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## CCAMTAC - Regional Research Seminar Series

### “A Macroeconomic Framework for Long-Term Resilience and Growth”

October 15, 2025

#### Introduction:

**Mr. Norbert Funke**, Director, CCAMTAC

#### Moderation:

**Mr. Nurdaulet Abilov**, Economist, CCAMTAC

#### Presenters:

**Mr. Andrew Ceber**, Senior Economist, Fiscal Affairs Department, International Monetary Fund

**Mr. Pedro Francisco Juarros**, Economist, Fiscal Affairs Department, International Monetary Fund

#### Intervention:

**Ms. Elvira Kurmanalieva**, Senior Economist, CAREC Institute

In this research seminar, experts from the IMF Fiscal Affairs Department presented a macroeconomic framework designed to integrate climate shocks and adaptation policies into long-term growth and fiscal sustainability analysis. The session featured Andrew Ceber and Pedro Juarros, who provided an in-depth overview of their model and its application to real-world case studies.

The presentation began with a discussion of the framework’s structure, which combines SDG financing and climate risk modeling. The model is built around a growth function that accumulates public and private physical capital, human capital, and labor, with a special focus on distinguishing between standard and climate-resilient public infrastructure. The framework allows for sector-specific impacts, heterogeneous elasticities, and the calibration of climate shocks—both rapid-onset disasters and gradual climate change—on output, fiscal balances, and SDG financing needs.

Pedro Juarros and Andrew Ceber presented the cases of Benin and Jamaica, two countries highly vulnerable to climate shocks. For Benin, the model simulated the effects of frequent floods, showing that investing in resilient infrastructure reduces damages, reconstruction costs,



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and fiscal deficits, while accelerating progress toward SDGs. In Jamaica, the framework was calibrated to tropical cyclones and hurricanes, demonstrating similar benefits of adaptation policies in terms of lower public debt and reduced volatility in GDP growth. Both case studies highlighted the trade-offs between higher upfront costs of resilience and long-term fiscal and economic gains.

The seminar emphasized the importance of early action, targeted adaptation investments, and integrating climate risk into fiscal planning. The presenters noted that the net benefits of adaptation depend on country-specific risk profiles, available policy options, and the calibration of key parameters such as the relative price and damage reduction of resilient infrastructure. The framework provides a practical tool for policymakers to quantify the macro-fiscal impacts of climate shocks and adaptation strategies.

Elvira praised the model's relevance and practical utility for ministries of finance, international financial institutions, and researchers. She highlighted its strengths in integrating climate change, fiscal sustainability, and SDG financing, and its application to real-world cases. Elvira noted that investing in resilient infrastructure pays off by improving debt sustainability and reducing volatility but pointed out potential limitations: the focus on rapid-onset disasters rather than slow-onset climate impacts, simplification of private sector and insurance responses, and the assumption of debt-financed reconstruction. She suggested that the model could be further enhanced by considering concessional financing and general equilibrium effects, and stressed its applicability to the CAREC region, where transboundary climatic risks are significant.