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Brazil's new climate target backtracks and allows an increase in deforestation

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United Nations Framework Convention on Climate Change (UNFCC), signed in 1992, expected developed countries to propose and implement, voluntarily, actions to maintain greenhouse gas (GHG) emissions at levels below 1990. However, with emissions still rapidly rising, it became clear that it was necessary to adopt a top-down approach for defining the targets for each country. To reduce emissions to at least 5% below 1990 levels, the UNFCCC approved in 1997 the Kyoto Protocol (KP) and established for each developed party a specific emission target. However, KP only entered into force in 2005. For most countries, the target equaled a reduction of up to 10% in relation to 1990's emissions. However, for some, such as Russia, Norway, Iceland and Australia, KP allowed an increase of up to 10% in relation to the same base year.

With the Paris Agreement (PA), the UNFCCC went back where it began, with each country proposing its own Nationally Determined Contributions (NDC) to climate mitigation. While it would have been preferable a science-based top-down approach, this was proven politically unviable given the failure of the United States, the world's second largest emitter, in ratifying the KP and the need to involve emerging economies, such as China, India, and Brazil. PA establishes that the NDCs should represent the country's "highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances" (PA, art. 4.2). Nevertheless, the agreement does not specify how to assess the level of ambition of a given party, hence enabling a large space for maneuvering when proposing the NDC. The only binding aspect of PA is that every five years a new NDC "will represent a progression beyond the Party's then current nationally determined contribution" (*ibid*). In other words, if a country backtracks and somehow reduces its contribution to mitigate climate change, this can be regarded as a breach to the Paris Agreement.

In this policy brief we review Brazil's updated NDC submitted to the UNFCC in December 2020, to replace its NDC submitted in 2016. While the Brazilian government argues that this new submission introduces only minor technical adjustments, we argue that those changes represent a significant backtrack in the country's climate commitment with grave implications to the integrity of the Amazon rainforest.

Internationally, Brazil's first NDC received mixed reviews. Brazil was the only large emerging economy to present an NDC with a target in absolute figures, indicating that it would reduce its GHG emissions by 37% by 2025 and 43% by 2030, both in relation to 2005, what would be tantamount to emission targets of 1.38 and 1.25 Gigatons of carbon dioxide-equivalents ($GtCO2_e$), respectively. In addition, its NDC is economy-wide (i.e., includes all economy sectors). By contrast, China's NDC commits to peak emissions by 2030 (with no indication of how high emissions may be by that year), and India aims to reduce the emissions intensity of its GDP, suggesting that GHG emissions will continue to increase as long as its economy keeps growing. Whereas some independent assessments viewed Brazil's absolute emission

target as compatible with a global warming of less than 2°C, considering its projected emission per capita, capabilities and historical responsibility[1], others still regarded Brazil's NDC as marginally insufficient based on similar criteria. In any case, Brazil's NDC equated to those of the European Union and Canada, contrarily to countries considered highly or critically insufficient, such as Argentina, Russia, China, Japan and the United States[2].

The absolute GHG emissions from Brazil expected to 2025 were estimated based on the GHG inventory pertaining to its 2nd National Communication (2nd NC) to the UNFCCC. For the 3rd National Communication (3rd NC), the Brazilian government introduced substantial methodological improvements, and as a consequence, revised the 2005's emissions. While the 3rd NC estimates of 2005's emissions from industrial processes, residues and agriculture remained relatively similar to those of the 2nd, the revised emissions from Land-Use Change and Forestry (LULUCF) increased by 44%[3]. Hence, the entire country's GHG emissions as of 2005 increased 645 million tCO_{2e}, i.e., from 2.2 to 2.8 $GtCO_{2e}$, between the 2nd NC and 3rd NC. In the meantime, the Brazilian government also published the results of its 4th National Communication (4th NC), estimating 2005's GHG emissions at 2.56 $GtCO_{2e}$.

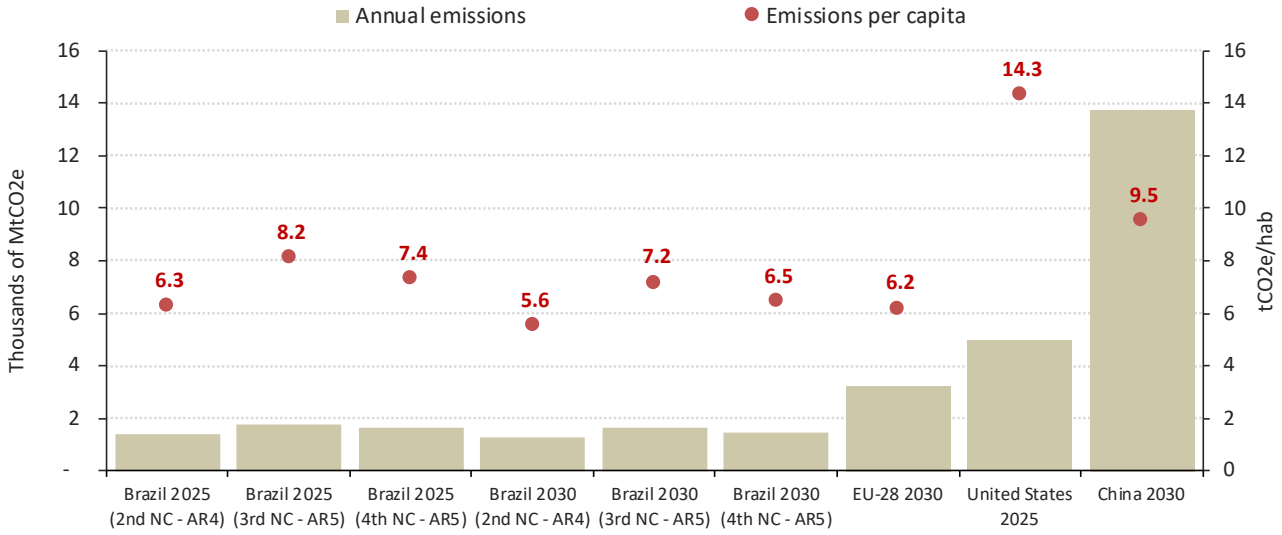
Given the significant differences between the NC estimates and how the ambition of national contributions may be measured, the Brazilian government would have different options for updating its first NDC. The government could have maintained the absolute GHG emissions projected for 2025 and 2030, and updated the reduction percentages. Another alternative would be the adoption of the 4th NC as 2005 baseline for its updated NDC, since it is the most up to date estimate available. Nevertheless, by maintaining the original percentages and referring to the 2005's GHG estimates from the 3rd NC as the baseline, Brazil has set news levels of 1.78 and 1.61 $GtCO_{2e}$ for 2025 and 2030, respectively, entailing an increase of 406 million tCO_{2e} in relation to the original absolute targets of its first NDC. This represents an additional amount of GHG close to the total emissions from France in 2018[4].

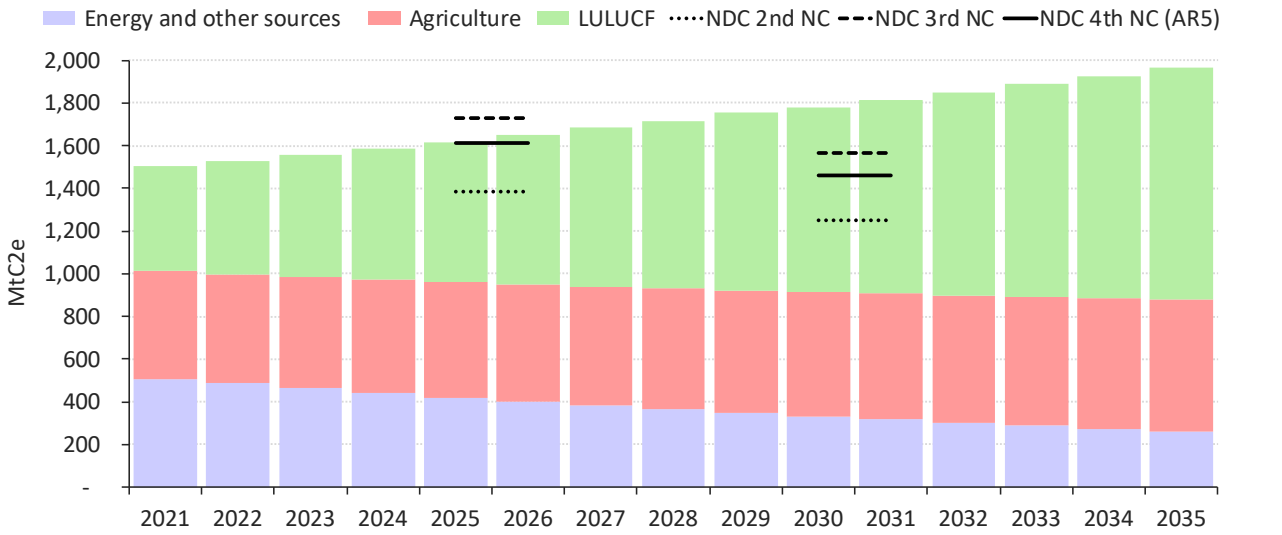
Brazil's updated NDC not only represents a missed opportunity for the country to assert its climate leadership, but also poses serious environmental threats. First, it increases the country's emissions per capita projected to 2030 from 5.6 to 7.2 tCO_{2e}, which would be higher than the emissions per capita implicated in EU's NDC, currently at 6.2 tCO_{2e}. While still much lower than the emissions per capita from the United States and China, it will move Brazil away from the 2°C limit set by the Paris Agreement. As a consequence, Brazil's NDC is now considered highly insufficient or critically insufficient by most independent assessments.

Brazil's original NDC submission included in its annex a restoration target of 12 million hectares, and a pledge to end illegal deforestation by 2030. However, the revised NDC with higher GHG levels, while even formally attaining the country's new climate goal, will allow the uphold of high deforestation rates. Based on the results from a study for the Brazilian Ministry of Science and Technology and Rochedo, Soares-Filho et al[5], we estimate how the 1.78 $GtCO_{2e}$ set for 2025 would be distributed between the country's economy sectors. In particular, the mentioned study analyzed a suite of countrywide mitigation options taking into account their marginal abatement costs under different environmental governance scenarios for Brazil. Based on the observed trend since 2012, the deforestation trajectory is likely to keep rising in the Amazon and Cerrado biomes. Additionally, we estimate a slight reduction in GHG emissions from the energy and industrial sectors, while agricultural emissions continue its

steady growth. With rising deforestation rates, most of the additional GHG emissions will therefore stem from the land use sector. Based on this analysis it is possible to observe that even with yearly deforestation rates above 13 km^2 in the Amazon and Cerrado biomes, Brazil would still meet its updated NDC in 2025.

Here, we urge Brazil to avoid backtracking on its commitments in order to respect the principles of the Paris Agreement. To do so, the government must submit a second update to its first NDC introducing the following elements: 1) adopt the 4th NC as the baseline for calculating its GHG ambitions, thus using the best science available; 2) increase its GHG emission reduction in relation to 2005 to 46% and 50% for 2025 and 2030, respectively, in order to maintain the absolute emission levels pledged in its first NDC; 3) reintroduce in the annex of the NDC specific policy targets, including reforestation and deforestation reduction objectives underpinned by a detailed GHG budget report.





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[3] The divergences between the estimates presented in the 2nd National Communication and 3rd and 4th Communications are related mainly due to differences in the land use maps, and the adoption of different assessment reports of the IPCC in order to calculate the Global Warming Potential (GWP) of different gasses, especially methane (CH_4) derived from cattle ranching and other activities. By adopting the IPCC's 4th Assessment Report, the 2nd National Communication has estimated that each tone of CH_4 has an GWP 24 times higher that a tone of CO_2 in a period of 100 years. In contrast, the 3rd and 4th National Communication calculated using both the IPCC's Second and Fifth Assessment Report (SAR and AR5) with CO_2 GWP equivalences of 21 and 28, respectively. For consistency, the present study has used the most recent IPCC reports cited in each national communication (i.e. AR4 for 2nd NC and AR5 for 3rd and 4th NC).

[4] Time Series - Annex I GHG Total with LULUCF. Available at: https://di.unfccc.int/time_series

[5] a) MCTIC. 2018. Modelagem Setorial de Opções de Baixo Carbono para Agricultura, Floresta e Outros Usos do Solo (AFOLU). Avaiable at: http://www.lagesa.org/wp-content/uploads/documents/MCTIC%2017%20Setor%20AFOLU%20Opcoes.pdf b) Rochedo, P.R., Soares-Filho, B., Schaeffer, R., Viola, E., Szklo, A., Lucena, A.F., Koberle, A., Davis, J.L., Rajão, R. and Rathmann, R., 2018. The threat of political bargaining to climate mitigation in Brazil. Nature Climate Change, 8(8).