



TECHNICAL ASSISTANCE REPORT

MONGOLIA

Macroeconomic Framework Technical Assistance: Scoping Mission

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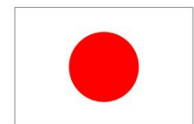
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ACRONYMS AND ABBREVIATIONS

BOM.....	Central Bank of Mongolia
CAEM.....	Comprehensive Adaptive Expectations Model
CD.....	Capacity Development
DDT.....	Debt Dynamic Tool
FFRD.....	Financial and Fiscal Research Department
FPAS.....	Forecasting Analysis and Policy Systems
FPP.....	Financial Programming and Policies
ICD.....	Institute of Capacity Development of the IMF
ICDMF.....	General Macro and Fiscal Division of ICD
IMF.....	International Monetary Fund
MED.....	Ministry of Economy and Planning
MTFF.....	Medium Term Fiscal Framework
MOF.....	Ministry of Finance
MFT.....	Macroeconomic Foundations Tool
MPT.....	Macroeconomic Projection Tool
STA.....	Statistics Department of the IMF
TA.....	Technical Assistance

PREFACE

A Technical Assistance (TA) scoping mission visited Ulaanbaatar, Mongolia from May 24 to June 2, 2023, to assess the macroeconomic forecasting practice at the Financial and Fiscal Research Department (FFRD) of the Ministry of Finance (MOF) of Mongolia. It reviewed the MOF's current macroeconomic modeling and forecasting tools and practices, discussed data quality and availability, learned about staffing and institutional settings.

The mission team consisted of Mrs. Boriana Yontcheva (mission chief), Simone Maciel Cuiabano, Mehdi El-Herradi (all ICD), and Martin Fukac (CCAMTAC).

The mission met with Mr. Ganbat Jigjid (Secretary of State, MOF) to understand the MOF's objectives with respect of macroeconomic forecasting and review the overall purpose of the mission. The key counterpart for the scoping mission was the Department for Financial and Fiscal Research of the MOF including Mrs. Zolboo Ganbold (Director General, FFRD) and her staff (see the list of FFRD officers in Annex C). The mission also met with the Macroeconomic Policy Division at the Ministry of Economy and Development (MED) Mr. Enkh-Amgalan Lkhagvabayar (Director General, MPD), Mr. Munkh-Erdene Batkhishig (Director of Balance of Payments, MPD) and Ms. Uurtsaikh E. (Senior Analyst, MPD).

The diagnosis is based on the information available in May 2023. The findings and recommendations in the report represent the views and assessment of the IMF mission team and do not necessarily reflect those of the authorities. The mission presented its assessment to senior officials from the FFRD and reached agreement "ad referendum" on an action plan to deliver a technical assistance project and a results-based logical framework to assess progress towards the agreed upon outcomes. This report incorporated input and comments from the authorities.

The mission team would like to express its sincere appreciation to the authorities of the MOF and FFRD for their warm welcome and the engaging and constructive discussions. The team would also like to thank all FFRD staff for their hospitality, excellent organization and logistical support throughout the mission.

The mission received excellent administrative support from Ms. Salgado (ICDMF) and invaluable support from the IMF resident representative, Mr. SeokHyun Yoon and his office staff.

The project is funded by the JSA, through the Fiscal and Debt Sustainability Fund.

EXECUTIVE SUMMARY

The mission reviewed the needs, capacity and constraints for the development of institutional macroeconomic forecasting capacity at the Financial and Fiscal Research Department (FFRD) of the Ministry of Finance (MOF) of Mongolia and reach agreement “ad referendum” with the authorities on a technical assistance action plan and logical framework to develop a macroeconomic projection tool (MPT) based on ICD’s Comprehensive Adaptive Expectations Model (CAEM).

Further to Mongolia’s Ministry of Finance (MOF) request, an assessment mission was carried out in Ulaanbaatar from May 24 to June 2, 2023. The mission evaluated FFRD’s current macroeconomic forecasting capacity and identified capacity development needs. Notably, despite FFRD’s ambitious goals in fiscal policymaking, a comprehensive macroeconomic framework for analysis, forecasting, and assessing fiscal policy’s macroeconomic impact is not yet in place.

The FFRD, a recently established department, is tasked with macroeconomic forecasting, assessing the effectiveness of fiscal policies, devising prospective policy actions, and impact analysis, and require a macroeconomic framework based on solid economic principles, adaptable to diverse policy analysis. After considering FFRD’s current capabilities, identified capacity development needs, and their mandates, the mission proposed a simple, customizable, and transparent adaptive expectations model-based macroeconomic tool. It also recommended enhancing the FFRD data management practices.

The mission and the authorities reached a staff-level agreement to develop a Comprehensive Adaptive Expectations Model (CAEM) - one of ICD’s Macroeconomic Project Tools (MPT). This plan includes training on macroeconomic and forecasting techniques to equip the core team to develop the CAEM, adapted to the Mongolia’s economic structure.

The expected outcomes and indicators are summarized in a logframe (Annex B), and the action plan (Annex D) envisages a program of eight missions, with a mix of virtual and in-person deliveries, over a three-year period. Regular remote check-ins between missions will ensure ongoing support for the development of the MPT and corresponding policy analysis framework.

The authorities committed their support by allocating ample time and resources for the core team to develop the CAEM-based MPT. A core team of 10 economists, led by Ms. Zolboo Ganbold (Director General, FFRD) will be working on this task. They acknowledge this will require approximately three times the duration of mission interactions, along with sustained attention. To ensure a homogeneous knowledge base, specific, intensive training will be prioritized at the onset. Hence, the project started with all core team members participating in the in-person MDS course during the scoping mission.

SECTION I. BACKGROUND

A. THE MACROECONOMIC CONTEXT OF MONGOLIA

1. Mongolia is a resource-rich country which has experienced significant economic growth accompanied by human capital development over the past three decades, but the economy remains susceptible to commodity price fluctuations and external shocks. Agricultural wealth and abundant natural resources have driven economic growth and poverty reduction. However, recent shocks, particularly the Russian invasion of Ukraine and COVID-19 border closures in China, negatively affected the economy in 2022. Given this context, the authorities are prioritizing reforms that aim to build on rural development, diversify the economy, and enhance resilience against external shocks to create sustained economic development and poverty reduction.

2. The post-pandemic recovery is gaining momentum. Mongolia's economy appears to be recovering well and export-led GDP growth surged—beyond expectations— since the first half of 2021. Mining exports along with a resumption in FDI and private investment drove the rebound, reflecting a stronger global recovery and easing of border restrictions.

3. External imbalances are widening, and inflation continues to surge. The current account deficit is likely to remain wide in 2022–23. Inflation has been influenced by supply-side and global factors, including high international prices, decreased domestic meat production, and supply disruptions caused by China's border restrictions and sanctions against Russia.

4. The authorities require a robust macro framework capacity and corresponding tools to facilitate analysis and discussions among various agencies and external partners. Enhanced macro framework tools and capacity can assist the authorities in assessing the optimal combination and timing of policies, as well as enable them to promptly respond to changes in the macroeconomic environment. The implementation of accessible macro framework tools and processes that facilitate dialogue among agencies is crucial to ensure the incorporation of sector-specific inputs, realistic and consistent sectoral forecasts. Furthermore, well-designed macro framework tools and processes will support the training and integration of new staff, ensuring sustainable capacity development.

B. THE TA REQUEST OF THE AUTHORITIES

5. The Ministry of Finance (MOF) of Mongolia recognizes the need for enhanced macro framework capacity and have requested ICD support. In November 2022, the Finance Minister, Mr. Javkhlan Bold, requested a TA to develop a macroeconomic forecasting and policy analysis that feed into the economic policy-making process. This project will focus on developing a financial programming (FP) macroeconomic framework to strengthen the consistency of analysis and forecasting capacity of the Financial and Fiscal Research Department (FFRD).

6. On March 15, 2023, ICD staff held a virtual pre-scoping meeting with the FFRD with the objective of better understanding the department's needs and operations and setting the preliminary schedule for the scoping mission. During the meeting, FFRD requested a robust tool to assist them in

producing macroeconomic forecasts, conducting sectoral analysis, and evaluating alternative fiscal policy scenarios.

7. An in-person scoping and training mission was conducted during May 24-June 2, 2023, to assess existing analytical and forecasting tools, data availability and management, human resources and skills set, and the current policy analysis systems at the FFRD. Considering this assessment and based on identified areas for potential improvement, the mission prepared a three-year action plan to improve the MoF's macroeconomic analysis and forecasting capacity. Annex D provides a detailed work program of the mission.

SECTION II. SCOPING MISSION FINDINGS AND ASSESSMENT

A. INTRODUCTION

9. The design of the project and action plan have been informed by findings from the scoping mission concluded on June 2nd, 2023. This section summarizes the key findings from the questionnaires and subsequent discussions and feedback with the authorities (see Annex D for scoping mission meeting agenda) which have informed the draft action plan.

10. The scoping mission assessment focused on the planned key counterpart, the FFRD. The mission also met the MOF's Fiscal Policy and Planning Department, the Bank of Mongolia (BOM) and the Ministry of Economic Development (MED). The assessment and resulting action plan consider these other departments and their interactions with the key counterparts.

B. REMIT AND OUTPUTS OF THE TA BENEFICIARY

11. The Ministry of Finance has been separated in 2022 into 2 separate Ministries, namely Ministry of Economy and Development (MED) and Ministry of Finance (MOF). In January 2022, the Ministry of Finance dissolved the National Development Agency and transferred its competencies to the Ministry of Economy and Development. The MED also integrated one department previously at the MOF, the Macroeconomic Policy Department, responsible for medium and long-term projections.

12. The FFRD is a new department of the MOF established in 2022 with an objective of gradually turning it in a key resource for economic forecasting and policy making with the following vast-ranging responsibilities: i) ensuring the implementation of legislation, ii) researching, predicting and analyzing the current and future financial and budget conditions of Mongolia, iii) surveillance of relevant countries' economies, iv) evaluating the results of previously implemented policy measures required for financial and budget planning, v) planning policy measures that can be implemented in the future. FFRD reports to State secretary of MOF, Vice Minister of Finance and Finance minister.

13. FFRD collaborates with other Mongolian agencies. The Ministry of Economic Development (MED), established in February 2022, replaced the National Development Agency and includes 8 departments of which one tasked with preparing medium and long-term macroeconomic projections and objectives. The MOF's Fiscal Policy and Planning department is responsible for drafting the annual budget, preparing the medium-term fiscal framework and implementing the annual budget law. The MOF's fiscal projections are based on assumptions and baseline forecasts derived from MED's macro projections. Financial and budgetary issues are discussed on a quarterly basis in the Financial Stability Council, comprising the Minister of Finance, the Governor of the Bank of Mongolia and the Chairman of Financial Regulatory Commission. Currently the FFRD develops scenario analysis based on baseline projections from MED and the Fiscal Policy Planning Department but intends to expand its macro-forecasting capacities.

C. EXISTING HUMAN AND MATERIAL RESOURCES

Staff Sizes, Availability and Turnover

14. FFRD is the newest among the MOF's Departments, created in 2022. After the split of the Ministry of Economy and Finance in 2022 into the Ministry of Economy and Development and the Ministry of Finance, staff experienced in macroeconomic forecasting and analysis stayed with MED. FFRD recruited staff from within MOF, and hired recent university graduates

15. FFRD is adequately staffed at this moment to support its core functions and efficiently absorb the CD project and staff movements that would be a potential risk for the proposed CD project are not expected. FFRD has 11 staff, including the Director General and a long-term junior and senior experts from the World Bank. The Department also used an ADB grant to hire (on part-time-basis) two professors from local universities to cooperate with the core team on selected policy-relevant projects. The authorities are committed to make their team fully available for the duration of the CD project.

16. The authorities are aware of the risk related to staff turnover. Given the team's relative youth, increased staff turnover in the next two to three years is possible, potentially affecting CD projects' continuity and sustainability. To mitigate this, the mission team emphasized risk management. In response, the FFRD management intends to implement a strategy of rotating responsibilities to familiarize all team members with core functions and analytical tools. Measures to mitigate this risk include dividing sectoral responsibilities between two experts to ensure continuity.

Skills Capacity of Staff

17. Staff initial skills are adequate to start the CD project. All core team members have university degrees (in economics, statistics or finance). Over the past eight months, all ten core team members took ICD's online MDS course, and six of them took the online FPP1 course. The core team is skilled in using EViews, participated in external data analysis training and coding in R. FFRD staff skillfully adapted generic MDS templates to Mongolian data and internal briefing needs illustrating their CD absorptive capacity.

18. Despite their relative inexperience, the FFRD team shows promise in developing practical policy analysis and advisory skills. Recognizing this potential, MOF management has sought Capacity Development (CD) to enhance these competencies. The State Secretary anticipates the FFRD will become the key analytical body for fiscal policy advice. Currently the team possesses a balanced mix of expertise with three seasoned MOF policy veterans and eight emerging professionals. In addition, the Asian Development Bank is financing the work of two consultants to develop a VAR model to forecast inflation.

Material Resources and Software

19. FFRD is well resourced for the CD project's needs. The authorities stressed that establishing a good FFRD practice is their top priority, and they are committed to providing all needed resources. Staff have access to laptops with dual monitor, Microsoft Teams to share files and facilitate communication and data sharing and one Bloomberg terminal used to collect market data on commodity prices¹. The Internet connectivity for off-site support is appropriate.

¹ FFRD equipment was provided by international cooperation agencies such as Koica and Jica.

D. EXISTING TOOLS AND MACROECONOMIC FRAMEWORKS

- 20. There is no macroeconomic framework currently in use at the FFRD.** No framework is in place to ensure economic or accounting consistency between the four sectors of the economy
- 21. FFRD staff monitors and reports on sectoral developments.** The core team monitors the developments in real sector (production GDP), consumer prices, monetary and financial sector, fiscal sector, external sector (BOP and China). The team briefs the Minister and senior management on any major developments on a weekly basis. The existing system is based on the MDS templates and needs extensions for monitoring the expenditure-based GDP and subcomponents, and development of commodity sector block. Future missions could work together with the sectoral experts and help them review individual sector monitoring templates.
- 22. Nowcasting and near-term forecasting (NNTF) system is nascent.** FFRD forecasts consumer prices (measured by CPI) on monthly basis using the automated SARIMA techniques in EViews. Similarly, quarterly trade balance and other components of the balance of payments are forecasted. FFRD forecasts are near-term, end-of-the year forecast or up to 12 months. FFRD currently works on real economic activity NNTF which would benefit from being extended to all sectors and linked to a single database. The budget process would benefit from timely update on the budget strategy tracking. Forecast tracking and performance monitoring system should be added.
- 23. FFRD's role would benefit from a central analytical tool that could support an internally consistent policy analysis and advice to the Minister and the Cabinet.** While the FFRD does not actively form the national macroeconomic outlook – a task under the purview of the Ministry of Economy – it incorporates the macroeconomic targets and BPPD's budget strategy into its overall framework. The FFRD needs a more systematic framework for the development of macroeconomic projection tools that address their main tasks: estimate the macroeconomic impact of changes in tax revenue policies and provide model-based analysis of policy scenarios and shocks. This tool would enhance FFRD's capacity to fine-tune the macro-fiscal plan, ensure accounting consistency, better understand fundamental plan drivers, and provide a solid foundation for alternative scenario exploration and risk assessments.
- 24. There are sound communication channels with the Bank of Mongolia (BOM).** The communication channels between BOM and FFRD seem open and healthy at both management and technical levels. Staff often exchange views on the macroeconomic situation. BOM maintains a rich portfolio of analytical tools for current economic situation assessments, NNTF and medium-term forecasting, including a basic static accounting FFP framework. During discussions, BOM raised questions about occasional inconsistencies in the MOF/MED's macro-fiscal framework and the risk of basing MTFF on macro-fiscal plans rather on macro-fiscal projections.
- 25. The mission also met with the authorities from the Macroeconomic Policy Department (MPD) from the Ministry of Economy and Development (MED).** Currently, MED is tasked with preparing medium and long-term macroeconomic projections used by the MOF during the annual budget and medium-term fiscal framework preparation. The Department developed a forecasting tool to obtain the GDP projections mainly using data from the supply side (mining and agricultural sectors) with no consistency check to the demand side. There are no projections or forecasts on the exchange rate and interest rate. MPD also expressed their interest in learning about their CAEM to enhance their current forecasting tools.

E. DATA, DATA MANAGEMENT AND OTHER INPUTS

Data and Input Quality

26. The quality and availability of sectoral data seem adequate for the CD project's needs. The data availability is in line with CCAM peers. National accounts are available on a quarterly frequency – both production and expenditure bases but the expenditure-based measures suffer from large measurement errors. The income-based national accounts are available on annual frequency. The Consumer Price Index (CPI) is measured on a monthly frequency, released typically three weeks after the reference period. Monetary accounts are available on a monthly frequency, about two months after the reference period. Fiscal sector statistics follow GFM2005 reporting standards and are available on monthly and quarterly consolidated bases. The balance of payments statistics follow BPM6 reporting standards, and are available on monthly basis, generally two months after the reference period.

27. FFRD has access to a whole range of high-frequency indicators on economic activity, imports and exports. These can be potentially exploited for nowcasting and near-term forecasting of GDP.

Data Management

28. Data management is nascent but has elements of good practice. Each sectoral expert is responsible for collecting and updating data for her/his specific sector as new data comes in. Data releases are regularly monitored and tracked per the FFRD's Data Release Calendar. The team reports to the Minister and senior management on the main data news on weekly basis. The sectoral experts also update the CPI and BOP forecasts at the same time.

29. FFRD currently stores data in centralized Excel spreadsheets, accessible to the entire core team. While this structure ensures that each member can readily access sectoral data, it presents risks associated with unmonitored changes and the FFRD would benefit from appointing a Database Manager to monitor data quality, consistency, and versioning. Going forward, the FFRD could establish a central database that would serve as a one-stop-shop and single data source for all Budget Departments in MOF, guaranteeing that everybody works off the same data source.

30. The database organization can be enhanced to better facilitate automation of the analytical system in the future. The organization of Excel spreadsheets should follow the Data Management and Exchange (DMX) standards per ISO19763 on the metamodel framework. In particular, each data series should have a unique identifier that allows calling the database and retrieving the specific data from any analytical software. This will significantly simplify updates of quantitative tools that require data inputs, such as the sector monitors, NNTF or the medium-term macroeconomic framework.

F. NEEDS ASSESSMENT: SUMMARY

31. The findings in the previous sections highlight several key needs that, if addressed in the project, could greatly assist the department in more effectively achieving their outputs, particularly in terms of policy inputs, coordination, and communications. The scoping mission found that the FFRD staff has an overall good level of economic training to integrate the specialized work of each subgroup consistently. Nonetheless, there's room to further bolster the consistency of forecasts and integrated policy guidance. The solution lies in adopting a flexible tool which would incorporate the Ministry of Economy's macroeconomic projections, assimilate comprehensive sectoral information, and validate forecast

consistency. Furthermore, it would allow the evaluation of alternative scenarios, elevating and sustaining the department's capacity for macroeconomic analysis.

32. The mission recommended to both MOF and MED to participate jointly in this TA to enhance coordination and assure good practices for the macro-fiscal projections during the MTFF.

SECTION III. PROPOSED ACTION PLAN

A. INTRODUCTION

33. The mission reached an agreement “ad referendum” on June 2, 2023, on a draft action plan for the delivery of a macroeconomic framework TA project. The action plan includes the development and strengthening of a macroeconomic projections tool (MPT) to strengthen institutional capacity on macroeconomic analysis and forecasting at the FFRD of Mongolia.

34. The scoping mission assessed the current macroeconomic forecasting process and tools being used by the FFRD, data quality and data management, human resources and skills capacity, policy analysis systems, and the contribution of the technical departments into policy decisions. The key counterparts for the mission and assessment were the FFRD.

35. The TA project will aim to develop institutional capacity on macroeconomic analysis and forecasting. Fund staff presented the Comprehensive Adaptive Expectations Model (CAEM). The authorities engaged well in the sessions and agreed that the CAEM tool (given further customization) would be useful to enhance policy discussions, especially the policy analysis functionality. They also consider that the core team will have the ability to implement and customize the CAEM template. Moreover, the Action Plan takes into consideration the customization needs of the tool. It is expected that this assistance will enhance staff capacity in applying financial programming techniques to macroeconomic diagnosis and forecasting, thus consolidating a sustainable practice for model-based policy decision making. A MDS course was delivered during the scoping mission to ensure that sufficient specialized knowledge is transferred to the core staff team in charge with running the model.

36. The project will help strengthen macroeconomic data management practices to provide a consistent, unified, and user-friendly database to feed into the macroeconomic projection tool. This may entail consolidating existing data spreadsheets to allow for future automation of routine data monitoring/reporting/nowcasting/forecasting. The indicative deliverables include a review of data management practices and improve data storage architecture to allow for dynamic data querying from MS Excel and other analytical software.

37. Developing FFRD’s Nowcasting capacity could be reassessed during the implementation of the TA project, based on the capacity of staff and needs of the MOF. When the CAEM model is fully operationalized and customized, the team could reassess the possibility to add a nowcasting component to enhance the GDP forecast from a production function perspective.

38. To strengthen the sustainability of the macroeconomic forecasting and policy analysis system, a regular forecasting practice that relies on clearly defining production processes and institutional arrangements will be developed. In addition to the production of documentation on how to operate the tools and data management guidelines to adequately store input/output data and log files to replicate forecasts and simulations, the regular request on running the tools and producing structured outputs is key to maintain a forecasting practice alive and evolving according to the needs of the FFRD. The

mission plan includes guidance to set up adequate policy analysis processes and institutions, and to document the tool.

39. This action plan was informed by the scoping mission findings and needs assessment discussed in the previous sections. The current section details the objectives of the plan and the intended steps, timeframes, and modalities to achieve the objectives. The proposed macro framework tool and customization required is discussed and the core team responsible for the project engagement is stated. Risks to the project are highlighted and proposed mitigation measures are proposed in the following section.

B. PRINCIPAL OBJECTIVES AND DELIVERY SCHEDULE OF THE ACTION PLAN

40. The principal objectives for the project were set: (i) build capacity to develop, customize, update, modify and operate a macroeconomic framework; (ii) provide a baseline understanding of their existing forecasting and analytical capabilities and opportunities for improvement; (iii) develop a MPT in the form of an Excel-based macroeconomic framework for forecasting and policy analysis, respecting accounting relationship.

41. The Action Plan Delivery Schedule (Annex A) has been designed over five phases across three years. A continued engagement for about three years, with several overall phases, will be necessary to achieve the objectives of the TA project. At this time, eight missions have been agreed. The tentative schedule runs from May 2023 to May 2026. The delivery schedule sets out the expected key deliverables at each stage of the project and includes in-between mission work deliverables. The delivery schedule will be regularly reviewed and updated. The logical framework provides a clear roadmap for monitoring the progress in delivering this CD (Annex B). It assesses various outcomes critical for developing and effectively using a macroeconomic forecasting and analysis tool by the core team. It also identifies critical milestones with targeted dates to assess progress.

C. CORE TEAM AND TECHNICAL ASSISTANCE MODALITIES

42. FFRD staff will lead in the development of the tools with ICD technical assistance. To ensure effective transfer of capacity, each sectoral expert will lead the development of its sector in the CAEM, with ICD supporting throughout in the form of technical assistance and complementary training where required. The core team will be responsible for developing the tool during missions with ICD guidance. The authorities have committed staff resources to the missions, and they have agreed on the need to devote time, effort, and commitment to working on the CAEM-based MPT in between missions, including periodical remote check-ups by the mission team. Work and training between missions will be critical to ensure timely delivery of the technical assistance objectives. To ensure sustainability of the tool and capacity development, the core team will produce a user manual and associated materials.

43. The authorities have nominated Mr. Anar Zorigbaatar to lead the core team. The project will be overseen by Mrs. Zolboo Ganbold (Director General, FFRD), who will be updated regularly on progress and invited to key meetings. The core teams will engage with wider stakeholders at key stages in the tool development, including input providers, and other sectoral experts.

44. The core teams have already put in place planned methods for regular communication and sharing of information. This includes the use of [WhatsApp group], a mailing list, and online platforms including Zoom and Microsoft Teams. Scheduled meetings will be planned and coordinated to ensure progress during in-between mission work. Online data sharing platforms are being explored by the team to facilitate the sharing of the tool, a database and other relevant information. Finally, responsibilities and tasks for each of the members will be discussed, assigned, and revisited throughout the project to ensure engagement and ownership, while taking into account each department's sector expertise.

45. The ICD team will utilize a hybrid model of in-person and virtual missions throughout the project. Currently, about two thirds of missions are planned to take place in-person, depending on health-considerations and other risk factors. The ICD team will provide clear guidance for tasks to complete in-between missions and will be available to provide further virtual support. Virtual follow-ups by the mission team will be planned. Timing has been allocated in the delivery schedule for complementary training to be provided where individual gaps are identified, as well as refresher courses to initiate upcoming phases. The mission team will either provide this training in the form of highly summarized training on specific topics within ICD courses, or they will refer individual core team members to relevant IMF online courses and reference material.

D. PROPOSED MACROECONOMIC FRAMEWORK TOOL

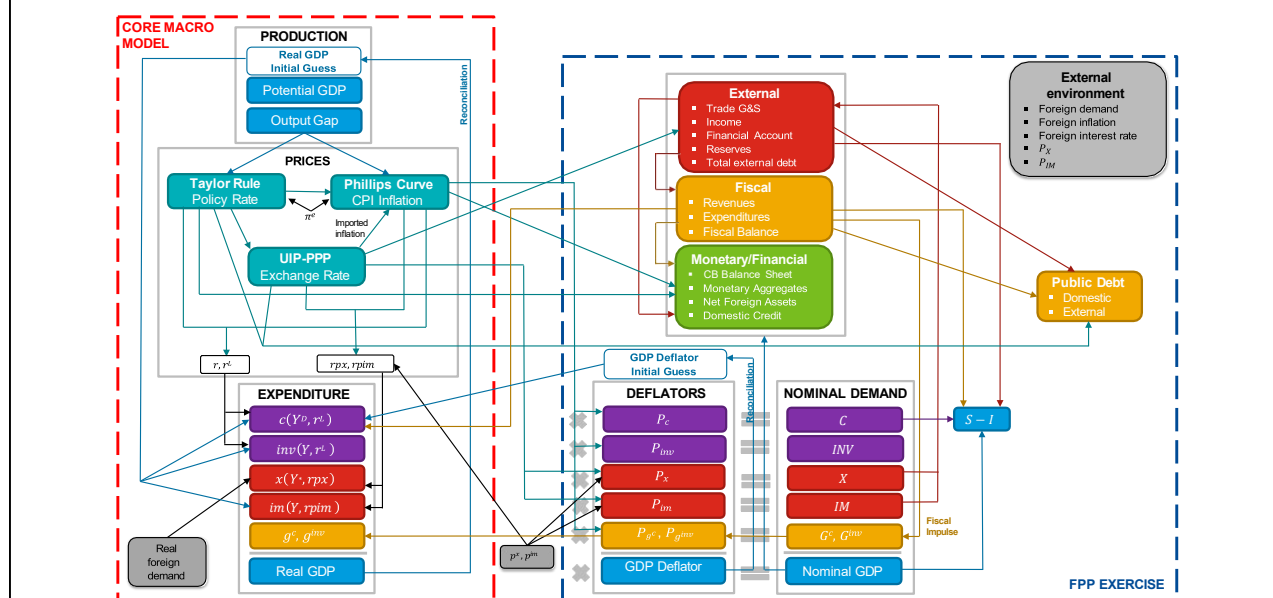
46. The mission and the authorities agreed to utilize ICD's CAEM template, tailored to the country's circumstances. This approach has been followed to better respond to the macroeconomic forecasting needs of the MOF, staff absorptive capacity to sustain the capacity developed independently, and data availability.

Box 1. Key features of the CAEM

The Comprehensive Adaptive Expectations Model (CAEM) is an Excel-based simple general-equilibrium model, with four sectors (Real, Fiscal, External and Monetary), in a financial programming (FP) framework with backward-looking expectations and gap/trend dynamics (see Figure B.1 below). The Excel based tool has two key objectives: build a baseline forecast of key macroeconomic variables and assess the effects of various policy or shocks scenarios. Interlinkages across the four sectors (real, fiscal external and monetary) allows for general-equilibrium feedback across the sectors and ensures accounting and economic consistency. Other desirable characteristics of the CAEM:

- *Generic template.* The CAEM is a relatively generic annual Financial Programming (FP) framework, adjustable to a large set of countries and circumstances (e.g. flexible or fixed exchange rate (most suitable for fixed exchange rate regime)). It can be easily adapted to include more granularity or country specific characteristics.
- *Option of manual- or model-based projections.* When preparing a baseline or program scenario, users have the choice to make key projections manually (e.g., using judgment, implying the forecast is exogenous) or to use a model that incorporates key economic relationships. Core behavioral relationships are expressed through an error correction models.
- *Scenario analysis.* The CAEM provides a mechanism for consistent scenario analysis for a range of policies/shocks, with a duration of 1-3 years, including: adjustments to taxes, spending shocks, interest and exchange rate shocks, foreign demand shocks, supply shocks.

Figure B.1 Main Blocks of the FP2.0 Comprehensive Adaptive Expectations Model and Framework



E. RISKS AND MITIGATION

47. This project is subject to several risks—but these can be mitigated:

- Inexperienced staff turnover.** The FFRD is a recently created unit. Mitigating factors: This TA project will work with a large core group to create a continuous reserve pool. Meanwhile, the authorities will focus on the development of a tool user manual, associated material, and training of future new staff by current members of the team.
- Staff resource constraints.** The FFRD has a sufficient number of staff albeit with limited experience, and there is potential for rotation to other MOF units. This potential risk is mitigated by the strong support from senior MOF management for the project, and their keen interest in enhancing FFRD's capacity. They will be kept informed of the progress and any resource needs throughout the project. Peak work periods for the core team coincide with budget preparation months of March, April, July, and August. Peak periods during budget preparation have been addressed with a project schedule designed around these busy times, allowing efficient self-management of tasks. The hybrid work model provides further flexibility. Furthermore, in case of absence or rotation, knowledgeable team members will be able to step in, ensuring consistent sector analysis.
- Lack of engagement during hybrid deliveries.** Mitigating factors: A hybrid modality will allow the mission team to engage the core group throughout multiple missions each year. In-person missions will be chosen strategically and front-loaded to develop necessary momentum and engagement for the project.

- **Challenges in institutionalizing the tool.** Similar TA projects are often successful in building an improved tool with a small core group, but face challenges when it comes to the institutionalization of the tool into wider policy processes. Mitigating factors: A process for developing and utilizing an MTMF is already in place, including functioning cross-agency working groups to discuss the MTMF at both the technical and policy decision-making levels. This project will help to enhance the process and strengthen the tool's usage, but it can effectively piggy-back on the developed processes already in place.

ANNEXES

A. ANNEX A: PROJECT DELIVERY SCHEDULE

Key Outputs	Expected Timing
Phase 1 – Scoping	
<u>Scoping mission:</u> * Assessment of current forecasting and policy analysis systems. * Agreement Ad-referendum on project action plan. * Refresher MDS Training.	May/June 2023
<i>In-between mission work:</i> * Collection and compilation of local data for main accounts and other essential data. * Further online training taken by core team depending on knowledge gaps identified.	August/2023
Phase 2 – Enhancement of inputs	
<u>Mission 1:</u> * Compilation of macroeconomic database and customization of input sheets for tool. * Database architecture per DMX principles. * Consistency checks, identification of data issues and agreement on short-term and long-term solutions. Meetings with data providers. * Incorporation of satellite model inputs and estimation of trends. * Meeting with MTMF working group to discuss coordination and roles in relation to tool.	October 2023
<i>In-between mission work:</i> * Refresher on forecasting methods (part 1). * Online courses taken where gaps identified. * Discussions on structure of sector output tables. * Follow-up on database technical organization and outstanding data issues investigated.	TBD
Phase 3 – Development of Baseline Scenario	
<u>Mission 2:</u> * Finalizing discussions on the structure of specific sectors and projection methods for key real variables. * Refresher on forecasting methods (part 2). * Develop and test behavioral equation and forecasting options, including estimation/calibration, for supply and demand real sector variables.	May 2024
<i>In-between mission work:</i> * Begin work on behavioral equations for key variables in remaining sectors. * Begin development of a user-manual and associated material. * Refresher on forecasting methods (part 3).	TBD
<u>Mission 3:</u> * Develop equations for fiscal sector variables in tool. * Practice producing forecasts of real sector and fiscal sector variables, given external assumptions. * Begin work on external sector.	October 2024
<i>In-between mission work:</i> * Develop linkages and equations for remaining external and monetary sector variables.	TBD
<u>Mission 4:</u> * Produce a full-scale baseline scenario. Analyze the basic properties displayed by the model and interpret the results. * Analyze the differences between central projections with former MTMF forecasts and identify the drivers of the differences.	May 2025

* Initial model properties testing for glitches, errors, etc. *	
<i>In-between mission work:</i> * Continue model properties testing for glitches, errors, etc. * Cleaning of tool to incorporate all changes to-date. * Updating the user manual and associated material to incorporate work done to-date.	TBD
Phase 4 – Development of Policy and Risk Scenarios	
<u>Mission 5:</u> * Meeting with MTMF working group to present tool, baseline results and discuss policy and risk scenarios. * Development of policy and risk scenarios and implementation of scenarios using tool. * Comparison of scenarios against baseline. * Interfacing of DDT with tool. * Assessment of debt-path and impact of shocks. * Incorporation of assessment of compliance with fiscal rules into tool.	October 2025
<i>In-between mission work:</i> * DDTx course taken by core team.	TBD
<i>In-between mission work:</i> * Updates to the user manual and associated material to incorporate work to-date.	TBD
<u>Mission 7:</u> * Buffer mission in case further extensions or assistance is required by the core team.	December 2025
Phase 5 – Tool institutionalization	
<i>In-between mission work:</i> * Update of the user manual and associated material. * Develop reporting and working group processes.	TBD
<u>Mission 8: Concluding Mission</u> * Re-run baseline, de-linked from previous MTMF forecasts. * Expand on policy and risk scenarios off new baseline. * Incorporate Tool outputs into the reporting process, customizing output tables and graphs as needed. * Presentation to MTMF working group and incorporation of comments and feedback. * Review of forecasting calendar with MTMF working group and updated discussion on inputs into new tool and linkages with other tools, including satellite models and other agency forecasts. * Review of other inter-and-intra-institutional set-ups and arrangements affecting the update and functionality of the tool’s implementation to date and its integration into the policy making process. * Incorporation of possible additional customized elements and routines.	May 2026
<i>In-between mission work:</i> * Update of the user manual and associated material. * Develop reporting and working group processes.	TBD

B. ANNEX B: 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: Scoping mission taking place from 24 May – 02 June 2023. The mission will diagnose the needs of the Authorities and develop an Action Plan that will meet their needs and objectives.			
Outcome Rating Date: 6/2/2023			
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	Capacities and opportunities for improvement are not identified/documentated	Opportunities for improvement identified and authorities and the IMF team agree on the workplan and key outcomes	Project plan to meet objectives to be agreed during the scoping mission
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating
Final action plan to improve capacities in place.	6/2/2023	NA	Proposed action plan agreed by the authorities
Outcome: Improved analytical skills, and better macroeconomic forecasting and policy analysis capacity			
Annual Assessment Rating:			
Annual Assessment Narrative: Project not yet started - Scoping Mission in progress			
Outcome Rating Date: 4/20/2023			
Outcome Indicator	Baseline Value	Target Value	Current Assessment Value

Relevant staff have successfully completed agreed training delivered via various modalities (online, classroom courses, workshops)	5% of staff in the core group has either FPP/MDS online training	100% of staff in the core group has training on MDS	5% of staff in the core group has either FPP/MDS online training as of 4/20/2023
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating
MDS training delivered to core group.	6/5/2023	06/02/2023	100% of staff in the core group has training on MDS
Outcome:			
Analytical models and forecasting tools are developed and operational			
Annual Assessment Rating: 1 Not Achieve			
Annual Assessment Narrative: Project not yet started - Scoping Mission in progress			
Outcome Rating Date: 2/24/2023			
Outcome Indicator	Baseline Value	Target Value	Current Assessment Value
Centralized forecasting database is established and is linked to the forecasting system	Forecasting database exists but is no linked to the forecasting system	The database is linked to the forecasting system	Not achieved as of 06/02/2023
Macroeconomic Projection Tool (MPT) is developed in the form of an Excel-based macroeconomic framework for forecasting and policy analysis, respecting accounting relationships	Project tool is not available	The project tool is developed and includes all key features	Not Achieved as of 06/02/2023
Milestone Name	Target Completion Date	Milestone Actual Completion Date	Milestone Rating
Staff completes fiscal block of the MPT and links it consistently to other sectors	2/01/2024		
Staff demonstrates its ability to design and interpret alternative scenarios and sensitivity analysis to test for different policy changes	2/01/2025		

C. ANNEX C: CORE GROUP AND SUPPORTING PROFESSIONAL STAFF

	Name	Organization	Position	E-mail	WhatsApp phone number
1	Amuudari Ryenchindorj	FFRD, MOF	Officer	amuudari_r@mof.gov.mn	95481368
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8	Tsolmon Dayan	FFRD, MOF	Senior consultant	tsolmon_d@mof.gov.mn	86075588
9	Bodiragchaa Buyanjargal	FFRD, MOF	Officer	bodiragchaa_b@mof.gov.mn	99533384
10	Anar Zorigbaatar	FFRD, MOF	Senior analyst	anar_z@mof.gov.mn	94041109

D. ANNEX D: SCOPING MISSION MEETING AGENDA

Agenda for Macroeconomic Framework TA Scoping and MDS Training Refresher Mission with the Mongolian Ministry of Finance (MOF) <i>May 24th to June 2nd, 2023</i>			
Meeting Time	Theme	Attendees	Discussion or training topics
Scoping Component of Mission			
Wednesday, May 24			
2:00 pm to 5:00 pm	Review meeting	<ul style="list-style-type: none"> Meeting with the office of the Resident Rep to review the TA details 	<ul style="list-style-type: none"> Overview of mission tasks by mission team Objectives of technical assistance in the area of macro-frameworks OB (logistics, interpretation needs, extra requests)
Thursday, May 25			
9:00 am to 10:00 am	Courtesy meeting with senior MOF officials and overview of mission	<ul style="list-style-type: none"> MOF Finance Division Senior Officials Managers and relevant staff of FFRD 	<ul style="list-style-type: none"> Overview of mission tasks by mission team Objectives of technical assistance in the area of macro-frameworks Needs and expectations of the MOF
10:00 am to 10:30 am	Break		
10:30 am to 12:30 pm	Courtesy meeting with the Secretary of State	<ul style="list-style-type: none"> Secretary of State Managers and relevant staff of FFRD 	<ul style="list-style-type: none"> Interest in macroeconomic framework TA project Size, roles, and functions of wings Staff capacity and turnover Inputs into policy process
12:30 am – 2:00 pm	Lunch Break		
2:00 pm to 3:15 pm	Strategic considerations for mission and project	<ul style="list-style-type: none"> Managers and relevant staff of HR Department / Training Department 	<ul style="list-style-type: none"> Challenges in achieving objectives and outputs Current coordination and calendars within MOF and with other relevant agencies Other ongoing TA or past TA projects
3:15 pm to 3:30 pm	Coffee Break		
3:30 pm to 5:00 pm	Current tools, frameworks, and inputs	<ul style="list-style-type: none"> Managers and relevant staff 	<ul style="list-style-type: none"> Presentation by MOF on current tools and frameworks in use Follow-up questions and discussion Discussion on data management, data quality and other inputs Agenda discussion for remaining week
Friday, May 26			
9:00 am to 12:30 am	TA project design considerations	<ul style="list-style-type: none"> Managers and relevant staff of MOF/FFRD 	<ul style="list-style-type: none"> Presentation by mission team on IMF TA practice and overview of tool options Further discussion on tool options for TA project Discussion on core team and wider stakeholder team for TA project Consideration of interactions with other teams and agencies
12:30 am to 2:00 pm	Lunch Break		
2:00 pm to 3:00 pm	Cooperation on Macroframework across agencies	<ul style="list-style-type: none"> Managers and relevant staff of MOF/FFRD 	<ul style="list-style-type: none"> Overview of mission tasks by mission team Current level of cooperation across agencies do develop and implement macroeconomic framework Potential for improvement, training needs
3:00 pm to 3:15 pm	Coffee Break		

3:15 pm to 5:00 pm	Cooperation on Macroframework across agencies	<ul style="list-style-type: none"> Managers and relevant staff of MOF/FFRD 	<ul style="list-style-type: none"> Linkages across tools and tools under development, including of Mongolia Central Bank
Weekend			
Training			
Monday, May 29 – Introduction & Real Sector			
9:00 am to 10:45 am	L-1- Macroeconomic Framework & interrelations	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Describe macroeconomic stability and financial stability. Present the macroeconomic framework Introduce selected indicators table and flow of funds tables The system of macroeconomic accounts Accounting interrelations among the accounts Behavioral interrelations among the accounts
10:45 am to 11:00 am	Break		
11:00 am to 12:00 pm	L-2- General presentation of Macro Tool	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Introduction to Macroeconomic Projection Tool (MPT)
12:00 am to 2:00 pm	Lunch Break		
2:00 to 4:00 pm	L-3- Supply and Productivity + Economic Growth and Potential Output	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Review measurement of GDP Define potential output and output gaps Introduce time series methods to estimate potential output Discuss production function approach to estimate potential output and growth accounting International evidence on potential growth
4:00 pm to 4:15 pm	Break		
4:15 pm to 5:00 pm	<ul style="list-style-type: none"> Real Sector MPT 		
Tuesday, May 30 - Topic: Real Sector (cont.) & Fiscal Sector			
9:00 am to 10:00 am	W-1 Workshop – Supply and Productivity– Diagnostics (I)	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors
10:00 am – 10:15 am	Break		
10:15 am to 12:00 pm	L-4- Assessing Fiscal Policy	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Review fiscal accounts Calculate and interpret the cyclically adjusted and structural fiscal balances Assess the stance of fiscal policy
12:00 am – 1:30 pm	Lunch Break		
1:30 to 3:00 pm	L-5 - Assessing Fiscal Sustainability	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Analysis of public debt dynamics Introduce fiscal sustainability assessment Show IMF debt sustainability framework
3:00 pm – 3:15 pm	Break		
3:15 pm – 5 pm	W-2 Workshop – Assessing Fiscal Policy & Fiscal Sustainability – Fiscal Sector MPT	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors
Parallel meeting			
2:00 pm – 5:00 pm	<ul style="list-style-type: none"> Buffer time for extra meetings 		
Wednesday, May 31 - Topic: Monetary Sector			

9:00 am to 10:45 am	L-6 - Analyzing Inflation	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Discuss cost of excessively high/low inflation Describe the measurement of inflation, including headline and core inflation Phillips curve, and determinants of inflation
10:45 am – 11:00 am	Break		
11:00 am to 12:30 pm	L-7 - Analyzing Monetary Policy	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Discuss cost of excessively high/low inflation Describe the measurement of inflation, including headline and core inflation Phillips curve, and determinants of inflation
12:30 am – 2:00 pm	Lunch Break		
2:00 to 3:30 pm	W-3 Workshop – Analyzing Inflation	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors
3:30 pm – 3:45 pm	Break		
3:45 pm – 5 pm	W-4 Workshop – Analyzing Monetary Policy – Monetary Sector MPT	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors Work with the Monetary Sector
Parallel meeting			
2:00 pm – 5:00 pm	<ul style="list-style-type: none"> Buffer time for extra meetings 		
Thursday, June 1 – National Holiday			
Friday, June 2 - Topic: External Sector			
9:00 am to 10:45 am	L-8 - Assessing the External Position	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Review the balance of payment accounts Analyze the current account and links to domestic demand Analyze the capital and financial accounts
10:45 am – 11:00 am	Break		
11:00 am to 12:30 pm	L-9 - Assessing External Debt Sustainability and Foreign Reserve Adequacy	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Introduce indicators of external risks Examine IMF reserve adequacy metric Introduce framework for external debt sustainability assessment
12:30 am – 2:00 pm	Lunch Break		
2:00 to 3:30 pm	W-5 Workshop – Assessing External Sustainability	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors
3:30 pm – 3:45 pm	Break		
3:45 pm – 5 pm	W-6 Workshop – Assessing External Debt Sustainability and Foreign Reserve Adequacy – External Sector MPT	<ul style="list-style-type: none"> Core team 	<ul style="list-style-type: none"> Facilitated by Counselors Work with the External Sector
Parallel meeting			
11:30 pm to 12:30 pm	Debriefing with MOF Senior Officials	<ul style="list-style-type: none"> MOF Finance Division Senior Officials Managers and relevant staff of FFRD 	<ul style="list-style-type: none"> Key findings from the mission Proposal(s) for next steps Draft action plan; dates of the next mission and tasks Authorities' commitments
3:00 pm to 4:00 pm	Meeting with the Ministry of Economy and Development	<ul style="list-style-type: none"> Senior officials and staff from the MED/Macroeconomic Policy Department 	<ul style="list-style-type: none"> Overview of mission tasks by mission team Role of the MED in macroeconomic framework Challenges and possible solutions Expected developments