



**The Coalition
of Finance Ministers
for Climate Action**

Analytical tools used for climate policy analysis

Uganda—Ministry of Finance, Planning and Economic Development

A contribution to the 'Compendium of Practice from a Global Community of Ministries of Finance and Leading Organizations: Economic analysis and modeling tools to assist Ministries of Finance in driving green and resilient transitions'

Topic: Enhancing analytical capacity in Ministries of Finance: capacity-building case studies

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Natural Capital Accounts in Uganda

Uganda, recognizing the critical role of natural resources in its socio-economic development, has embarked on developing Natural Capital Accounts (NCAs) to ensure sustainable resource management and support evidence-based policymaking. NCAs provide a comprehensive view of a country's wealth, extending beyond just economic assets to include the value of natural assets such as forests, wetlands, and minerals.

To date, Uganda has made significant strides in developing its NCA. The process has involved several key steps, including baseline assessments, collaboration, and capacity-building, and the preparation of accounts for, e.g., water, forestry, land, and wetlands. Notably, the country has also prepared an ecosystem monetary services account, which tracks the losses and gains of ecosystem services over time. These accounts have provided valuable insights into the economic value (both stock and flows) of these resources and their contribution to the national economy. They have been instrumental in the preparation of National Development Plans (III and IV), annual budgets, and the Tenfold Growth Action Plan (2025 to 2040). Both documents emphasize adaptation and mitigation actions. NDPIII is well aligned with Uganda's NDC commitment to reducing greenhouse gas emissions and increasing vegetation cover, as well as adaptation strategies such as climate-smart agriculture, resilient infrastructure development, and proper waste management. Additionally, the Accounts have been helpful in compiling adjusted macroeconomic indicators for the country, which inform the budgeting process.

Uganda plans to expand its NCA efforts by developing accounts for additional sectors such as minerals, agriculture, and tourism. The country also aims to improve the integration of NCA data into budgeting processes, ensuring environmental considerations are systematically incorporated into economic planning and policymaking.

Incorporation of environment and climate change into the social accounting matrix

The social accounting matrix (SAM) is an analytical tool used to capture the flow of economic transactions within an economy. It provides a detailed snapshot of how different sectors interact, including households, businesses, Government, and foreign entities. Traditionally, SAMs focus on economic transactions, but there is growing recognition of the need to incorporate environmental and climate change considerations into these frameworks to capture the full spectrum of economic and environmental interactions.

In response to this need, Uganda has taken proactive steps to incorporate environmental and climate change variables into its SAM. This initiative aims to link economic activities with environmental and climate change, thereby supporting more sustainable economic policies.

The process involves the following key steps:

1. **Identifying appropriate environmental indicators:** Key environmental indicators such as greenhouse gas emissions, water usage, energy consumption, and land degradation are identified for integration into the SAM.
2. **Data integration:** This requires gathering and integrating the data on natural resource use, environmental degradation, and climate change impacts into the SAM. The exercise involves collaboration with various Government Agencies, research institutions, and international partners to ensure comprehensive data collection. The country also benefits from the expertise of a consultant, supported by the World Bank.

The development of NCAs and the incorporation of environmental and climate change considerations into Uganda's SAM represent significant steps toward a more sustainable and resilient economy. Using these tools, the Ministry of Finance, Planning, and Economic Development (MOFED) is

conducting a climate economic/fiscal risks and opportunities analysis to ensure cost-effective policy recommendations.

Below are some examples of policy questions this analysis aims to address:

- What is the impact of current fiscal policies on natural capital and climate change?
- What is the impact of climate change adaptation and mitigation measures on the economy?
- What policy options can minimize the transition risks of the economy to clean energy?
- What is the impact of the adoption of the Carbon Border Adjustment Mechanism (CBAM) and the EU deforestation regulation on the economy?
- What is the impact of climate change shocks (drought and floods) on the economy?
- What are the economic benefits of clean energy transition to the country?

Despite the above efforts, the country still faces challenges, particularly in obtaining up-to-date data for the compilation of these Accounts and in building the necessary expertise. As a result, the Government is prioritizing research and capacity enhancements to address these challenges.

Analytical tools used to inform climate policy in Uganda's Ministry of Finance

In addition to the above, MOFED is incorporating climate change policy into its existing economic modeling tools, and the following initiatives are complemented by the use of supportive tools, developed with support from developing partners such as the World Bank.

Incorporation of climate change in the Uganda Integrated Macroeconomic Model (IMEM)

This is envisaged to enable dynamic economy-wide climate policy analysis. MOFED is working on incorporating environmental and climate policy analysis in Uganda's dynamic computable general equilibrium (CGE) model. The first step is to include environmental and climate variables in the database for CGE models, which is the SAM. Thereafter, the environmental SAM is uploaded to the CGE model with modifications to the model equations. The environmental SAM was set to be finalized in September 2024. The IMEM is key for the economy-wide assessment of climate change; however, it may not provide instant results, as the use of the tool requires a comprehensive design of the simulation. The advantage of this tool is that it captures both backward and forward interlinkages within the economy and markets for factors of production, commodities, and exchange rates. In addition, both quantities and prices change within this model. To fill in the gap, the model is supported with a simpler tool that requires minutes to generate results: the REEA model, discussed below.

The Rapid Environmental Economic Assessment (REEA) model

This is a static multiplier model based on the input-output model. It is used to generate the instant impact of Government policies on environmental and climate variables such as water use, the release of wastewater to the environment, emissions of greenhouse gases, energy use, forest resources. This tool was developed with support from the World Bank. Although this provides instant results, it is limited, as it captures only quantity variations and not price variations. Additionally, it is based on an input-output dataset, which does not capture certain financial flows. This tool is primarily used to generate quick results; however, its use is typically followed up with a similar simulation using the CGE model embedded in the IMEM for a more comprehensive analysis.

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This model was developed with support from the World Bank, and it is dynamic, mainly based on macroeconomic time series with a focus on energy sources and how they relate to emissions. The model is more focused on energy and long-run simulations. This leaves a gap in dynamic economy-wide assessment of climate policy analysis. To address this gap, MOFED embarked on incorporating

climate change analysis in Uganda's IMEM, specifically the dynamic CGE model. This tool introduces the time-series component of climate change analysis, as it is based on time-series data. It is most useful for long-term climate change modeling. However, the tool primarily focuses on the energy sector, with limited coverage of the broader economy. Additionally, it lacks a sectoral approach to backward and forward linkages, limiting its ability to capture inter-sectoral dynamics and decision-making.

Challenges

The main challenges in using these models include the need for capacity-building to enhance expertise in model usage, data availability, and effective uptake of the results in policy design and implementation.