table. Implications of climate risk arrangements in PPP contracts

Value driver	How considering climate risk can impact value driver: description	Results	Conditions
Output based contracting (OBC)	OBC leaves room to concessionaire to think about most efficient and effective way to deal with climate risk, e.g., for mitigation measures, disaster response, rebuilding.	Better quality/ lower cost	▪ Transfer of climate risk mitigation responsibility ▪ Sufficient flexibility in design standards to develop optimal climate resilient solutions ▪ Define SMART disaster response and climate risk mitigation performance indicators ▪ Robust payment mechanism around climate risk performance indicators
Risk allocation.	Transferring climate risk to concessionaire can be beneficial if concessionaire is better able to manage the risk (e.g., more / more specific experience with that risk and the asset; optimal mix between mitigation and response measures).	Reduced Risk	
Integrated service and lifecycle optimization	Lower cost: Lower life cycle costs due to life cycle integration: e.g., stimulating climate proof design in order to reduce response and repair costs.	Lower Cost	
Performance based payment mechanism	Financial incentive can stimulate better climate risk mitigation and preparation as well as quicker and higher quality response and repairs.	Reduced risk/ better quality	
Private finance	Reduced risk / better quality: additional pressure from private financiers stimulates good climate risk management and high performance (see above) in order to ensure repayment/ returns.	Reduced risk/ better quality	▪ Ensure continuous knowledge exchange with financial sector ▪ Ensure same climate assumptions
Transaction Costs	Including climate risk potentially requires more data and expertise, additional studies and adjustments to standard documentation, increasing preparation time and budget.	Higher Costs	To reduce negative effect: ▪ Standardization of methods, data and studies. ▪ Build capacity and build learning and expertise network. ▪ Adjust standard documentation with climate risk considerations.
Inflexibility	Long term contractual requirements might need to be changed in time consuming/ costly measure, as climate risk is not yet certain and standards might change.	Higher Costs	To reduce negative effect: ▪ Introduce quick contract change mechanisms. ▪ Consider future changes to standards etc. in contractual requirements / output specs.

Source: IDB, 2021, Toolkit for Climate Resilient Infrastructure PPP

Defining Force Majeure. Climate (and natural disaster) risks would generally be treated as Force Majeure events and both parties would share in the risk of their occurrence. Yet, often it can make sense to apply a more nuanced approach to specific climate/natural disaster risks to allocate increased levels of risks to the private party. This has been done, for example in Japan, where experience from previous natural disasters has enabled them to qualify earthquakes in their PPP contracts' Force Majeure clauses based on their seismic intensity. If an earthquake is lower in seismic intensity, then it does not qualify as Force Majeure. Chile, another earthquake prone country, has similarly excluded earthquakes from its definition of 'Force Majeure'. In these cases, more responsibility for managing the aftermath of climate risks falls to the private party, and based on experience in Japan, such transfer of responsibility can result in faster and more efficient response times than if the public sector were solely responsible. This is likely because the private party has considered the risk in the design and planning stages.

Insuring climate risks. Contracting Authorities typically require the private party to insure material project risks, such as accidental damage or third-party liabilities. The availability, cost of, and obligation to take out relevant insurances, will depend in part on how certain events are allocated. For example, if when defining Force Majeure, a particular climate risk, like flooding, is excluded, and instead transferred to the private party, then the private party may need to take out insurance to cover any expected losses resulting from this risk. Extreme events, like natural disasters related to climate change, pose a set of challenging problems to insurers – they are uncertain but involve potentially high-losses. While the insurance e industry might be trying to stay ahead of the curve with regards to responding to climate change related disasters, there is a chance given the long length of a PPP contract that a particular climate related event becomes 'uninsurable' at some point over the contract's life, i.e., insurance is unavailable on the international insurance market by insurers of an adequate credit rating/reputable insurers of good standing or insurance premiums are prohibitively high. While risks beyond just climate-related could possibly become 'un-insurable', building an 'uninsurability' clause into the PPP contract helps make the PPP inherently more climate resilient. Doing so acknowledges the uncertainty around climate changes and the difficulty in insuring them.

Source: IDB, 2021, Toolkit for Climate Resilient Infrastructure PPP