



Brazil's Climate Policy in Full 2023

Progress and gaps in the country's climate policy agenda





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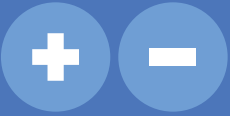
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BRAZIL'S CLIMATE POLICY IN FULL 2023
PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

THE STATE OF CLIMATE POLICY IN BRAZIL

Seventeen solid advancements, eight initial progress, fifteen areas with no progress, and one area of regression regarding public policy and climate change in Brazil in 2023

	PUBLIC POLICY	RESPONSIBLE AGENCIES AND MINISTRIES	OUR ASSESSMENT	STAGE IN PUBLIC POLICY CYCLE
CLIMATE POLICY INSTRUMENTS*	LONG-TERM STRATEGY FOR CLIMATE NEUTRALITY (NET ZERO)	Chief of Staff, External Relations, Envir, Sci-Tech, Mines and Energy, others	NO PROGRESS	Design/formulation
	NDC 2025-2030	Chief of Staff, External Relations, Envir, Sci-Tech, Mines and Energy, others	PROGRESS	Design/formulation
	CLIMATE GOVERNANCE	Central Bank, BNDES, Envir, Finance, Monetary Council, Susble Finance Cmte	NO PROGRESS	Implementation
	CLIMATE FINANCING	Central Bank, BNDES, Envir, Finance, Monetary Council, Susble Finance Cmte, Budget and Planning	PROGRESS	Implementation
	CLIMATE ADAPTATION	Envir, Sci-Tech, Mines and Energy, others	NO PROGRESS	Design/formulation
	MONITORING AND RISK AND DISASTER MANAGEMENT	MIDR, Sci-Tech, INMET, INPE, CENAD, ANA, CEMADEN	SOME PROGRESS	Implementation
	EDUCATION	MEC, CEMADEN, Envir	NO PROGRESS	Design/formulation
CORE PUBLIC POLICIES	HEALTH		NO PROGRESS	Design/formulation
	FOREIGN POLICY	Ministry of External Relations	PROGRESS	Implementation
	MONETARY AND FINANCIAL POLICY	Central Bank, Treasury, Finance, Monetary Council	PROGRESS	Implementation
	TAX POLICY	Finance, Congress	PROGRESS	Design/formulation
	FISCAL AND BUDGETARY POLICY	Budget and Planning, Management and sectoral agencies	SOME PROGRESS	Design/formulation
	DEFENSE POLICY AND NATIONAL SECURITY	GSI, Defense Ministry, Armed Forces, Intelligence agency	NO PROGRESS	Design/formulation
	EMPLOYMENT AND LABOR	MTE	NO PROGRESS	Design/formulation
	INNOVATION	Sci-Tech	NO PROGRESS	Design/formulation
	BUSINESS AND ENTREPRENEURSHIP	ME	NO PROGRESS	Design/formulation
	FOREIGN TRADE	Defense Ministry, Finance, Envir	PROGRESS	Design/formulation
	RACIAL EQUALITY	Regional Integration, Envir	SOME PROGRESS	Design/formulation
	INDIGENOUS RIGHTS	Indigenous Peoples, FUNAI	PROGRESS	Implementation
	GENDER	Women	NO PROGRESS	Design/formulation
	AGRICULTURE, LIVESTOCK AND SUPPLY	MAPA, Central Bank, EMBRAPA	SOME PROGRESS	Implementation
	FAMILY FARMING	Defense Ministry, Envir, Council on Food Security	SOME PROGRESS	Design/formulation
	DEFORESTATION CONTROL	Envir	PROGRESS	Implementation
	OCEAN AND FISHERIES	MPA, Envir, Defense Ministry, Navy	PROGRESS	Design/formulation
SECTORAL POLICIES	FUELS	Mines and Energy, Envir	PROGRESS	Design/formulation
	RENEWABLE ENERGIES	Mines and Energy, MAPA, Defense Ministry	PROGRESS	Implementation
	FOSSIL FUEL TRANSITION	Mines and Energy, MAPA, Defense Ministry	NO PROGRESS	Design/formulation
	MINING	Mines and Energy	NO PROGRESS	Implementation
	SOCIAL HOUSING	Cities	PROGRESS	Implementation
	PERIPHERIES AND SLUMS	Cities, Regional Integration	PROGRESS	Design/formulation
	URBANIZATION	Cities	SOME PROGRESS	Implementation
	WATER AND SANITATION	ANA, Cities, Envir, Sci-Tech, INMET, INPE	SOME PROGRESS	Implementation
	CIRCULAR ECONOMY	IBAMA, Environment, Cities	NO PROGRESS	Implementation
	URBAN MOBILITY	Cities	SOME PROGRESS	Design/formulation
	INDUSTRY	Development, Industry and Trade, Finance	PROGRESS	Design/formulation
	AUTOMOTIVE	Development, Industry and Trade, BNDES	RETROGRESSED	Design/formulation
	TRANSPORTATION	Transportation	NO PROGRESS	Design/formulation
	TOURISM	Tourism	PROGRESS	Design/formulation
OTHER	INSTITUTIONAL RELATIONS	Institutional Relations Secretary, General Secretary	PROGRESS	Implementation
	LEGAL DEFENSE	Legal Defense Agency	PROGRESS	Implementation





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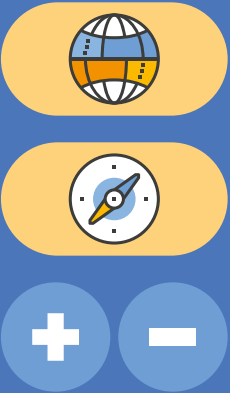
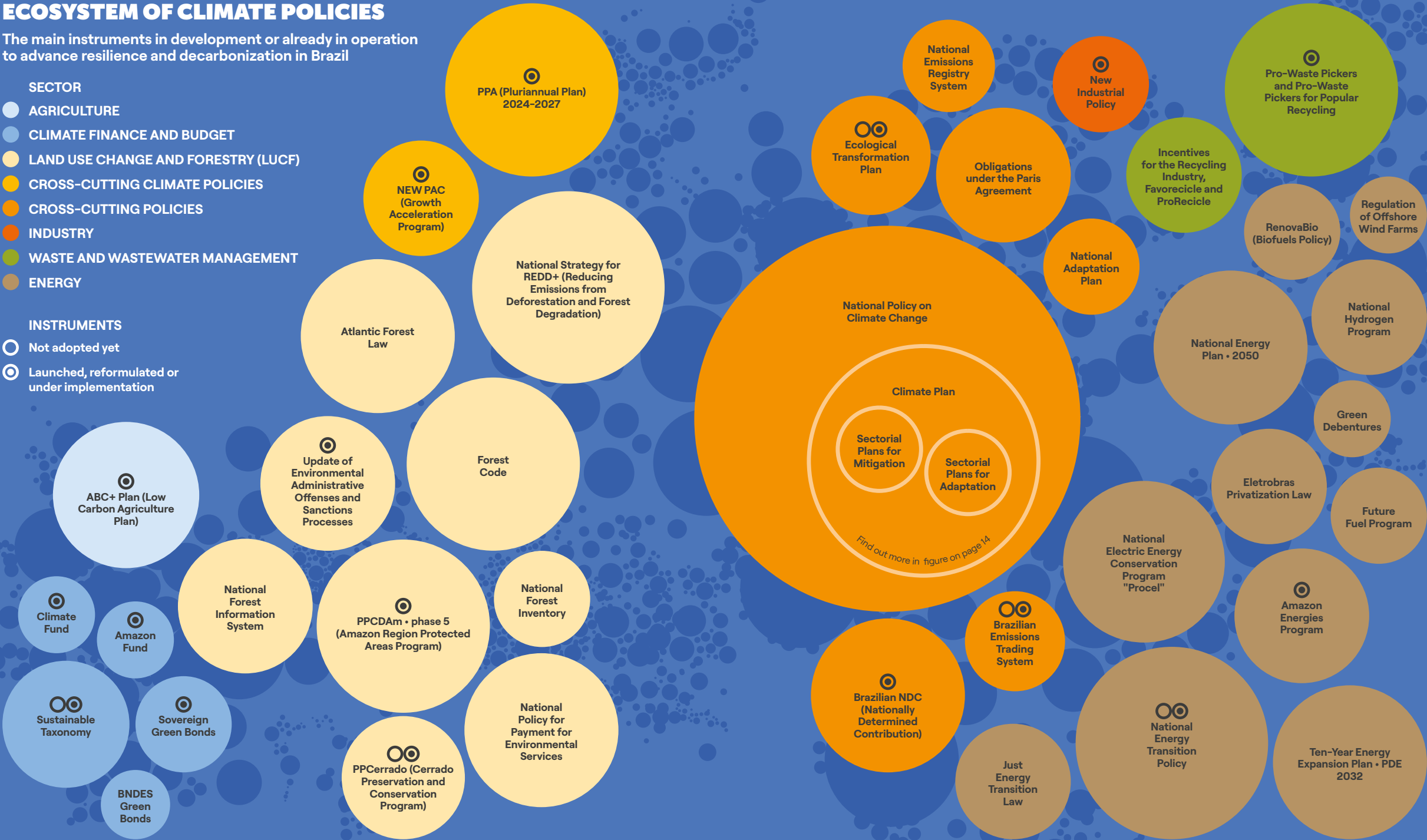


ECOSYSTEM OF CLIMATE POLICIES

The main instruments in development or already in operation to advance resilience and decarbonization in Brazil

- SECTOR**
- AGRICULTURE
 - CLIMATE FINANCE AND BUDGET
 - LAND USE CHANGE AND FORESTRY (LUCF)
 - CROSS-CUTTING CLIMATE POLICIES
 - CROSS-CUTTING POLICIES
 - INDUSTRY
 - WASTE AND WASTEWATER MANAGEMENT
 - ENERGY

- INSTRUMENTS**
- Not adopted yet
 - Launched, reformulated or under implementation





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EXECUTIVE SUMMARY

THE **BRAZIL'S CLIMATE POLICY IN FULL 2023** ADDRESSES THE CURRENT STATUS OF THE COUNTRY IN RELATION TO THE COMMITMENTS MADE AT THE UNITED NATIONS CLIMATE CONVENTION TO REDUCE GREENHOUSE GAS EMISSIONS (GHG) AND PROMOTE ADAPTATION TO CLIMATE CHANGE. THE COUNTRY IS THE FOURTH LARGEST CONTRIBUTOR TO EMISSIONS THAT CAUSE GLOBAL WARMING SINCE 1850⁽¹⁾, CONSIDERING DEFORESTATION (LAND-USE CHANGES). THE PERFORMANCE OF LOCAL CLIMATE POLICIES HAS A SIGNIFICANT IMPACT ON EFFORTS TO CONTAIN THE RISE IN GLOBAL TEMPERATURE TO 1.5°C, IN WHAT IS ALREADY CONSIDERED A CRITICAL DECADE FOR THIS AGENDA.

As the world veers off course, as noted in preparatory reports for the first Global Stocktake, with its results being a main topic of discussion at COP 28 in Dubai, Brazil also continues to increase emissions, according to the latest available data from the Greenhouse Gas Emissions and Estimates System (SEEG).

In 2023, the country revised its commitment to the Climate Convention, reinstating its original ambition submitted under the Paris Agreement. This year also marks the beginning of the reconstruction of climate policy, which will take clearer shape by COP 30, to be held in Belém (PA). The report will cover this path until 2025, the year when countries part of the Climate Convention must present new ambitions, in the form of a new Nationally Determined Contribution (NDC), for 2030 and 2035.

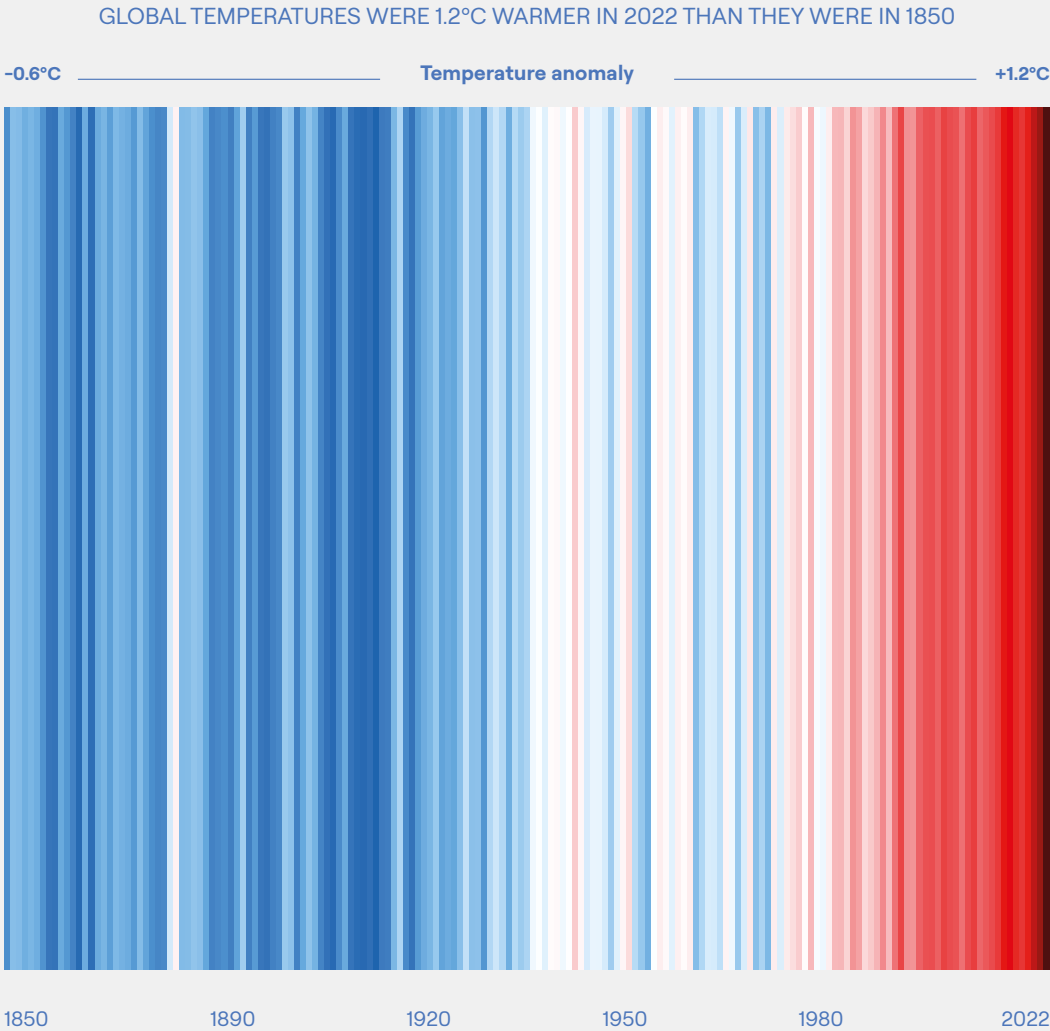
At the same time as the ambition correction was approved at the Climate Convention in September, the Interministerial Council on Climate Change (CIM) set a deadline of 210 days, extendable for another 210, to review the National Climate Change Policy (PNMC). The

deadline to develop sectoral mitigation and adaptation strategies and plans is 365 days, extendable for an equal period⁽²⁾. In other words, the reconstruction of the climate agenda pillar may take up to two years, starting from the first meeting of the temporary technical groups. The operation of a regulated carbon market in the country is expected to take longer, considering the timeframes for regulation and transition.

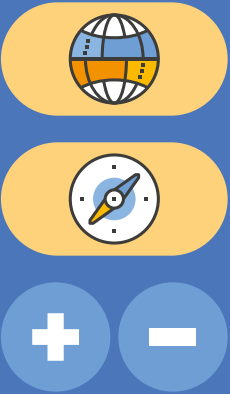
Throughout the second half of 2023, the federal government has been partially presenting measures of an Ecological Transformation Plan, which attempts to address the decarbonization of the economy through a broader development plan. These are tracks that run almost parallel, at different times, within the same climate agenda.

The impacts of this reconstruction of public climate policies are beginning to be seen in the Legal Amazon, where deforestation alerts have dropped 50% in the first ten months of the year, a decrease that has not yet fully reflected in the official 2023 deforestation rate, measured between August 2022 and July 2023, which fell by 22%.

(1) www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/
(2) www.in.gov.br/en/web/dou/-/resolucao-n-3-de-14-de-setembro-de-2023-518979659 e www.in.gov.br/en/web/dou/-/resolucao-n-2-de-14-de-setembro-de-2023-518982401



Source: Met Office Hadley Centre observations datasets, Professor Ed Hawkins, University of Reading. www.showyourstripes.info





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The challenges for the country to fulfill the commitment established for 2025, when it will host COP 30, are immense. And they are not limited to reducing GHG emissions to 1.32 billion tons of carbon dioxide equivalent (GtCO₂e), which in itself is a significant challenge, even without increasing our ambition.

Although the largest share of emissions in Brazil originates from land-use changes, such as deforestation, the second-largest volume of GHGs emitted into the atmosphere comes from agriculture and livestock. An ongoing emission reduction plan in this sector aims to decrease emissions over ten years, until 2030, equivalent to what the sector (mainly through the digestive process of cattle and soil management) emits in 20 months.

In the energy sector, despite the country already having a 47.4% renewable energy matrix and high expectations regarding offshore wind energy generation and the production of 'sustainable' hydrogen, pending regulation in the National Congress and licensing processes, there are significant contradictions marked by the fact that Brazil is also the ninth largest oil producer in the world, with increasing production.

The expansion of oil exploration in a new frontier, located at the mouth of the Amazon River, has not taken into account the recommendations of scientists from the Intergovernmental Panel on Climate Change (IPCC) and the reports made for the first assessment of the Global Stocktake, nor the scenarios of the International Energy Agency (IEA).

Similarly, the expansion of the agricultural frontier into the native vegetation areas of the Cerrado biome has also not considered the cli-

matic scenarios that predict more drought in the region, especially in Matopiba (comprising parts of Maranhão, Tocantins, Piauí, and Bahia), where soy production, Brazil's main export product, is growing the most.

This **Brazil's Climate Policy in Full 2023** outlines a panorama of the four sectors responsible for 90% of emissions – land-use change, agriculture, energy, and industry, based on available data and policies under construction. There is a chapter dedicated to adaptation to climate change, at a time when the country faces both historic floods and droughts.

A document sent by the Ministry of Planning to the National Congress, with progress indicators for the next Multi-Year Plan, the law that will guide the drafting of Union Budgets between 2024 and 2027, does not foresee achieving the GHG emission mitigation target by 2025, even though it points to a trajectory convergent with the Brazilian ambition for 2030 and despite counting on a reduction of deforestation in the Legal Amazon to almost a quarter by 2027, as will be seen later. Brazil will have to cut at least 480 million tons of CO₂e in three years, according to a conservative projection made by this report.

Brazil's Climate Policy in Full 2023 concludes with recommendations for the construction of a more ambitious new NDC with greater societal participation by 2025 and paving a long-term path that leads Brazil to net-zero emissions by 2050, as already committed to in the Climate Convention. The Talanoa Institute also advocates for the country to join a global commitment with timelines for the gradual reduction of fossil fuel production and burning, the main cause of global warming.

INTRODUCTION

The report from the technical dialogue for the first Global Stocktake (GST) of the Paris Agreement's progress, released in early September this year, shed light on the distance the planet is from limiting global warming to 1.5°C. Greenhouse gas emissions continue to rise, countries' ambitions are insufficient, and the window of time to stabilize the planet's temperature is narrowing. Based on current Nationally Determined Contributions (NDCs), the report states, the gap compared to emissions consistent with the goals of the Paris Agreement exceeds 20 billion tons of CO₂e⁽³⁾.

Brazil, like all other signatories of the Paris Agreement, is required to submit its first Biennial Transparency Report (BTR) by the end of 2024. This official progress report on achieving climate commitments will be accompanied by the next national inventory of emissions and removals, covering the historical series from 1990 to 2021. In 2023, the Ministry of Science, Technology, and Innovation (MCTI), responsible for the inventory, did not publish a new annual emissions estimate; the last estimate was released in 2022, based on 2020 emissions⁽⁴⁾.

The international regime in force since 2015 has transparent information on the results of domestic policies for both greenhouse gas emission mitigation and adaptation to climate change as one of its pillars. Although the Paris Agreement does not foresee punishment for failing to meet targets, progress in implementing the commitments made must be reported. In the transition to the new transparency framework of the United Nations Framework Convention on Climate Change (UNFCCC), in

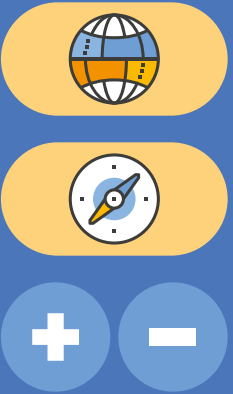
the form of the Enhanced Transparency Framework (ETF), Brazil's fifth National Communication will be submitted in 2026, according to information from MCTI.

The **Brazil's Climate Policy in Full 2023**, developed by the Talanoa Institute for the occasion of COP 28, reveals the country still without an official assessment of the achievement of its commitments and at a time of reconstruction of the climate agenda, after setbacks recorded in the four years of the previous government.

This reconstruction, which began with promising signs of deforestation reduction in the Amazon and the announcement of specific measures from an Ecological Transformation Plan⁽⁵⁾, involves the development of national and sectoral strategies for both greenhouse gas emission reduction and adaptation to climate change.

The expectation is that much of the definitions will occur by 2025, the year in which Brazil will host COP 30 in Belém (PA). The Interministerial Committee on Climate Change (CIM), the country's highest climate governance body, set a deadline of up to 420 days for the review of the National Climate Change Policy (PNMC), enacted in 2009 and already outdated, in a resolution published in October. On the path to the Belém COP, Brazil will also need to define a new version of the Climate Plan and sectoral mitigation and adaptation policies in three phases, covering the period up to 2035 (2024 to 2027, 2028 to 2031, and 2031 to 2035). Also in 2025, Brazil will need to present new, more ambitious climate targets in the form of a new NDC.

(3) The gap is 20.3 to 23.9 Gt CO₂e, and the Global Stocktake is available at: https://unfccc.int/sites/default/files/resource/sb2023_09_adv.pdf
(4) www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/publicacoes/estimativas-anuais-de-emissoes-gee/arquivos/6a-ed-estimativas-anuais.pdf
(5) The Ecological Transformation Plan consists of a set of initiatives divided into pillars, which had not yet been consolidated at the time of writing this report. Nor had the impact of the measures on greenhouse gas emissions been measured. It is a development plan for the country connected to the climate agenda





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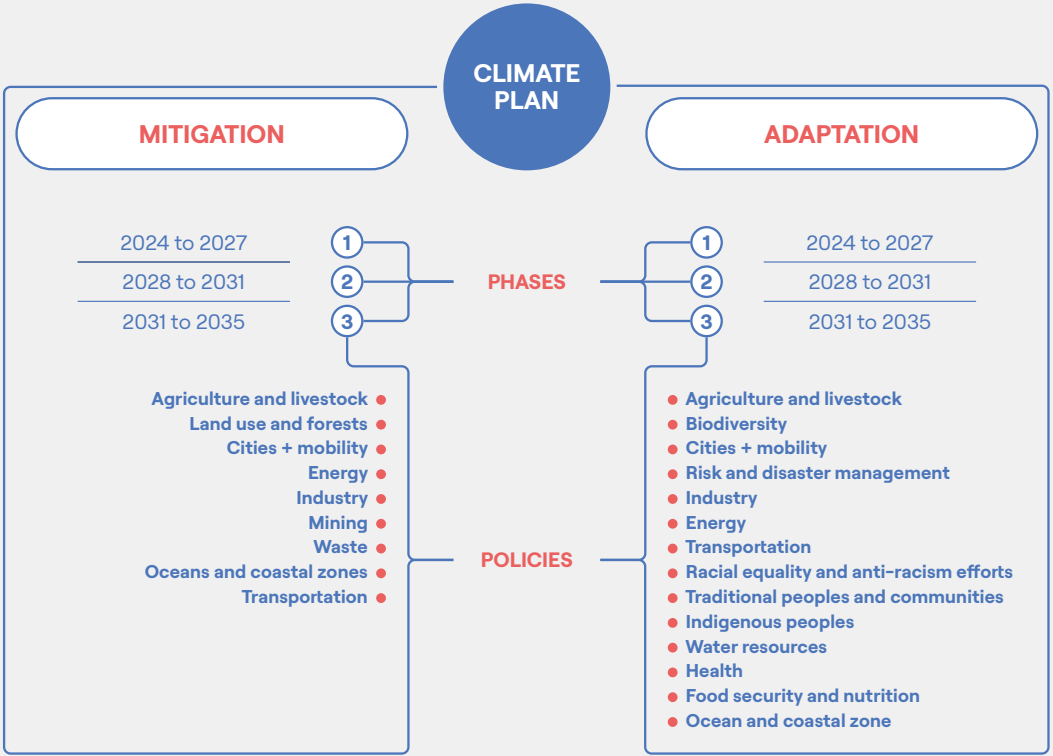
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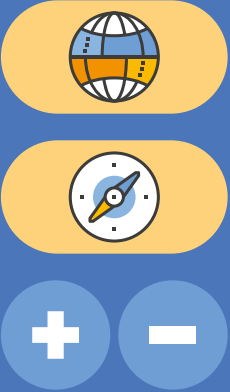
The Climate Plan will contain general strategies for mitigation and adaptation, with sector-specific targets for 2030 and indicative targets for 2035, and, most importantly, specific measures to achieve these goals. There are plans for 9 sectoral mitigation plans (agriculture and livestock, land use and forests, cities and mobility, energy, industry, mining, waste, oceans and coastal zones, and transportation), as well as 14 sectoral adaptation plans (agriculture and livestock, biodiversity, cities and mobility, risk and disaster management, industry, energy, trans-

portation, racial equality and anti-racism, traditional peoples and communities, indigenous peoples, water resources, health, food and nutritional security, ocean and coastal zone). At this moment, Brazil lacks a clear strategy to achieve a resilient, low-carbon economy before mid-century and to neutralize greenhouse gas emissions by 2050, as per the goal set in the update of Brazil's NDC in 2022. This report will document the initiatives that are advancing emissions reduction and climate adaptation efforts.

NATIONAL POLICY ON CLIMATE CHANGE (PNMC)



1 WHERE ARE WE?





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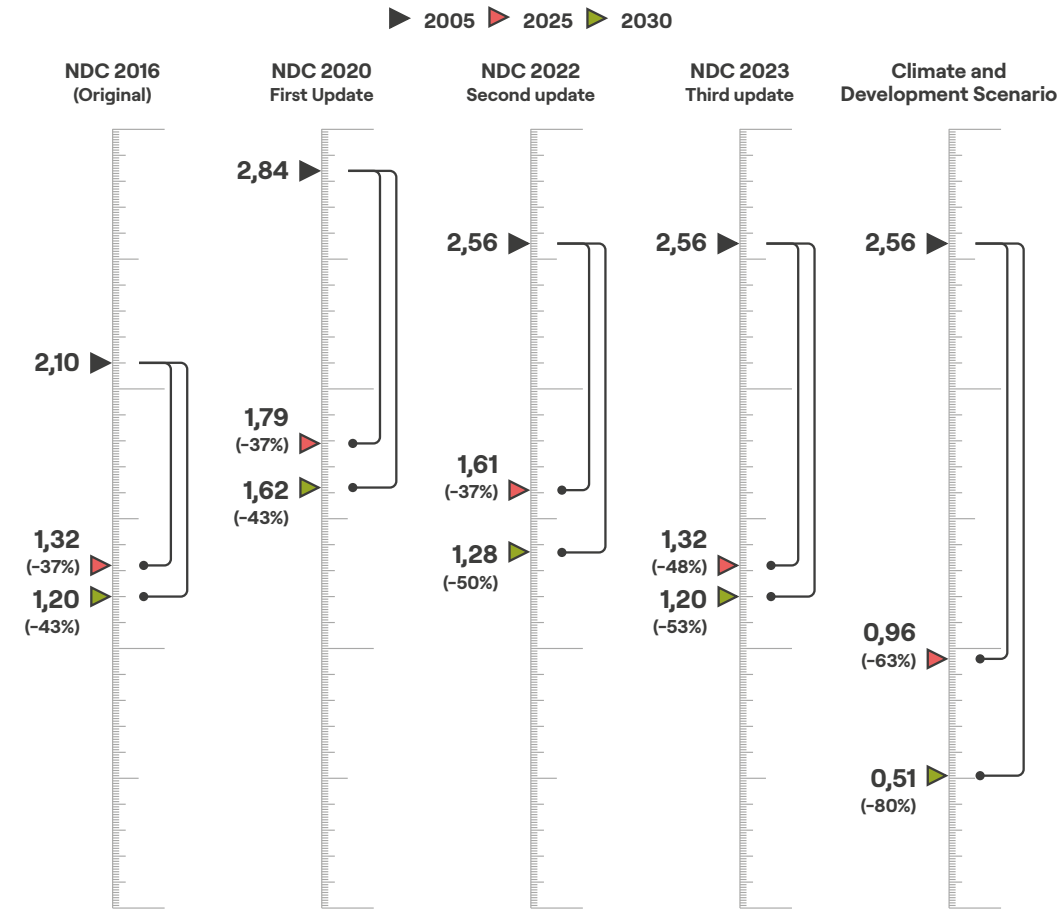


In September, the Brazilian government approved the correction of the country's ambition in the Climate Convention, which had gone back on the commitments made for 2025 and 2030 in the two updates made in 2020 and 2022. The ambition in force⁽⁶⁾ stipulates that the country will reduce greenhouse gas emissions to 1.32 GtCO₂e in 2025 and 1.20 GtCO₂e in 2030. The commitment for 2030 is

equivalent to a 53% reduction on 2005 emissions, according to the most recent national inventory. This first **Brazil's Climate Policy in Full 2023**, developed by the Talanoa Institute, aims to demonstrate that the country can achieve its current commitment by 2030, after a period of rising emissions since 2017. Talanoa is working with a more ambitious mitigation scenario, as shown in the graphic below.

FIGURE 1 • Brazil's NDC updates and corrections

After two updates that increased the emission limits for 2025 and 2030, the country returned to its 2030 ambition. A scenario modeled by the Climate and Development initiative shows that more audacious targets can be achieved



(6) www.in.gov.br/en/web/dou/-/resolucao-n-5-de-14-de-setembro-de-2023-518983537

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

The sixth and most recent edition of the official annual estimates of greenhouse gas emissions, released in 2022, brings updated data up to 2020 and points to a total net emission of 1.785 GtCO₂e⁽⁷⁾.

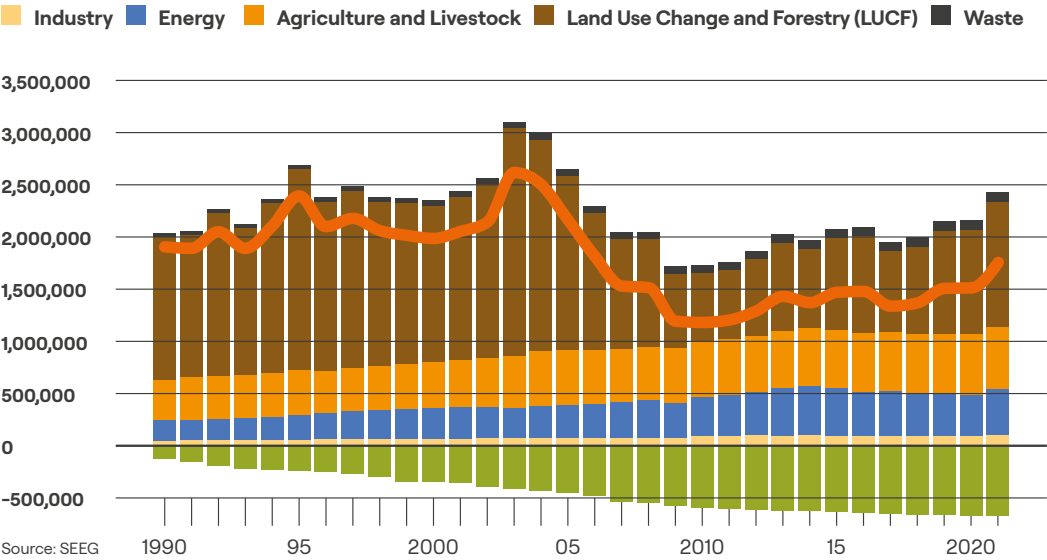
The official figure for emissions in 2022 remains unknown at the time of writing this report. However, considering that emissions continued to grow in 2021, according to the estimates of the Greenhouse Gas Emissions Estimates System (SEEG), published by the Climate Observatory, especially due to the increase in deforestation, which continued to be strong in 2022, we have assumed in this report a very conservative estimate of around 1.8 billion tons of CO₂e in 2022. In order to achieve the commitment made in the Climate Convention, an additional cut of approximately 600 tons of CO₂e will therefore be needed by 2030 in Brazilian emissions, with at least 480 million tons

being the size of the cut by 2025.

According to the SEEG, Brazilian emissions in 2021 were the highest in 16 years, since 2005, and reached 2.4 billion tons of CO₂e⁽⁸⁾. As the graph below shows, land use change has historically accounted for the largest share of Brazilian emissions, followed by emissions from agriculture. The main sources of our emissions are deforestation and the methane emitted in the digestive process of cattle – issues that are highlighted in this report. The third largest block of emissions in Brazil is the burning of fossil fuels, especially in transportation, which is also the subject of a chapter in this report. In 2021, these three sectors accounted for 92% of total emissions. It is important to note, in the historical series, the increase in emissions in the last four years, a period in which Brazil experienced a surge in deforestation and a dismantling of environmental and climate policies.

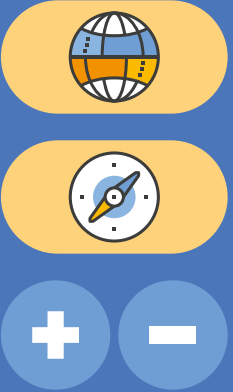
FIGURE 2 • Brazil's emissions and removals

Emissions and removals by sector compared to total net emissions (In tons of CO₂)



(7) www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/arquivos/powerbi/estim_6a_ed_1990-2020_total-brasil-1.xlsx

(8) There is a methodological difference between the official calculation and estimates of emissions and the SEEG estimates. This difference is found in the calculation of GHG removals by protected areas, which alters the result of the share of emissions caused by land use change. Discounting removals, we have net emissions in 2021 of 1.75 billion tons of CO₂e in 2021, according to the SEEG, which is close to the officially estimated emissions





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Even without an increase in climate ambition in 2023, this report assesses that it is quite challenging to reach the target set for 2025, given the new increases in emissions recorded in recent years. And it is difficult to achieve a rapid response to the drop in emissions, with the existing policy framework and those under construction, outside the land use change sector, especially in the Amazon.

A projection made by the government itself in July 2023, when it sent the draft Multiannual Plan (PPA) to Congress, is that the 2025 target will not be met. The PPA bill establishes general public policy guidelines for the Union's budgets for the period from 2024 to 2027. According to one of the seven indicators launched to assess the progress of this plan, with a trajectory of greenhouse gas emissions, the country would, in the desirable scenario, be on its way to achieving Brazil's current ambition for 2030 a little before that date.

In the table below, emissions in 2025, the year of the Belém COP, would still be around 250 million tons of CO₂e above the target, according to the desirable scenario. In this same "desirable" scenario, another indicator of progress in the PPA sent to Congress predicts that deforestation in the Amazon will have already fallen from the 11,594 km² registered in 2022 to just over 4,000 km², as shown in the next chapter of this report. However, a study carried out by the Climate Observatory indicates that it would be possible to reach the 2025 target with a less intense drop in deforestation in the Amazon that year, if the rate is reduced to 6,000 km²⁽⁹⁾.

The Talanoa Institute is working on a more ambitious target for 2030, with emissions in that year ranging from 510 million to 916 million tons of CO₂e. A study carried out by the Climate and Development project⁽¹⁰⁾ shows that it is possible to achieve this level of emissions based mainly on a tripod involving a radical reduction in deforestation, forest restoration and carbon pricing via a regulated market. An assessment based on these parameters will be covered in this report.

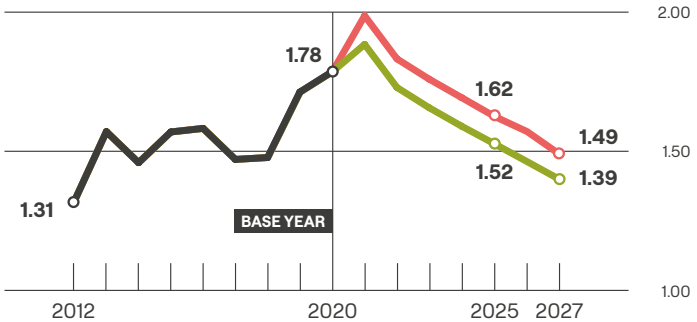
In the following chapters, the report will deal with the main sources of emissions in Brazil and, with regard to Talanoa's proposal, it will consider that the country has already made a commitment to zero deforestation in the biomes by 2030, with plans launched in 2023 for the Amazon and Cerrado. It is also committed to forest restoration, although the results so far have been less than transparent. And, with the progress made in 2023 on the discussion and processing of the bill to establish a regulated carbon market, the implementation of the Brazilian Emissions Trading System (SBCE) should have begun by 2025. But it will take a few more years before the full operation of this market has an impact on reducing emissions from industry.

HIGHLIGHTS

- The climate agenda is under reconstruction
- Increased deforestation in recent years is reflected in uncertainty about Brazil's chances of achieving the 2025 GHG emissions cut target

FIGURE 3 • Greenhouse Gas (GHG) emissions in Brazil
In millions of tons

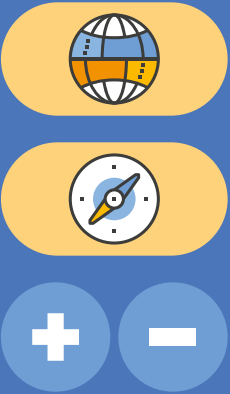
- Historical series
- Baseline result
- Desirable result



Source: www.gov.br/planejamento/nota-tecnica-dos-indicadores-e-metas

(9) <https://clima2030.org/wp-content/uploads/2023/04/Estrategia-de-Descarbonizacao-A7a-Relatorio-completo.pdf>
(10) <https://clima2030.org/wp-content/uploads/2023/04/Estrategia-de-Descarbonizacao-A7a-Relatorio-completo.pdf>

2 LAND USE Deforestation





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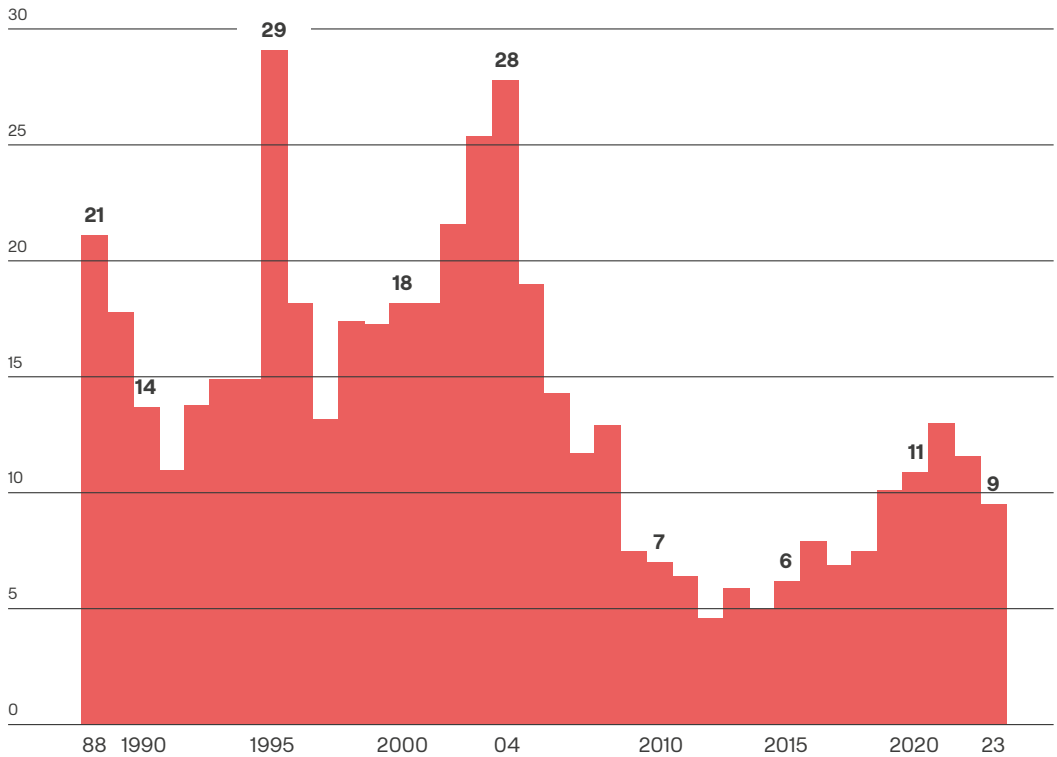
Progress and gaps in the country's climate policy agenda



Preventing and combating deforestation in all biomes is the main task facing Brazil if it is to reduce greenhouse gas emissions and fulfill its commitment to the Climate Convention. Between 2018 and 2022, the Legal Amazon recorded annual deforestation rates of over 10,000 km², the likes of which have not been seen since 2008, as a result of the dismantling of public policies and a certain connivance with environmental crimes. In June 2023, the government launched a new edition of the Action Plan to Prevent and Combat Deforestation in the Legal Amazon (PPCDAm)⁽¹¹⁾, with the goal of zero deforestation by 2030.

The fifth phase of the PPCDAm recovers and expands on successful public policies from 2004, with the goal having been set in the Glasgow Declaration on Forests and Land Use, signed by Brazil and over a hundred countries in 2021. That year, the Amazon lost 27,800 km² of forest, the second highest rate in history since the National Institute for Space Research (INPE) began measuring deforestation. In 2012, the rate had fallen to 4,600 km²: a reduction of 83%, seen as one of the country's greatest contributions to the Climate Convention. But this drop has not been sustained, as the figure below shows:

FIGURE 4 • Historical series of deforestation in the Legal Amazon
Deforestation rate in thousands of km² per year



Source: Inpe, TerraBrasilis, Prodes

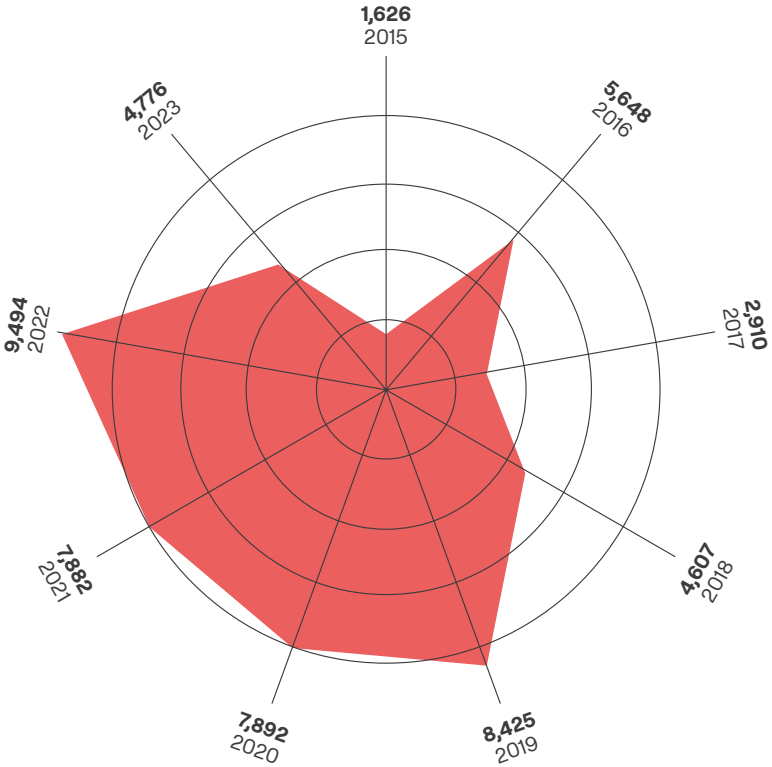
(11) www.gov.br/mma/pt-br/assuntos/prevencao-e-controle-do-desmatamento/amazonia-ppcdam-1/5a-fase-ppcdam.pdf

Although the official Amazon deforestation rate for 2023, at 9,001 km², was contaminated by five months of poor performance by the previous government, it was already the lowest since 2019. In the first ten months of the Lula administration, deforestation alerts from the Deter system fell by 50%, indicating a cut in GHG emissions of more than 200 million tons of CO₂e, according to an estimate by the Ministry of the Environment and Climate Change (MMA). The first official evaluation of the plan is scheduled for February 2024. The zero deforestation target contained in the PPCDAm refers to “the elimination of illegal deforestation and

compensation for the legal suppression of native vegetation”, says the official document⁽¹²⁾.

This offsetting of emissions will take place, according to the plan, through the recovery and increase in the stock of native vegetation through economic incentives for conservation and sustainable forest management. Brazil has not yet regulated Payment for Environmental Services (PES), which has been identified as an important instrument for encouraging conservation; a working group was set up in October for this purpose⁽¹³⁾. The National Plan for the Recovery of Native Vegetation (Planaveg) is being revised until mid-2024.

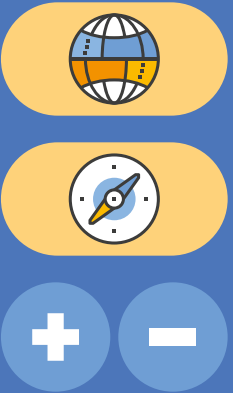
FIGURE 5 • Deforestation alerts from January to October
Deforestation rate in km²



Source: Inpe, TerraBrasilis, Deter deforestation alerts dashboard, cerrado biome

(12) www.gov.br/mma/pt-br/ppcdam_2023_sumario-rev.pdf

(13) www.in.gov.br/web/dou/-/portaria-gm/mma-n-778-de-5-de-outubro-de-2023-515384533





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The governance of the PPCDAm is a complex arrangement, involving the local administrations and political representatives of 70 municipalities listed in November as priorities for efforts to combat deforestation. Performance in reducing deforestation will be rewarded, including with resources from the Amazon Fund⁽¹⁴⁾. The list will be updated annually. The fight against deforestation also involves the application of artificial intelligence resources for remote embargoes of illegally deforested areas and the strategic use of the Rural Environmental Registry (CAR), to block the sale of illegally produced products, as well as access to credit by rural landowners in breach of the law. In June, the National Monetary Council⁽¹⁵⁾ blocked access to financing for rural landowners whose CAR has been suspended or canceled, or who still have state or federal embargoes on their properties.

In addition to efforts to combat deforestation (command and control), the PPCDAm also envisages medium-term incentives for sustainable development with standing forests in the Legal Amazon, a region that covers 60% of the country's territory. The plan also foresees the creation of 3 million hectares of Conservation Units and the allocation of 29.5 million hectares of federal public forests that have not yet been allocated by 2027, the period covered by the plan. These undesignated forests are public areas which, occupied illegally, have been concentrating deforestation in recent years.

The PPCDAm establishes the launch of a National Bioeconomy Plan in 2024. The 2024 budget bill sent to Congress foresees spending R\$178 million on a program entitled "Bioeconomy for a new cycle of prosperity", most of which (87%) will be used to transfer income to poor people living in conservation areas, the Bolsa Verde. As of the closing of this report, the government had still not announced measures for economic development with the standing forest in the Amazon, which is one of the six axes of the Ecological Transformation Plan.

During the period of this fifth phase of the Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), until 2027, the government estimates a reduction of 75% to 80% in deforestation in the region.

FIGURE 6 • Priority municipalities for combating deforestation

The list is revised annually according to the pace of deforestation and environmental regularization

- 1 AC ○ Feijó
- 2 AC ○ Sena Madureira
- 3 AC ○ Rio Branco
- 4 AC ○ Tarauacá
- 5 AC ○ Manoel Urbano
- 6 AM ○ Apuí
- 7 AM ○ Boca Do Acre
- 8 AM ○ Canutama
- 9 AM ○ Humaitá
- 10 AM ○ Itapiranga
- 11 AM ○ Lábrea
- 12 AM ○ Manicoré
- 13 AM ○ Maués
- 14 AM ○ Novo Aripuanã
- 15 MT ○ Aripuanã
- 16 MT ○ Bom Jesus do Araguaia
- 17 MT ○ Cláudia
- 18 MT ○ Colniza
- 19 MT ○ Comodoro
- 20 MT ○ Cotriguaçu
- 21 MT ○ Feliz Natal
- 22 MT ○ Gaúcha do Norte
- 23 MT ○ Juara
- 24 MT ○ Juína
- 25 MT ○ Marcelândia
- 26 MT ○ Nova Bandeirantes
- 27 MT ○ Nova Maringá
- 28 MT ○ Apicás
- 29 MT ○ Nova Ubiratã
- 30 MT ○ Paranaíta
- 31 MT ○ Paranaatinga
- 32 MT ○ Peixoto Azevedo

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

- 33 MT ○ Querência
- 34 MT ○ Rondolândia
- 35 MT ○ São José do Xingu
- 36 MT ○ União do Sul
- 37 PA ○ Altamira
- 38 PA ○ Anapu
- 39 PA ○ Cumaru do Norte
- 40 PA ○ Dom Eliseu
- 41 PA ○ Itaituba
- 42 PA ○ Itupiranga
- 43 PA ○ Jacareacanga
- 44 PA ○ Marabá
- 45 PA ○ Medicilândia
- 46 PA ○ Moju
- 47 PA ○ Mojuí dos Campos
- 48 PA ○ Novo Progresso
- 49 PA ○ Novo Repartimento
- 50 PA ○ Pacajá
- 51 PA ○ Paragominas
- 52 PA ○ Placas
- 53 PA ○ Portel
- 54 PA ○ Prainha
- 55 PA ○ Rondon do Pará
- 56 PA ○ Rurópolis
- 57 PA ○ Santana do Araguaia
- 58 PA ○ São Félix do Xingu
- 59 PA ○ Senador José Porfírio
- 60 PA ○ Trairão
- 61 PA ○ Ulianópolis
- 62 PA ○ Uruarã
- 63 RO ● Buritis
- 64 RO ● Candeias do Jamari
- 65 RO ● Cujubim
- 66 RO ● Machadinho D'oeste
- 67 RO ● Nova Mamoré
- 68 RO ● Porto Velho
- 69 RR ● Mucajaí
- 70 RR ● Rorainópolis

(14) www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/decreto/D11687.htm
(15) www.bcb.gov.br/estabilidadefinanceira/exibnormativo?tipo=Resolu%C3%A7%C3%A3o%20CMN&numero=5081



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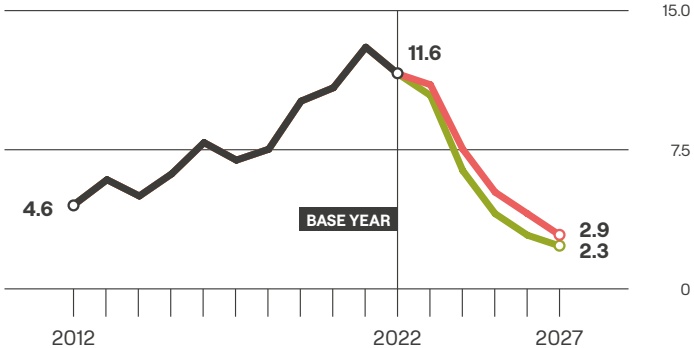


FIGURE 7 • Deforestation deforestation rate in the Amazon Biome

Annual rate in thousands of km²

- Historical series
- Baseline result
- Desirable result

Source: www.gov.br/planejamento/nota-tecnica-dos-indicadores-e-metas



This projection is outlined in the Pluriannual Plan (PPA), which was submitted to Congress at the end of August.

Interestingly, while deforestation alerts in the Legal Amazon have decreased by half, alerts for deforestation in the Cerrado have increased by 34% during the first ten months of this year, reaching the highest value in the historical series. Deforestation in this biome is primarily concentrated in the Matopiba region (an acronym for parts of Maranhão, Piauí, Bahia, and Tocantins), where the country's main agricultural frontier is expanding.

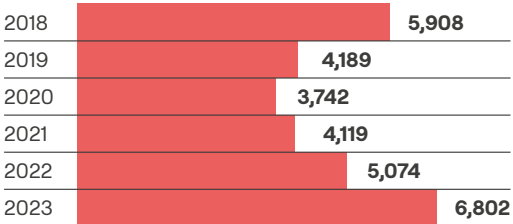
The government has also announced an identical goal of achieving zero deforestation by 2030 in the second-largest Brazilian biome, the Cerrado, as part of the newly proposed fourth phase of the Action Plan for Prevention and Control of

Cerrado Deforestation (PPCerrado). Combating deforestation in the Cerrado is strategic because this biome contains the headwaters of several major river basins and is considered the "birth-place" of the country's water resources. Although the decree⁽¹⁶⁾ that established the Permanent Interministerial Commission for Prevention and Control of Deforestation does not formally formalize this commitment, the zero deforestation target would apply to all biomes according to the Ministry of the Environment.

The fight against deforestation in the Cerrado is considered more complex. In addition to concentrating a large part of the country's agricultural production (54% of the value of agricultural production and 44% of the cattle herd), the biome has, in legislation, lower percentages of the requirement to preserve native vegetation on rural properties (the so-called Legal Reserve - RL), which complicates the fight against deforestation, partially carried out with legal authorization. While rural properties in the Amazon have to preserve native vegetation on 80% of their properties, in the Cerrado this percentage varies from 20% to 35%. "Zero deforestation" in the Cerrado provides for greater control of vegetation suppression authorizations (ASV), including the integration of these documents issued by the states into a federal database. According to the draft of the PPCerrado put out for public consultation, currently only the Federal District and Tocantins have 100% of the ASVs and Alternative Land Use Authorizations (UAS) available in the National System for Controlling the Origin of Forest Products (Sinaflor), coordinated by Ibama.

FIGURE 8 • Deforestation alerts in the Cerrado from January to September

Deforestation rate in km²



Source: Inpe, TerraBrasilis, Deter deforestation alerts dashboard, cerrado biome

(16) www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/decreto/D11367.htm

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In 2022, 81% of the deforestation observed in the Cerrado occurred in private areas. In five states, this rate exceeded 90%: Maranhão, Minas Gerais, Mato Grosso do Sul, Piauí and São Paulo⁽¹⁷⁾.

In addition to promoting an end to deforestation, Brazil will have to implement reforestation and restoration of native forests on a large scale in order to move towards scenarios in which the land use sector can not only reduce emissions, but also contribute to removing carbon from the atmosphere. According to the study Brazil's Greenhouse Gas Emissions in a Continuity Scenario up to 2030⁽¹⁸⁾, by the Climate and Development initiative, with zero deforestation in the Amazon and Atlantic Forest in 2030 and a 17% reduction in the other biomes compared to 2020, on the way to zero deforestation in 2050, the sector would achieve net negative emissions by the beginning of the next decade (-123 MtCO₂e to -580 MtCO₂e in 2030).

President Luiz Inácio Lula da Silva said at the Major Economies Forum on Energy and Climate, held virtually in April, that Brazil is committed to reforesting 12 million hectares⁽¹⁹⁾. According to the Climate and Development scenarios, if Brazil promotes the restoration of 4.8 million hectares of native forests by 2030 and increases the area of homogeneous planted forests by 4.4 million hectares, together with the reductions in deforestation already mentioned in this chapter, it will be able to reduce its GHG emissions by 63% to 80%. However, meeting this target requires the establishment of an ecosystem that includes everything from seeds and seedlings to logistics and labor. Incentives that have not yet materialized from discourse to the promotion of public policies.

There is a promise to announce a large program of concessions for reforesting degraded areas of the Union in the Amazon, with a target of 100,000 hectares over the next three years⁽²⁰⁾.

TABLE 1 • Possible CO₂ removals by vegetation

Actions such as restoring native forests and increasing protected areas could lead to 747 MtCO₂e removed from the atmosphere by 2030

ACTIONS	Possible outcome of removals in 2030
Protected areas (Conservation Units and Indigenous Lands)	423 MtCO ₂ e
Native Forest Restoration	74 MtCO ₂ e
Planted Forests	65 MtCO ₂ e
Recovering Pasture	59 MtCO ₂ e
Secondary Vegetation	105 MtCO ₂ e
No-till farming system	21 MtCO ₂ e
TOTAL	747 MtCO ₂ e

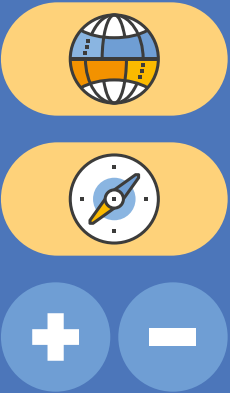
Source: Unterstell and La Rovere (2021)

(17) PPCerrado in public consultation www.gov.br/mma/pt-br/noticias/plano-para-o-cerrado-entra-em-consulata-publica/texto-ppcerrado-versao-consulata-publica-1.pdf

(18) <https://clima2030.org/wp-content/uploads/2022/09/Cenario-Continuidade.pdf>

(19) www.gov.br/planalto/pt-br/acompanhe-o-planalto/discursos-e-pronunciamentos/2023/discurso-do-presidente-luiz-inacio-lula-da-silva-durante-o-forum-das-grandes-economias-sobre-energia-e-clima

(20) <https://capitalreset.uol.com.br/carbono/creditos-de-carbono/reflorestamento-governo-vai-licitar-100-mil-hectares-na-amazonia/>





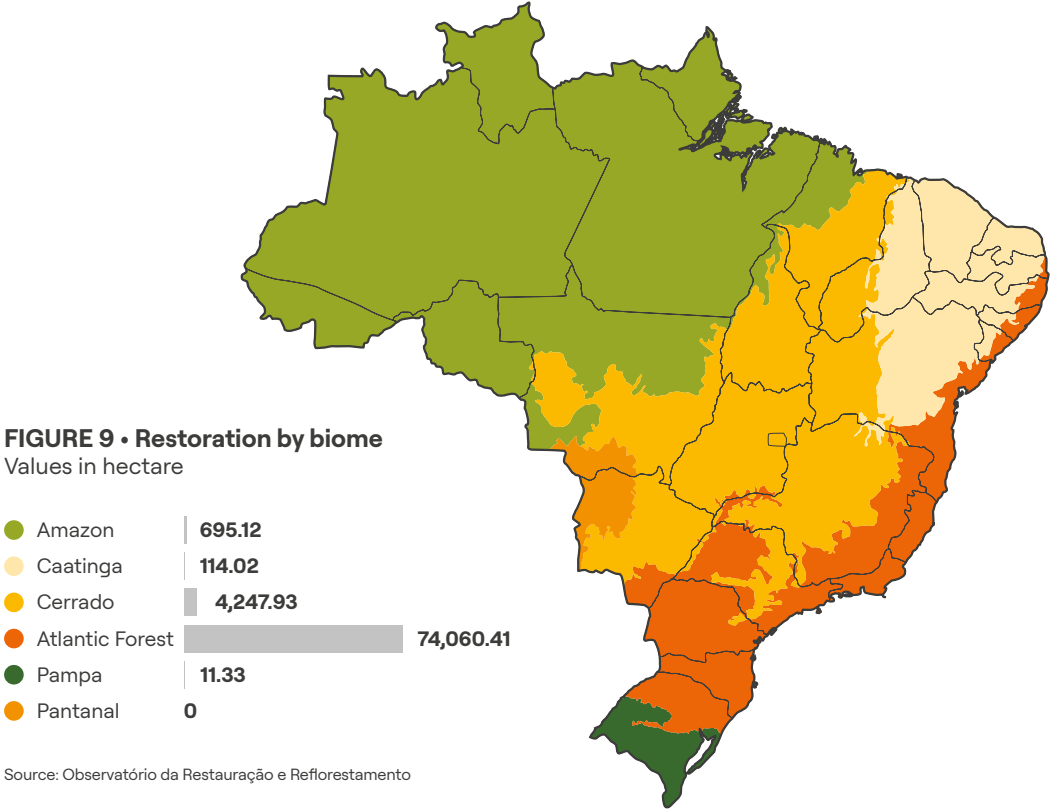
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In June, the MMA launched the first Brazilian Forest Service (SFB) concession notice for sustainable management outside the Amazon. The bids were for the National Forests (Flonas) of Irati, in Paraná, and Chapecó and Três Barras, in Santa Catarina, in the Atlantic Rainforest. The project, a partnership between the SFB and the National Bank for Economic and Social Development (BNDES), provides for R\$ 430 million in forestry operations and in the restoration chain over the 35 years of the contract. It is the

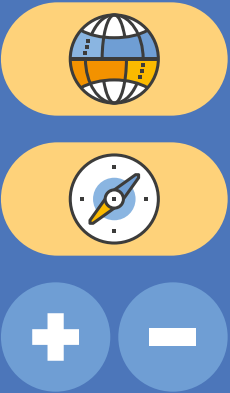
first call for proposals to include carbon credits. Another challenge is to monitor the restoration of degraded areas. In contrast to the notable advances in monitoring deforestation (in 2022, Prodes presented unprecedented data on all biomes), there is a need to monitor the restoration of degraded areas. all biomes), restoration is still poorly systematically monitored at a national level. Civil society initiatives, such as the Restoration Observatory, show that recovery is concentrated mainly in the Atlantic Forest.



HIGHLIGHTS

- Brazil has made progress in curbing emissions from land use change
- Implementing the commitment to zero deforestation by 2030 in the Amazon and Cerrado represents Brazil's better chance of reducing annual emissions to 1.2 billion CO₂e by the start of the next decade
- The challenge of combating deforestation in the Cerrado requires efficient control over authorized suppressions
- Reforestation and restoration on the necessary scale requires promoting the structuring of the sector's production chain
- There is a lack of monitoring systems and restoration data

3 AGRICULTURE





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For yet another year, Brazil has more cattle than people. In 2022, the country counted 234.4 million head of cattle, in yet another year of growth (4.3%) in the cattle herd recorded by the Brazilian Institute of Geography and Statistics (IBGE), against a population of 203 million people. This was bad news for the climate agenda. The digestive process of oxen and cows, known as enteric fermentation, is responsible for more than 60% of the greenhouse gases released into the atmosphere by agriculture, a sector that accounts for the second largest share of emissions in Brazil, behind only the land use sector.

As shown in Figure 10, emissions from agriculture reached the highest volume in the SEEG's historical series in 2021, more than 600 million tons of CO₂e in the year – and just under half of emissions from changes in land use and forests. And, unlike the resumption of the fight against deforestation in 2023, outlined in the previous chapter, until the writing of this report, there were no signs of a greater commitment to reducing emissions in agriculture and livestock farming.

The Safra Plan for the 2023/2024 period, announced in June, with a record volume of resources for agricultural financing (R\$435 billion), most of which is earmarked for marketing and costing the harvest, reserves 0.5% of the total volume of investments for so-called low-carbon agriculture. Less than R\$7 billion has been programmed, a little more than in the previous plan. The Renovagro lines, with interest rates of between 7% and 8.5% per year, account for 14% of the loans with interest equalized by the government, when funds from the federal budget finance the reduction in bank interest rates, as shown in Table 2.

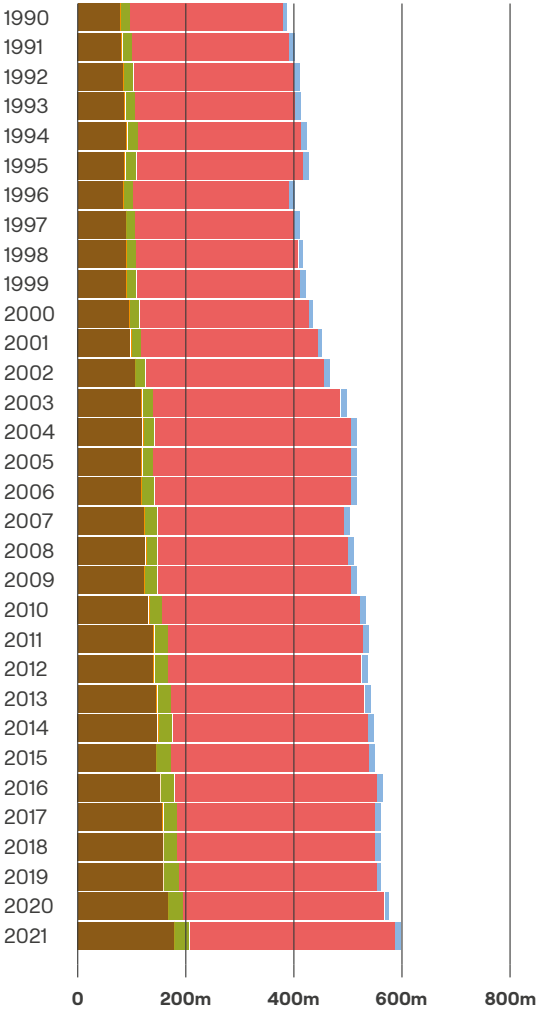
Renovagro, as the low carbon agriculture line of financing (the so-called ABC) was renamed, supports the recovery of degraded areas and degraded pastures, crop-livestock-forest integration systems, the conservation of natural resources, the production of bio-inputs and bio-fertilizers and other practices that contribute to low greenhouse gas emissions.

The initial expectation of the government's environmental department that the Safra Plan would be entirely dedicated to low-carbon agriculture has been postponed.

FIGURE 10 • Evolution of agricultural emissions, according to the SEEG

Total emissions in tons (GtCO₂e – GWP-AR5)

- Managed soils
- Burning of agricultural waste
- Management of animal waste
- Enteric fermentation
- Rice cultivation



Source: SEEG, emissions by sector, available at: <https://plataforma.seeg.eco.br/sectors/agropecuaria>

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

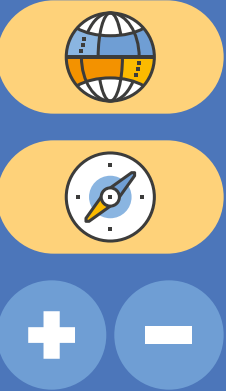
TABLE 2 • Investment portion of the Safra Plan

RenovAgro holds 14% of investments with interest equalized by the government

Program	Resources programmed (R\$ billion)	Credit limit/ Beneficiary	Maximum term (months)	Grace period (months)	Interest rate (p.a.)
Equalized Controlled Interest					
Moderfrota	9.49	85%	84	14	12.5%
Moderfrota Pronamp	2.37	100%	84	14	10.5%
Moderagro	2.85	R\$880 thousand/2.64 million	120	24	10.5%
Proirriga	2.37	R\$3.3/9.9 million	120	24	10.5%
RenovAgro Other	4.75	R\$5.0 million	144	96	8.5%
RenovAgro Environmental	0.28	R\$5.0 million	144	96	7.0%
RenovAgro Recovery/Conversion	1.90	R\$5.0 million	144	96	7.0%
PCA	3.80	R\$25/50 million	144	24	8.5%
PCA up to 6,000 tons	2.85	R\$50 million	144	24	7.0%
InovAgro	3.80	R\$1.3/3.9 million	120	24	10.5%
Prodecoop	1.90	R\$150 million	120	24	11.5%
ProcapAgro (Giro)	0.95	R\$65 million	24	6	11.5%
Pronamp (including 6-2)	9.27	R\$600 thousand	96	36	8,0%
Corporate Investment	2.37	R\$1.0 million	144	36	10.5%
Controlled Interest not Equalized*	12.15	Various	Various	Various	Various
Free Interest	31.0	Negotiation	--	--	--
TOTAL	92.1	--	--	--	--

* Exclusive Pronamp

Source: Ministry of Agriculture and Livestock (MAPA)





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Even so, progress has been made by reducing the interest rates on funding for rural landowners without environmental liabilities or in the process of environmental regularization, or who adopt farming practices considered sustainable. The interest reduction in these cases can be as much as one percentage point⁽²¹⁾.

The ABC+ plan, the second stage of the ABC Plan launched in 2010, aims to prevent just over one billion tons of carbon from being released into the atmosphere between 2021 and 2030, mainly by recovering degraded pastures (30 million hectares) and planting forests (4 million hectares). The plan also provides for no-till farming and crop-livestock-forest integration on more than 22 million hectares and the management of animal production waste among the practices that contribute to reducing greenhouse gas emissions from agriculture. In other words, in ten years, if the targets are met, ABC+ will prevent the equivalent of what the agricultural sector currently emits from being released into the atmosphere sector currently emits in 20 months. The annual reduction would be around 17% of annual emissions.

The main sectoral plan for mitigation and adaptation in agriculture should have a dashboard and management reports. But this data had not been made available by the Ministry of Agriculture as of the writing of this report. The lack of more precise assessments of the plan's impact is a recurring criticism. The data in Table 3 relates to the plan's targets.

According to the Ministry of Agriculture and Livestock, the first stage of the ABC Plan, completed in 2020, reduced the sector's emissions by less than 200 million tons of CO₂e. The goal for the next decade, in the second phase of the plan, is to quintuple this result. Considering the official accounting of results, the amount of greenhouse gases avoided in ten years, by 2020, is equivalent to a third of what the agricultural sector releases into the atmosphere in one year.

The balance sheet released by the ministry above shows that targets have been exceeded, such as the recovery of 26.8 million hectares of

degraded pastures. In 2010, a presidential decree regulating the National Policy on Climate Change set a target of recovering 15 million hectares of degraded pastures, a target that was renewed by a decree issued in 2018⁽²²⁾, along with other targets, such as 3 million hectares of planted forests. Although the government has announced that the planted forests target has been met and that the target for recovering degraded pastures has been exceeded, there is a lack of more transparent periodic data to monitor these commitments, indicating the enterprises and projects that have contracted credit lines under the ABC Plan and the mitigation results achieved with their respective measurement methodologies.

Another important aspect of climate policy in the sector is the reduction of methane emissions. In 2021, at the COP in Glasgow, Brazil joined the Global Methane Pledge (GMP) to improve measurement and reduce methane emissions by at least 30% by 2030. At the time of joining the pledge, Brazil was the sixth largest global emitter of CH₄ gas. In 2020, the country had emitted 20.2 million tons of the greenhouse gas – the largest share (72%) caused by enteric fermentation in cattle herds. After that, in 2022, the government published an ordinance⁽²³⁾ and a decree⁽²⁴⁾, with no clarity on how the cut in methane emissions would take place. There is still no public policy for the country to follow in order to achieve the 30% reduction in this decade in order to meet its international commitment.

In 2023, the government also launched the Carbon + Green Program for public consultation, in order to differentiate agricultural products that have reduced greenhouse gas emissions during production, through systems or technologies that are scientifically recognized as mitigating. The program aims to create a seal of conformity initially for 13 products: meat, soy, corn, wheat, cotton, milk, rice, açai, rubber, cocoa, coffee, yerba mate and grapes. The program has not been institutionalized, that is officially launched. When it is, membership will be voluntary.

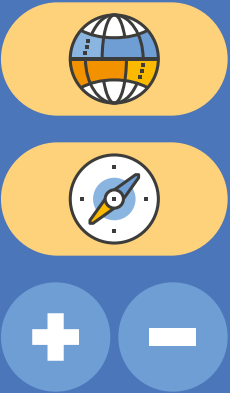
(21) www.gov.br/agricultura/pt-br/assuntos/politica-agricola/plano-safra/2023-2024/sustentabilidade
(22) Decree 7.390 of 2010 was revoked by Decree 9.578 of 2018
(23) www.in.gov.br/en/web/dou/-/portaria-mma-n-71-de-21-de-marco-de-2022-387378473
(24) www.planalto.gov.br/ccivil_03/_ato2019-2022/2022/decreto/d11003.htm

TABLE 3 • ABC+ Plan targets for mitigating agricultural emissions

The goal of cutting emissions by 2030 represents more than 6 times the total obtained in the first phase of the ABC plan, from 2010 to 2020, and depends above all on the progress of planted forests, the management of animal production waste and the recovery of degraded pastures. There is still there is still no monitoring of ABC+ results

TECHNOLOGIES		GOALS (In millions)	MITIGATION (In millions) Mg CO ₂ eq
Practices for Recovering Degraded Pastures (in ha)		30.0	113.7
No-till Farming System	No-till Grain Production (in ha)	12.5	12.1
	No-till Vegetable Production (in ha)	0.08	0.88
Integrated Farming System	Integrated crop-livestock-forestry (in ha)	10.0	34.1
	Agroforestry Systems (in ha)	0.1	37.9
Planted Forests (in ha)		4.0	510.0
Bioinputs (in ha)		13.0	23.4
Irrigation Systems (in ha)		3.0	50,0
Animal waste management (in m ³)		208.4	277.8
Intensive pasture termination (in number of animals)		5.0	16.24
TOTAL ABC+		(in hectare)	72.68
		(in m ³)	208.4
		(in number of animals)	5.0
			1,076.12 Mg CO ₂ eq

Source: www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/agricultura-de-baixa-emissao-de-carbono/abc/metad-do-abc





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TABLE 4 • Targets and results of the first phase of the ABC Plan
In a decade, the first phase of the ABC plan would have avoided the emission of 163 million tons of CO2e

TECHNOLOGIES	AREA (In millions)			MITIGATION (In millions) Mg CO2 eq		
	Goal	Result	Achievement	Goal	Result	Achievement
Recovering Degraded Pastures	15 ha	26.8 ha	179%	104	36.01	35%
Integrated crop-livestock-forestry	4 ha	10.76 ha	269%	18 a 22	40.78	185%
No-till Farming System	8 ha	14.59 ha	182%	16 a 20	26.7	133%
Biological nitrogen fixation	5,5 ha	11.78 ha	214%	10	21.56	216%
Planted Forests	3 ha	1.88 ha	63%	–	8.82	–
Animal Waste Treatment	4.4 m³	38.34 m³	871%	6.9	59.81	867%
TOTAL ABC PLAN	35,5 ha	54,03 ha	152%	133 a 163	163,67	119%

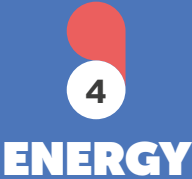
Source: www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/agricultura-de-baixa-emissao-de-carbono/plano-abc/acoes-do-plano

The Brazilian agricultural sector is heavily dependent on fertilizers. In 2023, an inter-ministerial working group was appointed to revise the National Fertilizer Plan 2050 (GTI-PNF) within 90 days from June. This plan, developed in 2022, came about as a response to the supply crisis triggered by the Russian invasion of Ukraine and Brazil's urgent need to diversify its fertilizer sources. However, the updated version of this plan has not yet been released. Brazil, a member of the Global Fertilizer Challenge and the Agricultural Innovation Mission for Climate (AIM4C), seeks to improve efficiency and sustainability in the use of fertilizers. The production of these inputs often involves the use of

natural gas, a fossil fuel rich in hydrogen and carbon, which is essential in the extraction of ammonia. Alternatively, green fertilizers, derived from biomethane, can reduce greenhouse gas emissions by up to 80%. And the emerging green hydrogen economy (H2V), obtained through the electrolysis of water, results in ammonia with low or zero carbon emissions. Brazil has the potential to be a leader in H2V production, using resources such as biomass, ethanol and biogas. Despite public debates involving the top echelon of the government on the subject in 2023, there has been no concrete progress in outlining a policy and strategy for low-carbon fertilizers.

HIGHLIGHTS

- Emissions from agriculture are increasing
- There was no significant change of course in policies for the sector in 2023
- Changes in financing for low-carbon agriculture have been timid
- There is no strategy to meet the Global Methane Pledge
- There is a need for systematic and transparent dissemination of the results of the ABC+ Plan





Brazil's Climate Policy in Full 2023

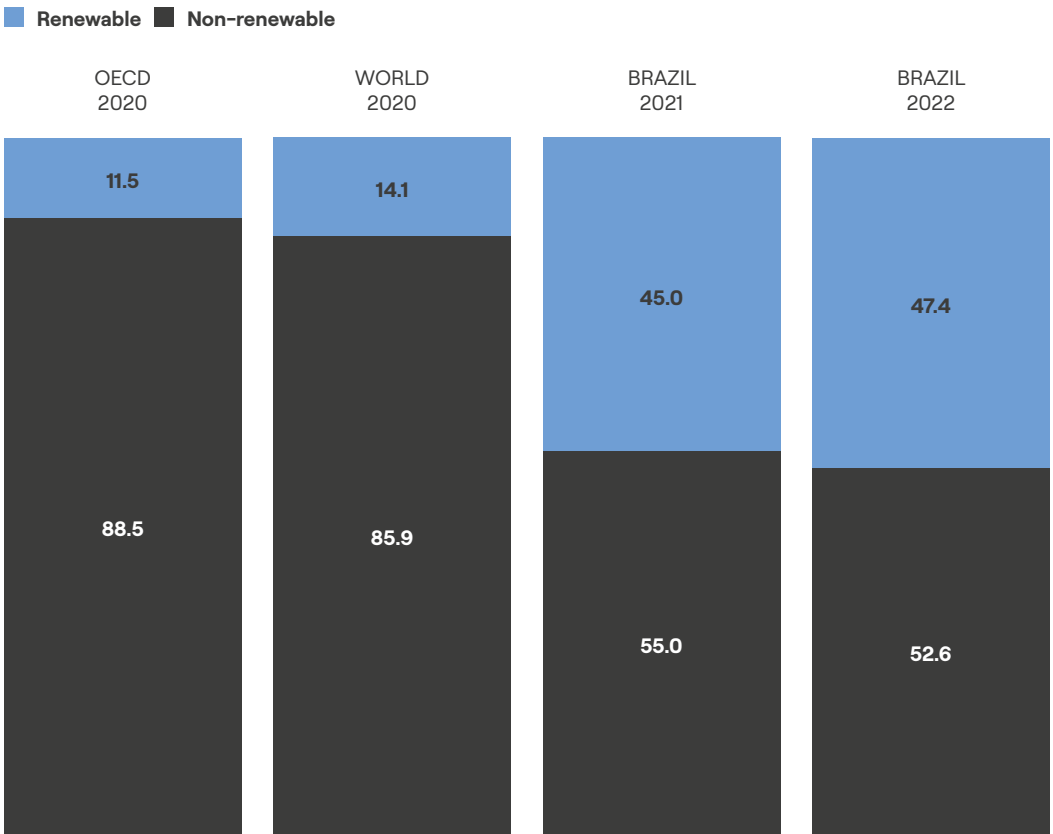
Progress and gaps in the country's climate policy agenda



The most recent National Energy Balance (BEN)⁽²⁵⁾ shows that each Brazilian emitted an average of two tons of CO2e in energy consumption in 2022. This would be equivalent to 14% of the annual consumption of an American, 36% of the consumption of a European citizen and 26% of a Chinese citizen. The carbon intensity of the Brazilian economy in 2022 would be equivalent to 31% of the Chinese economy and 61% of the American economy, according to the BEN published in 2023. Brazil has a very different green-

house gas emissions profile, in which energy generation plays a secondary role. Even so, in the last decade the country has recorded emissions of over 400 million tons of CO2e per year in the sector, with the exception of 2020, the first year of the Covid-19 pandemic. Most of the emissions are generated by burning fossil fuels in freight and passenger transportation and in industry. While the world's energy matrix is dominated by oil, coal and natural gas, all fossil fuels, in Brazil, renewable sources predominate (47.4%).

FIGURE 11 • Renewable sources in the energy matrix in Brazil and worldwide
Share in %



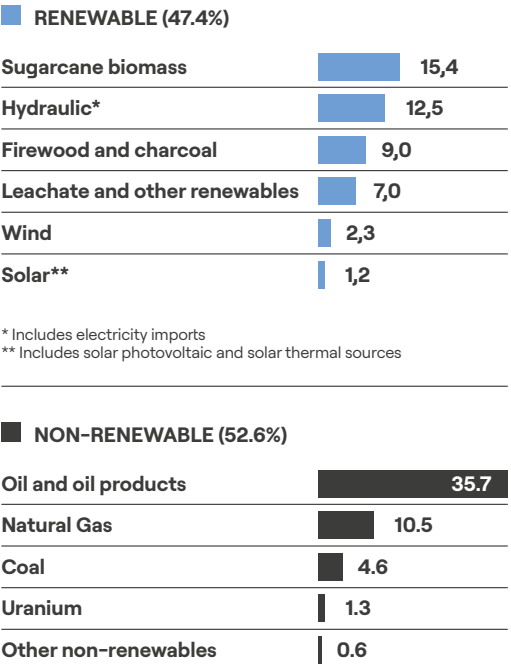
Source: Agência Internacional de Energia (AIE) e EPE para o Brasil

(25) www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-748/topico-681/BEN_S%C3%ADntese_2023_PT.pdf

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

Fossil sources still account for more than half of Brazil's energy matrix. Oil and its derivatives occupy 35.7% of the energy matrix, natural gas energy matrix, natural gas 10.5% and coal another 4.6%.

FIGURE 12 • Breakdown of internal energy supply
Share in %

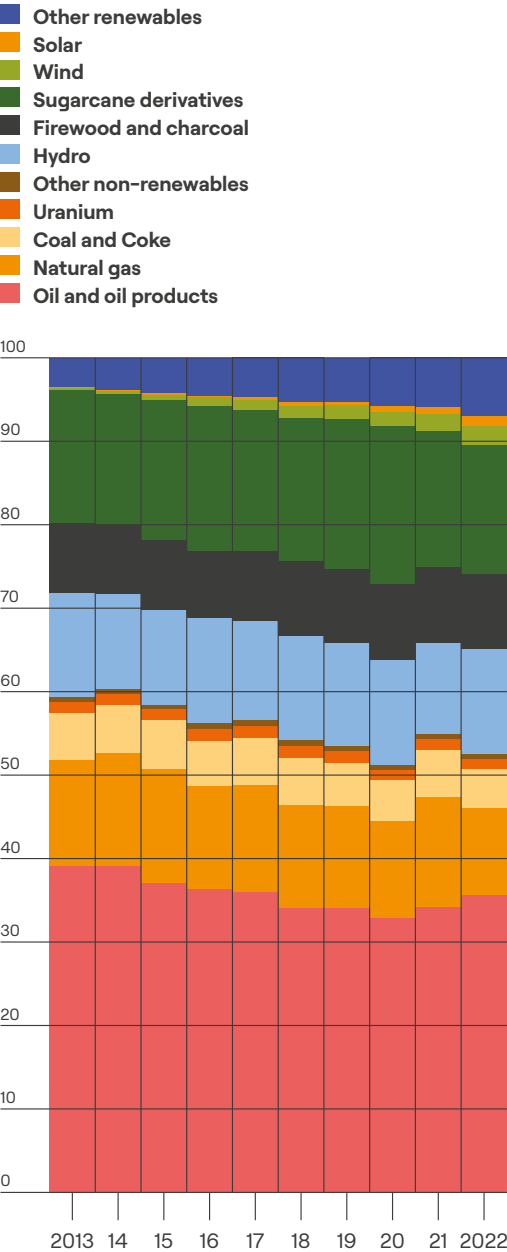


* Includes electricity imports
** Includes solar photovoltaic and solar thermal sources

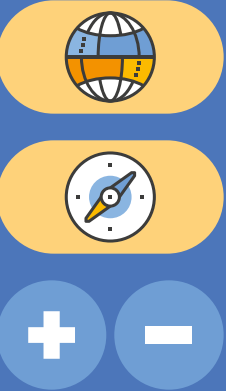
Source: Empresa de Pesquisa Energética (EPE)

Although the supply of solar energy has increased sixfold in the last decade in the country, and wind energy has multiplied more than 11 times, the two sources together represent 3.5% of the Brazilian energy matrix. Less than the 9% represented by firewood and charcoal, the 12.5% from hydroelectric plants and another 15.4% from biomass, the percentages that will make up the renewable part of the energy matrix in 2022. The supply of energy from fossil sources (oil and derivatives, natural gas and coal) will account for 50.8% of the matrix in 2022, compared to 57.4% in 2013.

FIGURE 13 • Historical series of supply of electricity
Share in %



Source: Empresa de Pesquisa Energética (EPE)





Brazil's Climate Policy in Full 2023

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The share of renewable sources in the Brazilian electricity matrix is growing and much higher than the world average. The expansion of hydroelectric plants among renewable sources is highlighted in the National Energy Plan 2050⁽²⁶⁾, even though part of this expansion will face challenges in terms of climate adaptation, due to the changes already observed in the rainfall regime, and overlapping conflicts in protected areas, such as conservation units and indigenous lands in the Amazon.

The scenarios released claim to also take into account the impacts of climate change on hydroelectric generation, especially in the North and Northeast subsystems, where a greater reduction in rainfall is expected. However, there is no climate adaptation plan in place, which means that the country lacks a strategy for increasing the resilience of the electricity system and reducing maladaptation (in this case, the use of fossil fuel thermal plants due to the vulnerability of the hydroelectric system to the impacts of climate change). Increasing the supply of wind and solar energy is also considered, although they maintain a smaller share compared to hydroelectric plants.

The National Energy Plan 2050, a long-term planning instrument, projects an increase in de-

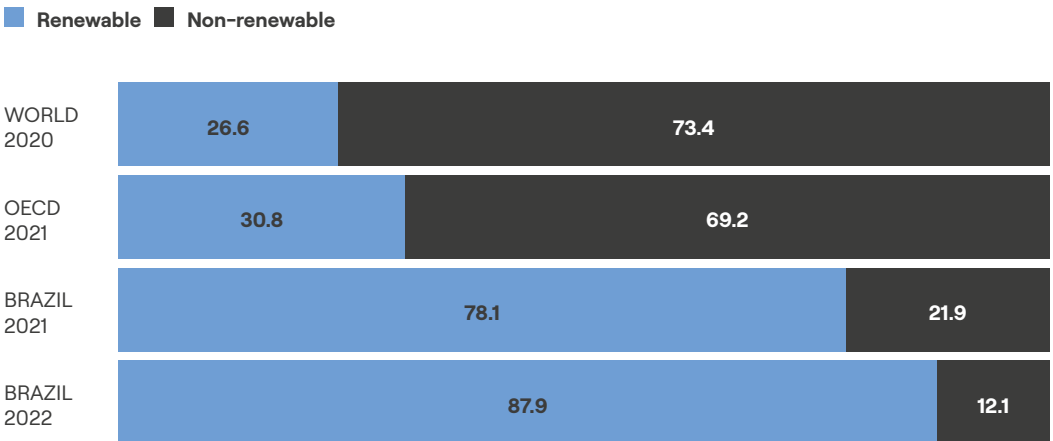
mand for oil derivatives by that date, partly as a result of population growth and also due to the expected increase in commodity exports, which are largely transported by road. Oil production projections for the medium and long term, according to the plan, indicate that Brazil will remain a major producer of hydrocarbons and natural gas. The document mentions that the federal government expects to collect around R\$1.8 trillion in taxes and royalties over 30 years.

The new version of the Growth Acceleration Program (PAC), launched in August 2023, says, in the chapter entitled Energy Transition and Security, that investments will expand renewable energy generation “while taking into account the great riches of Brazil's pre-salt and the need to expand the country's derivatives production capacity”.

Of the investments in energy generation, which total R\$75.7 billion (R\$75.2 billion by 2026), the highlight is private investment in the expansion of photovoltaic and wind power plants, which would total R\$63.5 billion.

The same axis of the PAC provides for much larger investments, of R\$360.2 billion, in oil and gas, an amount that corresponds to more than 60% of the investments in energy transition and security.

FIGURE 14 • Renewables in the Brazilian electricity matrix
Share in %



(26) www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-227/topico-563/Relatorio%20Final%20do%20PNE%202050.pdf

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

By 2026, investments in oil and gas will total R\$241.2 billion. The planned investments are largely from Petrobras' own resources, with the exception of a smaller portion of private investments for the construction of gas and oil pipelines.

According to various federal government planning documents, Brazil will continue to expand oil production until at least 2029. Natural gas production will remain high even after the turn of the new decade.

The scenario contrasts with that outlined by the International Energy Agency (IEA)⁽²⁷⁾. In September, the agency projected that world demand for oil, natural gas and coal would peak before 2030. The modeled scenario foresees that the share of coal, oil and natural gas in global energy supply – that was stuck for decades around 80% – will drop and reach 73% by 2030. In order for global warming not to exceed 1.5°C, it would be necessary not to increase fossil energy production after the mid-2020s.

TABLE 5 • Energy modalities

Investments in generation planned in the PAC

TYPE ● Public/State-owned ● Private

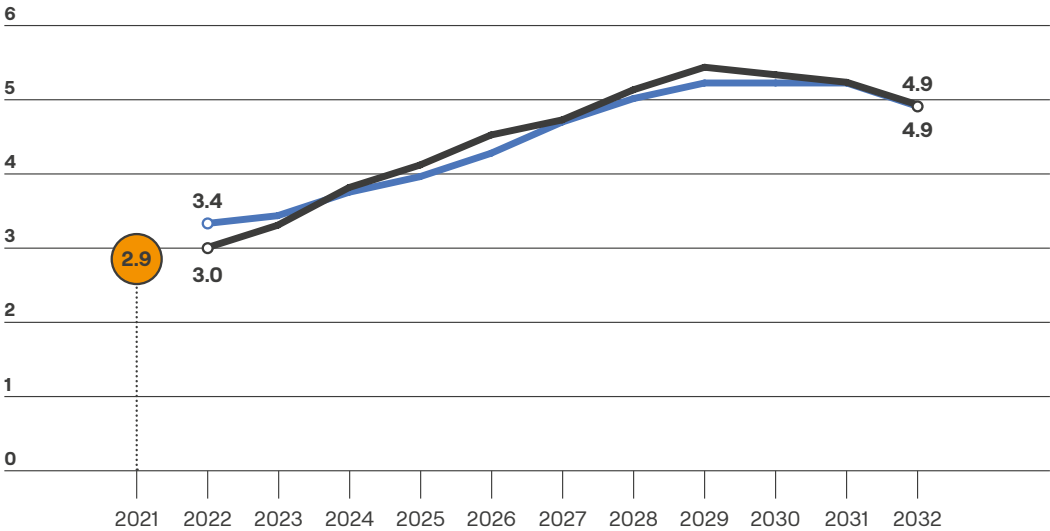
Type and quantity	Value in R\$
● Nuclear Thermal (1)	1.9 bi
● Gas Thermal (3)	6.7 bi
● Renewable Thermal (2)	2.1 bi
● Hydroelectric (1)	0.2 bi
● Wind (120)	22 bi
● Photovoltaic (196)	41.5 bi
● Small Hydroelectric Plants (20)	1.3 bi
TOTAL (343)	75.7 bilhões

Source: www.gov.br/casacivil/novopac/transicao-e-seguranca-energetica/geracao-de-energia

FIGURE 15 • Oil production forecasts

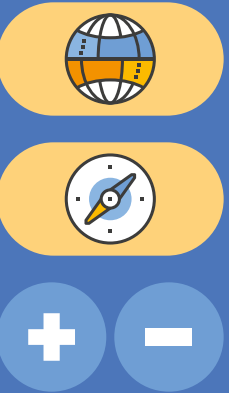
In millions of barrels per day

● Achieved 2021 ● Ten-Year Energy Expansion Plan 2031 ● Ten-Year Energy Expansion Plan 2032



Source: www.epe.gov.br

(27) www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach/executive-summary



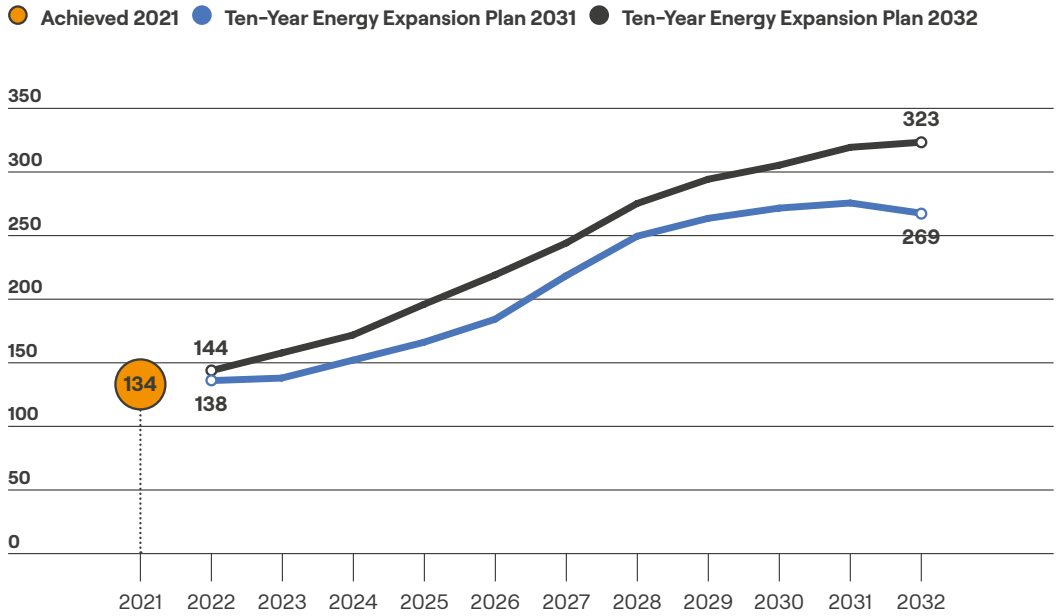


Brazil's Climate Policy in Full 2023

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FIGURE 16 • Forecast of gross natural gas production
In millions of cubic meters per day



Source: www.epe.gov.br

Unlike the IEA, the study on transition scenarios for carbon neutrality in 2050⁽²⁸⁾, launched in February 2023 with the participation of the Energy Policy Company (EPE), maintains oil production on the rise, although it considers a reduction in the share of fossil fuels in the energy matrix to between 13% and 27%, with the growth of renewable sources led by biomass. The scenarios consider climate neutrality, with Brazil consolidating its position as a major oil exporter.

The contradiction of maintaining oil production for longer in a scenario of energy transition is at the heart of the public policy for the sector, which is also in the process of being structured. In an interview at the beginning of October, the president of Petrobras, Jean Paul Prates, said that new oil wells should be drilled over the next 50 years, "maybe the next 60 years". Previously,

Prates had stated in April that Petrobras should be the last company to produce oil in the world.

In the area of renewable energies, the state-owned company is moving to explore offshore wind farms. The regulation of offshore energy generation is one of the points listed among the institutional measures of the new PAC, in the chapter on stimulating technologies for low-carbon energy generation and storage.

A bill authored by Prates⁽²⁹⁾, when he was a senator, and approved by the Senate in 2022, estimates that Brazil has significant offshore wind potential in its Exclusive Economic Zone (EEZ), of around 1.78TW. The EEZ separates the waters considered national from those considered international, and is delimited, in principle, by a line 200 nautical miles from the coast.

The grant is subject to technical, environmental impact and safety assessments.

(28) www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-726/PTE_RelatorioFinal_PT_Digital_.pdf
(29) www.congressonacional.leg.br/materias/materias-bicamerais/-/ver/pl-576-2021

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

As president of Petrobras, Prates announced that the state-owned company has projects to develop offshore wind generation in 17 areas.

The exploitation of offshore wind potential, however, depends on progress in marine spatial planning, which has barely begun. It is marine spatial planning that will avoid conflicts with other uses. By the end of 2023, calls for tenders should be launched for studies off the coasts of the Northeast and Southeast regions. No resources are expected before 2024 to contract analyses for the north coast.

Among the institutional measures, the PAC also provides for the regulation of activities related to low-carbon hydrogen, the implementation of the national hydrogen plan and incentives to adapt port infrastructure for the storage and disposal of production.

Since May 2023, a bill has been pending in the Chamber of Deputies⁽³⁰⁾ to include green hydrogen (H2V) in the National Energy Policy alongside petroleum-based fuels and biofuels, but a new bill will be sent by the government to Congress, according to the Ministry of Mines and Energy. In April, the President of the Republic updated the resolution of the National Energy Policy Council (CNPE), which had already established the National Hydrogen Program (PNH2) and created a Management Committee for the program in 2022.

Launched in August of this year, the PNH2⁽³¹⁾ Three-Year Plan 2023-2025 foresees Brazil consolidating its position as the largest and most competitive producer of low-carbon hydrogen in Latin America by 2035. According to the plan, 87% of the hydrogen produced in the country comes from natural petroleum gas. Green hydrogen is produced from the electrolysis of water. Part of the estimated potential, of producing 1.8 gigatonnes per year, still depends on technological developments.

In June, the president of the European Commission, Ursula von der Leyen, announced, after a meeting with President Luiz Inácio Lula da Silva, an investment of up to 2 billion euros (around R\$10.5 billion) in green hydrogen part-

nerships in Brazil.

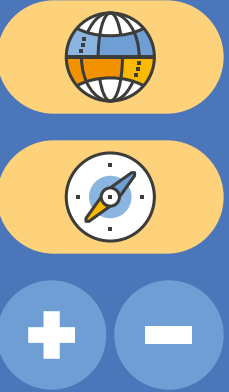
While preparing a National Energy Transition Policy, the government launched initiatives aimed at reducing greenhouse gas emissions. The first of these was the Amazon Energy Program, through a presidential decree⁽³²⁾. Announced as the "largest decarbonization program in the world", the program aims to reduce the use of diesel oil by 70% by 2030, which is currently the main source for generating electricity in part of the Amazon, where energy consumption is not connected to the National Integrated System. Investments of R\$5 billion are planned, and the government estimates that 1.5 million tons of CO2e will no longer be released into the atmosphere. Part of the diesel will be replaced by natural gas.

In another initiative on the energy transition agenda, in September the government launched the Fuels of the Future Program, for decarbonization in the transport sector, by means of a bill sent to Congress⁽³³⁾. In his speech at the launch, President Luiz Inácio Lula da Silva said that, in the field of renewable fuels, Brazil could take on a role "as important or more important than the Middle East is for oil".

The bill creates the national sustainable aviation fuel program and stipulates that airlines must reduce greenhouse gas emissions by 1% from 2027, reaching a 10% cut by 2037. This reduction will be achieved by gradually increasing the mix of sustainable fuels. By 2037, the bill also provides for an increase in the minimum mandatory share (up to 3%) of green diesel, produced from vegetable oils or animal fats, in fossil diesel. The project also establishes a regulatory framework for CO2 capture and underground storage.

Also in the Energy Transition axis of the Growth Acceleration Program (PAC), the government plans to invest R\$307 million (R\$281 million by 2026), mainly to carry out geological surveys. The focus is on the so-called critical or strategic minerals for the energy transition, although the government is also targeting inputs for fertilizer production.

(30) www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2359608
(31) www.gov.br/mme/pt-br/assuntos/noticias/PlanoDeTrabalhoTrienalPNH2.pdf
(32) www.gov.br/mme/pt-br/assuntos/noticias/decreto-que-institui-programa-energias-da-amazonia-e-assinado-pelo-presidente-lula/Decreto11648_2023.pdf
(33) www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2388242





Brazil's Climate Policy in Full 2023

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The Ministry of Mines and Energy (MME) presents Brazil as having great potential for critical and strategic minerals for the energy transition, such as copper, lithium, rare earths, niobium and uranium⁽³⁴⁾. But the lack of geological knowledge is an obstacle to Brazil's participation in the group of countries producing strategic minerals. In addition to noting the lack of precision of Brazil's mineral potential, a version of the National Mining Plan 2050⁽³⁵⁾, which went to public consultation, highlighted that a large part of this potential is found in the Amazon, in protected areas of the forest, such as indigenous lands and conservation units. Geological knowledge is also considered scarce in the ocean.

Strategic minerals are considered fundamental to the energy transition because they are present in solar panels, wind turbines and electric car batteries. Worldwide demand is growing. The calling card for the production of strategic minerals in Brazil was the start of lithium production in the Jequitinhonha Valley in Minas Gerais. The first batch of "green lithium" was exported by Canada's Sigma Lithium in September to a Chinese company that produces electric car batteries. It is expected that 130,000 tons will be exported this year.

But there is a lack of a clear policy for the sustainable exploitation of strategic minerals, as well as a definition of whether the country will only be an exporter of these resources, in the form of commodities. In 2021, a presidential decree established the Pro-Strategic Minerals policy, to support environmental licensing and the processing of mineral exploration projects. Among the 19 projects authorized by this policy is the exploration of gold ore by the Canadian company BeloSun in the Volta Grande do Xingu, near Belo Monte and the Paquiçamba Indigenous Land, in Pará.

The generation of clean energy is repeatedly pointed to as a competitive advantage for Brazilian products in the country's so-called "neo-industrialization" (see Chapter 5: Industry, below),

which has received promises of subsidies and credit incentives in the Multiannual Plan sent to Congress for the period 2024-2027⁽³⁶⁾.

Finally, the government maintained the three main federal public policies that drive the development and use of biofuels in the country: the National Program for the Production and Use of Biodiesel (PNPB), RenovaBio, and the mandates for mandatory blending of biofuels with fossil fuels. In 2023, the Federal Court of Auditors (TCU) concluded an audit⁽³⁷⁾ on these three policies, identifying flaws in the governance of the mandatory blending of ethanol into gasoline, especially after the Interministerial Council for Sugar and Alcohol (Cima) was abolished, creating a regulatory vacuum. Challenges were also highlighted in the targets for the acquisition of decarbonization credits (Cbio) and the reduction of emissions, with significant changes to the targets and widened tolerance margins, raising doubts as to whether the targets will be met in 2024 and 2025. The audit revealed insufficient ANP controls to ensure the reliability of the Cbio, with risks of issuance without technical support and the possibility of fraud. In addition, inconsistencies were observed between policies to increase biofuels and energy efficiency and pollutant emissions.

HIGHLIGHTS

- Brazil lacks a clear strategy for energy transition in Brazil
- Electricity matrix mostly renewable and half of the energy matrix clean should be opportunities to accelerate the transition, not excuses to postpone it
- Coal-fired thermal generation and plans to increase oil and gas production run counter to the strategy of net by 2050
- There are major uncertainties offshore wind power generation and sustainable hydrogen production
- There are gaps in the exploration strategic mining

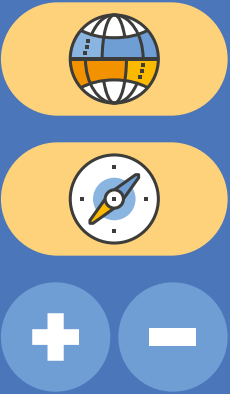
(34) Serviço Geológico Brasileiro. An overview of critical minerals potencial of Brazil, 2023

(35) www.gov.br/mme/pt-br/assuntos/secretarias/geologia-mineracao-e-transformacao-mineral/pnm-2050/estudos; www.gov.br/mme/pt-br/assuntos/secretarias/geologia-mineracao-e-transformacao-mineral/pnm-2050/estudos/caderno-3-cadeias-produtivas-dos-minerais-para-transicao-energetica/EstudosMSWordPNM2050Caderno320221114.pdf; www.gov.br/mme/pt-br/assuntos/secretarias/geologia-mineracao-e-transformacao-mineral/pnm-2050/estudos/caderno-1-conhecimento-geologico/1_Caderno_Conhecimento_Geologico_parte_01.pdf

(36) www.gov.br/mdic/pt-br/assuntos/noticias/2023/agosto/neoindustrializacao-e-prioridade-no-ppa-2024-2027

Read the ruling in full: Acórdão 251/2023 – Plenário

5 INDUSTRY





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Progress and gaps in the country's climate policy agenda



The federal government has adopted the term “neo-industrialization” instead of “reindustrialization” to highlight the need to halt the deindustrialization of recent decades and build new foundations for the sector. The agenda is under the command of Vice-President Geraldo Alckmin, at the head of the Ministry of Development, Industry, Trade and Services (MDIC)⁽³⁸⁾.

In April, the National Industrial Development Council (CNDI) was reactivated to formulate the “New Brazil Industry”. Made up of 20 ministers, the president of the BNDES and 21 advisors from civil society and the productive sector, linked to the Presidency of the Republic and chaired by the MDIC, the CNDI held a series of activities to discuss the foundations of the new industrial policy, which is expected to be approved in November 2023.

To finance and innovate industry, the government plans to invest R\$106.6 billion over the next four years, using resources from the BNDES, Finep and Embrapii. As of the closing of this document, there were no specific indications that the New Brazil Industry will bring decarbonization elements and instruments. However, the CNDI has promoted the mission-oriented approach⁽³⁹⁾ in the construction of the new industrial policy. These included missions on sustainable infrastructure, housing, sanitation and mobility; and decarbonization of the economy and expansion of chains associated with the energy transition and the bioeconomy.

In addition to the CNDI, Decree 11.547/2023 recreated the Low Carbon Industry Technical Committee (CTIBC), made up of representatives from the public and private sectors, coordinated by the MDIC, to implement, monitor and review public policies, initiatives and projects that encourage the ecological transition in Brazilian industry.

In June, the government also revoked⁽⁴⁰⁾ Decree 110.75/2022, which stipulated sectoral plans, including for industry. In this sense, there is a vacuum to be filled in terms of aligning industrial policy with the Brazilian NDC.

In August, during the launch of the PAC, Finance Minister Fernando Haddad announced the Ecological Transformation Plan, evoking green neo-industrialization. Technological densification is one of the Plan's axes, still under construction by the government at the time of writing this report.

Brazilian industry contributed 26% of GDP (CNI, 2022) and 11% of the country's total emissions (MCTI, 2022) in 2019. Decarbonization to the goal of net zero by 2050 is challenging. Investments in technologies and joint government-industry efforts are needed to make it a reality, including new processes such as the direct reduction of iron ore with hydrogen.

The alignment between decarbonization and neoindustrialization can be made in the next steps of the public policy formulation process, when technological routes and instruments, such as financing, research and development, infrastructure, personnel personnel, intellectual property, regulation and foreign trade. In addition, this objective could be partially achieved through the implementation of the Brazilian Emissions Trading System (*read more in the next chapter*).

Countries like China, Australia, the USA, Canada, South Korea and Japan are already taking significant steps to promote green industrial policies. Brazil needs to take advantage of its natural advantages and take deliberate steps to overcome the challenges of education and labor qualification. By adopting a green industrial policy, Brazil can boost innovation, create jobs and promote sustainable economic growth.

HIGHLIGHTS

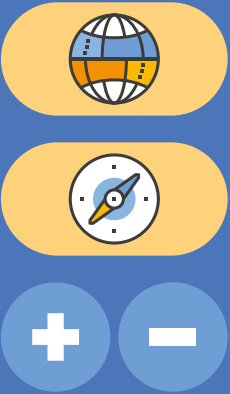
- The CNDI was reactivated to formulate the "New Brazil Industry," driving neo-industrialization
- The CTIBC was recreated with a focus on the ecological transition of the industry
- It remains unclear how industrial policy will align with the NDC

(38) Article signed by the President of the Republic and the Vice-President and Minister of the MDIC entitled "Neoindustrialization for the Brazil we want" www.gov.br/planalto/pt-br/vice-presidencia/central-de-conteudo/artigos/neoindustrializacao-para-o-brasil-que-queremos

(39) Originating in the space and military fields (for example, the Manhattan or Apollo programs), the content and field of application of the concept of mission orientation gradually shifted from ambitious, large-scale technological ventures to systemic interventions aimed at tackling social challenges. The OECD defines them as a coordinated set of policy and regulatory measures specifically designed to mobilize science, technology and innovation in order to achieve well-defined objectives related to a social challenge, in a defined period of time. <https://repositorio.cepal.org/server/api/core/bitstreams/cc36b4ce-eebb-4650-b334-bcfe27dfe4/content>

(40) <https://politicaportal.org/2023/06/08/governo-revoga-mercado-que-nunca-decretou/>

6 EMISSIONS PRICING Carbon Market





Brazil's Climate Policy in Full 2023

Progress and gaps in the country's climate policy agenda



A significant step in the creation of a regulated greenhouse gas emissions market was taken in October, with the Senate's approval of a bill⁽⁴¹⁾ that establishes the Brazilian Emissions Trading System (SBCE), a cap and trade mechanism similar to that already in place in the European Union. At the time this report was written, the bill still required approval by the Chamber of Deputies.

Once the law is sanctioned, the regulated carbon market will still need to undergo a phase of regulation and another of transition, expected to last at least four more years. Only after this period will sectors of the economy with higher carbon intensity start to have emission caps, which are to be approved by the Interministerial Council on Climate Change (CIM), in consultation with the yet undefined managing body and a permanent technical advisory committee, comprising representatives from the Union, states, sectoral entities, academia, and civil society.



16%

OF BRAZILIAN GREENHOUSEGAS EMISSIONS TO BE PRICED IF THE CARBON MARKET REGULATORY BILL IS APPROVED AS PASSED BY THE SENATE

Source: Ministry of Finance

The emission caps (or quotas) will become increasingly limited, making emissions more expensive and thereby creating economic incentives for decarbonization. Initially, operators of installations and sources emitting more than 25,000 tons of CO₂e per year will be subject to carbon caps. Operators emitting over 10,000 tons of CO₂e per year must present monitoring plans and report emissions and removals.

The bill approved by the Senate provides for penalties such as the embargo of activities and fines of up to R\$5 million for non-compliance with rules to be established by the regulatory body. The Ministry of Finance estimates that sectors like oil and gas production, cement, aluminum, iron and steel, air transport, and slaughterhouses are among the highest emitters and will be the main participants in the regulated market.

Primary agriculture installations (plantations and livestock) will not be subject to emission caps, but the bill approved by the Senate allows rural property owners to sell carbon credits by restoring deforested areas of native vegetation on their properties. Indigenous peoples and traditional communities are also eligible to trade carbon credits for avoided deforestation.

The extent to which the regulated carbon market will contribute to emission reduction will depend on the allocation plans and the definition of caps for different sectors. According to studies by the Climate and Development initiative, anchored in economic modeling developed by COPPE-UFRJ, there is the potential to cover 16% of Brazilian greenhouse gas emissions through such a mechanism.

The implementation timeframe will depend on the speed at which it is processed in the Chamber of Deputies.

HIGHLIGHTS

- Legislative proposal for the creation of an emissions pricing system has advanced
- The regulated carbon market is expected to contribute to reducing emissions from industries that are more carbon-intensive

(41) https://legis.senado.leg.br/sdleg-getter/documento?dm=9475729&ts=1696595979306&disposition=inline&_gl=1*nsg3eb*_ga*MTgONTkyMTQwMC4xNjUxNjExMDE5*_ga_CW3ZH25XMK*MTY5Njc3OTc2OC4zLjEuMTY5Njc3OTgxMi4wLjAuMA



7 CLIMATE FINANCE AND BUDGET



Brazil's Climate Policy in Full 2023

Progress and gaps in the country's climate policy agenda



Climate finance policies are those aimed at mobilizing the supply and demand for financial resources towards objectives related to decarbonization, adaptation to climate change impacts, and long-term resilience building. Key instruments include green bonds, loan guarantees, targeted loans, climate-indexed insurances, tax credits, national development banks, national climate funds, international cooperation, disclosure measures, and green taxonomy. The carbon market, already discussed in the previous section, can also be included.

In 2023, significant progress was observed in establishing and implementing a variety of financial instruments, although none have yet reached their maximum effectiveness. For an evolution in financing mechanisms, it is essential to improve access to information and data regarding corporate and project climate performance. Such access would enable investors to more accurately assess risks and opportunities associated with the transition to a low-carbon economy, thus facilitating financial resource allocation decisions. For this purpose, green taxonomy is one of the measures under the "sustainable finances" axis of the Ecological Transformation Plan, still being developed by the government at the time of this report's preparation.

Green taxonomy is a classification system that identifies environmentally "green" economic activities, assisting in directing capital towards climate investments. Two bills with this content are currently under discussion in the National Congress: in the Chamber of Deputies, Bill 2838 presented in 2022 by Deputy Zé Silva (SOLIDARIEDADE/MG) and in the Senate, Bill 5209 presented in 2023 by Senator Jader Barbalho (MDB/PA). In the Executive Branch, the Ministry of Finance opened a public consultation for the Brazilian Sustainable Taxonomy Action Plan, aiming to present it at COP 28. The taxonomy is scheduled to be published in November 2024 and will become mandatory in 2026 after an initial voluntary implementation year.

From the perspective of financial institution regulation, the National Monetary Council and the Central Bank had adopted resolutions on climate risk management and disclosure

within the National Financial System in 2021. Consequently, financial institutions are already obliged to disclose information aligned with the TCFD (Task Force on Climate-related Financial Disclosures) Recommendations. In 2022, SUSEP, the country's insurance regulatory entity, also issued a similar Circular. The Central Bank received the first batch of climate risk data in February 2023.

In June 2023, the National Monetary Council (CMN) approved changes to norms aimed at improving the monitoring of rural credit granting, further increasing the environmental compliance of agricultural activities. Some of these norms came into effect in the second half of 2023, restricting credit under the risk of deforestation, while others will come into effect in the first half of 2024.

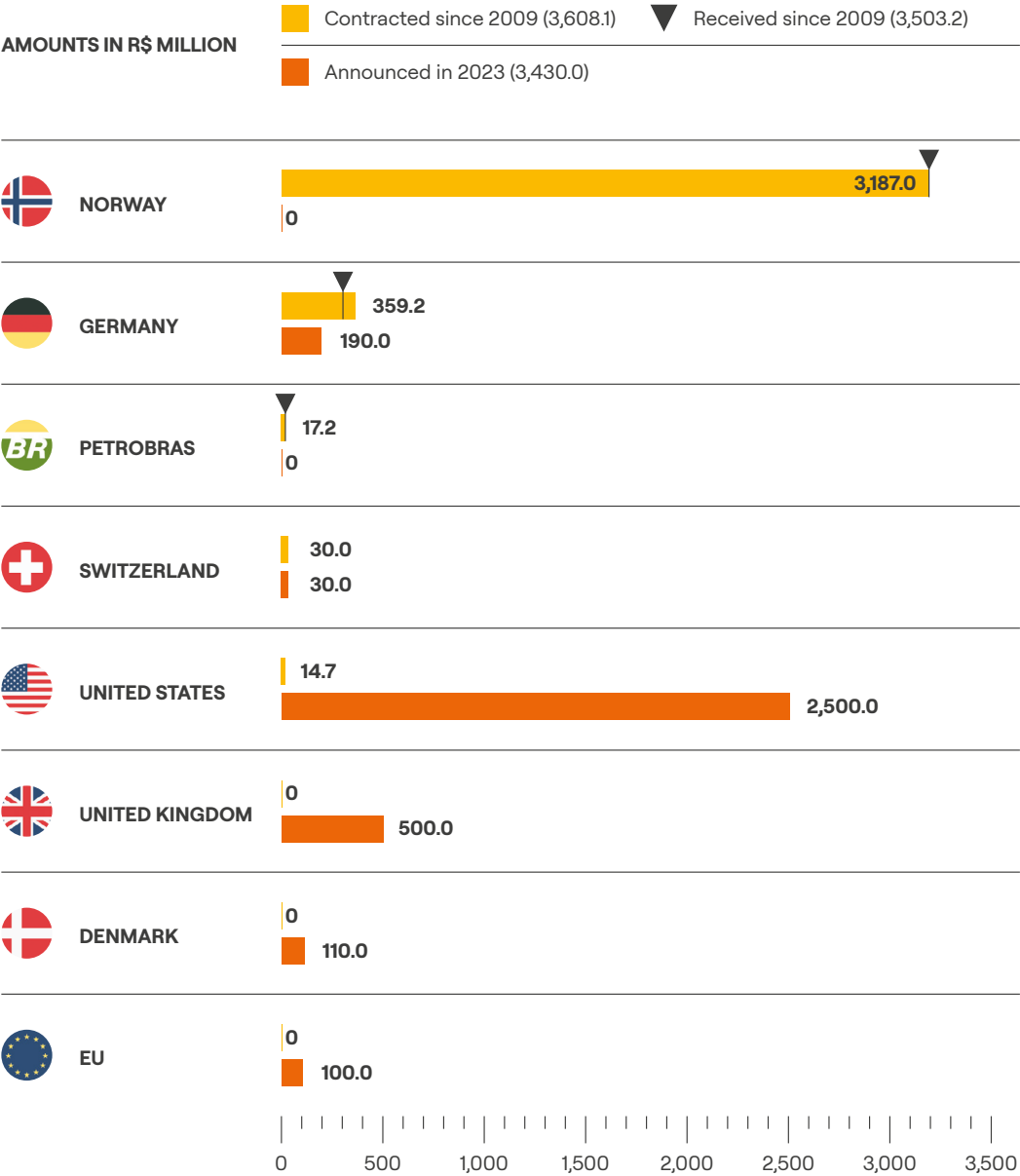
In July 2023, the Central Bank included for the first time in its Financial Stability Report (REF) information on market perception regarding the effects of climate risks, referring to the second half of 2022. The BC conducted the second exercise of assessing the sensitivity of financial institutions' credit portfolios to physical risk considering extreme climate scenarios. The results of mapping the credit portfolio's exposure of the SFN to transition risk show that about 8% of the portfolio is directed to borrowers who may be exposed to transition risks, with more than 70% of this exposure in segments such as cattle breeding for slaughter, freight transport, and soy. Smaller institutions (segments S4 and S5) have proportionally higher exposure, and in corporate credit, 84% of exposures subject to transition risk are in medium and large companies.

From the capital market perspective, Brazil's Securities and Exchange Commission (CVM) published Resolution 193 in October, establishing new rules for the disclosure of sustainability-related financial information. The new rules make Brazil the first country in the world to adopt the standards of the International Sustainability Standards Board (ISSB), setting a schedule for voluntary use in 2024 and mandatory use from January 1, 2026.

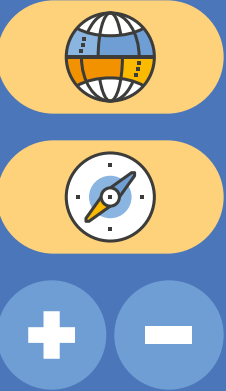
This means increasing transparency regarding risks and opportunities related to climate change, thereby facilitating the raising of global capital and investments by companies in Brazil.

BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

FIGURE 17 • History of donations to the Amazon Fund and promises of new contributions
Most of the amounts announced for 2023* have not yet been contracted.
When they do come in, the volume donated will almost double



* Values updated on November 8, 2023
Source: Environmental Finance Data e Natixis. Produced by Central Bank of Brazil





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Another measure is the issuance of green bonds by the National Treasury to raise R\$ 10 billion in the financial market. This amount is already included in the Union's budget bill for 2024 for spending on financing decarbonization projects through the Climate Fund, managed by the National Bank for Economic and Social Development (BNDES). Raising funds in the financial market could change the scale of public climate financing in Brazil, considering that until now, the amount of funds earmarked for climate change has been less than R\$10 billion.

To facilitate the issuance of these bonds and subsequent monitoring of the use of raised funds, the Sovereign Sustainable Finance Committee (CFSS) was established in May by presidential decree⁽⁴²⁾. This permanent inter-ministerial committee within the Ministry of Finance is chaired by the National Treasury Secretary and includes representatives from 10 ministries.

In September, the CFSS released the framework for issuing thematic sovereign public bonds of the Federal Public Debt, presenting it to foreign investors in a roadshow in the United States. According to the pre-issuance report published in October, the green category projects and programs in which the resources from the first issuance, scheduled for 2023, will be allocated are: PPCDAm, Bolsa Verde, Conservation Units (including infrastructure creation for visitation and provision of environmental services), Clean Transport (financing or refinancing of initiatives and projects for public transport with zero or low CO2 emissions, mainly under the Climate Fund), and Renewable Energy (also mainly under the Climate Fund).

The doubts raised at the time show concern that the resources obtained from green bonds finance programs truly aimed at mitigating and adapting to the effects of climate change. They also indicated that some market agents are not only observing what is within the scope of the so-called green bonds but also the coherence of the issuing State's agenda, in this case, Brazil, in a transversal and general way with the climate agenda. An example of this was the direct questioning of whether there are plans for

the phase-out of fossil fuels. The CFSS's published response mentioned decommissioning efforts, citing two key programs: the Amazon Energies Program and the Just Energy Transition (TEJ) Program. The former was launched this year, as mentioned in Chapter 4: Energy. The latter is a law sanctioned by former President Jair Bolsonaro, guaranteeing the purchase of energy from the Jorge Lacerda Thermoelectric Complex until 2040.

Brazil is the second-largest Green Bonds market in Latin America and the Caribbean, representing 32.8% of the region's issuances. The country's first climate bond was issued in 2015, and since then, the market has grown significantly, with 26 bonds certified by the Climate Bonds Initiative (CBI) to date. Green bond issuances by companies and BNDES have been well received, with sales reaching US\$ 8 billion since 2015. Energy, land use, and industry are the most financed project categories, with emphasis on the cellulose & paper sector and wind and solar energy. Non-financial corporations are the main issuers in Brazil, corresponding to 84% of the 26 bonds and 73% of the total issued.

BNDES, as a National Development Bank, plays a crucial role in fostering sustainable initiatives, acting as a catalyst for changes in the behavior of financial institutions and investors. Through concessional financing offers and risk mitigation strategies, the bank not only provides direct support to companies but also encourages private investment in environmental and climate projects. With the adoption of a long-term strategy in 2023, BNDES set clear objectives to expand its support for environmentally and climatically focused projects, as well as structuring new projects in this segment.

Strategic Objectives 12 and 13 reflect this commitment, aiming to expand the bank's role both in supporting and structuring green projects. In 2023, BNDES announced the creation of a guarantee fund to simplify access to credit for entrepreneurs facing challenges in financing energy efficiency projects in small and medium-sized enterprises (SMEs) through commercial banks.

(42) www.in.gov.br/web/dou/-/decreto-n-11.532-de-16-de-maio-de-2023-483637889

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The two national climate funds were resumed – the Climate Fund and the Amazon Fund, both predominantly managed by BNDES – with restored governance, albeit at a slower pace than desired. The first meeting of the Climate Fund Management Committee took place only in the last week of August. On the same day, the National Monetary Council (CMN) approved a resolution with new conditions for loans from the instrument: reducing the financial agents' "spread" from 4.5% to 3.5% in direct operations with BNDES; reduction from 3% to 2.5% in indirect operations, with other autho-

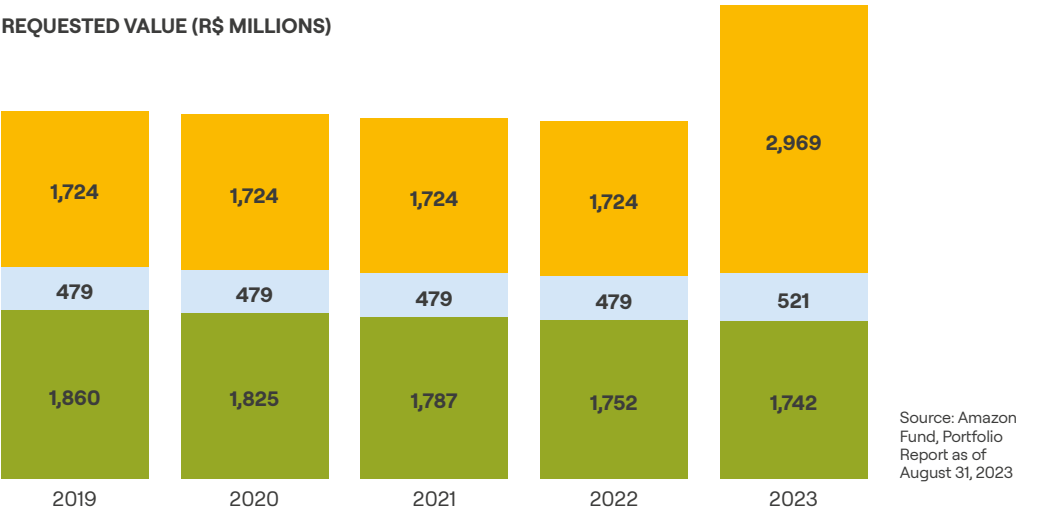
rized financial institutions; loan return rates for the Fund, which previously ranged from 0.1% to 3%, are now set between 6.15% and 8%. This is significant for the Climate Fund to expand its capacity to make targeted loans, strategically and efficiently.

BNDES has been diversifying its financial solutions and encouraging the creation of new instruments, such as structures in Blended Finance or Hybrid Finances⁽⁴³⁾. These efforts are crucial for the Climate Fund to effectively enhance its lending capabilities, enabling more strategic and efficient project financing.

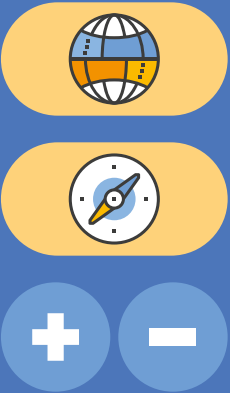
FIGURE 18 • Overview of Projects Submitted to the Amazon Fund

In 2023, new support requests for the instrument resumed. The release of funds is still in the consultation and analysis phase

	In Consultation	In Analysis	Supported
NUMBER OF PROJECTS			
2019	103	14	42
2020	102	14	42
2021	102	14	42
2022	102	14	42
2023	103	13	45



(43) Blended Finance structures use non-repayable resources and philanthropy aiming to engage third-party capital for initiatives with socio-environmental impact Supporte





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The Amazon Fund has a balance of R\$2.4 billion for disbursements and holds a total of R\$3.9 billion in cash, derived from donations by Norway and Germany. New donations orchestrated in 2023 amount to another R\$3.2 billion, in the contracting phase with Germany, the United States, the United Kingdom, the European Union, and Switzerland. From the perspective of international cooperation, the country significantly expanded the number of donors to the Amazon Fund and also established new relationships with partners aimed at decarbonization, such as the Development Finance Corporation (DFC) of the United States. However, in terms of access to multilateral financing mechanisms, there was no change in course: the implementation of the REDD+ project, which has R\$500 million from the Green Climate Fund, is still limited to 6 beneficiary families, and there were no new proposals by national entities accredited to the GCF. On the positive side, climate financing projects benefiting Brazil were approved, submitted by international entities⁽⁴⁴⁾.

The innovations of sovereign green bonds, combined with the enhancements to the already known Amazon and Climate Funds, can significantly contribute to expanding Brazil's climate budget. For 2024, public spending by the Union projected in the budget bill on GHG mitigation and adaptation to climate change increases, mainly due to green bonds, but still represents only 0.06% of the total expenses planned for custodial and investment spending, considering expenditures on tackling the climate emergency, combating deforestation, preserving forests, risk and disaster manage-

ment, and energy efficiency. Indirect expenses (tax waivers) still favor carbon-intensive sectors (automotive and petrochemical industries, thermoelectricity, and liquefied natural gas). The financial compensation paid to the Union for oil and gas production represents a revenue of R\$113.1 billion, more than eight times the decarbonization budget.

Monitoring public funds allocated for decarbonization – and those that still foster emissions – is one of the challenges to improving the quality of climate policies. In the decree establishing the CFSS, it was also tasked with “preparing allocation reports, impact reports, and other documents resulting from the issuance of thematic sovereign public bonds outlined in the framework.” The success of these sovereign issuances will depend on proving the ability to monitor the use of these resources, with credible outcome metrics. Progress in this process can provide the conditions for establishing a robust climate budget, responding to the need for a transversal approach to mitigation and adaptation policies.

Finally, only 10% of Brazilian farmers access rural insurance. The Subsidy Program for Rural Insurance Premium (PSR) is expected to grow by 10% this year, but the resources are insufficient, as an increase of 20% was anticipated. However, Brazilian insurers are developing a project to map climate risks across the country, which will help to create new insurances and set policy prices. A policy for indexed insurances (whose value is defined based on estimates of the damage that an imminent disaster may generate) has not yet been developed in the country.

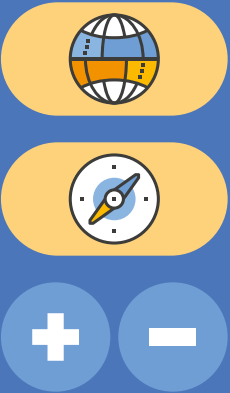
HIGHLIGHTS

- Sustainable finance is one of the pillars of the Ecological Transformation Plan
- An action plan for the establishment of the Brazilian Sustainable Taxonomy has been initiated
- The Sovereign Sustainable Finance Committee (CFSS), composed of representatives from 10 ministries, developed the framework for issuing thematic sovereign public bonds of the Federal Public Debt
- The issuance of the first green public bonds (green bonds) is planned for 2023
- The government aims to raise R\$10 billion
- Investors are not only looking at the portfolio of eligible projects but also the coherence of the issuer's policies – in this case, Brazil
- The Amazon and Climate Funds have been resumed, but at a pace slower than desired

(44) More information at www.greenclimate.fund/countries/brazil



ADAPTATION TO CLIMATE CHANGE





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At the beginning of September, the passage of an extratropical cyclone in Rio Grande do Sul, accompanied by storms and strong winds, caused the Taquari River to rise 17 meters above its normal level. The strong current swept away houses and left cities submerged. Over 50 deaths were recorded, and thousands of people were left homeless or displaced. Before the month ended, the waters of the Amazon River, one of the world's largest, had dropped more than 7 meters, far beyond the historical average for drought periods. Rivers in the basin dried up. The extreme drought caused the death of at least 110 dolphins and tucuxis in Lake Tefé, about 520 km from Manaus, affected passenger and cargo transportation, and created a food security crisis for populations dependent on fishing. The historic drought in the Amazon led the federal government to declare⁽⁴⁵⁾ a “critical situation of water resource scarcity” in the Madeira River until November 30, 2023, when energy generation at hydroelectric plants is no longer a priority. This period may be extended.

These two extreme events in the same month highlighted the government's need to adopt an emergency action plan to deal with climate vulnerability. In terms of extreme events, Brazilian climate policy is also undergoing a phase of reconstruction of the National Adaptation Plan, with details expected in 2024.

The federal government is preparing, in addition to a national strategy, 14 sectoral adapta-

tion plans for the following sectors: agriculture and livestock, biodiversity, cities + mobility, risk and disaster management, industry, energy, transportation, racial equality and anti-racism, traditional peoples and communities, indigenous peoples, water resources, health, food security and nutrition, ocean, and coastal zone.

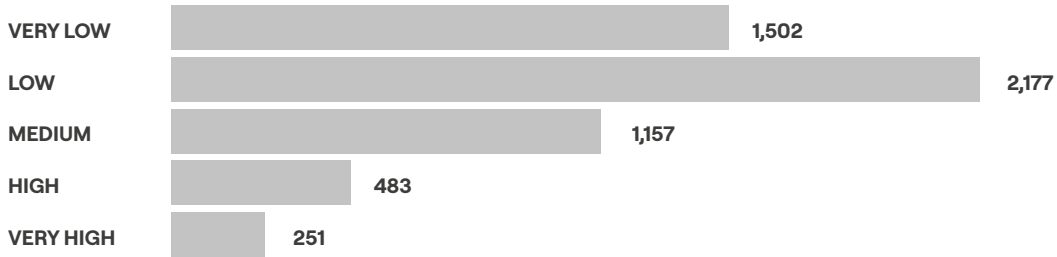
In preparing an emergency plan to reduce vulnerability to climate change impacts, the Civil House of the Presidency prepared a list of municipalities most susceptible to landslides, flash floods, and flooding, based on already recorded occurrences, which identified 1,942 localities where federal actions for disaster management and prevention would be prioritized. These municipalities would gather 99.5% of the people mapped in risk areas. To try to prevent new disasters, the Growth Acceleration Program (PAC) planned public investments of R\$10.5 billion by 2026 for slope containment and drainage works.

This official list of priority municipalities, which includes more than a third of the 5,570 Brazilian municipalities, did not incorporate localities threatened by droughts (one of the events whose frequency tends to increase due to climate changes) nor future climate scenarios already developed by the Ministry of Science and Technology, available on the Adapta Brasil platform.

The Adapta Brasil platform indicates that almost 70% of Brazilian municipalities have very low or low capacity to adapt to geo-hydrological disasters caused by climate change.

FIGURE 17 • Adaptive capacity of Brazilian municipalities to disasters

Number of municipalities by class



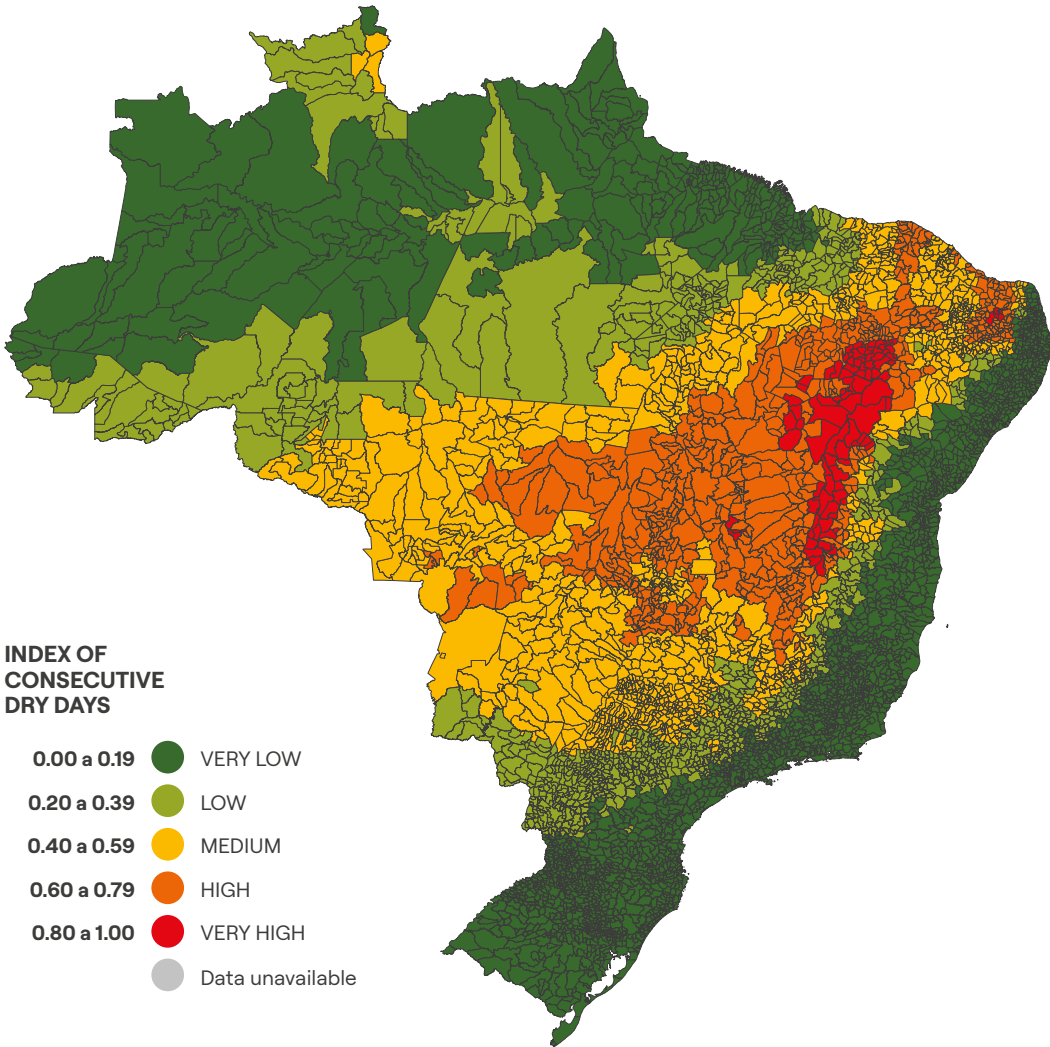
Source: <https://sistema.adaptabrasil.mcti.gov.br/60004/2/2015/null/BR/municipio/>
(45) www.in.gov.br/web/dou/-/resolucao-ana-n-164-de-9-outubro-de-2023-515478790

Based on topographical and geological characteristics, meteorological factors, and aspects such as land cover and usage, the platform reveals that a significant portion of Brazil's agricultural production area, particularly in the

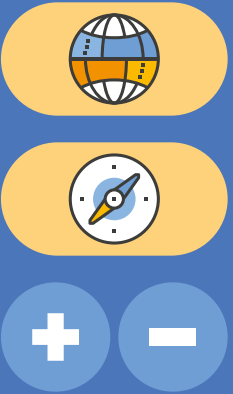
Matopiba region (Maranhão, Tocantins, Piauí, and Bahia), where grain production (and deforestation) is increasing rapidly, is at high or very high risk of experiencing prolonged drought periods as early as 2030.

FIGURE 18 • Pessimistic Scenario for the Risk of Consecutive Dry Days in 2030

The risk of drought is higher in the country's area that includes food production in the Midwest and especially in the Matopiba frontier, where soybean production, Brazil's main export product, is expanding most rapidly. This region also records a fast pace of deforestation in the Cerrado



Source: <https://sistema.adaptabrasil.mcti.gov.br/1035/1/2030/Pessimista/BR/municipio/>





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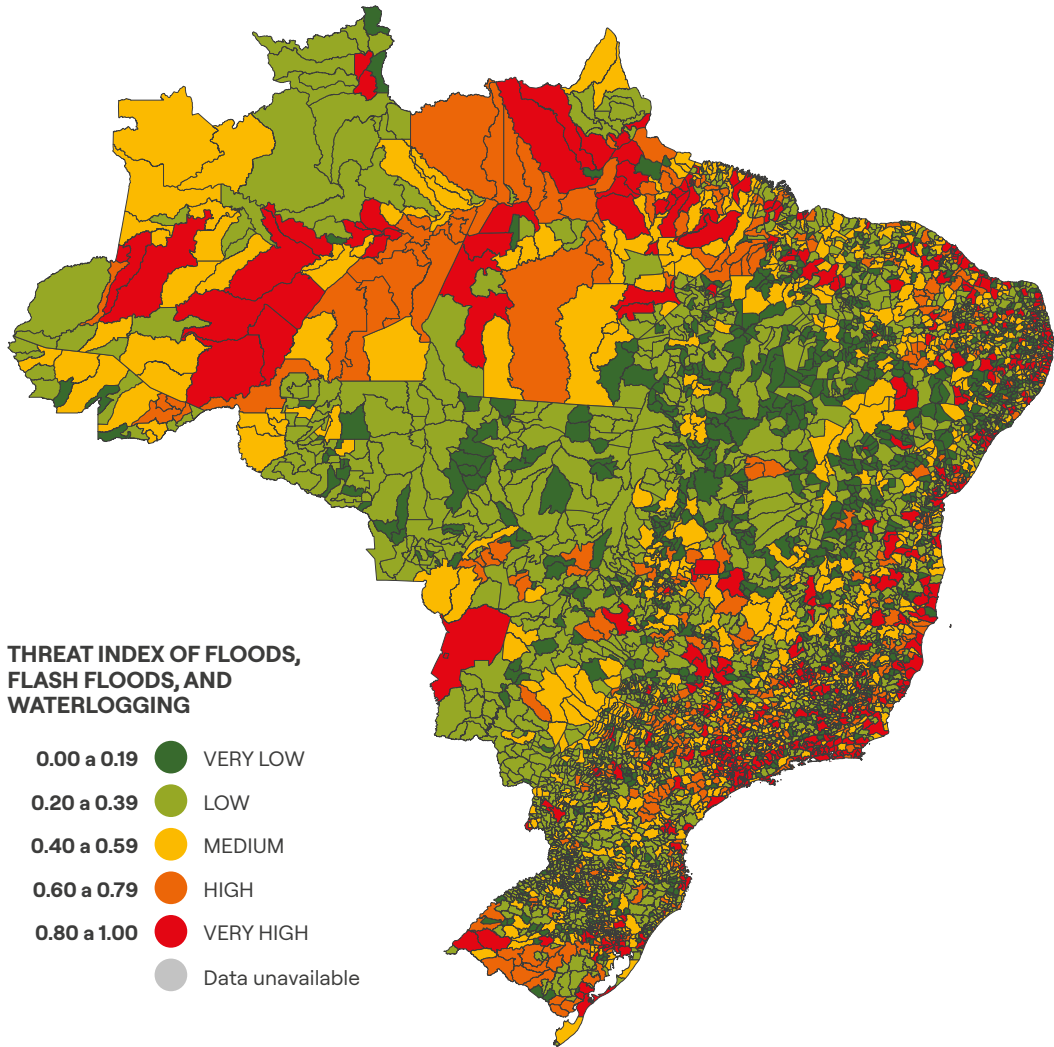
Progress and gaps in the country's climate policy agenda



According to the platform, which uses scenarios based on the latest report from the Intergovernmental Panel on Climate Change (IPCC), the threat of floods, flash floods, and waterlogging is widespread across the national territory.

FIGURE 19 • Threat of Floods, Flash Floods, and Waterlogging in 2030

There is a high risk of disasters associated with intense rainfall spread across the national territory, with the exception of parts of the Midwest. The Adapta Brasil indicator takes into account geomorphological characteristics, land use, geological factors, and climatic indices of intense rainfall



Source: <https://sistema.adaptabrasil.mcti.gov.br/60003/1/2030/Pessimista/BR/municipio/>

As is known, climate scenarios involve uncertainties, and the reaction time to extreme events can be short. An example of this is what happened with the Taquari River in September (figure 20).

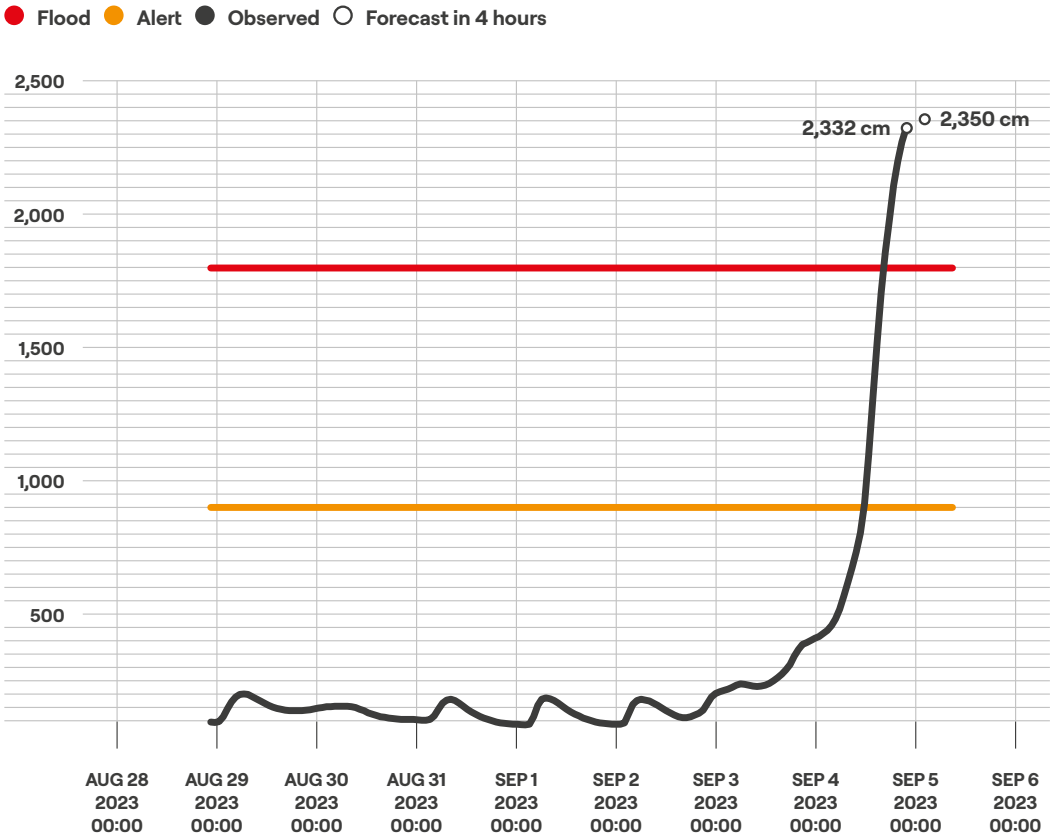
On the Adapta Brasil platform, the municipality of Muçum, in Rio Grande do Sul, appears with a low risk on the scale of flood threat, even in the projections of a pessimistic scenario for 2050. On the night of September 4, 2023, the waters of the Taquari River left 80% of the municipality underwater. At five in the afternoon, the hydrological alert system of the Geological Service of Brazil (formerly known as the Company for Mineral Resources Research, CPRM) issued a second alert bulletin informing that the river waters would reach a level of 22.8 meters, four hours after a first bulletin at one in the afternoon, indicating that the waters would rise up

to 21 meters. The municipality, where the highest number of deaths was recorded in September, became isolated. Hundreds of people took shelter on the rooftops of their homes and had to be rescued by helicopters.

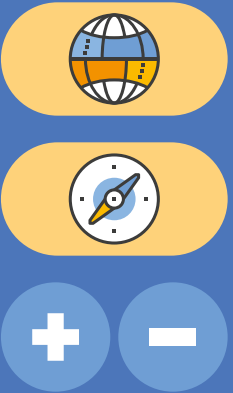
The Talanoa Institute monitors the occurrence of disasters, through the federal government's recognition of a state of emergency and public calamity in municipalities, acts that are published in the Official Gazette of the Union. In ten years, up to October 9, 2023, the Disaster Monitor tool recorded events in 4,145 of the 5,570 Brazilian municipalities. That is, nearly 74% of the municipalities recorded some event during the period.

FIGURE 20 • Pace of Rising Water Levels of the Taquari River in Muçum (RS)

Level of the Taquari River in centimeters



Source: www.sgb.gov.br/sace/boletins/Taquari/20230904_22-20230904%20-%20233006.pdf





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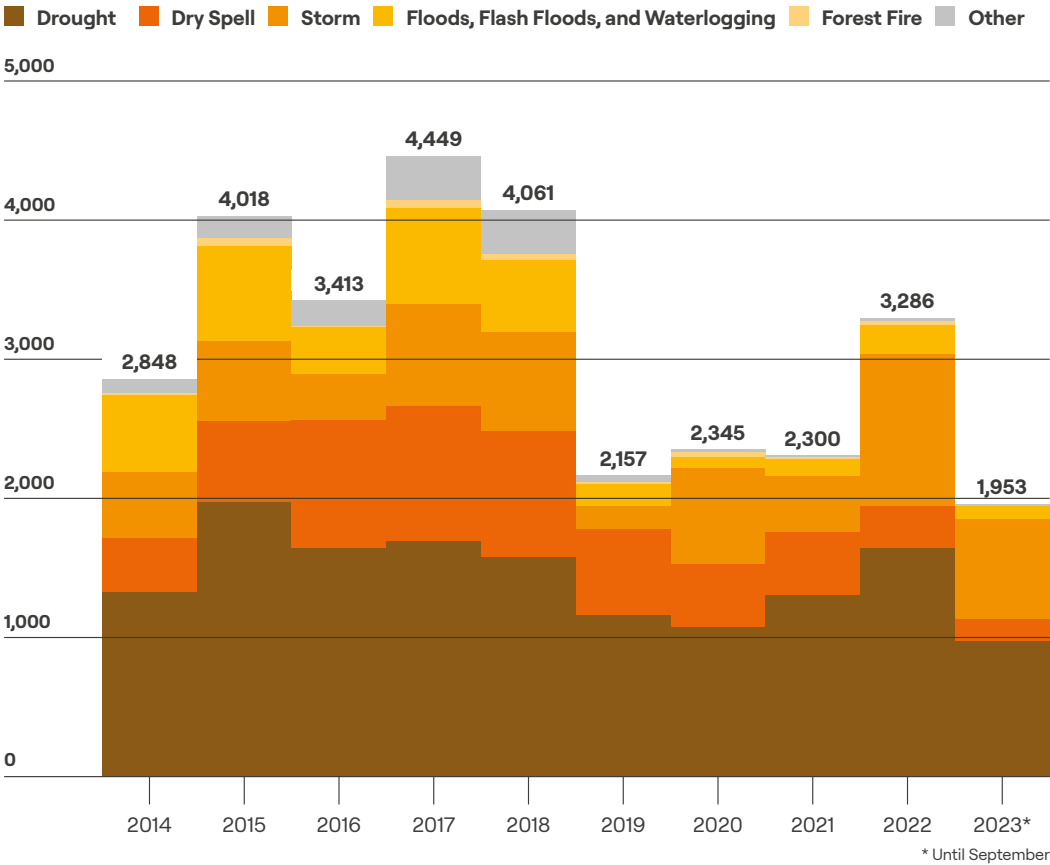
Droughts are more concentrated in the South and Northeast of Brazil. Drought and dry spell events predominated in the period. However, the historical series also shows that storms are becoming more frequent. Not all disasters recorded are clearly associated with climate change.

HIGHLIGHTS

- Few Brazilian municipalities and economic sectors are prepared to face the impacts of climate change
- A national strategy and sectoral adaptation plans are expected to take shape over the course of 2024

FIGURE 21 • Disasters in a Decade

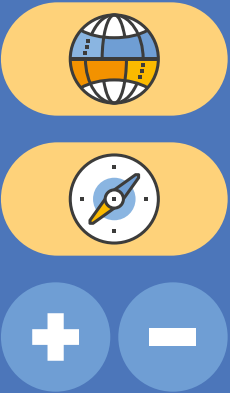
Number of emergency recognitions by type of event each year



Total number of monitored events in 10 years	Drought	13,355
	Dry Spell	5,728
	Storm	5,867
	Floods, Flash Floods, and Waterlogging	3,446
	Forest Fire	264
	Other	1,200

Source: Política por Inteiro/Instituto Talanoa

9 GOVERNANCE





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Brazil has not yet fully implemented robust climate governance. “Transversality” has become a recent theme, but the country lacks coordination mechanisms that encompass interactions between the federal government, civil society, federal entities, and economic sectors. Brazil is forming a new architecture of climate policy that requires an “ecosystem” of authorities and leaders capable of realizing its response capacity. The institutional structures of the National Policy on Climate Change (PNMC), established by Law 12.187/2009, such as the Climate Network and the Commission for Coordination of Meteorology, Climatology, and Hydrology Activities (CCAMCH), were designed to play central roles in policy definition.

The restructuring (Decree 11.550 of June 5, 2023) of the Interministerial Committee on Climate Change (CIM) added 18 ministers to its composition, which has proven challenging from a practical standpoint. The arrangement is predominantly aimed at intra-governmental coordination, without extra or intergovernmental participation. In communicating the correction of Brazil's NDC to the UNFCCC, the CIM is positioned as the instance for elaboration and implementation of Brazil's climate policy. The institutional dialogue between the Brazilian government and civil society, the document⁽⁴⁶⁾ states, occurs through the Brazilian Forum on Climate Change (FBMC) – the same wording was used to describe Brazil's Government situation in previous NDC updates during the 2019-2022 administration.

Additionally, new collegiate bodies (re)emerged throughout 2023, such as the Permanent Interministerial Committee of PPCDAM (described in Chapter 2: Land Use and Deforestation), the Sectoral Chamber of Low Carbon Industry (described in Chapter 5: Industry), and the Interministerial Working Group on the Carbon Market, revealing healthy regulatory dynamism, even though formal intergovernmental structures have not seen comparable progress.

Structures like the National Council on Climate Change, mentioned in the new configuration of the MMA, are still pending formalization by decrees. On the other hand, the revitalization of financial committees under the PNMC, such as the Amazon and Climate Funds, exemplify

governance with active participation and deliberation, enhancing the transparency and legitimacy of these instruments.

It is important to revise the predominant view of governance, which, as discussed in meetings of the Economic and Social Development Council, has generated dissatisfaction due to its narrow focus and centralization in the federal government, neglecting the extragovernmental nature essential for collaboration with non-governmental entities.

For a truly democratic and inclusive climate policy in Brazil, systematic channels of interaction with society are imperative. This involves adapting climate policies to the diversity of Brazil, considering the peculiarities of its regions and biomes, and fostering constant dialogues and local empowerment. Promoting the transversality of the climate agenda through participatory structures also has the potential to facilitate articulations with other Powers, especially the Legislature.

TABLE 6 • 5 committees and 1 council to watch

Bodies created or updated in 2023 that fall within the climate agenda or have some interface with it

APRIL	Central Coordination Committee of the Amazônia + Sustainable Plan
MAY	Sovereign Sustainable Finance Committee
JUNE	Interministerial Committee on Climate Change
JUNE	National Council for COP30
JUNE	Technical Committee of Low Carbon Industry
SEPTEMBER	Strategic Committee of the new PAC

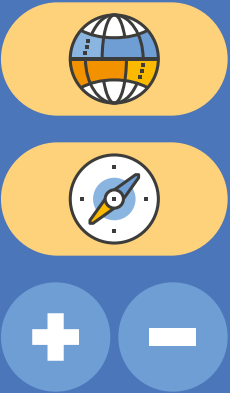
Source: Public Acts Monitor/Policy in Full (Updated until November 10th)

(46) <https://unfccc.int/sites/default/files/NDC/2023-11/Brazil%20First%20NDC%202023%20adjustment.pdf>

FIGURE 22 • Federal Government Infra-Legal Acts in 2023

The governance agenda was the most recurrent among the climate policy acts in the first months of the Lula Government. Most of the adaptation norms were recognitions of emergency situations

	Adaptation	Financing	Governance	Mitigation	No specific agenda	TOTAL
January	18	3	36	2	11	70
February	23	0	8	0	3	34
March	22	0	15	1	14	52
April	10	1	6	4	32	53
May	15	2	15	9	0	41
June	15	2	30	21	0	68
July	22	0	24	1	0	47
August	9	9	22	7	0	47
September	16	0	20	7	0	43
October	25	4	17	0	0	46
TOTAL	175	21	193	52	60	501



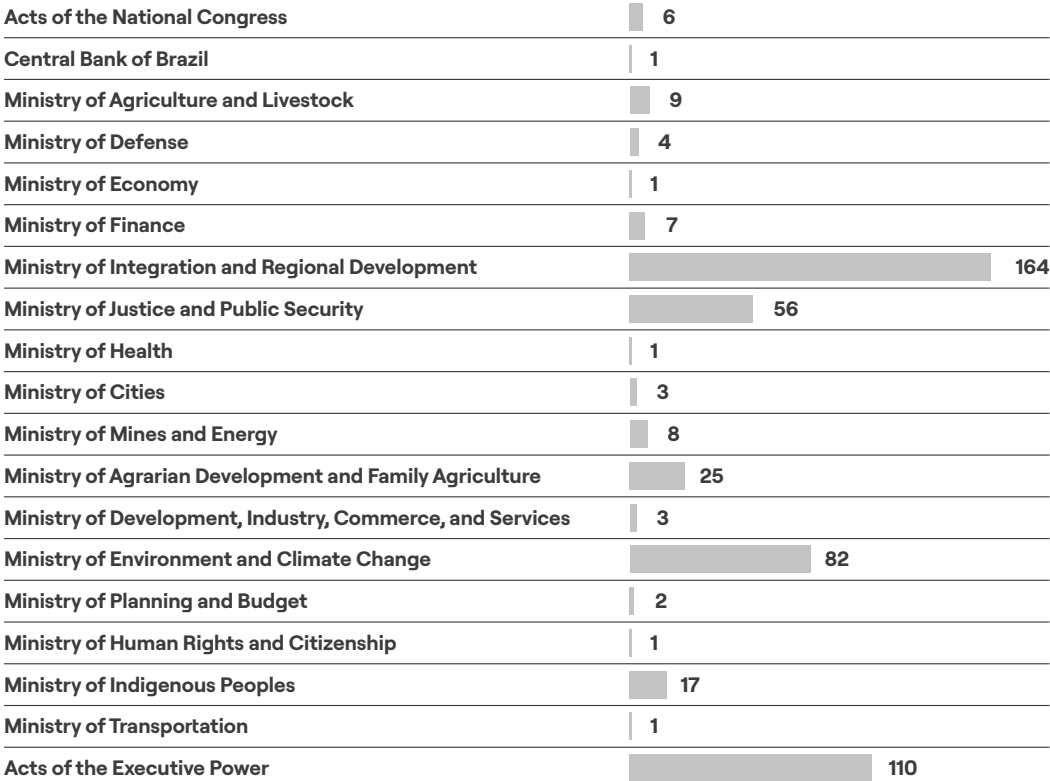


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FIGURE 23 • The Transversality of the Climate Agenda
Climate policy norms emanated from 19 federal government portfolios



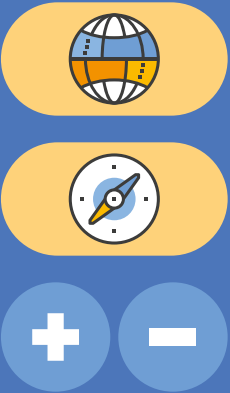
More robust institutional arrangements around socio-environmental and climate issues strengthen the demands that require processing in Congress and help to curb legislative initiatives that regress efforts towards a just transition.

The Brazilian climate agenda demands expansion beyond the limits of the federal administration, preventing critical issues from remaining confined to internal bureaucratic efforts. Implementing it requires a transparent and continuous process focused on policy alignment. In 2023, the Esplanade of Ministries received a clear mandate from the highest political level to initiate such a process. However, there is still no common planning system with monitoring indicators or outcome models to facilitate coordination.

HIGHLIGHTS

- The Interministerial Committee on Climate Change (CIM) is the body responsible for the formulation and implementation of climate policy at the federal level. With 18 ministers as members, its operation is quite challenging in practice
- The National Council on Climate Change has not been formalized; therefore, it is understood that the governance structure remains federal, rather than national
- Committees of climate funds are examples of governance with active participation and deliberation
- Climate governance should be transversal beyond federal administration, creating channels for effective participation and prioritizing public transparency

10 TALANOIA INDICATORS





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Decarbonization is a process of transforming the economy and society. Brazil's steps on this path in 2023 have been synthesized in the previous chapters. In this context, we have observed announcements, signals, and intentions to build policies in different sectors and areas of public life. Most of these need to be converted into concrete instruments and actions to become measurable. Therefore, in the infographic "The State of Climate Policy in Brazil" (page 6), we categorized the progress in public policy matters as "retrogressed," "did not advance," "advanced little," or "advanced," depending on the available evidence.

For formally adopted policies, it is possible to evaluate the state of their implementation and understand "where we are going." Since 2022, the Talanoa Institute has been monitoring a series of indicators related to mitigation aspects and evaluating them in terms of their impact on the trajectory towards zero emissions by 2050. Through the Nossa Descarbonização initiative, dedicated to indicators, we consider two perspectives: what can inform the effort of public policy implementation and what effectively translates their results.

Under these two approaches, organized by 11 sectors and themes (Agriculture, Deforestation, Energy, Industry, Urban Mobility, Waste and Sanitation, and Cargo Transport, Ocean, Governance, Emissions Pricing, and Budget), we monitor the advances – or setbacks – that will be reflected in reductions of greenhouse gas emissions, bringing Brazil closer to – or distancing it from – the climate goals set in the UNFCCC.

Here is a sample of 30 indicators monitored by Talanoa in the 3 largest emitters: those selected to monitor land use policies – beyond rates of native vegetation loss, incentives for transforming agriculture into low-carbon and progress in energy transition. For each, we use data available in the last three years and compare them with both a baseline (2020) and the mitigation targets of the Clima e Desenvolvimento initiative (2030). It's worth mentioning that, whenever possible, these targets coincide with official plans and consider only technologies already applied at scale. Therefore, they are conservative regarding short-term action and technological disruptions.

For more information about scenarios and methodology, visit clima2030.org.br.

OBSERVED PROGRESS

Our monitoring highlights both signs of positive change and areas for improvement regarding Brazil's commitment to the Paris Agreement. In 2023, we identified promising signs indicating a true course correction. They show where government efforts are growing:

- Environmental enforcement actions grew by 86%, from 3,261 fines against flora by environmental agencies in 2020 to 6,077 in 2023;
- The authorized budget for environmental enforcement grew by 49.5%, from R\$ 78.1 million in 2021 to R\$ 116.8 million in 2023, despite a 16% drop (R\$ 19.5 million) between 2022 and 2023;
- Agricultural productivity grew by 9%, from 3.64 t/ha in 2020 to 3.97 in 2023, with a slight decrease of 2.5% between 2022 and 2023;
- The percentage of biodiesel addition in diesel rose to 12% in 2023, up from 10% in the previous year and 11% in 2020;
- Subsidies for contracting coal-fired power plants fell by 20.5%, from R\$ 928 million in 2022 to R\$ 738 million in 2023, even though they were lower in 2020;
- CBIO targets increased by 157% between 2020 and 2023, and now represent almost 40% of the objective for 2030; and
- The participation of renewable energies in the Internal Energy Supply (OIE) grew by 6% between 2022 and 2023, and is close to the target of 55% for 2030.

POINTS OF CONCERN

There are areas where progress is slow or timid:

- The validation of the rural environmental registry (CAR) increased from 0.40% in 2020 to 1.34% in 2023, revealing a marginal improvement and a concerning situation, given that this instrument has been in implementation since 2012; and

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- The current slaughter age of cattle remains between 37 to 42 months, while the target is to reach 34 months by 2030.

There are also concerning signs:

- Emissions from electricity generation increased by 46% between 2020 and 2022 and are now 442% higher than the conservatively projected target for 2030. This relates to the previously mentioned "maladaptation" of the Brazilian electrical matrix to climate change impacts;
- The growth in oil barrel production is on track to reach 76.6% by 2030, aiming for 5.3 million barrels/day compared to the current 3 million barrels/day. This target guiding the energy policy contrasts with the lack of progress in formulating an energy transition policy aligned with climate neutrality by 2050. Even though most are destined for export, this will significantly impact global greenhouse gas emissions;
- There has been a 26% increase in domestic gas consumption between 2020 and 2022, with an upward trend;
- Total energy supply emissions (excluding transportation) have remained stable since 2020, approximately 204% away from the projected target for 2030.

RECOMMENDATIONS FOR ACTION

To accelerate rapid transformations in these sectors, a significant increase in governmental action is necessary, especially since the Union has powers to regulate, contract, and direct incentives to economic agents. For instance, to align with the mitigation targets of the corrected 2023 Brazilian NDC, the government needs to:

- Reduce emissions by 480 million tons of CO₂e by 2025, equivalent to almost a South Africa;
- Reduce the current deforestation rate in the Amazon by 33.3% by 2025;
- Reduce the rate by 25% annually for the next five years to achieve zero deforestation in the Amazon by 2030;

- Reduce emissions by 600 million tons of CO₂e by 2030, equivalent to an Australia;

- Accelerate productivity gains in agriculture;

- Adapt the national interconnected system to prevent maladaptation measures from harming the sector's decarbonization;

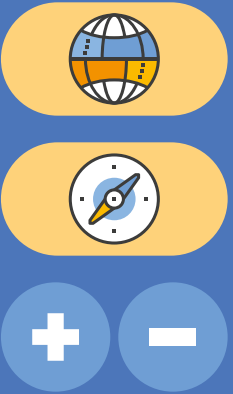
- Establish an energy transition schedule aligned with the climate neutrality goal, focusing on fossil fuels.

Our conclusion is that with the significant downward trend in deforestation (except in the Cerrado), the agriculture and energy sectors become the focal points of decarbonization. Although the goal of zero emissions by 2050 encompasses all economic sectors, these two will represent the most considerable mitigation effort.

As seen in previous chapters, the reality presented in 2023 shows a lack of preparedness in these sectors, where the formulation of new low-carbon instruments is slow, and there is a clear favoring of usual technological and economic trajectories.

Finally, indicators tell only part of the story: many other factors are at play that can support or accelerate advances in Brazil's decarbonization process. In our view, there was an "overflow" of climate policy in 2023: from the environment to the economy, from business to the financial system and capital markets, though progress is lacking in important policies such as infrastructure, education, and public health. This necessary spillover brings the challenge of coordinating efforts and directing them efficiently.

As shown on page 6, it's not just energy, agriculture, and land use policies at stake. Considering climate risks in economic policies, for example, is crucial for improving the business environment for decarbonization. Similarly, tangible advances in monetary policies mean that the financial system is moving towards greening, adopting standards favorable to the transition to zero emissions with impact across different sectors. We aim to consider and refine the use of indicators from these other sectors in future assessments.





Brazil's Climate Policy in Full 2023

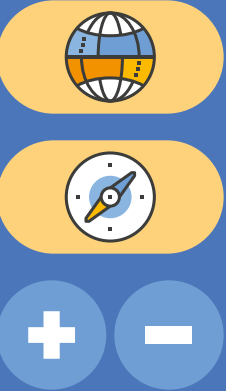
Progress and gaps in the country's climate policy agenda



BRAZIL'S CLIMATE POLICY IN FULL 2023 PROGRESS AND GAPS IN THE COUNTRY'S CLIMATE POLICY AGENDA

	INDICATOR	TARGET 2030*	How we are doing in relation to the goal		2020	TRAJECTORY	2021	2022
			PROXIMIDADE					
DEFORESTATION	Expansion of protected areas	293 Mha			276 Mha		276 Mha	279 Mha
	Effectiveness of Conservation Units (UCs)	100.0%			53.7%		54.3%	55.1%
	Environmental fines against flora	Year-on-year increase			3,261		3,941	4,888
	Deforestation in the Amazon (Prodes)	0 Mha			10,851 Mha		13,038 Mha	11,594 Mha
	Deforestation in the Cerrado (Prodes)	6,320 Mha			7,900 Mha		8,500 Mha	10,700 Mha
	Completed Rural Environmental Registries (CARs)	100.0%			0.4%		0.4%	0.6%
	Requests for adherence to the Environmental Regularization Program (PRA)	Year-on-year increase			55.0%		52.0%	51.0%
	Authorized budget for environmental enforcement	Year-on-year increase			0		R\$78,1 million	R\$136,3 million
	Net emissions from Land Use and Forestry sector	428 MtCO ₂ e a -29 MtCO ₂ e			1,000 MtCO ₂ e		1,118 MtCO ₂ e	--
EMISSIONS FROM DEFORESTATION		614 MtCO ₂ e a 165 MtCO ₂ e			980 MtCO ₂ e		1,114 MtCO ₂ e	--
AGRICULTURE	% of equalized investment interest of the Safra Plan for ABC	100.0%			6.7%		10.3%	18.7%
	Grain crop area	85,3 Mha			70.9 Mha		75.9 Mha	80.1 Mha
	Average grain productivity	4,44 t/ha			3.64 t/ha		3.61 t/ha	4.07 t/ha
	Pasture area	162 Mha			162.5 Mha		162.7 Mha	164.3 Mha
	Degraded pasture area	74 Mha			102.8 Mha		100.7 Mha	--
	Slaughter age of cattle	34 months			37 a 42 months		37 a 42 months	37 a 42 months
	Enteric fermentation emissions	401.6 Mt CO ₂ e			371.9 MtCO ₂ e		382,5 MtCO ₂ e	--
	Cattle herd	225 million			217 million		224 million	234 million
	Beef production (carcass equivalent)	13 mTon			10 mTon		9.7 mTon	10.7 mTon
EMISSIONS FROM AGRICULTURE		551 MtCO ₂ e			578.8 MtCO ₂ e		600.8 MtCO ₂ e	--
ENERGY	Production from coal-fired power plants	0 TWh			17,586 GWh		7,988 GWh	--
	Subsidies for contracting coal-fired power plants (CDE)	R\$0			R\$776 million		R\$928 million	--
	Evolution of biodiesel addition percentage in diesel	15%			--		--	--
	CBIO target	95,000,000			14,530,000		24,859,823	35,980,000
	Oil production	5.3 Mbarrel/day			2.9 Mbarrel/day		2.9 Mbarrel/day	3,0 Mbarrel/day
	Domestic gas consumption	172 Mm3/day			72.1 Mm3/day		76.0 Mm3/day	91.0 Mm3/day
	Internal supply of wind+solar energy	Year-on-year increase			2.3%		2.3%	2.9%
	Renewable energy participation in Internal Energy Supply (OIE)	55.0%			48.4%		44.7%	47.4%
	Emissions from electricity generation	14 MtCO ₂ e			52 MtCO ₂ e		61 MtCO ₂ e	76 MtCO ₂ e
EMISSIONS TOTAIS DA OFERTA DE ENERGIA (SEM TRANSPORTE)		70 MtCO ₂ e			218 MtCO ₂ e		219 MtCO ₂ e	213 MtCO ₂ e

Source: ANP, Aneel, Abiec, clima e Desenvolvimento, Conab, CNPE, DOU, EPE, IBGE, Ibama, ICMBio, Inpe, Lapig, MapBiomas, Siope, SFB, SEEG





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CONCLUSIONS AND RECOMMENDATIONS

THE BRAZIL'S CLIMATE POLICY IN FULL 2023 SHOWS A COUNTRY WITH A PECULIAR PROFILE OF STILL RISING EMISSIONS AT THE TIME OF RECONSTRUCTING ITS CLIMATE POLICY. THE CHALLENGES ARE ENORMOUS FOR BRAZIL NOT ONLY TO GET BACK ON TRACK WITH THE PARIS AGREEMENT BUT ALSO TO REGAIN ITS LEADING ROLE IN THE CLIMATE AGENDA. FOR SOME OF THESE CHALLENGES, SOLUTIONS ARE AT LEAST UNDERWAY, SUCH AS COMBATING DEFORESTATION, OUR MAIN SOURCE OF GREENHOUSE GAS EMISSIONS, ESPECIALLY IN THE AMAZON. IN THE AGRICULTURE AND ENERGY SECTORS, SOLUTIONS FACE CONTRADICTIONS IN A POLITICALLY POLARIZED COUNTRY. THE MAIN RECOMMENDATION OF THIS REPORT IS RELATED TO ONE OF THESE CONTRADICTIONS, IN THE EXPLORATION OF OIL.

As deforestation emissions fall, the federal government needs to deepen specific strategies for agriculture. An economically efficient effort to reduce emissions will benefit rural producers, promoting resilience and competitiveness of the agricultural sector in the international scene.

Both the IPCC in its latest report and the IEA and the summary for policymakers of the first Global Stocktake have warned that there is no room for expanding fossil fuel production through new oil exploration ventures. These are signs that pressure for the so-called “phase-out” of oil, which involves establishing a timetable for the gradual reduction and end of burning fossil fuels. This proposal has been emphatically defended by UN Secretary-General António Guterres.

Brazil produced an average of 4 million barrels of oil equivalent per month in oil and gas over the last 12 months until August 2023⁽⁴⁷⁾, an increase from the previous year. The country is the ninth-largest oil producer in the world⁽⁴⁸⁾, behind the United States, Saudi Arabia, Russia, Canada, Iraq, China, United Arab Emirates, and Iran. The Union's budget bill for 2024, which is in Congress, counts on revenue of R\$ 113.1 billion from oil resources⁽⁴⁹⁾, partly distributed in the form of royalties to states and municipalities.

(47) www.gov.br/anp/pt-br/centrais-de-conteudo/publicacoes/boletins-anp/boletins/boletim-mensal-da-producao-de-petroleo-e-gas-natural
(48) www.gov.br/anp/pt-br/centrais-de-conteudo/publicacoes/anuario-estatistico/arquivos-anuario-estatistico-2023/secao-1/secao-1.pdf
(49) www.gov.br/economia/pt-br/assuntos/planejamento-e-orcamento/orcamento/orcamentos-anuais/2023/ploa/Mensagem_Presidencial_2023.pdf

The weight of oil in the Brazilian economy, on the one hand, and the expectation that developing countries should have more time to stop producing oil, have been justifying the government's and Petrobras's resistance to limiting the exploration of new frontiers, such as the so-called Equatorial Margin, between the states of Amapá and Rio Grande do Norte, which involves the mouth of the Amazon River.

At an event held in October at BNDES, Petrobras president Jean Paul Prates announced that research in Amapá, still pending authorization from the Brazilian Institute of Environment and Renewable Natural Resources (Ibama), will begin in the first half of 2024.

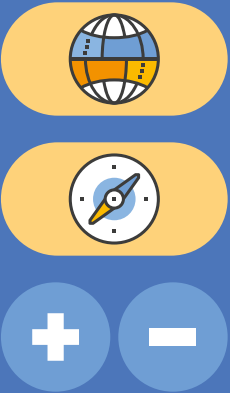
However, the fact that Brazil is already the fourth-largest emitter of greenhouse gases in history⁽⁵⁰⁾, considering deforestation emissions, does not justify the country being the last to continue exploring oil, as the president of Petrobras has already defended, and much less the non-engagement in a global “phase-out” proposal, with a schedule for the transition, defends the Talanoa Institute.

In Brazil, the so-called “just transition” has already guaranteed the survival of thermal coal energy generation, the most polluting of fossil fuels. A law sanctioned by former President Jair Bolsonaro in January 2022⁽⁵¹⁾ created the Just Energy Transition Program and guaranteed the purchase until 2040 of energy generated by the Jorge Lacerda Thermoelectric Complex in Santa Catarina, without cuts in emissions that elevated the small town of Capivari de Baixo to fifth place in the ranking of Brazilian municipalities that emit the most greenhouse gases in the energy sector, behind São Paulo, Manaus (AM), Rio de Janeiro, and Duque de Caxias (RJ)⁽⁵²⁾.

In the name of the so-called “just transition,” the pro-coal lobby is moving to replicate benefits to plants in Rio Grande do Sul and Paraná. For Talanoa, there is no way to talk about a just transition with prolonged survival of fossil fuels.

A second, more comprehensive recommendation of this report deals with the process of building the new NDC, which the country must present by March 2025, in the new round of national commitments foreseen in the Paris Agreement.

(50) www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/
(51) www.planalto.gov.br/ccivil_03/_ato2019-2022/2022/lei/l14299.htm
(52) <https://plataforma.seeg.eco.br/cities/statistics>





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Based on the preparatory reports for the Global Stocktake, the ambitions of countries must increase by 2030, in order to prevent global warming from exceeding 1.5°C, which could happen this decade. Brazil has just corrected its NDC, resuming the ambition of 2015. And, even without having defined a clear route to achieve these objectives, it should already pave the way for the construction of a new NDC not only more ambitious but more participative.

The Talanoa Institute argues that the next NDC should indicate targets aligned with a long-term strategy to zero net emissions by 2050.

The third and final recommendation of this report concerns the governance of the climate agenda in Brazil. After announcing the intention to resume a leading role in global climate negotiations, the federal government expressed the transversality of this agenda through the dissemination of the theme by almost two dozen ministries, but has not yet ensured agile coordination of the process that will define a clear decarbonization strategy. The transversality has been exercised through the announcement of initiatives that still do not converse with a clear mitigation strategy.

On June 5, 2023, a presidential decree established the Inter-ministerial Committee on Climate Change (CIM)⁽⁵³⁾ as the highest body of articulation of the climate agenda. Composed of 18 state ministers, the committee is chaired by the Civil House of the Presidency and has the executive secretariat exercised by the National Secretariat for Climate Change of the Ministry of the Environment and Climate Change.

The first meeting of the CIM was held only on September 14. The resolutions that corrected the commitment in the Climate Convention and established deadlines for the working groups that will develop both national strategies and sectoral plans for mitigation and adaptation were only published in the Official Gazette more than 40 days later, a sign that the coordination of the climate agenda is not a priority for the entire government.

At a time when climate policy is being rebuilt and Brazil does not yet have a clear strategy to achieve carbon neutrality, the lack of agile coordination poses a huge obstacle on Brazil's path to COP 30 in Belém.

(53) www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/decreto/D11550.htm

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