BRIDGING REALITY WITH BRAZIL'S CLIMATE ASPIRATIONS

Authors: Nora Hampl, Liuca Yonaha, Taciana Stec, and Natalie Unterstell

CLIMATE POLICY LAB

Highlights

- Gaps in multilevel governance hinder climate target coordination at the level of states and municipalities.
- Low-levels of decarbonization-oriented procurement prevent the integration of climate priorities in public and private investments.
- Nation-wide upskilling to meet the demands of green industry is necessary to enable industrial transformation.
- Domestic supply chains for low-carbon products including fuels (green hydrogen & biomethane) still need to be developed.

Introduction

In its 2024 NDC (Nationally Determined Contribution) Adjustment, Brazil reconfirmed the country's commitment to its first 2023 NDC, but also set additional targets to be achieved by 2030 and 2035, reducing emissions by 59-67% below 2005 (see Table 1). This renewed climate ambition has been supported by numerous initiatives enacted under the presidency of Inacio Lula da Silva, and were accompanied by a series of recently adopted policies, regulations, and legislative acts. The stated national priorities include low-carbon socioeconomic development and just transition, competitive industrial policy, and an effective environmental policy with strengthened monitoring, law enforcement, and other measures to halt deforestation and ecosystem degradation.

Tufts UNIVERSITY

FLETCHER The graduate school of global affairs at Tufts University

Table 1: Brazil's 2023 and 2024 NDC Ambitions

as of 27 October 2023	updated November 2024
In 2025, emit a maximum of 1.32 Gt CO_2e (reduction of 48.4% in comparison with 2025)	By 2030, end deforestation
In 2030, emit a maximum of 1.2 Gt CO_2e (reduction of 53.1% in comparison with 2005	In 2035, reduce emissions by 59-67% below 2005
By 2050, achieve net-zero emissions	Ten commitments across three axis: – Territorial and land-use planning – Energy transitions – Sustainable development with social, environmental and climate justice
	Commitments to climate federalism (Union, states, municipalities)

Nevertheless, policy implementation challenges continue to impede Brazil's national climate ambition. In this preliminary study, implementation gaps analysis (IGA) developed by the Climate Policy Lab (CPL) is applied to assess sources of implementation gaps in Brazil. The IGA framework includes four broad categories of policy implementation gaps: (1) *Governance and Institutional Capacity,* (2) *Political Economy and Interests,* (3) *Financial Constraints,* and (4) *Technical and Legal Constraints* (Appendix).

The methodological approach combines policy analysis (using CPL's climate policy inventory),[1] literature review, and qualitative research consisting of semi-structured interviews with country experts. The initially collected cross-country data were supplemented with additional country-specific literature research and interviews with country experts, which were conducted to validate, refute, or expand upon the initial findings. A full list of climate initiatives evaluated in this study, along with specific criteria for selection, is included in Table 2.

USE VALUE

Important gaps and bottlenecks identified in this study provide useful insights for policymakers involved in different stages of policymaking, from policy design and formulation to implementation, monitoring, and post-assessments. As a way of advancing the NDC process and meeting climate objectives, a focus on removing structural barriers identified in this study can improve climate policy implementation and broader policy outcomes. Final results of the research are expected to be made available via open-access published manuscript(s).

Initiatives include policies, programs, strategies, legislative acts, regulatory and planning instruments and other actions that are (i) currently in effect, have been recently enacted, or have recently ended; and (ii) are estimated to have considerable emissions impacts and (iii) effect the achievement of the country's NDC commitment.

Initial Findings

GOVERNANCE AND INSTITUTIONAL CAPACITY

Brazil's highest climate governance structure comprises the Interministerial Committee on Climate Change and Three Chambers: inter-federative, social, scientific (*Decree 12.040, June 5, 2024*),[2] while the NDC's implementation mechanisms consist of the **2024 National Plan on Climate Change** and its Mitigation Strategy (with 7 sectoral mitigation plans) and the Adaptation Strategy (with 16 sectoral adaptation plans) under the framework of the Pact for Ecological Transformation (*Decree 12.223, October 14, 2024*).[3] Multi-level governance and vertical coordination represent basic premises of the integrated climate agenda, inscribed in the **2024 National Plan on Climate Change** and the Mitigation and Adaptation Strategies. However, communications, data flows, and stakeholder engagement across national, regional and local levels remain a challenge. Effective

Table 2: Selected Policies for Implementation Gap Analysis – Brazil

Sector	Policies
Economy-wide	Federal program "Novo Pac"
	Pact for Ecological Transformation (2024)
	NDC - 2024 Brazil Second NDC Adjustment
	2024 Sustainable Taxonomy Interinstitutional Committee (Decree 11,961)
	2024 National Plan on Climate Change
	2022 National System for the Reduction of Greenhouse Gas Emissions (SINARE) (Decree No. 11.075/2022)
Transport	Fuel of the Future
	National biofuels policy (RenovaBio)
	Green Mobility and Innovation Program (MOVER)
	Urban Mobility Program (PROTRANSPORTE)
Energy	Ten-Year Energy Expansion Plan (PDE)
	Micro- and mini distributed generation, Law 14,300 (2022) and related policy on net metering for micro- and small renewable power generation Brazil (2022)
	National Program for the Universalization of Access and Use of Electric Energy in the Legal Amazon (Programa Nacional de Universalização do Acesso e Uso da Energia Elétrica na Amazônia Legal)
	Special Incentive Regime for the Production of Low-Carbon Hydrogen (Rehidro)
Industry	New Industry Strategy (Nova Indústria Brasil, NIB)
AFOLU	The new ABC+ Plan
	The Safra Plan (2024/2025)
	National Payment Policy for Environmental Services (PNPSA)
	National Native Vegetation Recovery Plan (PLANAVEG), 2025-2028
	National Program for the Conversion of Degraded Pastures into Production Systems (PNCPD)
	Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) (5th phase 2023/27) supported by the 2023 Decree 11,367 on the creation of the Permanent Interministerial Commission for the Prevention and Control of Deforestation in the Legal Amazon
	Action plan for prevention and control of deforestation and fires in the Cerrado Biome (PPCerrado)
	Amazon Fund for the prevention, monitoring and combatting threats to intact Amazon forests supported by the 2023 Decree 11.368 on the Amazon Fund Brazil

Note: Initiatives include policies, programs, strategies, legislative acts, regulatory and planning instruments and other actions that are (i) currently in effect, have been recently enacted, or have recently ended; and (ii) are estimated to have considerable emissions impacts and (iii) effect the achievement of the country's NDC commitment.

communications and data flows – across the Federal government, the Federal District, individual states, and municipalities are not yet in place, and formulations of climate agendas that include participation by civil society, scientific community, and private sector actors – though called for in the **Pact for Ecological Transformation**[4] – are not yet systematized. These institutional constraints negatively impact coordination of national targets at sub-national levels.

POLITICAL ECONOMY AND INTERESTS

Pre-existing research over past several decades has pointed to challenges in balancing economic development and environmental objectives[5] and competing interests and trade-offs between conflicting sectoral objectives, particularly in the agriculture and forestry sectors.[6] *Industry lobby/ resistance* has exacerbated the uncertainty of future demand for potentially more costly decarbonized products and services (**Special Incentive Regime for the Production of Low-Carbon Hydrogen, Rehidro; New Industry Strategy, Nova Indústria Brasil, NIB**). In turn, this uncertainty has been used as an excuse to bargain and/or delay more ambitious decarbonization approaches. The absence of (i) low-carbon supply chains (e.g., domestic supply of green hydrogen or biomethane), and (ii) lack of fossil-fuel phase-out incentives[7] (*incentive misalignment*) have been identified as major challenges to a faster pace of industrial transition.

In the transport sector, several programs and policies have been adopted and/or implemented (**Fuel of the Future, National biofuels policy, RenovaBio, Green Mobility and Innovation Program, MOVER, Urban Mobility Program, PROTRANSPORTE**).[8] At the same time, strategies to address the existing diesel dependence of the passenger and heavy-duty transport sectors, while reducing their fossil fuel demand[9] in the short- and mid-term, still need to be developed.

FINANCIAL CONSTRAINTS

Both *public* and *private investment* need to be aligned with sustainable taxonomy to avoid allocating funds towards conflicting objectives (**2024 Sustainable Taxonomy Interinstitutional Committee**). This implies re-directing funding from *unsustainable* programs with questionable, non-monitored emissions impacts (Federal program "Novo Pac")[10] to *low-carbon, green* infrastructures and development projects, following clearly defined sustainable taxonomy.

In the highest emitting sectors (Agriculture, Forestry, Land Use and Land Use Change – AFOLU), accessible and attractive financial compensation needs to be provided for the preservation of primary forests and native vegetation (**Plan for Prevention and Control of Deforestation in the Legal Amazon, PPCDAm and in the Cerrado Biome, PPCerrado**). Simultaneously, incentives for regenerative forestry and agriculture (**2025–2028 National Native Vegetation Recovery Plan, PLANAVEG; National Program for the Conversion of Degraded Pastures into Production Systems, PNCPD**) need to be extended not only to large-scale producers, but also small-scale family farmers and communities. This may imply a combination of financial instruments (e.g., **National Payment Policy for Environmental Services**), carbon credits and non-financial instruments (e.g., technical and implementation assistance).

Clearly defined government subsidies for *private investment* and the market may help stimulate private investment and de-risk high-cost green infrastructure investment and upfront capital expenditures, particularly for local energy communities and individual renewable energy 'prosumers' (producers and consumers) (**Micro- and mini distributed generation, Law 14.300, 2022 and related policy on net metering for micro- and small renewable power generation Brazil, 2022; National Program for the Universalization of Access and Use of Electric Energy in the Legal Amazon**).[11] At the same time, industry access and business practices need to align with climate policy goals (e.g., carbon emission reduction or land use practices, broad

access and affordability across society, profit-sharing with the government, and reinvestment in R&D.[12]

TECHNICAL AND LEGAL CONSTRAINTS

To fulfill sectoral targets and provide guidance for policymakers across sectors, *emissions data collection, monitoring and verification, oversight and transparency* require improvement in collection and dissemination (*data, communications, and information*). Aside from effective data integration, a broad dissemination of climate knowledge and renewable energy solutions have been deemed indispensable for reducing energy poverty and climate vulnerability not only in urban areas, but importantly, in energy-poor remote rural regions.[13] With respect to economy-wide policy effectiveness over the long[er] term, regularized information flows to policy-makers *during* and *after* policies have been implemented, could improve both *policy design* and the *policy implementation process* itself.

Based on interviewee accounts, attention to *policy design* and particular *choice of technologies* (**New Industry Strategy, Nova Indústria Brasil, NIB; Special Incentive Regime for the Production of Low-Carbon Hydrogen, Rehidro**) that include impact assessment make it possible to track implementation progress, but also inform about the effectiveness of technologies and policy practices that are being introduced in the highest emitting sectors (i.e., AFOLU, industry and transport). Availability and maturity of reliable low-carbon supply chains (e.g., supply of green hydrogen or biomethane) were considered a pre-condition to scaling up of green hydrogen production, distribution, and domestic use.

A budget for retraining and capacity building to support green economy (including circular bioeconomy) has not yet been allocated nor integrated in *policy design.* Domestic capacity for green jobs including state-of-the-art climate technologies still needs to be developed (*human talent*).

Implications For Climate Ambition

Under the framework of the **Pact for Ecological Transformation,** aligning the objectives stated in the **2024 National Plan on Climate Change** and its Mitigation and Adaptations Strategies (i.e., continued strengthened efforts to protect tropical rainforests and vital biomes, and the importance of a development model that respects the rights of indigenous and traditional peoples), could meet both the national climate agenda and motivate a continued support by international like-minded climate partnerships.

Even though specific *international pressures* exist (e.g., imported green taxonomy definitions that may not be compatible with domestic context), these could be offset by (i) implementing policies for environmental preservation that include specific targets to halt deforestation and ecosystem degradation, and (ii) adopting circular [bio]economy development trajectories aiming to improve resource efficiency and carbon intensity when compared with linear development models.[14] In the energy sector, the carbon footprint of the oil and gas sector need to be re-evaluated in the context of achieving net-zero targets and just transition – goals embedded in the **Pact for Ecological Transformation.** Accordingly, fossil fuel subsidies that have reached US $16.34 billion in 2023 need to be balanced against the disproportionately lower share of subsidies for renewables (US $3.61 billion).[15]

To address challenges of *multi-level governance* and *vertical and horizontal climate policy coordination,* actionable climate and emissions data need to be disseminated across relevant actors at different scales. Among other things, integrating national climate agendas implies data and knowledge flows across the Federal government level, the Federal District, and individual states and municipalities, and ensuring that climate science reaches civil society, the private sector, and local communities. Finally, upskilling of human talent needs to take place across multiple levels – at the state, municipality, and local levels and bridge human capital needs at different temporal scales (from short-, to mid- and long-term). ●

Endnotes

1. *National Climate Policy Inventories*. 2025. Climate Policy Lab. https://www.climatepolicylab.org/national-climate-policy-inventories (June 23, 2025).
2. *Second Nationally Determined Contribution*. 2024. https://unfccc.int/sites/default/files/2024-11/Brazil_Second%20Nationally%20Determined%20Contribution%20%28NDC%29_November2024.pdf
3. *Second Nationally Determined Contribution.* 2024.
4. *Pact for ecological transformation*. 2023. Government of Brazil. Ministry of Finance. https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/english-version/documents/pte-19-10-2023-ecological-transformation-plan.pdf
5. *Mining in the Amazon: importance, impacts, and challenges to restore degraded ecosystems. Are we on the right way?* W.B. Martins, J.I. de Matos Rodrigues, V.P. de Oliveira, S.S. Ribeiro, W. dos Santos Barros, G. Schwartz. 2022, Ecol. Eng. 174 (106468). https://doi.org/10.1016/j.ecoleng.2021.106468
6. *Amazonia as a carbon source linked to deforestation and climate change*. L.V. Gatti, L.S. Basso, J.B. Miller, M. Gloor, L. Gatti Domingues, H.L. Cassol, G. Tejada, L.E. Aragao, C. Nobre, W. Peters, L. Marani. 2021. Nature 595 (7867) 388–393. https://doi.org/10.1038/s41586-021-03629-6
7. *Amazonia and the end of fossil fuels*. L. Ferrante, P.M. Fearnside. 2023. Nature 614 (794) 624. https://doi.org/10.1038/d41586-023-00483-6.
8. *Brazilian Biofuels Policy (RenovaBio): Overview and generation of decarbonization credits by biodiesel production facilities*. 2023. R.S. Tiburcio, T.R. de Macêdo, & A.M.P. Neto, Energy for Sustainable Development 77, p. 101334. https://www.sciencedirect.com/science/article/abs/pii/S0973082623001916
9. *Biogas and biomethane production routes in the sugar-energy sector: Economic efficiency and carbon footprint*. 2023. F.E. Fava, T.L. Romanelli, Bioresource Technology Reports 22, p.101388. https://www.sciencedirect.com/science/article/abs/pii/S2589014X23000592
10. *Novo PAC: Transformative Investment for Brazil's Future*. 2023. Government of Brazil. Ministério Das Relações Exteriores. https://www.gov.br/mre/pt-br/embaixada-londres/press-releases/brazils-new-growth-acceleration-program
11. *Programa Mais Luz para a Amazonia*. Ministry of Energy and Mines. https://www.gov.br/mme/pt-br/assuntos/noticias/programa-mais-luz-para-a-amazonia-chega-a-marca-de-44-mil-pessoas-beneficiadas
12. *Industrial Policy with Conditionalities: A Taxonomy and Sample Cases.* 2023. M. Mazzucato and D. Rodrik. https://discovery.ucl.ac.uk/id/eprint/10196231/1/Mazzucato_industrial_policy_with_conditionalities_a_taxonomy_and_sample_cases.pdf
13. *Renewable energy generation for the rural electrification of isolated communities in the Amazon Region*. 2015. A.S. Sanchez, E.A. Torres, R.D.A. Kalid, Renew. Sust. Energ. Rev. 49, 278–290. https://doi.org/10.1016/j.rser.2015.04.075
14. *The Circular Economy in Cities and Regions*. Organisation for Economic Co-operation and Development (OECD). 2020. Paris: OECD. https://doi.org/10.1787/10ac6ae4-en
15. *Subsidies for Fossil and Renewable Sources (2022-2023). Reforming for a fair energy transition.* Instituto de Estudos Socioeconômicos (INESC). 2024. Brasilia: INESC. https://inesc.org.br/wp-content/uploads/2024/11/en-estudo-7ed-subsidio-fosseis_renovaveis-web.pdf

Appendix

TYPOLOGY OF IMPLEMENTATION GAPS

CATEGORIES	DEFINITION	EXAMPLES
Group 1: Governance and Institutional Capacity		
Vertical coordination (multilevel governance)	Alignment across national, regional, and local levels of government in climate policy objectives and implementation.	Misalignment in climate policy implementation, timeline, or targets between federal and state levels.
Horizontal coordination	Alignment among ministries and agencies at the same level of government in climate policy objectives and implementation.	Fragmented efforts and conflicting actions (e.g., competitions between ministries for resources).
International pressures/ factors	International and external legal and financial/political dynamics that act as barriers.	Donor-driven conditionality (e.g., IMF or WB's conditions on aids that might restrict policy implementation); WTO rules on export subsidies.
Institutional capacity	Organizational structures, norms, rules, and human resources that enable policy delivery.	Limited expertise, bureaucratic inefficiencies, poor coordination, poor communications.
Group 2: Political Economy and Interests		
Political will	Commitment by political actors to support climate policy decisions and their outcomes.	Delay of policies due to vested interests in fossil fuels, partisan divides, changes in electoral cycles, lack of (or incoherent) incentives.
Competing goals	Tensions between climate objectives or other economic, political, or development objectives.	Trade-offs between emissions reduction and industrial expansion.
Stakeholder engagement/ coordination	A systematic process of identifying and interacting with individuals, groups, or organizations that have a stake in a policy or project.	Public consultation held but stakeholder inputs are not integrated; local groups being excluded from decision-making.
Consumer behavior	Behavioral resistance or unintended reactions to climate policies.	Rebound effects from fuel-efficient cars leading to increased vehicle use.
Industry lobbying / resistance	Strategic actions by industries to delay, weaken, or reshape climate policies that challenge their interests.	Coal industry lobbying against early retirement of coal plants or carbon taxes.
Incentive misalignment	Conflicting incentives across climate and non-climate policies that undermine intended outcomes.	Subsidies for fossil fuels, or market-based incentives that contradict carbon pricing mechanisms.
Group 3: Financial Constraints		
Public investment/ finance	Provision of public finance during each stage of policy implementation.	Unavailability of funds required for a project scheduled for implementation from 2015 to 2020 during the 2019–20 financial year due to a shock to the source of revenue that paid for the implementation of the policy.
Private investment/ finance	Availability of and access to private finance that is required for the implementation of a policy.	Unavailability of sufficient private capital due to a poor estimation by the government of the level of risk that banks were willing to take on.

(continued on the next page)

TYPOLOGY OF IMPLEMENTATION GAPS

Group 4: Technical and Legal Constraints		
Technology	Availability and maturity of low-carbon technologies needed.	Mismatch between policy's technological needs and the existing technological infrastructure.
Data, communications, and information	Availability of flow of data and information, availability of information technology and monitoring systems, and the effectiveness of communication between actors.	Emissions data not being collected; lack of reporting to policymakers after the implementation of policies; lack of MRV systems.
Policy design	The initial phase of the policy process which includes identification of actors, instruments, setting of targets, allocation of responsibilities, and establishment of implementation frameworks.	Exclusion of relevant actors; ambiguous targets; unclear division of responsibilities among implementing agencies.
Legal mechanisms	Legal mechanisms available to address issues related to policy non-compliance, enforcement, or disputes.	Insufficient legal tools or mechanisms to enforce policy decisions or when the existing laws are not equipped to address compliance issues.
Human talent	Skilled personnel and institutional leadership to drive innovation and implementation.	Limitations in knowledge, skills, innovation or entrepreneurship in the general population.

FOR ACADEMIC CITATION:

Hampl, N., Yonaha, L., Stec, T., & Unterstell, N. (2025, November). *Bridging Reality with Brazil's Climate Aspirations* (Policy Brief). Climate Policy Lab, The Fletcher School at Tufts University.

ABOUT THE AUTHORS:

Nora Hampl is a Postdoctoral Research Fellow at the Climate Policy Lab at The Fletcher School, Tufts University.

Liuca Yonaha is Vice-President of the Talanoa Institute in Brazil.

Taciana Stec is a Policy Analyst at the Talanoa Institute in Brazil.

Natalie Unterstell is President of the Talanoa Institute in Brazil.

ACKNOWLEDGEMENTS:

This policy brief was developed in collaboration with the Talanoa Institute. Additionally, Climate Policy Lab extends sincere thanks to all interview respondents for generously sharing their time, insights, and expertise.

FUNDING FOR THIS RESEARCH:

Research for this policy brief was supported by Sequoia Climate Foundation, the William and Flora Hewlett Foundation, and Rockefeller Brothers Fund. Any errors or misrepresentations are the sole responsibility of the authors.