



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

Findings from the World Bank Group's Country Climate and Development Reports on the macroeconomic impacts of resilient and low-emissions development scenarios

World Bank

**Camilla Knudsen (Economist), David Groves (Lead Climate Change Specialist),
Stéphane Hallegatte (Chief Climate Economist)**

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the economic and fiscal impacts the green transition

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Access the full Compendium at www.greenandresilienteconomics.org

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This contribution summarizes findings from the World Bank Group’s Country Climate and Development Reports on the macroeconomic impact of mitigation policies.

Modeling in nearly 50 countries shows that low-emissions development pathways, in most cases, can be implemented without compromising economic growth and, when accompanied by strategic policy reforms to tackle structural challenges, can even accelerate short-term growth. However, these scenarios are not necessarily consistent with a global temperature goal or a global net zero target, and the low costs of (or even the benefits from) the transition depend not only on external factors, such as the mitigation achievements of the rest of the world and technology development, but also on several important internal factors, which require strong MoF leadership, including well-designed policies, a supportive enabling environment, dedicated interventions to facilitate the transition and protect the most vulnerable, and appropriate access to financing.

The World Bank Group’s Country Climate and Development Reports

The World Bank Group’s Country Climate and Development Reports (CCDRs), aim to help countries prioritize the most impactful actions to boost resilience and adaptation to climate change and reduce greenhouse gas emissions while delivering on broader development objectives. While CCDRs are World Bank Group diagnostic documents, and not country documents, they are prepared through regular interactions with governments and meant to inform strategic decisions on resilient, low-emissions development. Because they include sectoral deep dives (e.g., on energy or agriculture) and macroeconomic and financial assessments, they are particularly well placed to help Ministries of Finance prioritize action across sectors and decide on an appropriate allocation of resources and financing sources.

Most of the CCDRs explore illustrative, ambitious low-emissions development pathways (Figure 1). The approaches adopted to explore these pathways are tailored to the unique country contexts, including climate commitments, income level, potential for renewable energy or land-based emission reductions, and domestic development priorities. They consider what is technically, economically, and politically feasible in each country. Consequently, the ambition of the scenarios for mitigation and adaptation as well as the timing of the transition differ from country to country.

CCDRs can inform several questions relevant to MoFs relating to the transition toward low-emissions development. The emissions pathways in Figure 1 represent illustrative low-emissions strategies. These strategies do not identify optimal decarbonization pathways but instead explore the implications of plausible decarbonization scenarios consistent with each country’s own climate targets. The analyses underpinning these pathways rely on a wide range of World Bank Group models,¹ which can be made available to MoFs upon request for stress testing or other work. Where a CCDR is not available, the tools and approaches can still be useful. The hybrid modeling approach, for example, is well suited to assess the likely impact of different climate policy options on the economy and jobs.² The CCDR approaches to assessing investment needs can also help MoFs answer questions related to how much investment is needed to support the transition and possible sources of finance.³

Measuring impacts on growth

Economic growth is similar (or can be even faster) in low-emissions scenarios, but several key conditions should be met. With appropriate reforms, macroeconomic modeling in nearly 50 low- and middle-income countries shows that climate objectives *can* be achieved without compromising economic development (World Bank Group 2023). Overall, economic growth is found to be similar or

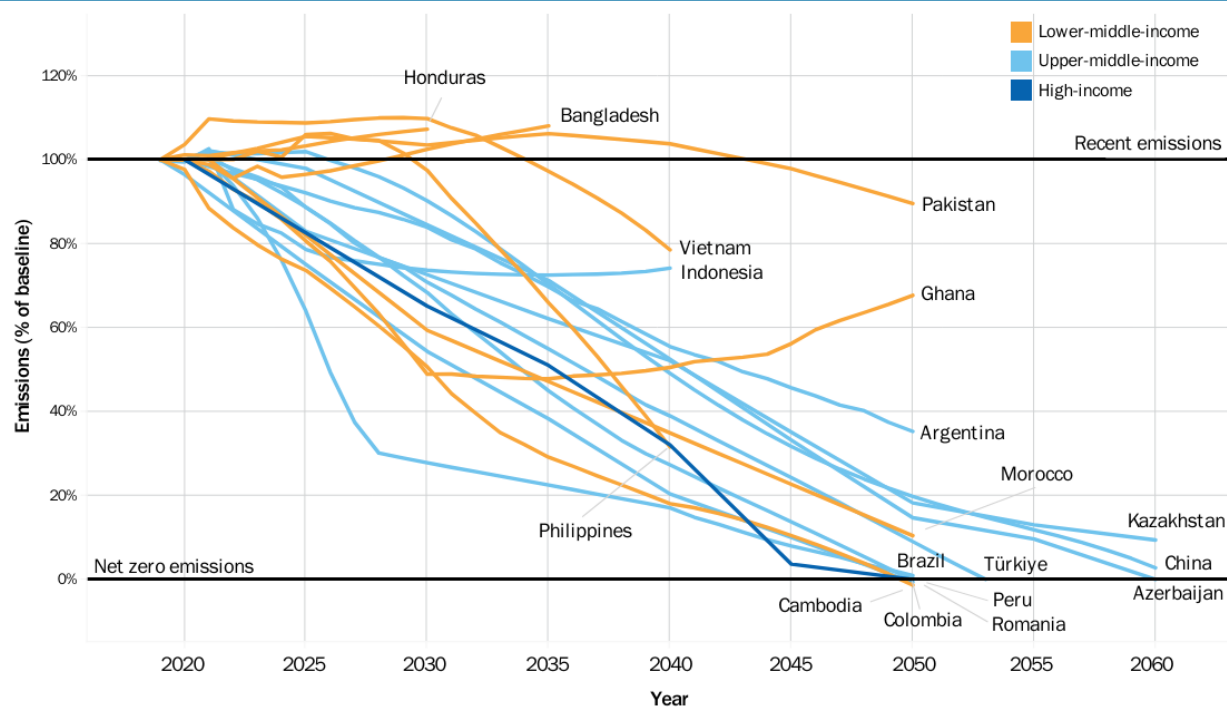
1 See separate Compendium contribution from the World Bank: *World Bank Group climate aware macroeconomic models available for use by Ministries of Finance.*

2 See separate Compendium contribution from the World Bank: *A new modeling approach combining bottom-up sectoral analyses with top-down macroeconomic models to understand the economic impacts of resilient and low-emissions development.*

3 See separate Compendium contribution from the World Bank: *A bottom-up approach to estimating climate-development investment needs.*

even faster in low-emission development scenarios than in the reference scenarios (Figure 2). Depending on the country context, these analyses assume that several key conditions are met, including well-designed policies, a strong participation of the private sector, reallocation of resources (including capital and labor), and appropriate complementary measures to navigate political economy challenges. Also, in these analyses, the low-emissions scenario is compared with a continuation of current policies, with all their limitations and suboptimalities, opening up the possibility of significant synergies between climate and development outcomes.

Figure 1. Change in greenhouse gas emissions in low-emissions development scenarios for selected CCDR countries



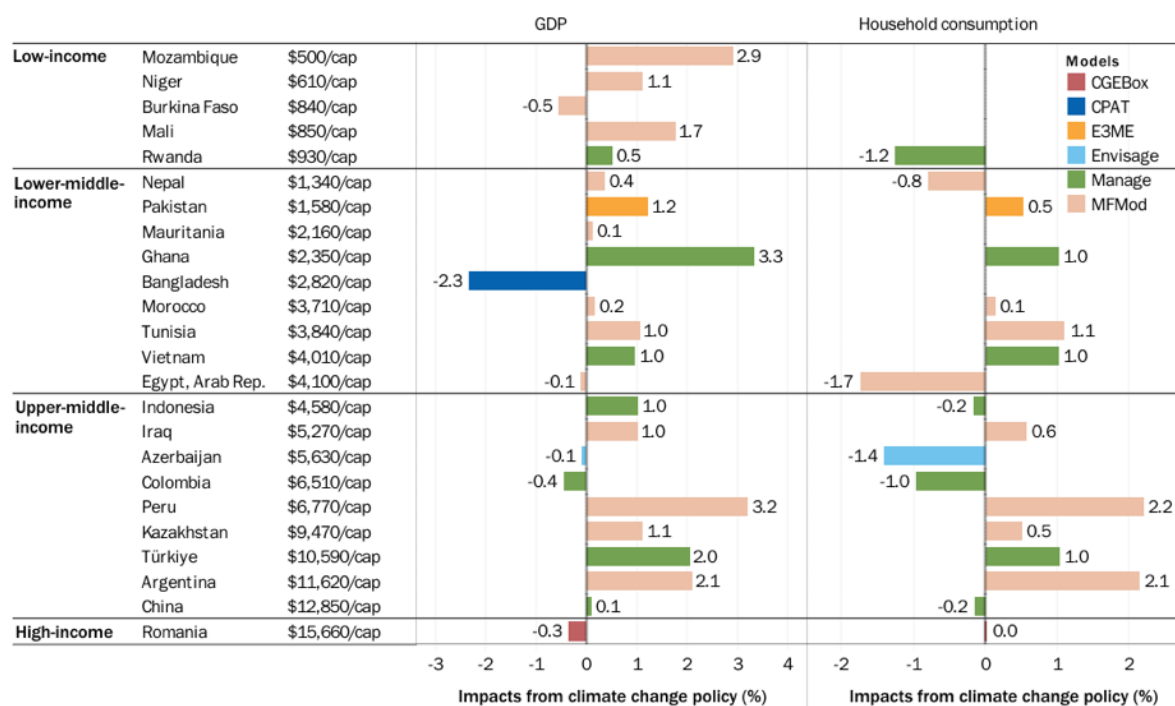
Source: World Bank Group (2023)

The impact of climate-related investments on short-term economic growth depends on the economic return of the investments. GDP impacts differ depending on whether returns are lower, similar, or higher than other productive investments. When the returns on climate-related investments are high, in the case of energy efficiency investments with payback periods of a few years, higher investments will lead to higher short-term growth, even if they crowd out other investments. But when returns are lower, such as when investing in green steel, where emissions reductions have higher operational costs (at least over the short-run before costs can be reduced by learning-by-doing and innovation), redirecting investments toward greener technologies will reduce short-term growth. Whether climate-related investments have higher or lower returns than alternative (and historical) investments also depends on the return on these alternative investments, and thus on the ability of the economy to allocate investments toward the most productive uses in the baseline scenario. Especially in upper-middle-income countries, CCDR low-emissions scenarios tend to include a portfolio approach combining growth-enhancing reforms (e.g., subsidy reform or investments in energy efficiency) with investments in interventions with short-term costs but long-term benefits (e.g., in resilience or emerging green technologies).

The impact on short-term growth also depends on how climate-related investments are financed, and how they impact other investments. Different assumptions on crowding out other investments lead to different results, as illustrated in the case of Türkiye (World Bank Group 2022b). If climate-related investments crowd out other investments and have low returns, they will have a negative impact on growth. But climate action can also crowd in private investment—for example, when investment in a

better, more affordable, or more reliable power system encourages investments in businesses and industries, as discussed in the Bangladesh CCDD— and can generate and attract the savings needed to finance these investments, accelerating economic growth (World Bank Group 2022a).

Figure 2. Impacts of low-emissions development pathways in selected CCDD countries on GDP and household consumption by 2030 compared with reference scenario



Note: The estimates draw on results from different macroeconomic models, including multisector computable general equilibrium models (Envisage and CGEBox at global level, and MANAGE at country level); macrostructural models (MFMod); simpler elasticity-based models, such as the Climate Policy Assessment Tool (CPAT, co-developed by the World Bank and the International Monetary Fund); and a multisector macroeconometric model (E3ME).⁴
 Source: World Bank Group (2023)

Low-emission development scenarios almost always require higher investments and lower operational costs, and as a result they have a larger short-term impact on household consumptions than on GDP. The relatively higher impact on consumption (Figure 2) highlights the importance of how MoFs mobilize financial resources, with different sources of finance creating different trade-offs, opportunities, and challenges. It also shows the importance of appropriate compensation and social interventions to protect consumption in low-income households and facilitate a just transition for the workers and communities affected by climate policies.

Policy and adaptation

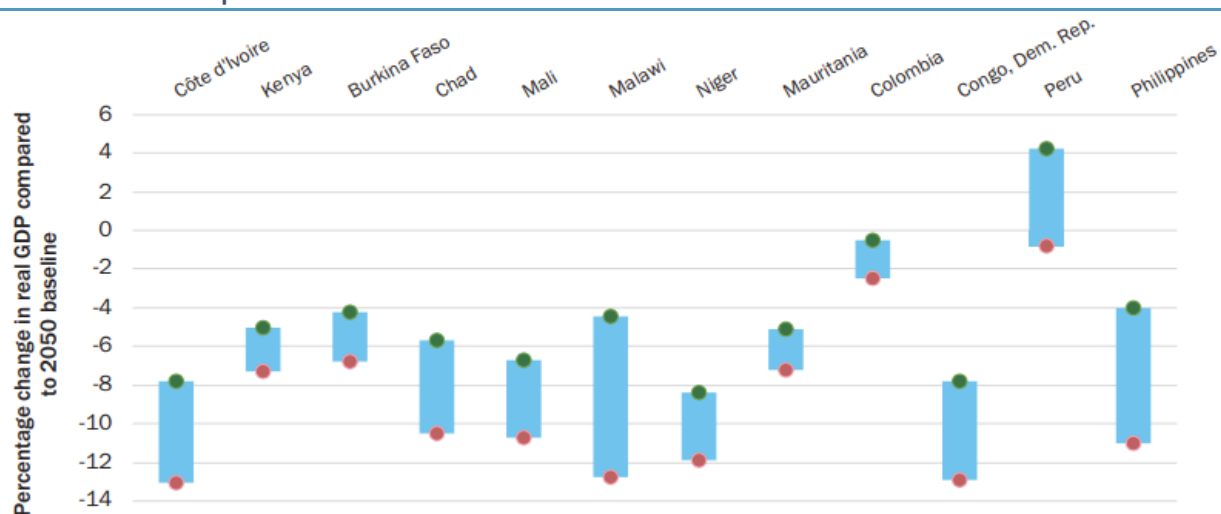
One key finding is that climate policies should be embedded into economic and development policies. There is growing evidence that decoupling of emissions and economic growth, i.e., where continued economic growth is accompanied by a decline in emissions, is possible (see, for example, Foster et al., 2021; World Bank 2022). But to make it happen, climate policies will need to be accompanied by challenging policy reforms to tackle structural challenges such as macroeconomic instability, institutional capacity, and market frictions. Without these reforms, the impact of climate action on

⁴ See separate Compendium contribution from the World Bank: *World Bank Group climate aware macroeconomic models available for use by Ministries of Finance*.

short-term economic growth could be unfavorable. On the other hand, synergies between structural reforms and climate action could enhance economic and development outcomes.

On the adaptation and resilience side, CCDRs show that targeted adaptation actions can significantly reduce the impacts of climate change and have high economic returns, but analyses suggest even optimal adaptation cannot fully cancel the impacts of climate change. Figure 3 shows, for selected CCDR countries, that adaptation measures can substantially reduce the direct impacts of climate change on GDP. Many of the adaptation and resilience investments identified in the CCDRs are no-regrets investments. This means they deliver net benefits in all possible scenarios, and in some cases their development co-benefits make them attractive even without considering avoided climate change impacts. Some CCDRs adopt a triple-dividend framework, which has three dividends of resilience: avoided losses from climate change; induced economic benefits independent of avoided impacts; and wider environmental or social benefits. The second and third dividends, which do not depend on climate change impacts, are often far greater than the first.

Figure 3. GDP impacts of climate change in 2050 in pessimistic scenarios, with current policies and with additional adaptation measures for selected countries



Notes: The red dots show the impact of climate change represented in CCDRs, with current policies and practices; the green dots show the impacts with recommended adaptation measures and their co-benefits.

Source: World Bank Group (2023)

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