BRAZIL:
A MARKET-BASED CLIMATE POLICY CASE STUDY

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Background

Recognizing the international call to mitigate GHG emissions, Brazil ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 along with the Kyoto Protocol in 2002. More recently, Brazil has signed the Paris Agreement, committing itself to emission reduction targets for 2025 and 2030.

To date, government policy to reduce emissions has been largely focused on reducing deforestation through the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM) introduced in 2004. The Action Plan was established to coordinate federal, state and municipal efforts to enhance monitoring infrastructure, which would become an important tool for enforcement activities. This contributed to a nearly 75% decline in deforestation rates in the Amazon region between 2004 and 2016, relative to a historical level (1996-2005). As a result, Brazil has avoided more than 5.5 billion tons of CO2 emissions, becoming the global leader in greenhouse gas emissions reductions.[1] Additionally, on December 29, 2009 Brazil adopted Law 12.187, which established the Country's "Política Nacional sobre Mudança do Clima" (PNMC), Brazil's **National Climate Change Policy, and set a voluntary national GHG emissions reduction commitment of between 36.1 and 38.9% by 2020 relative to BAU (business as usual)**.

In 2015, Brazil communicated to the UNFCCC its intention to adopt absolute economy wide mitigation targets for the period 2020-2025, aiming to reduce GHG emissions by 37% below 2005 levels. In addition, Brazil communicated a subsequent indicative contribution for 2030, which specifies emission reductions of 43% when compared to 2005 levels.

[1] Based on deforestation rates from PRODES –Brazil's satellite-based deforestation monitoring systems maintained by the National Institute for Space Research (INPE)— and carbon density assumptions and historical baseline described in Decreto nº 7.390, Dec. 9, 2010.

In its Intended Nationally Determined Contribution (INDC), Brazil details its contribution for 2030, stipulating quantified emission reductions targets for its energy and agriculture sectors, as well as for land use change and forestry. Other sectors (industry and transportation), although included in the INDC, did not receive quantified targets.

Brazil's INDC explicit mentions that the Country "reserves its position in relation to the possible use of any market mechanisms that may be established under the Paris agreement". In 2016, Brazil signed the Paris Agreement and, after its ratification, the Country's INDC will be converted into a NDC (not just an intention) with binding economy wide emission reduction targets for the Country.

Domestic Carbon Pricing Policies

Article 6, Section XI of Brazil's National Policy on Climate Change (PNMC) explicitly mentions "financial and economic mechanisms that are national in scope and referring to mitigation and adaptation to climate change" as **instruments to achieve the country's mitigation targets**. The Law that established the PNMC specifically outlines regulatory elements that could support Brazilian ETS activity, and authorizes the creation of a Brazilian Carbon Market (Mercado Brasileiro de Redução de Emissões, MBRE), still not implemented, under which securities representing certified emissions reductions would be negotiated.

As a result, over the last years there has been increased consideration of the development of a **national-level carbon pricing program** in Brazil. Tasked by the Executive Group of the Inter-Ministerial Commission on Climate Change, the Ministry of Finance (MF) initiated a multi-institutional working group to assess the **convenience and feasibility of carbon pricing instruments** and to determine the impact of an ETS on the Brazilian economy. This undertaking began in early 2012 and involved the participation of seven ministries who after this first phase of investigation offered the following recommendations:

- To improve information (systems) on emissions at the installation level
- To further analyse the economic effects of carbon pricing via carbon tax or an ETS

Thereafter, in order to take stock of the developments in this period (2012/2014), MF hired GVCes/FGV (a Brazilian research institution) to carry out a series of studies on MRV (Monitoring, Reporting and Verification) information systems and emissions trading. The two main objectives of these studies were to consolidate and disseminate knowledge related to data collection and GHG management at the facility level. The findings would later inform a working group (WG) coordinated by MF and integrated by Federal and State Governments. In February 2014, the WG developed a report assessing policy options for the establishment of a National GHG Emissions Reporting Program. The WG assessment was submitted to decision makers to support the enhancement of the PNMC. Additionally during Brazil's Preparation Phase under the Partnership for Market Readiness (PMR), a World Bank-administered capacity building program to support the development of market-based climate policies, the British embassy joined with MF under the "Green Fiscal Policy in Brazil" project. This compiled existing analytical tools to assess the economic impacts of GHG emission reductions.

According to the Brazilian Development Bank's (BNDES) website (March 2013), BNDES has signed a technical cooperation agreement with the state of Rio de Janeiro and the Acre Institute for Climate Change and Regulation of Environmental Services "aimed at stimulating the development of a market for environmental assets in Brazil",

Domestic Carbon Pricing Policies

which "paves the way to develop a carbon market in Brazil." Potential results from this agreement include:

- A knowledge network/exchange of experiences and training to provide support for companies to measure, manage, and reduce emissions;
- The creation of corporate carbon inventories; and
- The specification of emissions targets, as well as allowance distribution mechanisms.

BNDES has chosen to partner with Rio and Acre due to the two states' experience with carbon market development. Rio's ETS history is summarized below, and Acre's progress in developing legal framework for reducing emissions from deforestation and forest degradation (REDD+) is at a more advanced stage than anywhere else in the world. However, according to the BNDES (March 2013), "the agreement is open for other agencies and entities of Direct and Indirect Public Administration to adhere, and the BNDES is committed to incorporating new signatories."

During the Implementation Phase (2016-2018) of Brazil's Market Readiness Proposal to the PMR, MF will further analyze the impacts of fiscal reform in relation to GHG emissions economic performance and job creation using macroeconomic modelling. The results will help to inform the possibility of a "green tax reform" in Brazil. Phase II has three main components:

- **Component 1** covers sectoral analyses aiming to develop alternative instrument design options for carbon pricing, covering both carbon tax and emissions trading systems (ETS);
- **Component 2** comprises macroeconomic modelling and regulatory impact analysis in order to assess the economic impacts of the recommended alternative policy designs; and
- **Component 3** relates to the communication, consultation and engagement process that must take place in carbon pricing initiatives, regardless of the instrument chosen.

Beyond national policies, there is **sub-national climate action** in Brazilian states and cities. As of July 2016, 16 of the 26 states have climate change laws, and four states have emission reduction targets (São Paulo, Rio de Janeiro, Mato Grosso do Sul and Paraíba). The state of São Paulo, for example, established a target in 2009 to reduce emissions 20% relative to 2005 levels by 2020. At a more local level, a few Brazilian cities have implemented climate change policies, including Rio de Janeiro and São Paulo. The city of São Paulo had emission reduction targets (to reduce emissions by 30% relative to average 2005-2010 levels by 2012), which were not achieved. The city of Rio de Janeiro has pledged to reduce emissions 8% relative to 2005 levels by 2012, 16% by 2016, and 20% by 2020.

Rio de Janeiro could have become the first Latin American government to pass an emissions trading system if the state governor had signed the decree in June 2012. The state was studying an ETS proposal and had planned an announcement at the Rio +20 conference. While such an announcement did not occur, the state continues to analyse its options. Similarly, although São Paulo announced plans to launch an emissions trading system (SP ETS) in June 2012, it has delayed the implementation of a carbon market due to inability to find ways to mitigate emissions growth, particularly in the energy sector.

Recently, four states have adopted regulations regarding (mandatory) emissions reporting, requesting that companies report to the states' environmental agencies information on various emissions sources. The states of São Paulo and Rio de Janeiro have adopted mandatory GHG reporting requirements, and the states of Minas Gerais and Paraná have created incentives for reporting. This reporting requirements can be seen as an important first step for the adoption of future (state level) ETS programs, as information regarding GHG emissions and production processes is of vital importance for the definition of various features of carbon markets, such as defining coverage (gasses and activities) and emission caps, identifying benchmarks, defining levels for participation, etc.

Other Market Developments

Forestry

In 2004, Brazil passed its Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM), in which it dedicated itself to greatly reducing domestic deforestation. One of Brazil's deforestation goals is to double forest coverage from 5.5 million ha to 11 million ha in 2020. In 2008, the Brazilian government established the Amazon Fund, which aims to compensate landowners for each ton of CO2 not emitted. Between 2006 and 2017, the country aims to reduce emissions from deforestation by 4.8 GtCO$_2$e, assuming a biomass carbon stock of 100 tC/ha.

Several Brazilian states, namely Acre, Mato Grosso, Para, and Amazonas, have made

substantial progress in REDD+ program development. In this context, it is important to observe that the Brazilian INDC states that the Country "emphasizes that any transfer of units resulting from mitigation outcomes achieved in the Brazilian territory will be subjected to prior and formal consent by the Federal Government". In addition, Acre could produce up to 69 million tCO2e of emissions reductions from REDD+ activity over the next eight years. In the state of Para, the Cikel Project issued 100,000 credits for REDD+ supply in June 2012. Project proponents expect further credits and to eventually receive 370,000 Voluntary Carbon Units (VCUs) annually over the next ten years.

Six Brazilian states – Acre, Amapa, Amazonas, Mato Grosso, Para, and

Tocantins – participate in the Governors' Climate and Forests Task Force (GCF), which is a multi-jurisdictional collaborative effort between 22 states and provinces from Brazil, Indonesia, Mexico, Nigeria, Peru, Spain, and the United States that was established in 2009. GCF focuses on, "*developing the technical, legal, and institutional frameworks for comprehensive jurisdiction-wide programs to reduce emissions from deforestation and land use; support strategies for low-emissions rural development; and serve as pathways to and pillars of robust national and international efforts to include forests and land use in climate policy.*"

In addition, in 2010, the Brazilian state of Acre signed a *memorandum of understanding* (MOU) with the states of

California, USA and Chiapas, Mexico to work towards the establishment of sectoral offset programs from REDD. The three states have created a *REDD Offsets Working Group* (ROW) in order to determine:

1. the legal and institutional mechanisms necessary for a sub-national compliance program, such as California's, to recognize international emission reduction credits from state-level sectoral REDD+ programs, such as in Chiapas and/or Acre; and

2. the key policy and technical elements that a sectoral REDD+ program should achieve in order for REDD+ credits to be recognized in a compliance program.

Also worth mentioning is the recently created CONAREDD, the National Commission for GHG Emission Reduction from Deforestation and Degradation, Carbon Stock Conservation, Sustainable Forestry Management and Increase of Carbon Stocks – REDD+, which will be responsible for the coordination, monitoring and implementation of the National Strategy for REDD+. The Commission will also be responsible for the coordination and preparation of the criteria needed for accessing payments for results from policies and actions of REDD+ in Brazil, recognized by the UNFCCC.

Another market instrument that could contribute to the reforestation of degraded areas in Brazil and consequently increase carbon stocks in the country are the "Cotas de Reserva Ambiental" (CRA), which are credits that could be commercialized between land owners to meet environmental legislation, i.e. the newly adjusted Forestry Code (2012). The CRAs are securities, and each one represents 1 hectare of natural vegetation on private properties that have excess of "Reserva Legal" (Legal Reserves) that can be sold to properties that have less "Reserva Legal" than the minimum required by Law. Studies indicate that, in the entire country, there is a deficit of at least 16 million hectares of Legal Reserves.

Up until now, the CRAs cannot be commercialized, as there is still a need to regulate some specific issues not detailed in the Law. Although there is a legal base (Forestry Code), additional regulation needs to defined how the Instrument can be put into practice. Another issue that is delaying the CRA market is the fact that all rural properties need to comply with new regulation regarding an Environmental

Registry (CAR – Cadastro Ambiental Rural), which also is not yet implemented in the whole country.

CDM Experience

As of 1 August 2016, Brazil was host to 341 registered CDM projects in a wide range of sectors. The majority of activities address hydroelectric projects (28%), methane avoidance (19%) and landfill gas (16%). To date, the CDM is the main component of Brazil's activity in the carbon market. Nonetheless, it is important to mention that since the end of 2012, when the EU decided not to accept carbon credits from CDM projects registered after 2012 (except credits from least developed countries), the number of new CDM projects in Brazil have declined sharply. As of August 2016, Brazil had issued a total of 113,267 kCERs, which is a share of 6.6% the total number of CERs issued

Brazilian Emissions Reduction Market

The major Brazilian environmental assets exchanges are Bolsa Verde do Rio de Janeiro (BVRio) and the **BMF/Bovespa environmental assets exchange**. The initial purpose of the BMF/Bovespa environmental assets exchange derives from Article 9 of the PNMC, which states that,

"The Brazilian Emissions Reduction Market shall be operated in commodities, futures and stock exchanges, and in over-the-counter trading companies authorized by the Securities and Exchange Commission of Brazil – CVM, where negotiations for securities representing certified avoided greenhouse gas emissions shall take place."

While the Brazilian Emissions Reduction Market, as defined by the PNMC, has yet to be implemented, the development of such a market is contemplated in the law. In the meantime, an exchange for environmental assets in Brazil, through BMF/Bovespa, operates as a stock exchange for voluntary reduction permits, and it holds auctions for CERs and for voluntary carbon units. This resulted from a joint initiative by the Ministry of Development, Industry and Foreign Trade (MDIC), and the Commodities and Futures Exchange (BM&F). The market was launched in São Paulo in December 2004, and it was the first market of its kind in a developing country. It became operational in September 2005 with the Project Bank, which aims to improve visibility and facilitate the commercialization

of CDM projects. Its economic function is to attract direct investments that contribute to economic development, encourage clean technology projects, and *bolster the international appeal of Brazil's* environmental market instruments. In this way, although Brazil has no regulation in place to facilitate the implementation of a national ETS (there is only the provisions of art. 9 of the PNMC already mentioned before), there are some elements that could be useful of a cap-and-trade in the Country. Those are, for instance, the sectoral mitigation plans (and corresponded emission limits) that could form the basis for setting up the emission limits for a national ETS, the intention to stimulate and to operationalise the MBRE, and the environmental asset exchanges already mentioned.

At the state level, BVRio, (launched in December 2011), is an electronic exchange that could be a trading platform for Rio ETS allowances. BVRio was originally created via a partnership between Rio's Environment Secretary and the municipality's Department of Finance as a non-profit association with the mission of promoting an active market for a green economy through facilitating the implementation of policies that benefit both the business sector and the environment. The association that comprises BVRio has three categories of participants:
• The business sector;
• NGOs; and
• Institutional partnerships

Specifically, BVRio aims to facilitate the commercialization of environmental activities that stem from legal obligations, such as restoration of forest areas, waste management, and GHG emissions reductions. At present, BVRio has two main activities: (1) Develop market mechanisms for environmental services and assets; and (2) Provide and operate a trading platform for these assets.

EPC ETS

In March 2014, the Emissions Trading System of the Business for Climate Platform (EPC ETS) began simulating an ETS with 22 major companies (emitting 22 million tCO2e in 2012). In 2016, 30 companies from various sectors (energy, transportation, industry, services, agriculture, etc.) took part in the simulation. Together, they were responsible form emitting 60.5 million tCO2e in 2015. The objective of this initiative is to offer the Brazilian business sector the opportunity to

test a market instrument for carbon pricing and to enable it to contribute to the debate on this topic in Brazil and internationally. The emissions trading system remains a relatively new economic instrument for Brazilian business sector.

In the EPC ETS, companies operated on a trading platform with the aim of attaining the best possible combination of financial and operational results. This means that the participants have to acquire (using fictitious money) an amount of emission allowances or offsets (carbon credits) that is equal to their actual emissions. The emission data used in the simulation is real, obtained from corporate emission inventories available at the Brazilian Emissions Registry. In 2015, 42% of companies managed to settle their emissions with permits available in the EPC ETS. Among the remaining companies, 16% managed to get close to their target. The EPC ETS operations took place on an online negotiating platform developed in partnership with BVRio. At the end of 2016, the companies participating on the EPC ETS will present to the federal government proposals regarding the features of a possible Brazilian ETS, based on their experiences after 3 years of dealing in a simulated carbon market.

In addition to the EPC ETS, other business initiatives around climate change have recently taken carbon pricing as a strategic issue. Four of them (CDP, CEBDS, Fórum Clima of Instituto Ethos and Rede Brasileira do Pacto Global) take part with EPC in the Business Initiatives in Climate Network (IEC). In 2015, these organizations composed a working group focussed on carbon pricing in Brazil and worldwide. Still in 2015, IEC published an open letter, delivered to government leaders, pledging to unite efforts around seven proposals for a national low-carbon economy, which included carbon pricing as a possible strategic measure.

What Distinguishes this Policy?

UNIQUE ASPECTS

1. More so than in most other countries, GHGs from deforestation play a significant role in Brazil's emissions profile. As a result, the **development of REDD+ would likely benefit Brazil more than most other countries.**

CURRENT CHALLENGES

1. Deforestation appears to be increasing since 2014, at least in part because of a failure to create positive incentives and political push-back against increased environmental law enforcement. Brazil's Environment Ministry (MMA) has established a National REDD+ Policy, and several other policies are also contemplated.

2. It is largely unknown when and if Brazil will integrate a carbon pricing instrument into the PNMC. Should Brazil opt to introduce a carbon price signal, a key issue will be deciding whether to implement a carbon tax or an ETS or a combination of both.

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