



TECHNICAL ASSISTANCE REPORT

GUATEMALA

Macroeconomic Frameworks: Diagnostic Mission

MARCH 2026

Prepared By

Marie Pierre Aquino Coste and Juan Sebastián Corrales

Authoring Department

Institute for Capacity Development, IMF

Disclaimer

The contents of this document constitute technical advice provided by the staff of the International Monetary Fund to the authorities of the Ministry of Finance of Guatemala (the "CD recipient") in response to their request for technical assistance. Unless the CD recipient specifically objects to such disclosure, this document (in whole or in part) or summaries thereof may be disclosed by the IMF to the IMF Executive Director for Guatemala, to other IMF Executive Directors and members of their staff, as well as to other agencies or instrumentalities of the CD recipient, and upon their request, to World Bank staff, and other technical assistance providers and donors with legitimate interest members of the Steering Committee of [the IMF Technical Assistance Center for Central America and the Dominican Republic (CAPTAC-DR)] (see [Staff Operational Guidance on the Dissemination of Capacity Development Information](#)). Publication or Disclosure of this report (in whole or in part) to parties outside the IMF other than agencies or instrumentalities of the CD recipient, World Bank staff, other technical assistance providers and donors with legitimate interest members of the Steering Committee of CAPTAC-DR shall require the explicit consent of the CD recipient and the IMF's Institute for Capacity Development (ICD).

The analysis and policy considerations expressed in this publication are those of the IMF Institute for Capacity Development.

International Monetary Fund, IMF Publications
P.O. Box 92780, Washington, DC 20090, U.S.A.
T. +(1) 202.623.7430 • F. +(1) 202.623.7201
publications@IMF.org
IMF.org/pubs

ACKNOWLEDGMENTS

This technical assistant mission was provided with the financial support of CAPTAC-DR. CAPTAC-DR is a co-financed initiative supported by its member countries, development partners, and the International Monetary Fund (IMF).



MEMBERS



Costa Rica



Dominican Republic



El Salvador



Guatemala



Honduras



Nicaragua



Panama

DEVELOPMENT PARTNERS



Co-funded by
the European Union



Hacienda
Secretaría de Hacienda
y Crédito Público



THE GOVERNMENT
OF THE GRAND DUCHY OF LUXEMBOURG
*Ministry of Foreign and European Affairs,
Defence, Development Cooperation
and Foreign Trade*

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	5
PREFACE	7
EXECUTIVE SUMMARY	8
RECOMMENDATIONS.....	10
I. BACKGROUND AND INSTITUTIONAL CONTEXT	12
A. The Authorities' Technical Assistance Request	12
B. Macroeconomic Projection Responsibilities	12
C. Coordination Mechanisms.....	13
II. SCOPING MISSION FINDINGS	16
A. Institutional Setup and Roles	16
B. Coordination Arrangements and Information Flows	17
C. Analytical Frameworks	19
D. Existing Tools and Work Practices within MINFIN	20
E. Staffing and Capacity Considerations	22
F. Data, Databases, and Update Practices.....	23
III. PROPOSED ACTION PLAN	25
A. Objective and Work Axes	25
B. Proposed Macroeconomic Framework.....	26
C. Delivery Schedule.....	28
D. Sustainability Considerations	29
E. Risks and Mitigation Strategies	30
 Figures	
Figure 1. Guatemala's Budget Process	18
Figure 2. Organigram for the Direction of Analysis and Fiscal Policy.....	22
 Tables	
Table 1. DAPF's Key Data Sources for Fiscal Analysis.....	24
 Annexes	
Annex 1. Core Group	32
Annex 2. Final Mission Agenda	33
Annex 3. Initial CAEM equations	35
Annex 4. Results Framework.....	36

ABBREVIATIONS AND ACRONYMS

ARIMA	AutoRegressive Integrated Moving Average
BANGUAT	Banco de Guatemala (Bank of Guatemala)
CAEM	Comprehensive Adaptive Expectations Model
CAPTAC-DR	Regional Technical Assistance Center for Central America, Panama and the Dominican Republic
CPI	Consumer Price Index
CTFP	Comisión Técnica de Finanzas Públicas (Technical Commission on Public Finances)
DAPF	Dirección de Análisis y Política Fiscal (Directorate of Analysis and Fiscal Policy)
DCP	Dirección de Crédito Público (Directorate of Public Credit)
DDT	Debt Dynamics Tool
DSGE	Dynamic Stochastic General Equilibrium
DTP	Dirección Técnica del Presupuesto (Budget Directorate)
EMBI	Emerging Markets Bond Index
FAD	Fiscal Affairs Department (IMF)
FISLAC	Fiscal Impulse and Sustainability in Latin America and the Caribbean
FPAS	Forecasting and Policy Analysis System
FPP	Financial Programming and Policies
GFSM 86	Government Finance Statistics Manual 1986
ICD	Institute for Capacity Development (IMF)
IDB	Inter-American Development Bank
LOP	Ley Orgánica del Presupuesto (Organic Budget Law)
MFT	Macroeconomics Foundation Tool
MFMP	Marco Fiscal de Mediano Plazo (Medium-Term Fiscal Framework)
MINFIN	Ministerio de Finanzas Públicas (Ministry of Public Finance)
MPT	Macroeconomic Projections Tool
MTDS	Medium-Term Debt Strategy
PPP	Purchasing Power Parity
QPM	Quarterly Projection Model
SEGEPLAN	Secretaría de Planificación y Programación de la Presidencia
SICOIN-SIAF	Sistema de Contabilidad Integrada / Sistema de Administración Financiera
SITFIN	Situación Financiera (fiscal projection tool used by DAPF)
SVAR	Structural Vector Autoregression

TA	Technical Assistance
UIP	Uncovered Interest Parity
VAR	Vector Autoregression
WEO	World Economic Outlook (IMF)
WHD	Western Hemisphere Department (IMF)
WTI	West Texas Intermediate

PREFACE

At the request of the Guatemalan authorities, an IMF technical assistance (TA) mission from the Institute for Capacity Development (ICD) conducted a scoping mission to Guatemala during March 23–27, 2026. The purpose of the mission was to take stock of existing practices for the production, coordination, and internal use of macroeconomic projections, with a particular focus on the role of the Ministry of Public Finance (MINFIN), and to identify priority areas for capacity development in the area of macroeconomic frameworks.

The mission was informed by detailed responses to a pre-scoping questionnaire completed by the authorities, as well as by extensive discussions with MINFIN, the Bank of Guatemala (BANGUAT), and the Secretariat of Planning and Programming of the Presidency (SEGEPLAN). During the mission, within MINFIN, the mission held working sessions with the staff of the Directorate of Analysis and Fiscal Policy (DAPF), including the Department of Macro-Fiscal Analysis, the Directorate of Public Credit (DCP), and the Budget Directorate (DTP). Additional discussions were held with the Superintendency of Tax Administration (SAT). The mission was received by the Vice-Minister of Revenue and Fiscal Evaluation.

The information gathered during the scoping process helped the ICD team understand in depth (i) MINFIN's functions and processes regarding the production of macroeconomic and fiscal projections, (ii) currently available tools, data, and staff resources for these activities, and (iii) the interactions among institutions involved in the formulation of macroeconomic policy in Guatemala. Based on this information, ICD identified areas to improve capacity on macroeconomic forecasting and policy analysis and agreed with the authorities on an action plan to develop a technical assistance project over the next eighteen months.

The mission's findings form the basis for the design of a medium-term technical assistance engagement focused on strengthening macroeconomic projection frameworks within MINFIN, while preserving the institutional role of BANGUAT as the producer of the official macroeconomic projections. The agreed action plan includes a delivery schedule structured around seven missions and in-between-missions work.

The mission was conducted in coordination with the Western Hemisphere Department (WHD), the Fiscal Affairs Department (FAD), and the IMF Technical Assistance Center for Central America and the Dominican Republic (CAPTAC-DR), whose views informed the design of the proposed action plan. ICD is leading the support for the development of the macroframework tool and related scenario analysis capacity within MINFIN, while any broader institutional work on the MFMP is being coordinated with IMF Fiscal Affairs Department (FAD). The mission would like to thank the staff of the DAPF, our main counterparts at MINFIN, for the excellent support provided during the preparation of the mission and their availability throughout. Our appreciation also extends to colleagues in BANGUAT, SEGEPLAN, and SAT for their valuable contributions during the scoping discussions.

EXECUTIVE SUMMARY

Strengthening the Ministry of Finance's (MINFIN) macroeconomic analytical capacity is central to the quality of fiscal policymaking, debt management, and external communication in Guatemala.

The Bank of Guatemala (BANGUAT) is responsible for producing the official macroeconomic baseline. MINFIN relies on this baseline as the anchor for fiscal projections, but its analytical needs extend beyond the variables and horizons that BANGUAT publishes: in particular to conduct scenario and risk analysis over the official baseline, to generate level forecasts for indicators relevant to fiscal management that BANGUAT does not produce, periodic reports on the state of public finances; public debt sustainability analysis and to support the Ministry's own analytical products including the Medium-Term Fiscal Framework (MFMP) and the Fiscal Risks Report. Building this internal capacity supports the credibility of medium-term fiscal commitments and the resilience of public finances to shocks.

Guatemala benefits from a relatively clear and well-established institutional framework for macroeconomic projections.

The Bank of Guatemala (BANGUAT) is responsible for producing the official macroeconomic projections for the real, monetary, and external sectors, which serve as the reference baseline for policy discussions across government. These projections are shared and discussed through formal coordination mechanisms, including the Technical Commission on Public Finances (CTFP), and are used by MINFIN, SAT and SEGEPLAN for their respective mandates. BANGUAT has developed a Forecasting and Policy Analysis System (FPAS) that includes a Quarterly Projection Model (QPM) and other forward-looking tools to support monetary policy under its inflation-targeting framework.

The scoping mission found that MINFIN has limited capacity to internally analyze, validate, and operationalize macroeconomic projections within its own analytical tools.

While MINFIN relies on BANGUAT's projections as the official baseline, it lacks an internal analytical framework to conduct scenario and risk analysis around that baseline, to generate level projections for fiscal-relevant variables and horizons that BANGUAT does not publish externally, and to support the MFMP and the Fiscal Risks Report with internally consistent macroeconomic scenarios. A previously developed FPP-type framework, built with support from Swiss cooperation and CAPTAC-DR between 2014 and 2020, is no longer in active use due to insufficient documentation and staff turnover, a critical lesson that directly shapes the design of the proposed project. The operational fiscal tool currently used by the DAPF, the SITFIN, consolidates fiscal data from various internal sources but lacks macroeconomic behavioral equations and feedback mechanisms. Data management practices remain largely decentralized and spreadsheet-based, with limited version control or documented update protocols. Macroeconomic analysis is carried out by a small team within the DAPF, where the concentration of technical knowledge in a limited number of individuals creates operational risk, compounded by retention challenges associated with public-sector compensation constraints.

The mission recognized that BANGUAT and MINFIN rely on different analytical approaches, reflecting their distinct mandates.

BANGUAT's Forecasting and Policy Analysis System (FPAS) is internally consistent and well documented, and its Quarterly Projection Model (QPM) is well suited to the quarterly, gap-based analysis required by an inflation-targeting central bank. MINFIN's analytical needs are different in frequency, granularity, and purpose: medium-term, annual, level-based projections of fiscal-relevant indicators, with the ability to construct scenarios over the official baseline. The proposed tool will

be designed to entertain most of the economic intuition embedded in BANGUAT's framework while operating at the frequency and granularity that MINFIN's products require, and to produce projections that are numerically aligned and economically coherent with BANGUAT's official baseline.

The project also responds to a broader institutional objective: improving the quality and credibility of fiscal policy communication and its projections. The Vice-Minister of Revenue and Fiscal Evaluation, Ms. Patricia Joaquín, highlighted its importance for articulating MINFIN's forecasting process and for strengthening communication with international organizations, rating agencies, the Congress of the Republic of Guatemala, BANGUAT, and the general public, which is essential to reducing uncertainty, anchoring expectations, and building confidence among economic agents.

Against this backdrop, the mission proposed, and agreed with the authorities, the development of a macroeconomic projections tool (MPT) based on the Comprehensive Adaptive Expectations Model (CAEM). The CAEM was selected for three reasons. First, it is well-suited to the authorities' objectives: MINFIN needs a tool capable of conducting scenario and risk analysis over the official baseline, generating level forecasts for variables and horizons not covered by BANGUAT, and supporting the MFMP and the Fiscal Risks Report with internally consistent macroeconomic scenarios. Second, it fits the existing capacity of the DAPF: an Excel-based, annual, sector-consistent framework can be maintained, updated, and explained by current staff drawing on the FPP-type expertise developed during prior cooperation, without requiring the specialized econometric or programming skills associated with DSGE or QPM-type frameworks. Third, relative to the IMF's Macroeconomic Foundations Tool (MFT)—the closest alternative—the CAEM provides richer long-run anchoring through error-correction mechanisms on key macroeconomic ratios, supporting more disciplined medium-term projections that are appropriate for the MFMP horizon. The CAEM is methodologically continuous with the FPP logic already familiar to DAPF staff and can entertain most of the economic intuition embedded in BANGUAT's QPM-type framework. The tool will enable MINFIN to produce baseline projections aligned with BANGUAT's official baseline scenario, generate internally consistent risk and policy scenarios over that baseline, and analyze the macroeconomic impact of specific fiscal policy measures.

The project is structured around seven missions over approximately eighteen months, beginning in June 2026. The first phase focuses on training in financial programming concepts and initial calibration of the MPT to Guatemala. By mid-project, the core team should be capable of producing a baseline scenario. Later missions will introduce scenario analysis, integration of the Debt Dynamics Tool (DDT), and adaptation of the MPT's outputs to strengthen MINFIN's communication instruments, particularly the MFMP and the Fiscal Risks Report. Documentation of processes and tools will be prioritized throughout the project, reflecting a key lesson learned from previous technical assistance engagements.

The authorities expressed strong commitment to the project, while acknowledging implementation risks. The main risks include staff turnover, competing demands on staff time, and data limitations related to the scope of information shared through inter-institutional channels. Mitigation strategies include emphasis on documentation from the outset, training multiple staff members to reduce key-person risk, and a gradual approach that builds on existing tools and institutional arrangements.

RECOMMENDATIONS

	Recommendation	Responsible Entity	Indicative Timeline
Macroeconomic Framework			
1	Develop a macroeconomic projections tool (MPT) based on the CAEM, calibrated to Guatemala and integrated with MINFIN's existing fiscal tools, capable of producing a first baseline scenario aligned with BANGUAT's official projections.	DAPF, with ICD support	December 2026
2	Integrate the Debt Dynamics Tool (DDT) into the MPT to enable debt sustainability and risk analysis consistent with macroeconomic projections.	DAPF, DCP, with ICD support	June 2027
3	Produce and present to senior management a complete set of baseline and alternative macroeconomic scenarios using the MPT, including fiscal multiplier reporting and risk analysis.	DAPF	October 2027
Data and Documentation			
4	Establish a centralized, documented macro and fiscal databases within the DAPF, with standardized templates, version control, and clearly assigned update responsibilities.	DAPF	December 2026
5	Produce comprehensive documentation of the MPT, including a user manual, data update protocols, and a methodology note for the production of macroeconomic projections.	DAPF, with ICD support	December 2027
Communication Instruments			
6	Adapt the outputs of the MPT to strengthen the analytical content of the MFMP, including macroeconomic scenario analysis, reporting of fiscal multiplier, and structured risk quantification.	DAPF	Pilot incorporation in MFMP 2027; full integration in MFMP 2028
7	Develop a systematic methodology for forecast error analysis and incorporate the results in the internal review process and the Fiscal Risks Report.	DAPF, with ICD support	June 2027
Institutional Coordination			

8	Strengthen the documentation and communication of macroeconomic assumptions shared through the CTFP, including projection vintages, variable coverage, and update schedules.	MINFIN, BANGUAT, SEGEPLAN	Ongoing
Staffing and Capacity			
9	Ensure the core group of DAPF staff is assigned to the project with sufficient time allocation and establish a backup system to mitigate key-person risk.	DAPF management	June 2026
10	Explore a gradual strengthening of the Department of Macro-Fiscal Analysis to sustain the analytical capacity built during the project. This includes training in Advanced Excel, and participation in ICD Training Courses to current and incoming staff to the Deputy Directorate of Economic Analysis.	MINFIN, CAPTAC-DR, ICD	Medium-term

I. BACKGROUND AND INSTITUTIONAL CONTEXT

A. The Authorities' Technical Assistance Request

- 1. The authorities requested technical assistance to strengthen macroeconomic projection practices within MINFIN.** The request was expressed during the 2025 IMF Annual Meetings and reflects the authorities' interest in enhancing their capacity to internally use and operationalize macroeconomic projections in support of policy preparation and decision-making, while preserving the institutional role of the Bank of Guatemala (BANGUAT) as the producer of the official macroeconomic baseline.
- 2. The request is motivated by operational and institutional considerations, and the authorities emphasized the need for an internal macroeconomic framework.** While Guatemala has a clear allocation of forecasting responsibilities, MINFIN currently relies on BANGUAT's projections without having a fully institutionalized internal analytical tool to replicate, validate, and apply these projections in a well-structured macroeconomic framework. This limits MINFIN's ability to ensure internal consistency across analytical products and to conduct structured scenario analysis around the official baseline. The authorities also noted that the request is aligned with the mandate established in the government's plan to strengthen the institutional and technical capacities of the public sector, considering that the incorporation of a macroeconomic framework aligned with international best practice would contribute directly to this objective. MINFIN expressed interest in developing a transparent, accounting-consistent macroeconomic framework that can generate projection paths aligned with BANGUAT's official projections. The objective is not to duplicate BANGUAT's forecasting function or to introduce alternative official projections, but to strengthen analytical ownership and understanding within MINFIN. In this context, the Vice-Minister of Revenue and Fiscal Evaluation, Ms. Patricia Joaquín, highlighted the importance of the project for articulating MINFIN's forecasting and policy formulation process and for improving communication with international organizations, rating agencies, the Congress, BANGUAT, and the population at large. The TA project would then complement, rather than substitute for, the existing institutional arrangements for macroeconomic forecasting.

B. Macroeconomic Projection Responsibilities

- 3. Macroeconomic projection responsibilities in Guatemala are clearly assigned across institutions.** The Bank of Guatemala (BANGUAT) is legally and operationally responsible for producing the official macroeconomic projections for the real, monetary, and external sectors of the economy. Under its Organic Law (*Decreto 16-2002*), BANGUAT's fundamental objective is to contribute to creating and maintaining the most favorable conditions for the orderly development of the national economy, by promoting monetary, exchange rate, and credit conditions that foster stability in the general price level. In pursuit of this mandate, BANGUAT operates under an inflation-targeting framework with a target of 4 percent ± 1 percentage point and has developed analytical tools including its FPAS and QPM to support monetary policy decisions. BANGUAT's projections form the official macroeconomic baseline used for policy discussions across government institutions.

4. MINFIN relies on these official projections for its analytical and policy work. While MINFIN does not have a legal mandate to produce official macroeconomic forecasts, it uses BANGUAT's projections as key inputs for internal analysis supporting budget preparation, public debt management, and the assessment of policy implications. Under Article 35 of the *Ley del Organismo Ejecutivo (Decreto 114-97)*, MINFIN is responsible for the fiscal and financial regime of the State, including revenue administration, public debt management, budget execution, and the oversight of public assets. The key products of this work include the Medium-Term Fiscal Framework (MFMP), the Fiscal Risks Report, and monthly reports on the state of public finances, all produced by the Directorate of Analysis and Fiscal Policy (DAFP), a unit coordinated by the Vice Ministry of Revenue and Fiscal Evaluation, pursuant to Article 10, paragraph 14, of MINFIN's Organic Regulations.

5. SEGEPLAN complements this arrangement through its planning mandate. SEGEPLAN is responsible for national development planning, and public investment programming. In coordination with MINFIN, it seeks to align and harmonize annual and multiannual plans with the corresponding budgets, thereby reinforcing consistency between planning and budgeting functions. Under the Organic Budget Law (LOP, Article 8), MINFIN consolidates institutional budgets in concordance with performance indicators and annual operating plans delivered by institutions to SEGEPLAN. MINFIN and SEGEPLAN jointly issue budget formulation norms, train planning and finance staff of public institutions, and provide guidance on investment projects, as mandated by Article 16 of the LOP Regulations.

6. Other institutions play supporting roles. The Superintendency of Tax Administration (SAT) exercises the administration of the tax regime, including collection, control, and enforcement of all internal and external trade taxes. MINFIN and SAT formalize their coordination on revenue projections through an annual tax target agreement ("*Convenio de Metas*"), which requires a favorable opinion from SAT's Board of Directors. Currently the targets for tax revenue in the SAT Institutional Strategic Plan are aligned with the MFMP 2025-2029.

7. The legal framework underpins this institutional allocation of responsibilities. The LOP establishes formal requirements for coordination between planning and budgeting institutions and mandates the use of common macroeconomic assumptions. The Technical Commission on Public Finances (CTFP), established under *Acuerdo Gubernativo 540-2013* (Articles 6 and 7), serves as the advisory body to the Minister and Vice-Ministers of Finance on the definition of policies, programming, control, and evaluation of public financial management. The Vice-Minister of Financial Administration is empowered to invite BANGUAT authorities to participate in its sessions (Article 8). This legal framework reinforces reliance on a single macroeconomic baseline and supports consistency across institutions without blurring mandates.

C. Coordination Mechanisms

8. Coordination on macroeconomic assumptions is formalized through established mechanisms. The primary institutional platform for coordination is the Technical Commission on Public Finances (CTFP), chaired by the Vice-Minister of Financial Administration. The CTFP provides a structured forum for information exchange and discussion of macroeconomic assumptions and their implications for policy formulation. In addition, the "*Mesa de Coordinación de Política Fiscal y Monetaria*" operates as a parallel venue where specific topics of coordination between MINFIN and BANGUAT can be discussed.

9. The CTFP supports alignment around a common macroeconomic baseline rather than joint forecast production. Through this mechanism, BANGUAT communicates its official macroeconomic projections to MINFIN and SEGEPLAN, and key assumptions are discussed to ensure they are properly understood and consistently applied. The macroeconomic scenario is typically presented between March and April and serves as the basis for the budget formulation cycle. The objective of these exchanges is to promote coherence across institutions, not to produce alternative macroeconomic projections.

10. The gap between the macroeconomic information shared through the CTFP and MINFIN's analytical needs is the central rationale for the project. Through the CTFP, BANGUAT shares headline projections for the standard variables—real GDP growth, headline and core inflation, and the basic external accounts—over a short forecast horizon, typically one year ahead. MINFIN's analytical needs, however, extend well beyond these headline projections. The preparation of the MFMP and the Fiscal Risks Report requires medium-term projections (typically five years), level forecasts for variables that BANGUAT does not publish externally (such as the nominal exchange rate beyond the short term and specific real demand components and price deflators that feed revenue and expenditure projections), and the ability to construct alternative scenarios around the official baseline to inform fiscal policy and risk analysis. At present, MINFIN does not have the analytical infrastructure to produce these projections in a structured way, and as a result, some of the variables and horizons needed for MINFIN's products are filled in on an ad hoc basis without the support of a macroeconomic model. The proposed tool will close this gap by generating the projections that MINFIN needs while ensuring that the underlying assumptions remain consistent with BANGUAT's official baseline.

11. A further operational limitation is that BANGUAT's baseline projections are not aligned with the policy measures eventually adopted in the budget and the MFMP. BANGUAT's macroeconomic baseline is constructed using preliminary fiscal numbers available at the time the projections are produced, typically several months before the final budget is approved. The final budget is built downstream by MINFIN, with revenue, expenditure, and financing decisions that often differ from the preliminary numbers BANGUAT used as inputs. As a consequence, the official macroeconomic baseline shared through the CTFP and the fiscal scenario underpinning the MFMP are not strictly consistent ex post, and the macroeconomic implications of the actual budget decisions are not endogenously reflected in the official baseline. This limits MINFIN's ability to communicate a coherent and internally consistent narrative connecting macroeconomic projections, fiscal policy, and debt dynamics. The proposed technical assistance addresses this limitation from MINFIN's side, by equipping the DAPF with the analytical capacity to conduct scenario consistency checks internally—assessing the macroeconomic implications of the actual budget over BANGUAT's baseline. A stronger MINFIN analytical framework can support, through the CTFP, efforts towards aligning BANGUAT's baseline projections with MINFIN's final budget figures.

12. At the same time, the existing coordination framework places natural limits on MINFIN's analytical capacity. Because MINFIN does not internally produce macroeconomic projections, its analytical work relies largely on exogenous macroeconomic paths provided by BANGUAT. While this arrangement supports consistency at the institutional level, it constrains MINFIN's ability to independently replicate the baseline, verify internal consistency across macroeconomic aggregates, or systematically explore alternative scenarios around the official projections. The authorities explicitly noted their interest in developing the capacity to engage in structured debates on the macroeconomic framework with their counterparts, which requires a level of internal analytical infrastructure that is currently absent.

13. These limitations affect the scope and depth of internal analysis. In practice, the absence of an internal macroeconomic projection framework limits MINFIN's capacity to assess the sensitivity of key analytical outputs to changes in macroeconomic assumptions, to trace the transmission of shocks across macroeconomic aggregates, or to explain deviations between projected and realized outcomes in a structured manner. As a result, some analytical exercises rely on partial adjustments or judgment rather than on a fully articulated and internally consistent macroeconomic framework. This is particularly evident in the MFMP, where the discussion of fiscal multipliers and risk scenarios, while present, is not supported by a general equilibrium macroeconomic model.

14. The existing coordination mechanisms ensure institutional coherence but reveal an important analytical gap. While Guatemala benefits from a clear allocation of forecasting responsibilities and a shared macroeconomic baseline, the lack of an internal macroeconomic framework within MINFIN limits its ability to fully internalize and operationalize macroeconomic projections. Addressing this gap provides a key motivation for the requested technical assistance, without altering existing institutional mandates or duplicating BANGUAT's forecasting role.

II. SCOPING MISSION FINDINGS

A. Institutional Setup and Roles

15. The institutional setup for macroeconomic projections in Guatemala is characterized by a clear separation of mandates and a relatively high degree of formal coordination. BANGUAT is the sole institution responsible for producing the official macroeconomic projections for the real, monetary, and external sectors. These projections constitute the official macroeconomic baseline and are used across government institutions.

16. MINFIN does not have a mandate to produce official macroeconomic forecasts. Instead, it uses BANGUAT's projections as inputs for its internal analytical and policy processes. Within MINFIN, responsibility for macroeconomic analysis and the use of macroeconomic projections is concentrated in the Directorate of Analysis and Fiscal Policy (DAFP). The DAPF is defined in MINFIN's organic regulations as the unit responsible for formulating fiscal policy proposals and concentrating and providing fiscal information through economic and fiscal analysis. Within the DAPF, the Department of Macro-Fiscal Analysis (*Departamento de Análisis Macro-Fiscal*) is the operational unit in charge of producing the macroeconomic and fiscal projections that underpin the Medium-Term Fiscal Framework (MFMP) and other key fiscal documents.

17. The DAPF's principal communication instruments include the MFMP, the Fiscal Risks Report, and monthly fiscal reports. The MFMP 2025–2029, published in November 2025, presents a five-year fiscal outlook organized around five strategic pillars: fiscal sufficiency, growth and inclusion, fiscal sustainability, transparency, and green fiscal policy. It covers central government, general government, and non-financial public sector levels. The document provides medium-term projections of revenue, expenditure, fiscal balance, financing, and debt, and includes a discussion of fiscal policy principles, risk monitoring, and scenario analysis. The Fiscal Risks Report provides an assessment of macroeconomic and fiscal risks, including debt sustainability analysis, contingent liabilities, and external shocks. Monthly reports on the state of public finances, submitted to Congress, provide updates on revenue, expenditure, and financing developments.

18. Other MINFIN directorates interact with the DAPF in the projection process. The Budget Directorate (DTP) provides information on expenditure ceilings and budget execution that feeds into the SITFIN fiscal projection tool. The Directorate of Public Credit (DCP) contributes debt projections, debt service schedules, and information on the financing strategy and portfolio analysis. SAT provides revenue collection data and coordinates with the DAPF on the annual tax target agreement.

19. SEGEPLAN plays a complementary role by ensuring coherence between macroeconomic assumptions, national development planning, and the budget. Coordination between SEGEPLAN and MINFIN is formalized through joint issuance of budget formulation norms and shared guidance to line state bodies, decentralized and autonomous entities, as required under the LOP. SEGEPLAN's involvement is particularly relevant for linking the MFMP's fiscal projections with the government's development priorities, including those under the *Política General de Gobierno 2024–2028* and the *Plan Nacional de Desarrollo K'atun 2032*.

20. Overall, the mission found no evidence of duplication of forecasting responsibilities across institutions. Instead, the main institutional challenge lies in ensuring that macroeconomic projections produced by BANGUAT are effectively internalized, operationalized, and consistently used within MINFIN's internal analytical processes.

B. Coordination Arrangements and Information Flows

21. Formal coordination on macroeconomic assumptions takes place through the Technical Commission on Public Finances (CTFP). The CTFP provides a structured forum for inter-institutional exchange. Through this mechanism, BANGUAT shares its macroeconomic projections with MINFIN and SEGEPLAN, and discusses key assumptions and their implications. The macroeconomic scenario typically serves as the basis for the budget formulation cycle, with the baseline presented between March and April each year.

22. In practice, information flows are largely based on periodic exchanges of projection outputs rather than on fully articulated projection rounds with documented timelines and responsibilities. While this arrangement has functioned adequately to ensure the use of a common baseline, it limits MINFIN's ability to independently reproduce the baseline paths internally or to systematically assess the implications of changes in assumptions. The mission noted that the timing and content of macroeconomic updates are not always governed by a formalized calendar, and the scope of variables and projection horizons shared through the CTFP does not always fully match MINFIN's operational needs for medium-term fiscal planning.

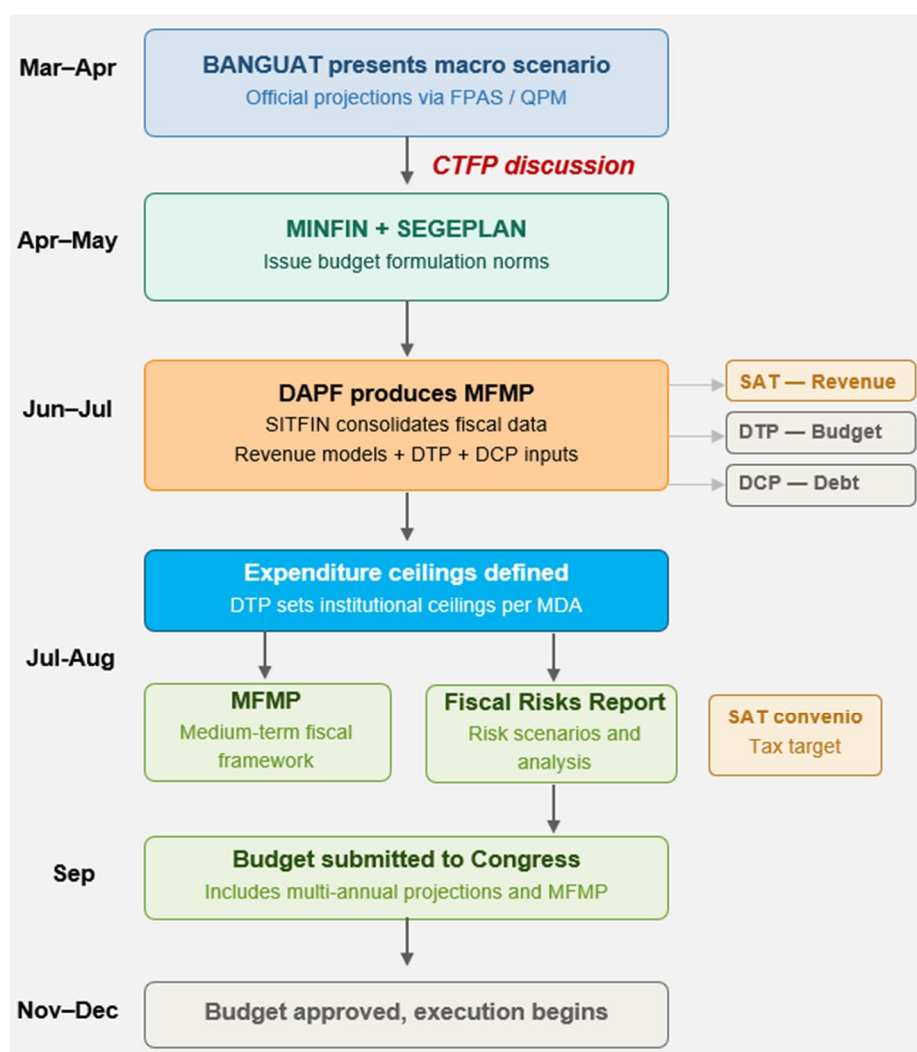
23. The mission identified specific informational constraints that affect MINFIN's analytical work. While BANGUAT provides growth and inflation scenarios for the macroeconomic baseline, projections for some variables are limited to a one-year-ahead horizon, and certain variables used in fiscal analysis, such as the nominal exchange rate, are not routinely projected by BANGUAT for MINFIN's purposes. This creates practical gaps that the DAPF must fill through ad hoc internal estimates, without the support of a structured macroeconomic model. The authorities noted that they would benefit from greater breadth in the variables and horizons covered by the information shared through formal coordination channels, while acknowledging the analytical complexity this entails for the producing institution.

24. The budget formulation process provides a structured but time-constrained channel for applying macroeconomic assumptions. Following the presentation of the macroeconomic scenario by BANGUAT, MINFIN and SEGEPLAN jointly issue budget formulation norms to guide institutional budget submissions. Within this cycle, the Technical Directorate of Budget (DTP) begins requesting information from public institutions in February–March, elaborates expenditure ceilings in May, and communicates them to entities by May or June. Institutions must submit their draft budgets (“*anteproyectos*”) by July 15. The DTP begins reviewing them that same month, consolidates them in the system by July and August, and submits the draft Budget to Congress on September 2 (Figure 1). The revenue envelope underpinning the initial stage of the process is based on estimates from the DTP (for treasury and earmarked revenues), the DCP (for internal and external credit), and other entities (for own-source revenues and donations).

25. A notable feature of Guatemala's budget structure is that over 93 percent of revenues are allocated according to constitutional mandates and legal provisions. This legal rigidity means that the

accuracy of total revenue estimates, driven by macroeconomic developments, is one of the main determinants of the fiscal space available for policy priorities. The budget timetable, however, leaves limited room for iterative discussion of macroeconomic assumptions, scenario analysis, or assessment of fiscal implications before expenditure ceilings are finalized. A more structured internal capacity to rapidly assess the implications of updated macroeconomic assumptions would strengthen MINFIN's contribution to this process.

Figure 1. Guatemala's Budget Process



26. Coordination with SAT on revenue projections follows a specific mechanism. Under the Organic Law of the SAT, MINFIN and SAT formalize their coordination through an annual tax target agreement (“Convenio de Metas”), which requires a favorable opinion from SAT's Board of Directors. The DAPF uses GDP projections from BANGUAT and revenue data from SAT as inputs for its own revenue analysis and is currently seeking to strengthen the link between specific macroeconomic variables and revenue projections. However, this work is not yet supported by a fully articulated macroeconomic framework that could provide endogenous, internally consistent paths for these variables across the projection horizon. An MPT capable of generating medium-term trajectories for GDP components, import

dynamics, and price developments would improve the analytical basis for both the DAPF's revenue analysis and its discussions with SAT during the “*Convenio de Metas*” process¹.

27. Strengthening documentation of assumptions, projection vintages, and update cycles would improve transparency and facilitate more structured analytical dialogue across institutions. The development of an internal macroeconomic framework within MINFIN, as proposed under this project, would also contribute to more productive coordination by enabling MINFIN to engage with BANGUAT's projections on a more informed analytical basis.

C. Analytical Frameworks

28. The mission confirmed that BANGUAT relies on forward-looking and semi-structural models to inform its macroeconomic projections, reflecting its mandate and analytical needs. A November 2025 IMF technical assistance report by the Monetary and Capital Markets Department reviewed BANGUAT's Forecasting and Policy Analysis System (FPAS) and found that the central bank has developed a Quarterly Projection Model (QPM) and adopted more forward-looking decision-making processes, while noting room for improvement in the governance and integration of the forecasting process. BANGUAT's Macroeconomic Analysis and Forecast Department, which includes sections for Financial Programming and Inflation Analysis, employs multiple model classes for forecasting, including ARIMA, VARs, SVARs, and conditional macroeconomic models, as documented in earlier evaluations of its inflation forecasting toolkit. These tools are well suited to BANGUAT's monetary policy mandate but are designed for purposes and at frequencies that differ from MINFIN's needs.

29. MINFIN's analytical requirements are fundamentally different in purpose, frequency, and technical complexity. BANGUAT's Forecasting and Policy Analysis System, centered on a Quarterly Projection Model (QPM), is internally consistent and well documented, and is well suited to the quarterly, gap-based analysis required by an inflation-targeting central bank. MINFIN's analytical needs, by contrast, call for an annual, level-based framework with sufficient granularity to support medium-term fiscal projections, the analysis of specific revenue and expenditure determinants, and the production of indicators that BANGUAT does not publish externally. These requirements are met not by replicating BANGUAT's framework, but by developing an annual, level-based, accounting-consistent tool that produces projections aligned with the official baseline while extending coverage to MINFIN-specific variables and horizons.

30. In this context, the objective for MINFIN is not to replicate BANGUAT's modeling approach, but to develop an internal macroeconomic framework capable of generating projections aligned with the official baseline and conducting scenario analysis. The objective is to equip MINFIN with a framework capable of conducting scenario and risk analysis over the official baseline. The tool will be able to align with, or superimpose, BANGUAT's baseline as a starting point, but its central value lies in enabling MINFIN to construct alternative scenarios, assess the macroeconomic implications of fiscal policy decisions, and support the MFMP and the Fiscal Risks Report with internally consistent narratives. Alignment with the official baseline is therefore a property of the tool rather than its end purpose; the purpose is internal analytical capacity for scenario and risk analysis.

¹ During 2024 and 2025, they succeeded in linking the Medium-Term Fiscal Framework with SAT's Strategic Plan.

31. MINFIN's current analytical practice reflects the constraints of operating without an internal macroeconomic framework. In the absence of a structural model, the DAPF relies on the SITFIN as its primary analytical instrument. While the SITFIN is a well-maintained and operationally indispensable for fiscal data consolidation and reporting, it was not designed for macroeconomic projection. Few macroeconomic variables, limited to real and nominal GDP, inflation, imports and exports, enter the SITFIN as exogenous assumptions taken from BANGUAT, without any internal mechanism to verify their cross-sectoral consistency or to trace their implications for the fiscal accounts. Scenario analysis is carried out by varying these exogenous inputs manually and comparing the resulting fiscal paths, without general equilibrium feedback effects. As a result, changes in fiscal policy do not translate into changes in real GDP or inflation within the tool, and macroeconomic shocks do not propagate through the fiscal accounts in a structured manner. Thus, both the MFMP and the Fiscal Risks Report, would benefit from a framework capable of generating endogenous macroeconomic paths and strengthening the analysis.

32. The mission concluded that the Comprehensive Adaptive Expectations Model (CAEM) provides the most appropriate analytical framework for this purpose. The CAEM is an Excel-based, sector-consistent macroeconomic model that combines behavioral equations for real demand components, a Phillips curve for inflation, a monetary policy rule, and an exchange rate equation, with sectoral accounting identities for the fiscal, external, and monetary sectors. It operates at annual frequency, uses error-correction mechanisms and adaptive expectations. The CAEM represents a natural evolution from the FPP logic already familiar to DAPF staff, while introducing the macroeconomic structure and feedback mechanisms currently absent from MINFIN's toolkit.

D. Existing Tools and Work Practices within MINFIN

33. The mission's review of the coverage, integration, and use of available analytical tools within MINFIN suggests that none provides a fully integrated projection capability. MINFIN has developed or received through technical assistance a number of Excel-based tools to support macroeconomic and fiscal analysis. However, their use varies significantly across units and over time, and none currently provides a fully integrated macroeconomic projection capability.

34. The most comprehensive tool identified by the mission is a Financial Programming and Policies (FPP) type model developed with support from Swiss cooperation (2014–2018) and CAPTAC-DR (2019–2020). This framework is a large Excel workbook containing over 170 worksheets, including accounting consistency matrices for 2017–2026 across all four macroeconomic sectors (real, fiscal, external, monetary), detailed data entry sheets for each sector, inter-sectoral linkage tables tracking the flow of funds between the government, private sector, monetary sector, and external accounts, assumptions modules with international economic data from the WEO and other sources, and graphical and tabular outputs. The model also includes sheets for debt sustainability analysis, production sector breakdowns, and input-output matrices. The data was last updated through April 2024.

35. Despite its comprehensive structure, the FPP model is not actively used by the DAPF because of its complexity and the lack of documentation explaining how to operate it. The main obstacle is the absence of user manuals to ensure reproducibility and to explain how to correctly interpret the results for decision-making. Following staff turnover, current DAPF staff cannot fully understand or operate the model, as the previous team left no user manuals, methodology notes, or updating protocols.

The authorities noted that this is the key lesson learned from previous technical assistance: without adequate documentation, even a well-designed tool becomes inaccessible after staff changes. This experience directly shaped the authorities' emphasis on documentation as a core requirement of the proposed project. The tool also lacks behavioral equations to capture transmission mechanisms and adequately reflect macro-fiscal linkages. Nevertheless, the FPP model's structure provides a valuable conceptual foundation for the new tool, as its cross-sectoral accounting consistency and its database of historical macroeconomic series are closely aligned with the CAEM approach and will be leveraged in developing the MPT..

36. The tool currently in active operational use is the SITFIN, an Excel-based fiscal projection workbook used by the DAPF to produce the baseline fiscal scenario for the MFMP and other reporting products. The SITFIN consolidates fiscal data from multiple internal sources—DTP for expenditure, DCP for debt, SAT for revenue—into a single framework covering central government revenue, expenditure, financing, and debt, with historical data extending back to 2005 and projection horizons through 2031. Revenue and expenditure are classified following the MEF 86 structure (the officially applicable fiscal classification in Guatemala). The workbook also contains sheets for the MFMP projections, debt maturity profiles, investment data for the central administration, and a presentation format used for the MFMP.

37. While the SITFIN is operational, its analytical structure is limited. The tool is essentially a data consolidation instrument: it assembles fiscal information from different sources into a unified template, with copies of sheets used for updates across projection rounds. Critically, the SITFIN does not contain macroeconomic behavioral equations, does not model the feedback effects of fiscal policy on economic activity, and does not produce endogenous projections of prices, exchange rates, interest rates, or GDP components. Macroeconomic variables enter as exogenous assumptions taken from BANGUAT, without an internal mechanism to ensure cross-sectoral consistency or to trace the implications of changes in macroeconomic conditions for the fiscal accounts. These limitations are clearly reflected in the MFMP 2025–2029, where the discussion of fiscal multipliers and macroeconomic scenario analysis, while present, is not derived from a structural model. The DAPF received training on a DSGE-based platform, FISLAC, from the Inter-American Development Bank (IDB), but this is not operational and the engagement with the IDB has concluded.

38. The DAPF has developed internally built Excel models for tax revenue projections, coordinated with SAT through the annual “Convenio de Metas” process. These models link revenue to macroeconomic variables, primarily through simple elasticity-type relationships with nominal GDP and total imports. Lack of more disaggregated data (such as private consumption paths, and GDP projections from the production approach) limits the capacity to project revenues with the relevant tax bases. The authorities noted their interest in strengthening the link between specific macroeconomic variables and revenue projections, which the CAEM framework would facilitate by providing endogenous paths for these variables.

39. The absence of general equilibrium feedback effects is the most important analytical limitation of MINFIN's current scenario analysis framework. Scenarios are constructed by varying exogenous inputs from BANGUAT and comparing the resulting fiscal paths, without any mechanism

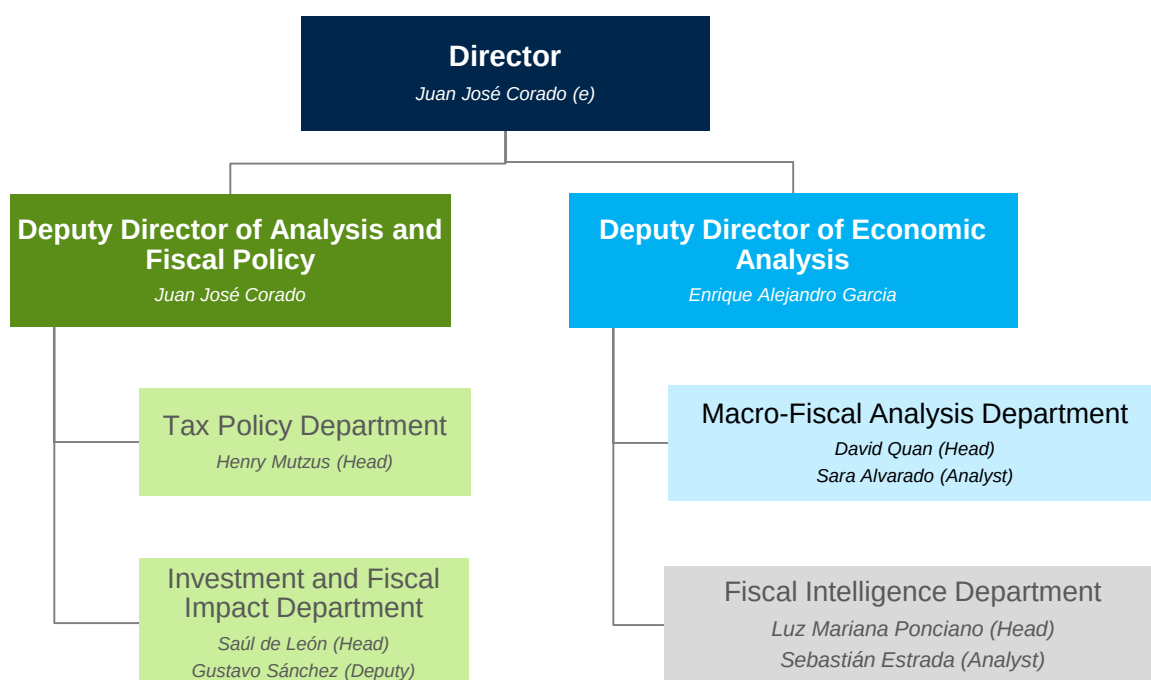
through which fiscal policy changes affect real GDP, inflation, or interest rates, or through which macroeconomic shocks propagate through the fiscal accounts.

40. The proposed CAEM-based MPT would address these constraints by providing the macroeconomic structure currently absent from the toolkit. The development of the TA project will result in an MPT able to generate internally consistent paths for GDP components, prices, interest rates, exchange rates, and fiscal accounts, fully capturing feedback effects and allowing the DAPF to produce macroeconomically coherent alternative scenarios.

E. Staffing and Capacity Considerations

41. Macroeconomic analysis within MINFIN is carried out by a relatively small group of professionals within the DAPF. Based on information provided by the authorities, the DAPF currently includes approximately seven staff members of which only three are directly involved in macroeconomic projections: the deputy director of economic analysis, and the Department of Macro-Fiscal Analysis comprised of two individuals.

Figure 2. Organigram for the Direction of Analysis and Fiscal Policy



42. The technical capacity of the team is adequate to undertake the proposed project, though heterogeneous across areas. However, the mission noted that experience with macroeconomic models, calibration techniques, and model-based scenario analysis is limited. The training component of the proposed TA project, covering financial programming concepts, the CAEM structure, and model operation, is designed to address these gaps and build a common analytical baseline across the core group.

43. The concentration of technical knowledge in a small number of individuals increases operational risk. The lack of standardized documentation and clearly defined workflows further amplifies these risks and complicates onboarding of new staff. The authorities reported that recruitment is difficult given the limited number of permanent positions available and competition with private-sector salaries. Staff are often complemented with temporary contracts, which contributes to retention challenges. The authorities explicitly identified this as a structural constraint: the specialized nature of the work, combined with the historical absence of documented processes, means that any departure creates a significant knowledge gap.

44. The authorities highlighted the need to strengthen institutional memory through improved documentation, clearer role definition, and more systematic training aligned with international good practices. The experience with the FPP model, where knowledge was concentrated in individuals who departed without leaving documentation, was cited as a cautionary case. The proposed project addresses this directly by making documentation deliverable at every stage, by training multiple staff members, and by producing a user manual and update protocols as integral project outputs.

F. Data, Databases, and Update Practices

45. The mission reviewed data sources, database arrangements, and update practices supporting macroeconomic projections within MINFIN. Data used for macroeconomic and fiscal analysis is drawn primarily from official sources: BANGUAT for macroeconomic aggregates and assumptions; SAT for tax collection data (accessed directly by the DAPF); and the SICOIN-SIAF system for budget execution and government accounting data. Additional inputs are obtained from other institutions as needed.

46. Data management practices remain largely decentralized and spreadsheet-based. Most datasets are maintained in Excel files stored at the unit or individual level, with limited use of centralized repositories. The authorities reported that they are currently in the process of systematizing information to create an internal centralized data repository and are exploring the automation of specific data download processes. However, at the time of the mission, there was no standardized system for version control, archival of historical vintages, or documentation of data transformations.

47. Update practices for macroeconomic inputs are not governed by a formalized projection calendar. While BANGUAT provides updated macroeconomic assumptions periodically (typically between March and April for the budget cycle), the timing and incorporation of these updates into MINFIN's internal tools vary across units and products. As a result, different analytical outputs may rely on assumptions from different vintages, without this being explicitly documented.

48. The mission noted that responsibilities for updating data and assumptions are not always clearly assigned. In some cases, updates depend on the availability of specific staff members, reinforcing reliance on individual knowledge rather than institutional processes. Documentation of data sources, update frequency, and transformation steps is limited, making it difficult for new staff to take over existing tools. The authorities also noted challenges related to the structure of the SICOIN-SIAF system for data extraction and the desire for greater breadth in the macroeconomic variables provided by BANGUAT.

49. Strengthening data and update practices is therefore a key priority for improving the sustainability and reliability of macroeconomic frameworks within MINFIN. This does not require sophisticated IT systems, but rather clearer conventions regarding data ownership, standardized templates, basic version control, and systematic documentation of assumptions and update procedures. The proposed project includes the creation of a centralized, documented macroeconomic and fiscal database as an early deliverable.

50. The mission team also welcomes the participation of BANGUAT staff in the project's capacity development activities, should both institutions consider it mutually beneficial. While BANGUAT's forecasting mandate and analytical toolkit differ from MINFIN's, exposure to the financial programming framework underlying the MPT could strengthen BANGUAT staff's understanding of the macroeconomic projection process for budget purposes and deepen their appreciation of MINFIN's analytical needs. Joint participation in selected training sessions could also contribute to more productive inter-institutional dialogue on macroeconomic assumptions and their fiscal implications, reinforcing the coordination mechanisms already in place through the CTFP. Any such arrangement would be subject to agreement between MINFIN and BANGUAT authorities and would be designed to complement rather than interfere with BANGUAT's own forecasting processes and institutional responsibilities.

Table 1. DAPF's Key Data Sources for Fiscal Analysis

Variable / Area	Source	Access
GDP, inflation, macro aggregates	BANGUAT	Public data; specific requests
Tax revenue (collection data)	SAT	Direct access
Budget execution, accounting	SICOIN-SIAF	Direct access
Debt stocks, debt service	DCP (MINFIN)	Internal
Expenditure ceilings, budget	DTP (MINFIN)	Internal
International assumptions	WEO, WTI, EMBI	Public data

III. PROPOSED ACTION PLAN

A. Objective and Work Axes

51. The main objective of the technical assistance project is to support the DAPF in improving its macroeconomic forecasting and policy analysis capacity. ICD will provide technical assistance to the Department of Economic Analysis of the DAPF to strengthen the structure and consistency of the current forecasting and policy analysis system, building upon existing tools and the conceptual foundation of previous FPP-type work. The project is designed to directly improve the analytical content of the MFMP and other DAPF products by providing a macroeconomic framework that generates internally consistent projections and enables structured policy analysis. By the end of the project, DAPF is expected to be able to produce an internally consistent baseline aligned with BANGUAT projections, run alternative macroeconomic scenarios, and use the resulting outputs to support the MFMP and Fiscal Risks analysis.

52. Based on identified needs and existing institutional arrangements, the mission team and the authorities agreed on the following work axes:

- a. Develop a macroeconomic projections tool (MPT) based on the CAEM².** The MPT will incorporate: (i) estimates of potential output; (ii) behavioral equations for real GDP demand components (private consumption, private investment, exports, imports); (iii) a Phillips curve for CPI inflation; (iv) a monetary policy rule for the interest rate; (v) an exchange rate equation based on UIP-PPP conditions; (vi) deflators for each demand component; (vii) fiscal sector accounts with feedback effects to economic activity; (viii) external sector accounts (balance of payments); and (ix) monetary sector accounts. The tool will be implemented in Excel and calibrated to Guatemala using historical data from the FPP model, the SITFIN, and BANGUAT sources.
- b. Integrate the SITFIN and existing revenue models.** The MPT will be designed to complement SITFIN by providing the macroeconomic projections that currently enter this tool as exogenous assumptions. Over time, the link between the two tools will be strengthened to ensure that macroeconomic scenarios automatically update the fiscal projections. Existing revenue models developed by the DAPF will be reviewed for possible integration as satellite tools.
- c. Link projections with the Debt Dynamics Tool (DDT).** The DDT will be integrated into the MPT to enable debt sustainability and risk analysis consistent with macroeconomic projections, including shocks on roll-over rates and refinancing conditions, and a more detailed analysis of liquidity indicators. This will also complement the effort of the DCP to enhance the production of the Medium-Term Debt Strategy (MTDS) and deepen the public debt sustainability analysis.
- d. Provide training in financial programming and macroeconomic analysis.** The project will include structured training sessions on financial programming concepts, the CAEM model structure

² If progress in developing CAEM goes faster than planned, the mission could discuss with the authorities of possibility of extension to build labor market block.

and equations, macroeconomic diagnosis, and model operation. Training will concentrate during the early missions but reinforced throughout the project.

- e. **Strengthen data management practices.** The project will support the creation of a centralized, documented macro-fiscal database that serves as the single source of truth for the MPT, including standardized templates, version control conventions, and documented update protocols. Minimum data governance standards will be established early in the project, covering: (i) a clear hierarchy of sources for each variable, distinguishing official from supplementary data; (ii) defined update frequencies and a publication calendar consistent with BANGUAT and SAT release dates; (iii) version control of input files with traceable identifiers; (iv) automated and manual validation checks (range, accounting identities, year-on-year consistency); (v) assigned ownership by variable or block, with backup arrangements; and (vi) systematic archival of historical data vintages to support forecast-error analysis and reproducibility. These standards will be embedded in the database design and codified in the user manual.
- f. **Produce comprehensive documentation.** A user manual will be developed covering model structure, data update procedures, projection production, and scenario construction. Methodology notes will document the calibration choices and the rationale for key model parameters.
- g. **Adapt the outputs of the MPT to reinforce DAPF's communication instruments.** Model outputs will be designed to feed directly into the MFMP and the Fiscal Risks Report, including standardized tables, charts, and scenario descriptions. The project will also support the development of a systematic methodology for forecast error analysis.
- h. **Assist in the production and analysis of macroeconomic scenarios.** The core team will produce baseline and alternative scenarios using the MPT, study the model's properties through sensitivity analysis, analyze the macroeconomic impact of fiscal policy measures.

B. Proposed Macroeconomic Framework

53. The proposed MPT will be based on the Comprehensive Adaptive Expectations Model (CAEM), an ICD tool designed for ministries of finance and central banks seeking to develop integrated macroeconomic projection capabilities.

54. The selection of the CAEM was guided by the specific needs and constraints identified during the scoping mission. ICD considered both the IMF's Macroeconomic Foundations Tool (MFT) and the CAEM as potential frameworks. The CAEM was chosen on three grounds: (i) its fit with the authorities' analytical objectives such as scenario and risk analysis over the official baseline, level forecasts for variables and horizons not produced by BANGUAT, and support for the MFMP and the Fiscal Risks Report with internally consistent macroeconomic scenarios; (ii) its fit with the DAPF's existing capacity, building on the FPP-type expertise developed during prior cooperation and remaining tractable as an Excel-based, annual, sector-consistent framework; and (iii) richer long-run anchoring through error-correction mechanisms on key macroeconomic ratios, supporting the medium-term projection discipline appropriate for the MFMP horizon. The CAEM's structure is methodologically continuous with the previous FPP framework, representing an evolution rather than a fundamentally new approach.

55. The MPT will be calibrated to Guatemala's economy. Calibration will follow a clear order of priorities: first, parameter choices will be disciplined by economic principles and accounting consistency; second, they will be assessed against the model's dynamic properties, including the plausibility of impulse responses, fiscal multipliers, and other adjustment dynamics; and third, where feasible, they will be refined to improve the statistical fit to historical data.

56. The exercise will draw on data from the FPP model for Guatemala (which contains historical macroeconomic series from the late 1990s), the SITFIN (fiscal data from 2005), BANGUAT's publicly available macroeconomic statistics, and international sources (WEO, commodity prices). The calibration process will involve the core team under ICD guidance, ensuring that staff understand the rationale for parameter choices and are able to autonomously update the calibration.

57. The link between the MPT and existing fiscal tools will be developed incrementally. In the initial phase, the MPT will operate alongside the SITFIN, providing macroeconomic scenarios that the DAPF can use as inputs. Over time, the interface between the two tools will be strengthened, with the eventual goal of a workflow where MPT-generated projections automatically populate the SITFIN's macroeconomic assumptions. This gradual approach avoids disruption to the DAPF's current reporting processes while building towards a more integrated analytical system.

58. Alignment with BANGUAT's official projections will follow a structured protocol that respects BANGUAT's forecasting mandate while addressing MINFIN's operational needs. For the variables and horizons covered by BANGUAT's communicated scenario, the MPT will be calibrated to align economic intuition, and properties build in BANGUAT's model, with residuals absorbed through the model's adjustment mechanisms so that internal consistency is preserved. For variables not provided by BANGUAT (for example, the nominal exchange rate beyond the one-year horizon, or specific demand components) or for horizons beyond those communicated, MINFIN will generate its own projections using the MPT, anchored to BANGUAT's published assumptions on the closest available variables and documented transparently in the methodology note. Where the MPT's model-generated baseline differs materially from BANGUAT's communicated scenario, the divergence will be flagged, analyzed, and discussed bilaterally and through the CTFP, with the official baseline retaining precedence for formal MINFIN products. This protocol ensures that internal MINFIN analysis remains anchored to the official baseline while building the analytical capacity to fill gaps and explore alternative scenarios in a disciplined manner.

Box 1. The CAEM Approach to Macroeconomic Forecasting

The Comprehensive Adaptive Expectations Model (CAEM) is an Excel-based macroeconomic framework developed by ICD's General Macro and Fiscal Division. It is designed as a practical tool for producing medium-term macroeconomic projections and conducting policy analysis in a general equilibrium setting, while remaining accessible to staff without advanced econometric training.

Core Macro Model (Annex 3). This component contains behavioral relationships for key macroeconomic variables. On the supply side, it estimates potential GDP and the output gap. On the demand side, it models private consumption, private investment, exports, and imports through error-correction equations driven by income, interest rates, foreign demand, and relative prices. The price block includes a Phillips curve for CPI inflation, a monetary policy rule for the interest rate, and an exchange rate equation based

on UIP-PPP conditions. Deflators allow conversion from real to nominal magnitudes. A reconciliation mechanism ensures supply-demand consistency.

Sectoral Consistency Accounts. Macroeconomic projections feed into accounting frameworks for the fiscal sector (revenues, expenditures, fiscal balance), external sector (balance of payments), public debt (domestic and external, linked to the DDT), and monetary/financial sector (central bank balance sheet, monetary aggregates). Inter-sectoral identities ensure overall macroeconomic consistency, including the savings-investment balance and the fiscal impulse.

The model uses error-correction mechanisms and adaptive expectations, with parameters determined through calibration. The annual frequency is well suited to MINFIN's medium-term planning needs.

C. Delivery Schedule

Mission Plan and Topics	Estimated Dates
Scoping Mission. Assess capacity and macroeconomic analysis system. Agree on action plan. Finalize scoping report.	March 2026
Mission 1. Review of macroeconomic forecasting process. Training on Financial Programming — Part 1. Analyze macroeconomic accounts and model equations. Examine available data and initial MPT version.	July 2026
<i>In-between: Review FPP material. Complete database. Progress on initial calibration.</i>	
Mission 2. Complete first calibration and analyze predictions. Training on Financial Programming — Part 2. Examine MPT sectoral accounts. Agree on documentation production.	September 2026
<i>In-between: Progress on documentation. Update data, check consistency.</i>	
Mission 3. Review calibration. Produce initial baseline scenario and present to management. Discuss forecasting calendar.	December 2026
<i>Note: The Mission 3 baseline would constitute a first-cut, limited-scope baseline in the event that data gaps persist.</i>	
<i>In-between: Document forecast production. Complete DDT online course.</i>	
Mission 4. Update baseline and analyze forecast errors. DDT integration. Produce alternative risk scenarios. Discuss revamped reports.	March 2027
<i>In-between: Document alternative scenarios. Initial revamped reports.</i>	
Mission 5. Fiscal and monetary policy scenarios. Study fiscal multipliers. Analyze the macroeconomic impact of fiscal policy measures. Present to management. Review reports.	June 2027
<i>In-between: Work on extensions. Documentation. Adjust reports.</i>	
Mission 6. Finalize extensions. Review and enhance communication instruments including MFMP content.	September 2027

<i>In-between: Data update adjustments. Final documentation and reports.</i>	
Mission 7. Updated scenarios. Review documentation. Final recommendations and closure.	December 2027

D. Sustainability Considerations

59. The single greatest risk to sustainability is the loss of institutional knowledge, and documentation is the primary safeguard against it. The authorities highlighted the lack of documentation as the key weakness of previous efforts, where knowledge was concentrated in individuals who departed without leaving institutional records. The project will emphasize documenting data sources, assumptions, methodologies, and update procedures from the outset. A comprehensive user manual and methodology note will be produced as integral project deliverables.

60. Sustainability requires that the MPT become embedded in the DAPF's regular workflow rather than treated as a standalone exercise. Strengthened macroeconomic projections are expected to support existing products, including the Medium-Term Fiscal Framework and the Fiscal Risks Report, without introducing parallel processes. By designing the MPT's outputs to feed directly into the MFMP and the Fiscal Risks Report, the project ensures that the tool serves an immediate operational purpose from the outset, creating a natural incentive for the team to maintain and update it regularly.

61. Concentrating technical knowledge in a single individual is the most common cause of tool abandonment, and the project is explicitly designed to prevent it. To reduce key-person risk, the training component will target the full core group rather than a select few individuals. In-between-missions work assignments will be distributed across team members, with backup arrangements for each sectoral area.

62. The project's gradual approach and methodological continuity are designed to foster ownership and reduce the risk of the tool being perceived as externally imposed. The project builds on the existing institutional framework and MINFIN's own FPP-type conceptual background. The CAEM is not a fundamentally new paradigm but an enhanced version of the financial programming approach already familiar to the team, making the transition manageable for staff and less disruptive to existing analytical workflows.

63. Beyond the project horizon, sustainability will depend on continued institutional engagement and MINFIN's own analytical ownership. CAPTAC-DR, which provided earlier technical assistance on macroeconomic frameworks to the DAPF, represents a natural partner for follow-up support after the conclusion of ICD's engagement in December 2027. Coordination with CAPTAC-DR will be explored as the project matures, with a view to ensuring continuity of support for model maintenance, recalibration, and staff training as the team evolves over time. More broadly, the project is designed with the explicit objective of building lasting internal capacity rather than creating dependency on external technical assistance. By the end of the engagement, the core team should be capable of operating, updating, and documenting the MPT independently, producing the baseline scenario autonomously, and training new staff using the materials developed during the project. The measure of success is not the tool itself, but MINFIN's ability to sustain and build upon it without ongoing ICD involvement.

E. Risks and Mitigation Strategies

64. Staff turnover represents the most structurally embedded risk to the project, given the DAPF's reliance on temporary contracts and competition with private-sector salaries. Although the number of DAPF staff working on the project is adequate, there is a risk of continuity disruption if key team members depart. As mitigation, emphasis will be placed from the outset on documentation, training material, and cross-training of multiple staff members. The project's user manual and methodology notes are designed to serve as standalone onboarding resources for new staff. To further mitigate this risk, DAPF management has committed to: (i) time-allocation for the core team, protecting a defined share of staff time for project activities during mission preparation, missions, and in-between-missions work; (ii) designated backup responsibilities, with at least two staff members trained on each model block so that no single departure halts work on a given sector; and (iii) explicit ownership of each model block (real sector, fiscal sector, external sector, monetary sector, debt block) assigned to named staff members, with the Deputy Director of Economic Analysis acting as overall project coordinator. These commitments will be reaffirmed at the start of the project and reviewed at the conclusion of each mission.

65. The DAPF's demanding reporting calendar creates a real risk that project work will be crowded out during peak periods, requiring active scheduling management from the outset. The DAPF maintains obligations including monthly fiscal reports, the MFMP, and the Fiscal Risks Report, which may limit the time available for project work. To mitigate this risk, the mission schedule will be aligned with the DAPF's reporting calendar to avoid conflicts, and in-between-missions work will be structured in manageable increments. DAPF management has committed to prioritizing the project within the unit's work plan.

66. Gaps in the scope and historical depth of macroeconomic data available to MINFIN could constrain the MPT calibration and data population/mapping, requiring a pragmatic and transparent approach to data management throughout the project. The scope of macroeconomic data currently shared through inter-institutional channels may not fully cover all variables needed for calibration, and short historical time-series for some variables may create additional challenges. The project will supplement official data with publicly available BANGUAT statistics and international sources. Calibration choices will be documented transparently, and sensitivity analysis will be used to assess the impact of data uncertainty.

67. The seven-mission cadence over approximately eighteen months is intensive but assessed to be workable, conditional on counterpart availability, timely hiring, and disciplined documentation flows. The scoping mission specifically assessed three operational preconditions for the proposed pace. First, counterpart availability: discussions with DAPF management and the Department of Macro-Fiscal Analysis confirmed that the core team has the willingness and seniority to engage on the proposed cadence, with mission timing aligned to the DAPF's reporting calendar to avoid peak periods (notably MFMP preparation and the budget cycle). Second, hiring of additional staff: the action plan is contingent on the recruitment of at least two additional analysts to the Department of Macro-Fiscal Analysis ahead of the first mission, as reflected in Annex 1; MINFIN has expressed commitment to advance these hires, and the first mission's start date will be confirmed once hiring is on track. Third, timely transmission of documentation and data between missions: a documented protocol will be established at the first mission, specifying the data, intermediate outputs, and questions to be exchanged ahead of each mission, with two-week advance deadlines. Slippage on any of these three preconditions would trigger a reassessment of the mission schedule rather than a compression of mission content.

68. Prior IDB FISLAC training on DSGE modeling complements this project rather than overlapping with it. The two frameworks serve different purposes: DSGE models are suited to structural analysis, while the CAEM is designed for medium-term fiscal projection and policy communication. The DAPF's exposure to DSGE concepts nonetheless represents a valuable methodological foundation that may enrich the team's analytical thinking as the MPT is developed.

69. The project enters implementation with strong expressions of institutional commitment at the highest level of MINFIN's technical leadership. The Vice-Minister of Revenue and Fiscal Evaluation, Ms. Patricia Joaquín, underscored the strategic importance of the project for articulating MINFIN's forecasting and policy formulation process and for strengthening the institution's capacity to communicate macroeconomic and fiscal developments to international organizations, rating agencies, the Congress, BANGUAT, and the population at large. The Director of the DAPF also expressed full commitment to the project. The project's design, building on existing tools, respecting institutional mandates, and targeting concrete improvements in the MFMP and other products, is intended to maintain this support by demonstrating early and visible results.

Annex 1. Core Group

Dirección de Análisis y Política Fiscal (DAPF) — Ministry of Public Finance

Departamento de Análisis Macro-Fiscal

The core group will be the staff of the Department of Macro-Fiscal Analysis, to which at least two staff members are expected to be added. The final composition of the core group, including individual names and specific responsibilities, will be confirmed at the start of the first mission, which is conditional on the hiring of the new staff.

The core group will be coordinated by the Deputy Director of Economic Analysis, who will evaluate progress and ensure alignment with the DAPF's reporting calendar and work plan. Participants from other MINFIN departments, BANGUAT and SAT could be invited to specific sessions as appropriate, particularly for discussions on macroeconomic assumptions, data, and inter- and intra-institutional coordination.

Table A1. Core Group

Name	Academic Background	Previous ICD Training Participation				
		FPP	MDS	FPA	FS/DDT	FF
Enrique Alejandro Garcia <i>Deputy Director of Economic Analysis</i>	Economist, MSc Applied Economics, MSc Statistics	Yes			Yes	
David Quan <i>Head of Department of MacroFiscal Analysis</i>	Economist, MSc Fiscal Policy, MSc Economics	Virtual Only			Virtual Only	
Sara Alvarado <i>Analyst</i>	Business Administration					
<i>Incoming Staff 1 Analyst</i>	<i>Economist (expected)</i>					
<i>Incoming Staff 2 Analyst</i>	<i>Economist (expected)</i>					

Annex 2. Final Mission Agenda

Guatemala: Technical Assistance Project on Macroeconomic Frameworks Scoping Mission – Schedule of Meetings March 23–27, 2026		
Day and Time	Counterpart	Topic
Monday, March 23		
9:00–10:30 AM	MINFIN – Minister and Vice-Ministry	Opening meeting: objectives of the mission and expectations
10:30 AM–12:00 PM	MINFIN – DAPF	Overview of macroframework, processes and tools
2:00–3:30 PM	MINFIN – DTP	Link between macroeconomic and macro-fiscal framework and budget formulation
3:30–5:00 PM	Internal team	Internal debrief
Tuesday, March 24		
9:00–10:30 AM	MINFIN – DAPF (technical team)	Fiscal block, assumptions and scenario analysis
10:30 AM–12:00 PM	BANGUAT	Macroeconomic baseline and coordination with MINFIN; forecasting processes; macroeconomic projections tools; analytical work; monetary policy statement
2:00–3:30 PM	SAT	Revenue forecasting and coordination mechanisms; institutional arrangements; tools and information; assessment of current methods
3:30–5:00 PM	MINFIN – Technical session	Tools in use and not in use (incl. FPP)
Wednesday, March 25		
9:00–10:30 AM	MINFIN – DAPF	Risk analysis and validation processes
10:30 AM–12:00 PM	SEGEPLAN	Plan–budget linkage and medium-term planning; coordination for budget preparation including MFMP; use of macroeconomic projections; risk analysis priorities

2:00–3:30 PM	MINFIN – DCP	Use of macro assumptions for financing and debt strategy
3:30–5:00 PM	Internal team	Discussion of findings; synthesis and preparation of closing
Thursday, March 26		
9:00 AM–5:00 PM		Mission team finalizes and translates TAR
Friday, March 27		
9:00–10:30 AM	MINFIN – Minister and Vice-Ministry	Closing meeting: preliminary findings and next steps; presentation of key findings; Technical Assistance Report draft; action plan proposal and agreement

Annex 3. Initial CAEM equations

Private Consumption:	$c_t = \beta_1^c c_{t-1} + (1 - \beta_1^c) y_t^d - \beta_2^c (r_t^L - \bar{r}_t^L) - \lambda_c \left[\frac{P_{t-1}^C C_{t-1}}{P_{t-1}^Y \bar{Y}_{t-1}} - \gamma_C \right] + \varepsilon_t^c$
Private Investment	$n_t = \beta_1^n n_{t-1} + (1 - \beta_1^n) y_t - \beta_2^n (r_t^L - \bar{r}_t^L) - \lambda_n \left[\frac{P_{t-1}^N N_{t-1}}{P_{t-1}^Y \bar{Y}_{t-1}} - \gamma_N \right] + \varepsilon_t^n$
Export of Goods and Services	$x_t = \beta_1^x x_{t-1} + \beta_2^x y_t^* + \beta_3^x (\pi_t^{*,x} + s_t - \pi_t) - \lambda_x \left[\frac{P_{t-1}^X X_{t-1}}{P_{t-1}^Y \bar{Y}_{t-1}} - \gamma_X \right] + \varepsilon_t^x$
Import of Goods and Services	$m_t = \beta_1^m m_{t-1} + \beta_2^m y_t - \beta_3^m (\pi_t^{*,m} + s_t - \pi_t) - \lambda_m \left[\frac{P_{t-1}^M M_{t-1}}{P_{t-1}^Y \bar{Y}_{t-1}} - \gamma_M \right] + \varepsilon_t^m$
Headline Inflation	$\pi_t = w_f \pi_t^{food} + w_e \pi_t^{fuel} + (1 - w_f - w_e) \pi_t^{core}$
Inflation Expectation	$\pi_{t+1}^e = \omega_\pi \pi_t + (1 - \omega_\pi) \bar{\pi}$
Core Inflation Dynamic (Philips Curve)	$\pi_t^{core} = \theta_1 \pi_{t-1} + (1 - \theta_1) \pi_{t+1}^e + \theta_2 (\pi_t^{*,m} - \bar{\pi}^{*,m}) + \theta_3 (s_t - \bar{s}) + \theta_4 \hat{Y}_t + \varepsilon_t^\pi$
Import Price Inflation (USD)	$\pi_t^{*,m} = \omega_O^M \pi_t^{*,O} + (1 - \omega_O^M) \pi_t^{*,M,NO}$
Export Price Inflation (USD)	$\pi_t^{*,X} = \omega_O^X \pi_t^{*,O} + (1 - \omega_O^X) \pi_t^{*,X,NO}$
Monetary Policy Rate (Taylor Rule)	$i_t = \rho i_{t-1} + (1 - \rho) [\bar{i} + \alpha_1 (\pi_t^e - \bar{\pi}) + \alpha_2 \hat{Y}_t] + \varepsilon_t^i$
Nominal Exchange Rate	$S_t = \left(\frac{1 + i_t^* + \zeta_t}{1 + i_t} \right)^{\phi_1} \left(1 + \frac{P_t^M M_t}{P_t^Y Y_t} - \gamma_M - \left(\frac{P_t^X X_t}{P_t^Y Y_t} - \gamma_X \right) \right)^{\phi_2} S_{t+1}^e$

Annex 4. Results Framework

Objective:			
Develop capacity in macroeconomic forecasting and policy analysis to support policy decision making and communications - MFR			
Outcome:			
Authorities have a baseline understanding of their existing forecasting and analytical capabilities and opportunities for improvement			
Annual Assessment Rating:			
Annual Assessment Narrative:			
Outcome Rating Date: 12/5/2025			
Outcome Indicator	Baseline Value	Target Value	Current Assessment Value
Diagnostic/scoping produced an overview of existing (baseline) capacities and opportunities for improvement supported by an action plan and agreed upon key outcomes and deliverables	No	Yes	Yes as of 3/31/2026
Diagnostic/scoping produced a baseline workplan of CD engagement, including a tentative timeline for the CD project, indicative schedule for training and TA missions, and expected key outcomes and deliverables	No	Yes	Yes as of 3/31/2026
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating

Identification and agreement on the appropriate macroeconomic projection tool(s) to be strengthened or developed, consistent with institutional capacity.	3/27/2026	3/27/2026	4 Fully Achieved as of 3/31/2026
Agreement on a preliminary, time-bound technical assistance action plan outlining objectives, sequencing, and responsibilities.	3/27/2026	3/27/2026	4 Fully Achieved as of 3/31/2026
Outcome:			
Analytical models and forecasting tools are developed and operational			
Annual Assessment Rating:			
Annual Assessment Narrative:			
Outcome Rating Date: 12/5/2025			
Outcome Indicator	Baseline Value	Target Value	Current Assessment Value
Macroeconomic Projection Tool (MPT) is developed in the form of an Excel-based macroeconomic framework for forecasting and policy analysis, respecting accounting relationships	No	Yes	
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating
Initial operational use of the framework to produce a baseline macroeconomic projection consistent with official assumptions.	12/31/2026		
Development of a macroeconomic projection framework supporting baseline projections and scenario analysis.	12/31/2026		

Macroeconomic projection framework reviewed and refined following first operational use, incorporating feedback from MINFIN/DAPF staff.	3/31/2027		
Scenario analysis module developed and tested, enabling policy simulations around key macroeconomic assumptions (e.g., growth, exchange rate, fiscal stance).	10/29/2027		
User manual and technical documentation for the MPT finalized and validated by MINFIN/DAPF staff.	12/31/2027		
Outcome:			
Improved analytical skills, and better macroeconomic forecasting and policy analysis capacity			
Annual Assessment Rating:			
Annual Assessment Narrative:			
Outcome Rating Date: 12/5/2025			
Outcome Indicator	Baseline Value	Target Value	Current Assessment Value
Relevant staff demonstrates the capability to independently operate the MPT and other auxiliary analytical models and tools	Staff have not demonstrated capability at the start of the project.	Staff independently operates the tool.	
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating
Staff demonstrate the ability to update macroeconomic projections.	12/31/2026		

MINFIN/DAPF staff deliver an internal presentation of MPT-based projections to senior management or policymakers.	12/31/2026		
Staff demonstrate the ability to construct and interpret alternative macroeconomic scenarios for policy analysis purposes.	6/30/2027		
Staff demonstrate the ability to identify data discrepancies and perform basic diagnostic checks on model outputs.	6/30/2027		
Staff produce an independently drafted macroeconomic outlook note or briefing drawing on MPT outputs, without technical assistance support.	6/30/2027		