



In Conversation with

Mr Joaquín Bernal

Advisor to the Governor, Banco de la República

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1. When and why did Banco de la República join the NGFS?

In December 2019, the Banco de la República joined the Network for Greening the Financial System (NGFS), motivated by its commitment to address climate-related financial risk, and with the aim of accessing the richness of knowledge and resources of the members of the network, exchanging experiences and aligning our strategies with global best practices. We are convinced that being part of this network helps us to learn from peers' experiences worldwide on developing an analytical framework to size the impact of climate-related risks on the economy and the financial system, and policies to mitigate it.

2. Can you share with us the key elements of the Banco de la República's climate strategy and how it fits into the broader national strategy in your jurisdiction?

Some years ago, the Banco de la República began to develop research aimed at identifying the economic and financial risks of climate change and thus contribute to raising knowledge about its effects on the Colombian economy. The Banco de la República's Strategic Plan 2022-2025¹ confirmed this commitment, by including as one of its objectives to carry out a reflection exercise on the impact of climate change on its functions and to define a strategy to manage the risks that are identified.

¹ [Strategic Plan 2022-2025 | Banco de la República \(banrep.gov.co\)](https://www.banrep.gov.co/plan-strategico)

In compliance with this plan, the Bank has developed two work fronts. The **first** focuses on actions inherent to its functions as a central bank. The **second** includes a series of actions to contribute to the understanding, adaptation and mitigation of climate change.

On the first front, the Banco de la República has been working on the development of mechanisms that allow the Bank, in the face of any climatic or natural event, to react quickly to guaranteeing continuity in the fulfilment of its functions in the payment systems, the management of international reserves and the supply of cash to the public, through the banking system.

Regarding the management of international reserves, the Banco de la República incorporates Environment, Social and Governance (ESG) factors in its investment and risk monitoring processes through strategies compatible with the criteria of security, liquidity and profitability. To this end, it regularly reviews the rating of the assets in which the international reserves are invested. Thus, it identifies the degree of exposure to assets that are carbon-intensive or that have some possibility of being so and closely monitors them. On the other hand, international green assets are eligible investments for international reserves, and both the Bank directly, as well as the portfolio managers, can acquire them subject to their assessment of the aforementioned criteria.

In terms of the design and implementation of monetary and exchange rate policies, climate change represents a major challenge for traditional paradigms. On the one hand, supply shocks imply that models based exclusively on aggregate demand are not exactly applicable. These shocks can come, for example, from the impacts of climate on agricultural production. They can also affect key aspects such as capital goods, migration, transport and others.

Regarding transition risks, external phenomena such as lower demand for fossil fuels or primary goods from deforestation areas, which constitute the vast majority of Colombia's export products, may arise, with significant impacts on the production patterns of goods and services with complex macroeconomic effects.

Consequently, in line with the objectives of the **second front**, the Banco de la República is working prospectively to adapt its policy tools to the challenges posed by climate change. In this regard, it has structured a **research agenda that includes two lines of research**. The **first** focuses on the analysis of **the physical risks of climate change**. This agenda studies the effects of climate shocks on variables that characterize economic activity, such as the natural interest rate, the price level, food production, the supply and prices of electric energy, the availability of physical capital, and international trade, among others. In addition, methodologies are proposed to incorporate these climate shocks into macroeconomic forecasting models.

The **second line of research** focuses on the study of **transition risks** and the impact of the decarbonization of the global economy on the country's fiscal, commercial and exchange rate performance. As an example, the Bank has prepared a policy document that assesses, using a dynamic stochastic general equilibrium (DSGE) model with monetary policy, the effect of climate change and increases in the carbon tax on potential GDP, the natural interest rate, the equilibrium real exchange rate, inflation, and the monetary policy response.

As for how the Banco de la República assesses financial systems' exposure to climate risk, the financial stability department has developed several models to measure the effects of climate-related shocks on credit risk through two different transmission channels: i) the macroeconomic transmission channel, where the approaches taken so far rely on the assumption that transition risks affect debtors through the impacts of main macroeconomic variables, such as GDP growth or inflation rate; ii) the microeconomic transmission channel, where the analysis focuses on one or several economic sectors and relies on the assumption that the balance sheets of firms within this sector will deteriorate under a physical risk scenario.

We have been working also on modelling the possible effects of several combinations of mitigation policies on macroeconomic key variables for monetary policy, such as inflation and growth. These combinations include carbon taxes and subsidies for clean energy with renewable sources. We use a highly granular model for this in terms of economic activity (supply side), which allows us to capture key indirect effects of these measures on all the sectors of the economy, depending on their intensities in green and non-green energy sources. We plan to embed a detailed labour module with rigidities for intersectoral mobility of workers into this model, in order to incorporate this key realistic feature into these indirect effects.

We have also developed models that quantify the possible effects of the reduction in oil production on key macroeconomic variables such as current account balance, GDP, real exchange rate and employment. Finally, we plan to make progress in the near future in models that will analyse the effect of adaptation policies (and their fiscal implications) on key macroeconomic aggregates. We also plan to perform statistical analysis that will analyse the impact of mitigation policies on the investment and composition of energy demand of Colombian firms.

Finally, we would also like to highlight that Banco de la República contributes to caring for the environment by implementing measures focused on the prevention, control and mitigation of environmental impacts generated by its corporate operations. This commitment is aligned with the strategic objective of being a carbon neutral organization. To this end, the Bank has promoted the reduction of greenhouse gas emissions in its own processes and premises, as well as the planting of native tree species on land of ecological interest to offset its carbon footprint and to additionally protect natural water sources, soil protection and biodiversity. The Banco de la República has obtained the environmental management system (EMS) certification under the ISO 14001:2015 standard, the certification as a carbon neutral organisation under PAS 2060:2014 standard, and the verification of the declaration of quantification and reporting of GEI and removals under ISO 14064-1:2018 standard.

3. To which extent did the Banco de la República leverage the work of the NGFS in its own domestic journey? Any concrete examples?

The Banco de la República feels very fortunate to be part of this Network, which has allowed us to benefit greatly from the state of the art of knowledge in the community of central banks and financial regulators and supervisors and from the valuable publications, resources and information that this Network provides. An outstanding example of this is the publication in 2022 of an institutional document on the “Macroeconomic Impact of Climate Change in Colombia” (ESPE 102), carried out by a team of researchers who relied on the NGFS scenarios and databases to make our own projections for Colombia, with long-term horizons, in the productive activity, external sector, public finances, financial stability and monetary policy.

Access to the training opportunities and tools on the Climate Training Alliance (CTA) e-learning platform and the Sustainability Training Reference (STaR) Guide have also been instrumental in advancing the capacities of our staff in different areas.

We are also active users of the different sources of information that have been made publicly available by the NGFS in the recent years. We use in our daily work data from the IIASA NGFS climate scenarios portal, including projections of prices and demand of different types of energy. These data are crucial inputs for all the models described before.

Thanks to this, the Bank's researchers have been able to increasingly strengthen their relationship with NGFS. One of the NGFS Working Groups where the Bank is the most active is the NGFS Workstream on

Scenario Design and Analysis. This participation includes some notes that will be included in a forthcoming NGFS document on the use of climate scenarios, which comprises the challenge faced by emerging economies, such as Colombia, in addressing a transition in the demand for their exports and fiscal revenues.

4. *One last word?*

The Banco de la República is firmly committed to developing research aimed at identifying the economic and financial risks of climate change and contributing to raising knowledge about its effects on the Colombian economy. We are confident that this way we contribute to the discussions on the appropriate design of a climate public policy in Colombia.