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FOCUS ON

ESTEEM Cambodia

A Model to Support a Just and Sustainable Development

PROJECT DURATION:
2024-2027

ACADEMIC PARTNERS:
Université Grenoble Alpes
iED Consult

INSTITUTIONAL PARTNER:
Ministry of Economy and Finance – Royal Government of Cambodia

ESTEEM Cambodia aims to bring more than just modeled scenarios or a static research project. It is designed as a dynamic tool to support Cambodian policymakers in real-time decision-making and long-term strategic planning for the green transition.

Since achieving peace in the early 1990's, **Cambodia's economy has grown rapidly**. Largely due to advancements in the garment and construction industries, the Kingdom is set to graduate from least developed country status between 2027-2030. The Royal Government has outlined clear sustainable development objectives through its climate action plans. These strategies aim to sustain economic growth while achieving drastic reductions in greenhouse gas emissions.

Cambodia has historically not depended on carbon-intensive industries, for exports or jobs. **Today, the economy is shifting rapidly from agriculture to manufacturing**. While growth and shifts in the economic structure support poverty reduction and job creation, they have resulted in greater dependence on fossil fuels and electricity imports from neighboring countries. As a result, **Cambodia remains one of the most carbon-intensive economies in Southeast Asia**, generating comparatively higher emissions per unit of gross domestic product.

The country is home to **an open economy, heavily reliant on international trade**. It imports large quantities of raw materials, primarily from China. Since COVID-19, export-oriented garments and tourism have led the economic recovery. **This deep integration in global markets exposes Cambodia to external economic shocks**.

Another feature of Cambodia's economy is its dollarization. The U.S. dollar circulates freely in the country as a means of pricing, payment, and banking. This attracts foreign investors but also creates challenges for managing national accounts (constraints on the balance of payments) and financing the imports needed for the green transition. **A realistic plan to expand green energy supply will therefore be essential, and this macroeconomic modelling project aims to support the Ministry of Economy and Finance in preparing a feasible and financially viable strategy.**

The ESTEEM modelling tool

[*Exposure to Structural Transition in an Ecological-Economic Model*]

- identifies **fiscal, external and socio-economic risks**
- works in favour of a **just transition**
- assists in **policy design** for carbon neutrality

The ESTEEM model for Cambodia is designed by AFD teams in Paris and Phnom Penh, ministries of the Royal Government, energy consultants, and researchers at Université Grenoble Alpes. This effort is supported by an on-the-ground consultant who ensures the model becomes an effective tool for strategic planning. The project also establishes a technical working group (TWG) composed of members from key line ministries involved in Cambodia's energy economy and macro-fiscal environment.

#WorldInCommon

The ESTEEM Cambodia Project

ESTEEM Cambodia is the second phase of a collaboration between the Royal Government of Cambodia and Agence Française de Développement (AFD):

2021 2023 2024 2027

Phase I developed CEPIA, a user-friendly, energy-sector modelling tool that is fully adapted to Cambodia. It produced four energy scenarios.

CEPIA (Climate and Energy Prospective Impact Assessment) is an Excel-based model built for the Ministry of Mines and Energy in partnership with iED Consult. It accounts for key factors such as power imports from neighboring countries, the role of biomass in the energy mix, and high levels of industrial energy use. The four energy scenarios were elaborated using the Royal Government's development plans and Nationally Determined Contributions.

Phase II will expand on Phase I by analyzing the macroeconomic implications of the four energy scenarios, integrating them with broader socio-economic goals. This combined energy–economic model will be a dynamic tool and support the Ministry of Economy and Finance in preparing a realistic, financially viable strategy for the energy transition. To do so, it will connect the energy scenarios from Phase I with broader economic goals such as GDP growth, investment, job creation, and Cambodia's ability to adopt green technologies.

Before that, the research team will update the Energy Balance Table (EBT) for 2022-2023. It is urgently needed to track supply and demand trends, guide policy decisions, and attract investment in the energy sector, since Cambodia's rapid growth and urbanization is driving up energy demand and making careful planning essential. This update is being undertaken with AFD, iED Consult, and the Ministry of Mines and Energy, while also improving CEPIA before its integration into the broader economic model.

Phase II has two steps:

STEP 1

Identify macroeconomic risks that could appear during the transition — for example, impacts on the balance of payments, public debt, or risks of unemployment and income inequality.

STEP 2

Couple CEPIA with ESTEEM to study the two-way interactions between energy scenarios and the overall economy.

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WHAT IS THE ESTEEM MODEL?

ESTEEM is designed to support a just transition by reflecting the specific structures of economies in the Global South and their productive and trade links with other countries. It supports decision-making by integrating economic, social, and environmental factors, helping countries achieve their NDCs, pursue long-term strategies under the Paris Agreement and the 2030 Agenda, and follow a transition path toward a desirable future.

ESTEEM is particularly suited to analyzing the dynamics that arise from rapid structural transformation. It examines **how economies respond to shocks**, depending on their industrial structures, trade networks, tax systems, and patterns of employment and income. In doing so, the model captures constraints both in trade positions and government budgets, while considering the creation of jobs. It also identifies the wider scope of instabilities that can arise when an economy shifts from agriculture to manufacturing, including rising public debt, inflation, trade deficits, and unemployment. Its structure captures **direct effects and indirect impacts, or ripple effects** that spread throughout the economy providing a more complete picture of potential exposures.

ESTEEM links essential resources, such as energy, with the productive sectors of the economy and the financial constraints that shape them. When combined with CEPIA, which evaluates different energy technologies and strategies, it provides the Ministry of Economy and Finance and other ministries with **a comprehensive view of how energy, the economy, and public finances interact**. This allows policymakers to design and implement policies that ensure the transition is both economically viable and socially fair.

A key part of the transition is investing in new technologies and diversifying industries toward greener sectors. Such investments, however can strain foreign reserves and fiscal stability, since they require large amounts of public funding as well as imports of machinery and other inputs.

How will it benefit policymakers?

- **By actively participating in the development of the model and strengthening their practical capacity, ministries will be better equipped to design a strategy for the energy transition.**

Key members from ministries responsible for Cambodia's energy and fiscal policies are participating in the technical working group. This includes attending two **in-person workshops** with AFD researchers in Phnom Penh, accessing a multi-module **online training kit** that explains the input-output framework and the applied use of the model, and ongoing **collaboration with the research team**.

- **Policy-makers will also gain a concrete example of how ESTEEM can inform long-term strategy and policy decisions.**

A dedicated academic research project, developed in collaboration with Université Grenoble Alpes, will provide an in-depth analysis of the macroeconomic implications of the Phase I scenarios, highlighting the model's capabilities and potential applications.

Towards a world in common

Agence Française de Développement (AFD) helps advance France's policy on sustainable investment and international solidarity. Through its public sector and NGO financing operations, research and publications (Éditions AFD), sustainable development training programs (AFD Group Campus) and awareness-raising activities in France, AFD finances, supports and drives the transition to a fairer, more resilient world.

Alongside our partners, we provide sustainable solutions for—and with—communities. Our teams are working on over 2,700 projects in the field, in over 115 countries, including France's overseas departments and territories, to support projects for the climate, biodiversity, peace, gender equality and global health. Together with Proparco and Expertise France, AFD supports the commitment of France and the French people to achieve the Sustainable Development Goals. Working by your side, for a world in common.

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