ASSESSMENT OF SUBNATIONAL AND NON-STATE CLIMATE ACTION

BRAZIL

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NEW CLIMATE INSTITUTE
DATA DRIVEN ENVIROLAB
PBL Netherlands Environmental Assessment Agency
d·i·e Deutsches Institut für Entwicklungspolitik
German Development Institute
BLAVATNIK SCHOOL OF GOVERNMENT
UNIVERSITY OF OXFORD

Brazil

COUNTRY CONTEXT

Brazil's climate policy is at a critical juncture, due to changing political currents that leave its past success in reducing greenhouse gas (GHG) emissions in limbo. Brazil's emissions have fallen significantly since peaking in 2004, a trend driven primarily by a decline in deforestation between 2005 and 2012 (UNFCCC, 2019b). Deforestation, however, has been increasing since 2013, reflecting a lack of funding for environmental agencies and weakened environmental legislation, including the Forest Code, which mandates that farmers in the Amazon preserve forest cover on 80% of their land (William E. Magnusson et al., 2018; Watts, 2019). In 2018, Brazil lost 1.3 million hectares of Amazonian rainforest to deforestation (a 13% increase from 2017). This rise in deforestation coincides with the 35% surge of fires in the Amazon over the first eight months of 2019[1] (Escobar, 2019; Symonds, 2019). This trend could risk the forests' ability to support over 1 million indigenous people and an estimated 10% of the world's biomass and species, and to act as a key carbon sink (Climate Action Tracker, 2019a; Giacomo, 2019; Viscidi and Graham, 2019).

Brazil's contribution to global climate change threatens to increase following the 2018 election of President Jair Bolsonaro, who ran on an anti-environmental platform and received backing by the *bancada ruralista* (a pro-agribusiness congressional bloc which has traditionally opposed protective environmental legislation). Not only is deforestation likely to increase further, but Brazil's progress towards fulfilling its NDC target may also be jeopardised. Since taking office, Bolsonaro has reduced the Ministry of Environment's budget for climate change by 95%, attempted to transfer the ability to demarcate indigenous territory from the National Indian Foundation to the Ministry of Agriculture, and proposed legislation that would reduce the size of protected areas in the Amazon (Climate Action Tracker, 2018a; Rochedo et al., 2018; Viscidi and Graham, 2019).

In its nationally determined contribution (NDC) to the Paris Agreement, Brazil commits to limit its GHG emissions to 1.3 $GtCO_2e$/year in 2025 and also sets an indicative target of 1.2 $GtCO_2e$/year in 2030. The latest assessment by NewClimate Institute, PBL and IIASA as shown in Figure 1 (top panel) indicate that Brazil is not on track to meet its NDC with existing national policies (Kuramochi et al., 2018).

Despite these political setbacks, Brazil has progressed towards its NDC in the transportation and energy sectors, primarily via policies targeting increased usage of biofuels. The 2018 passage of RenovaBio, a national biofuels policy, is estimated to limit the increase in transport emissions to 4-6% by 2030, as compared to a predicted increase of 23% under "business-as-usual" conditions. The NDC target of achieving 45% renewables in Brazil's energy mix by 2030 is estimated to be achieved by 2027. However, without further measures, total energy emissions will continue to rise, driven by increased fossil fuel usage in response to soaring energy demands and water scarcity within Brazil's hydroelectric plants (Climate Action Tracker, 2019a). Within the Ten-Year Plan for Energy Expansion, the Brazilian government is planning to increase investments in both renewables and fossil fuels between 2018-2027, with investments in fossil fuels projected to rise to 76.1% (Climate Action Tracker, 2019a).

1 Fires have increased 35% above the average for the first eight months of each year since 2010.

INTERACTIONS BETWEEN THE NATIONAL GOVERNMENT AND SUBNATIONAL AND NON-STATE CLIMATE ACTORS

Brazil's national government has consulted city, state, and company actors to create their national-level climate policy (Hale et al., 2018). In recent years, many of these actors have also responded vocally to the shifts in the national government's stance on climate change. In response to earlier uncertainty as to whether Brazil would remain a party in the Paris Agreement, in April 2019 12 states – whose CO_2 emissions comprise approximately 50% of the national total – pledged to form a state-level council and continue working to achieve the emissions reductions outlined in Brazil's NDC (Spring, 2019).

Brazil has one of the largest urban populations in the world – urban residents account for 87% of the country's total population – meaning that cities are also a crucial partner in achieving the country's climate goals (Kahn and Brandão, 2015; World Bank, 2019) and preparing for climate risks (Federative Republic of Brazil, 2015). For instance, Rio de Janeiro, Brazil's highest-emitting city, was one of the first cities in Latin America to adapt carbon neutrality as a municipal policy, and has set goals to meet 30% of the city's energy demand with renewable sources (C40 Cities, 2019b). Engaging nearly 40 city departments, private sector stakeholders, and over 4,000 citizens, the city also developed the Rio Resilience Strategy, which seeks to reduce the risks from natural disasters, improve the safety of urban spaces, promote a low-carbon economy, and provide basic services such as clean water to all citizens (C40 Cities, 2019b).

Efforts to reduce emissions in urban mobility, energy use in residential and commercial buildings, and waste management in cities could contribute significantly to lowering Brazil's emissions (Kahn and Brandão, 2015). The city of Salvador, for example, has reduced its GHG emissions by 31,500 tonnes annually through the Environmental Recovery program, which fertilises over 20,000 newly planted native trees with treated sewage, and is expected to capture 2.8 $MtCO_2$ by 2035 (C40 Cities, 2019b). Many Brazilian cities have taken especially ambitious action around transport. Brasilia has modernised its public bus fleet and implemented a Bus Rapid Transit system, significantly reducing both local pollutants and emissions (Zottis, 2015). The city of São Paulo's public bus agency reduced its GHG emissions 10% between 2010 and 2012 through an "Ecofleet" program incorporating biodiesel and ethanol fuel sources and, along with the municipality of Campinas, piloted a public electric bus program in 2018 (Viscidi and Graham, 2019).

Many Brazilian companies have also made climate commitments, perhaps driven by the risks climate change poses to industries, such as agriculture, manufacturing, and commodity-based exports, that the country's economy relies heavily on (Assad et al., 2013; Carlucci, 2015). One study of 38 companies operating in Brazil found that these actors had implemented 1,340 climate action projects from 2015-2017, with investments totaling more than $85.8 billion USD for emission reduction actions, focused on energy efficiency, process optimization, and low-carbon energy sources (CEBDS, 2018). A We Mean Business Coalition study of companies operating in Latin America and the Caribbean found that energy efficiency measures powered 90% of business' carbon emission reductions, producing a higher than average internal rate of return (of 16.7%) on these activities (We Mean Business, 2014).

Several partnership programs between the private sector, states, and national ministries focus on targeting emissions around agriculture and land use. As part of the Forest Investment Program (FIP), the ABC Cerrado project – which is conducted jointly by the Ministry of Agriculture, Livestock, and Food, the Brazilian Agricultural Research Corporation and the National Service for Rural Apprenticeship – trains farmers across eight states in sustainable practices that both increase productivity and reduce GHG emissions (Kossoy, 2018). Between 2016 and 2018, the program restored over 84,000 hectares of degraded land ('Projeto ABC Cerrado recupera áreas degradadas', 2018; Ministério da Agricultura, Pecuária e Abastecimento, 2018). In another example, major soy and beef companies, local and global non-governmental organizations, and the Government of the State of Mato Grosso – the largest agricultural commodity producing state in the Amazon – worked together to develop and implement the "Produce, Conserve, Include" strategy (Miller and Mendlewicz, 2016). This program aims to reduce deforestation in the Amazon by 90% by 2030, while also increasing agricultural production and fostering the socioeconomic inclusion of smallholders and traditional populations (Governo de Mato Grosso, no date).

COMPARING SUBNATIONAL AND NON-STATE TRAJECTORY WITH NATIONAL TRAJECTORY

A relatively small but impactful cohort of Brazil's subnational actors have set climate goals. The assessment includes seven cities, representing more than 25 million people, and 1 region, representing over 45 million people, that have made quantifiable commitments to reduce GHG emissions.[2] It also includes more than 300 companies, controlling over $317 billion USD in revenue[3] – and including 8 of the world's largest companies[4] – that have made quantifiable climate commitments, most frequently in the electrical and electronic equipment, biotech and pharmaceuticals, and chemicals sectors.

Together, these cities, region, and companies represent 220 $MtCO_2e$/year in 2015, accounting for overlap between actors. Individual city, region, and company commitments' impact on Brazil's emissions is moderate. If fully implemented and if such efforts do not decrease efforts elsewhere, they would reduce emissions in 2030 by an additional 40 to 80 $MtCO_2e$/year or 2.3% to 4.5% below current national policies scenario projections (Figure 1, top panel).

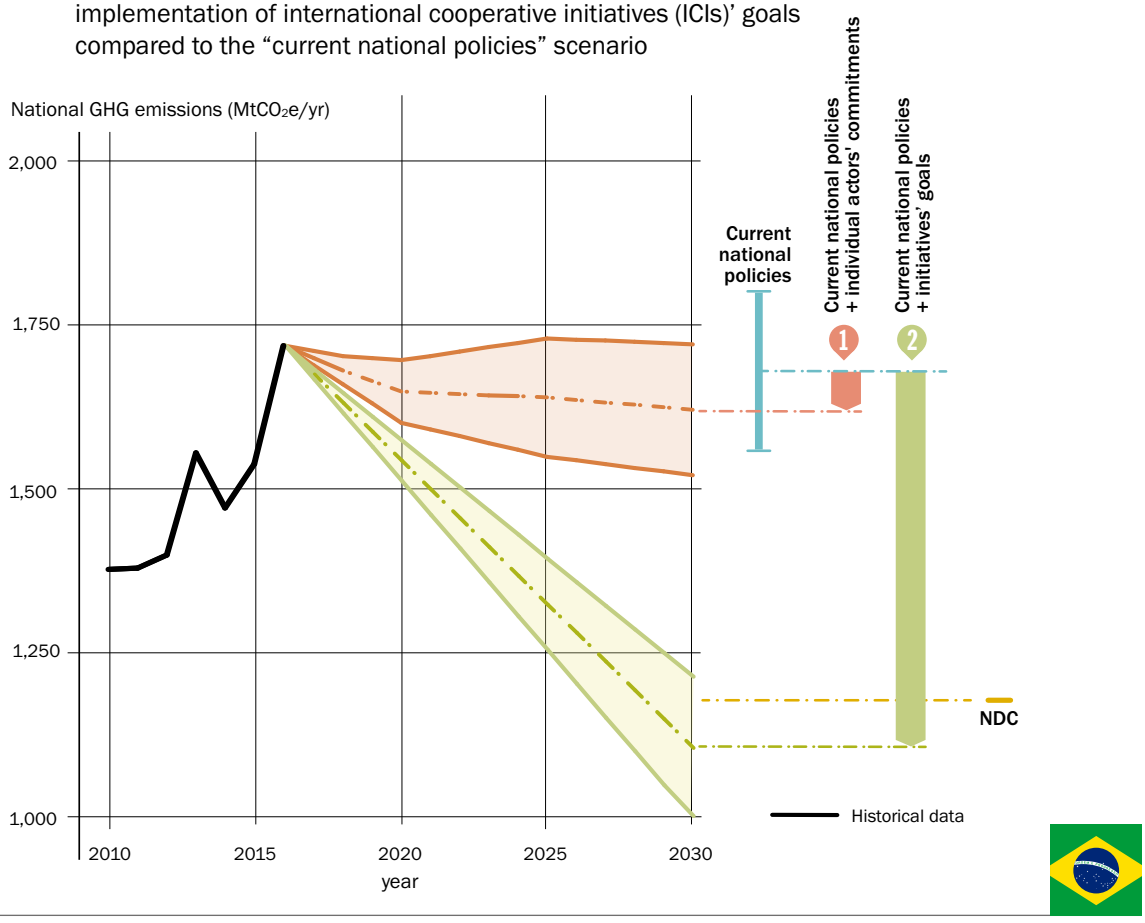
International cooperative initiatives (ICIs) – networks of cities, regions, companies, investors, civil society, and, in some cases, countries, pursuing common climate action – could have a more substantial impact. If they realise their goals, they could reduce emissions in 2030 by 560 to 590 $MtCO_2e$/year or 33% to 36% below the projected emissions under current national policies. Initiatives focused on forestry, non-CO_2 GHG emissions and cities and regions make the largest contributions to initiatives' total mitigation potential (Figure 1, bottom-right panel). The reduction potential in the forestry sector has increased significantly from the 2018 analysis, due to the upward revision of the current national policies scenario projections of LULUCF emissions (Kuramochi et al., 2018).

2 Quantifiable commitments to reduce GHG emissions typically include a specific emissions reduction goal, target year, baseline year, and baseline year emissions. See Technical Annex I for more details.

3 Companies' combined revenue reflects companies making quantifiable commitments to reduce GHG emissions, whose headquarters are in Brazil, and whose revenue data is publicly available. See Technical Annex I for more details.

4 The world's largest companies are defined in terms of their inclusion in the 2019 Forbes 2000 and Global Fortune 500 lists.

Figure 1. Potential greenhouse gas (GHG) emissions reductions in Brazil resulting from the full implementation of individual subnational and non-state actor commitments and the full implementation of international cooperative initiatives (ICIs)' goals compared to the "current national policies" scenario



The „current national policies" scenario (Kuramochi et al., 2018) includes land use, land-use change and forestry. Top panel: historical GHG emissions up to 2016 (with authors' own estimates for years between the last inventory data year and 2016) and scenario emissions pathways up to 2030, alongside the NDC target emissions range (indicative target level for 2030). Emissions reduction target trajectories from individual actors' commitments and initiatives' goals are assumed to be achieved linearly from the latest historical data year and are presented here for illustrative purposes. Bottom-left panel: the breakdown of potential GHG emissions reductions from individual subnational and non-state actor commitments in 2030 by actor group. Bottom-right panel: the breakdown of potential GHG emissions reductions from ICIs in 2030 by sector." The results for "Current national policies plus initiatives' goals" scenario do not include the potential emissions reductions from Science Based Targets, RE100 and Collaborative Climate Action Across the Air Transport World (CAATW); they are only quantified at a global level.

ABOUT THIS FACT SHEET

The **Global Climate Action from Cities, Regions, and Businesses** country fact sheet series takes a close look at the potential impact of subnational and non-state climate change mitigation action for ten high-emitting economies.

In each fact sheet, we: (1) provide general information on the country's greenhouse (GHG) emissions and its energy and climate policies (the country context); (2) describe the interactions between the national government and subnational and non-state actors on climate action; (3) identify and map the type of GHG emissions reduction commitments made individually by cities, regions and companies within that country, as well as the actors making them; and (4) quantify the potential GHG emissions reduction impact that city, region and company commitments, as well as those of international cooperative initiatives (ICIs), could have on that country's emissions trajectory. The analytical steps follow those described in an earlier 2018 report (Data-Driven Yale, NewClimate Institute and PBL, 2018) and adopts the methodological recommendations made in Hsu et al. (2019). Detailed descriptions of this can be found in the main report and its Technical Annexes I and II, all of which can be downloaded from the NewClimate Institute website (https://newclimate.org/publications). A full list of references can also be found in the main report (Section 5).

Regarding the emissions data presented in this section, total national GHG emissions include land use, land use change and forestry (LULUCF) unless otherwise stated. The historical GHG emissions data are plotted up to 2016; for a number of UNFCCC non-Annex I countries, the values between the last inventory year and 2016 were estimated based on current policies scenario projections by NewClimate Institute, PBL and IIASA (Kuramochi et al., 2018). All GHG emissions figures presented are aggregated with 100-year global warming potential (GWP) values of the IPCC Fourth Assessment Report. For the NDC target emission levels, we used LULUCF sector emission levels projected under the current policies scenario when a country's NDC: (i) excludes LULUCF emissions, (ii) is not clear about the LULUCF accounting or (iii) considers LULUCF credits. For these countries, the NDC target emission levels may not match the official values reported by the national governments.

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