

Nature-based solutions are key for meeting Brazil's climate goals and supporting the economy

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Challenge

There is a large **mismatch between current climate ambition and climate policy implementation in Brazil**, driven by a failure to curb the conversion of carbon rich biodiverse native ecosystems (the single largest source of emissions in the country) mainly for agriculture. Not only is this **undermining the health and resilience of the Brazilian economy** (for example, because ecosystem conversion compromises biodiversity, climate regulation, water supply and food security), it **threatens the country's international credibility** (because it will prevent Brazil from meeting its climate and biodiversity pledges). Moreover, given that Brazil harbours >20% of the world's species, **ongoing ecosystem conversion threatens the integrity of the entire biosphere**.

Solution

Protect and restore Brazil's ecosystems by strengthening, applying and going beyond existing laws to eliminate illegal and legal deforestation, and enshrining it in an enhanced Nationally Determined Contribution.

Recommendations for policymakers

- 1 Increase ambition** in Brazil's climate pledges, aligning short- and long-term goals
- 2 Strengthen existing legislations** such as the Forest Code during this decade and go beyond them to avoid costly engineered solutions to reach net-zero GHG emissions
- 3 Enhance protection** and restoration of Brazil's native ecosystems, i.e. implement nature-based solutions

In addition to meeting its net zero target, these actions would allow Brazil to fulfil its commitments as a signatory of the **Glasgow Leaders' Declaration on Forest**.



20%



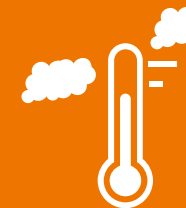
Proportion of Earth's species found in Brazil's native ecosystems

18 GtCO₂e



Projected amount of emissions from deforestation in Brazil due to agriculture expansion, between 2020 and 2050, threatening biodiversity and compromising the economy

1.5 GtCO₂e

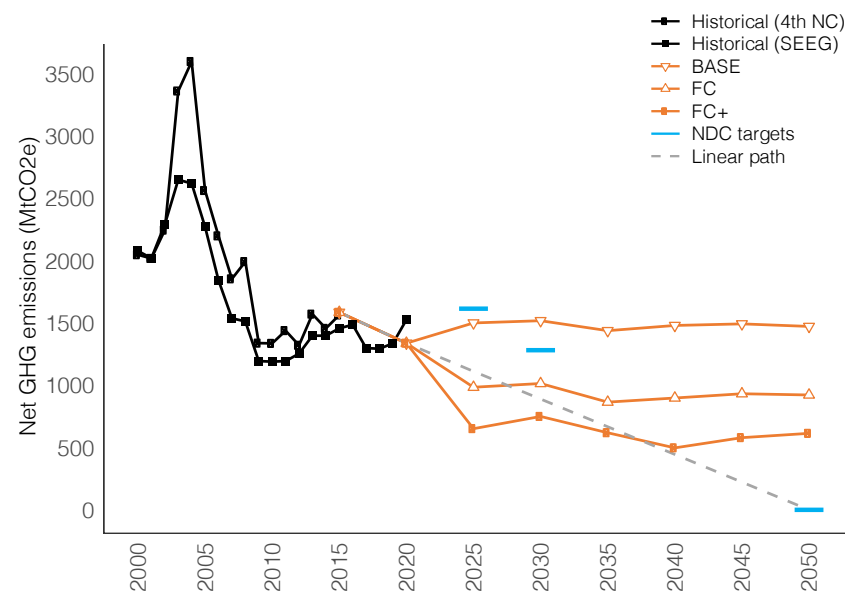
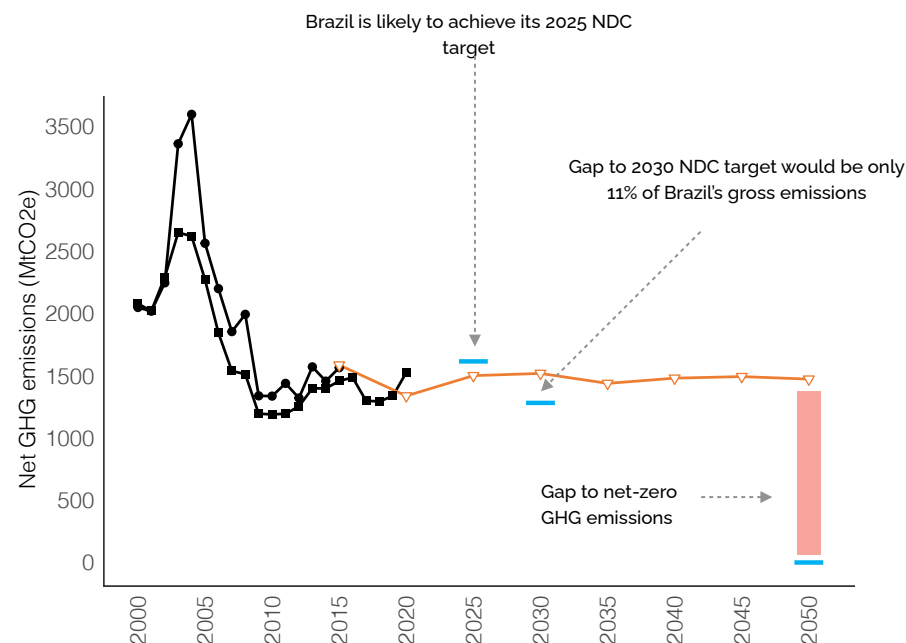


Mismatch between Brazil's net-zero GHG emissions pledge by mid-century and current emissions mainly driven by failure to curb the loss of native ecosystems

Key findings

We apply a detailed integrated assessment modeling approach to assess the extent to which existing and planned national policies could put Brazil on the path to net zero.

- 1** Full implementation of the 2012 Forest Code (FC scenario) will significantly decrease emissions during this decade, but it would not bridge the gap to net-zero GHG emissions by 2050.
- 2** Zero deforestation (both legal and illegal) combined with large-scale restoration of previously illegally deforested areas (FC+ scenario) would keep Brazil under or close to a linear trajectory towards its net zero pledge up to 2040.
- 3** Current weak environmental governance (BASE) means that Brazil could fulfil its short-term NDC commitments without reaching its net zero pledge by mid-century.
- 4** Our analyses indicate that it will be impossible to reach net-zero GHG emissions by 2050 with only engineered solutions from the energy sector.
- 5** By contrast, protection and restoration of native ecosystems is essential for closing the climate ambition and implementation gaps. It would also allow Brazil to fulfil its commitments as a signatory of the Glasgow Leaders' Declaration on Forests.

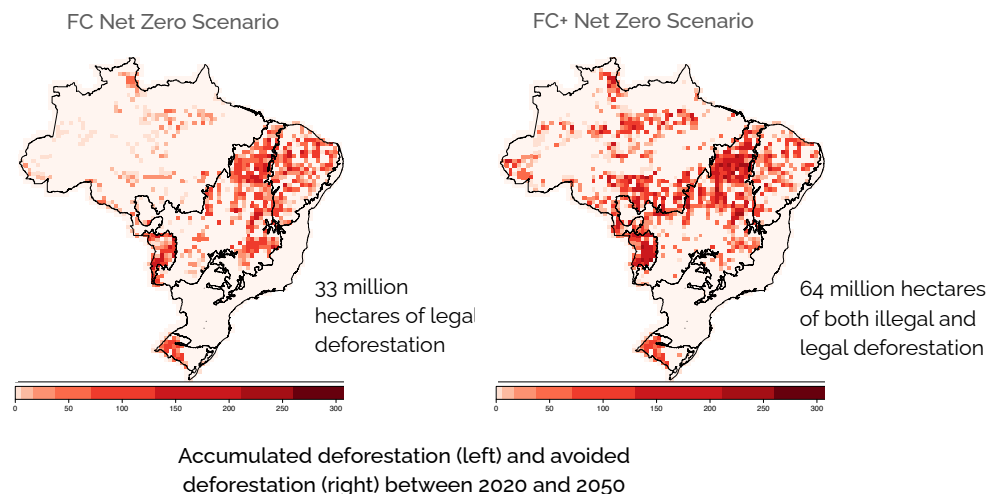
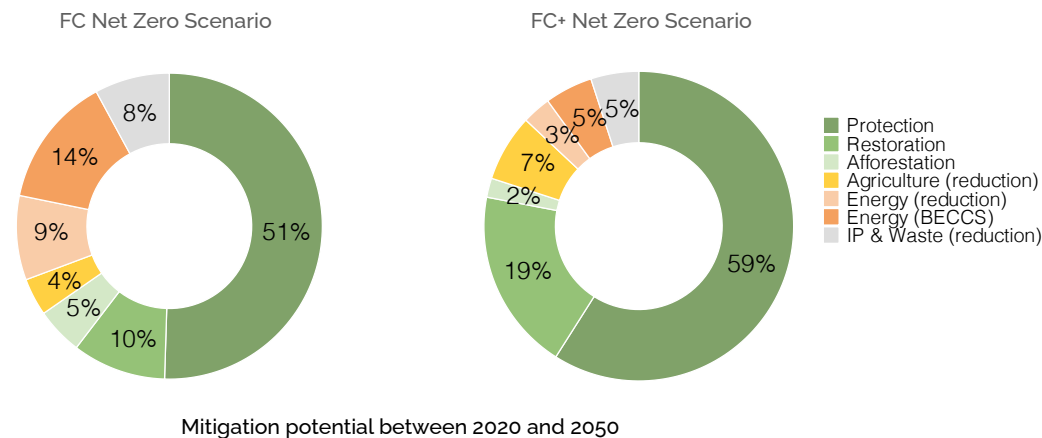


What is needed for Brazil to bridge the gap to net-zero GHG emissions?

According to our policy scenarios, protection (avoided deforestation and conversion in all native ecosystems) has the highest contribution among all considered measures. Between 2020 and 2050, it provides from 51% (only illegal deforestation control) to 59% (both illegal and legal deforestation control) of the necessary CO₂ mitigation for Brazil to achieve its net zero pledge. The FC scenario would protect 31 million hectares of native vegetation, whilst the **FC+ scenario could prevent 64 million hectares of illegal and legal conversion over 30 years.**

Restoration would mitigate between 10 to 19% of the GHG emissions during the period 2020-2050 and afforestation (i.e. commercial tree planting in areas where trees do not naturally grow) would have a limited contribution in our scenarios. The contribution of the energy sector will depend on the efforts from the land use and agricultural sectors. The less protection and restoration, the more costly engineered solutions such as BECCS will be needed.

Although the latest NDC is ambiguous on net-zero CO₂ or net-zero GHG emissions, official supporting letters submitted to the UNFCCC are clear on net-zero GHG emissions target



Recommendations for policy makers

- 1** Enhance ambition of Brazil's climate pledges, aligning short- and long-term goals. This could be achieved by revising the 2025 and 2030 NDC emissions targets and incorporating a robust plan towards net-zero GHG emissions by mid-century **with clear interim milestones, reporting mechanisms and details on use of high quality offsets.**
- 2** Implement and strengthen existing legislations such as the Forest Code during this decade and go beyond them to avoid costly engineered solutions for Brazil to reach net-zero GHG emissions.
- 3** Protect and restore native ecosystems (not only Amazonia, but also Cerrado, Atlantic Forest, Caatinga, Pantanal and Pampa), **in particular halt illegal deforestation** and pursue efforts to eliminate legal native vegetation losses. In other words, implement nature-based solutions.

Healthy ecosystems are the foundation of healthy economies and encourage investment in Brazil.

This briefing is based on the findings from:

Soterroni et al. "Nature-based solutions are critical for putting Brazil on track towards net zero". Preprint 2022. doi.org/10.20944/preprints202211.0054.v1

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