

# CLIMATE AND DEVELOPMENT: VISIONS FOR BRAZIL 2030

EXECUTIVE SUMMARY

INITIATIVE

VISÕES PARA O BRASIL 2030



CLIMA E  
DESENVOLVIMENTO

# 1. THE INITIATIVE

The initiative Climate and Development: Visions for Brazil 2030 involved approximately 300 experts and leaders from subnational governments, parliament, civil society organizations, communities, companies, investment funds, coalitions and private associations in consultations held virtually between July and October 2021.

These actors were consulted about how to increase the Brazilian climate ambition, in line with the Paris Agreement in view of the climate emergency, recognizing that a stable and secure climate is an indispensable requirement for the sustainable development of our country.

The participants sought to identify, discuss and propose key opportunities and challenges for the transition from the current development model of Brazil to a new, net zero emissions one, through the exercise of building desired scenarios, in the light of national interests and common responsibilities to combat climate change.

The process was conducted by the Climate Center of COPPE-UFRJ and the Talanoa Institute, which led the technical and the high-level political consultations, respectively.

This work was supported by the Institute for Climate and Society (iCS) and by a significant group of organizations, networks and coalitions.

It was possible to establish a respectful and broad dialogue between the different actors and visions and about the difficult themes, demonstrating that strengthening the dialogue and democracy is a fundamental part of the response to the climate crisis in Brazil.

From the energy poverty that today affects millions of people - many of them deprived of access to energy for cooking - to the legacy of the precarious sanitation in the peripheries, and even macroeconomic issues, the participants illustrated what the low carbon development trajectories mean, in practice, from the micro level to the macro level, in accordance with their realities.

From this, the initiative outlined a development strategy that is compatible with the trajectory of GHG emissions up to 2030, which

leads to the neutrality of GHG emissions in 2050 (LTS – long-term strategy, which is a commitment to the central objective of the Paris Agreement). As a background, there were the generation of jobs, the reduction of inequalities and the improvement in the quality of life of Brazilians.

This is a crucial step to inform the short- and medium-term decision-making of the public and private actors, not only regarding Brazilian climate policy (new NDCs and the LTS), but also the decisions of a social, economic and sectoral nature.

Even so, it is a first step. It is our wish that these scenarios are communicated to whoever else suffers from the problem of climate change, in a language that is close to their realities, and is discussed in more areas and with more social groups. We will continue seeking to address the specific solutions that intertwine emissions, energy poverty, sanitation, culture, public safety, racism and so forth.

## **2. THE CONTEXT**

The decade of 2021-2030 converges toward a profound and rapid transformation of our civilization. The question does not appear to be whether we can achieve a decarbonized global economy but how quickly this transformation can take place - and whether it will be sufficiently fast and inclusive, in order to guarantee that humanity remains at safe levels of global warming.

The adoption of the Paris Agreement already stimulated a change of expectations and there has been an exponential growth in technologies such as batteries for electric vehicles and solar and wind energy. As a consequence, intensive technologies in carbon emissions have been losing space in the market while the opportunities of solutions for decarbonization are becoming clearer, and more aggressive policies and incentives to accelerate decarbonization are becoming necessary. In this regard, both the "financing of the transition to low carbon" and the "transition of the finances" to a system aligned with the Paris Agreement are underway.

Brazil possesses extraordinary conditions to compete in this new paradigm, with a potential to exercise leadership in various sectors. However, for this, it needs a change of course in the future without considering itself automatically qualified due to past choices and correcting the current scenario of the growth of emissions.

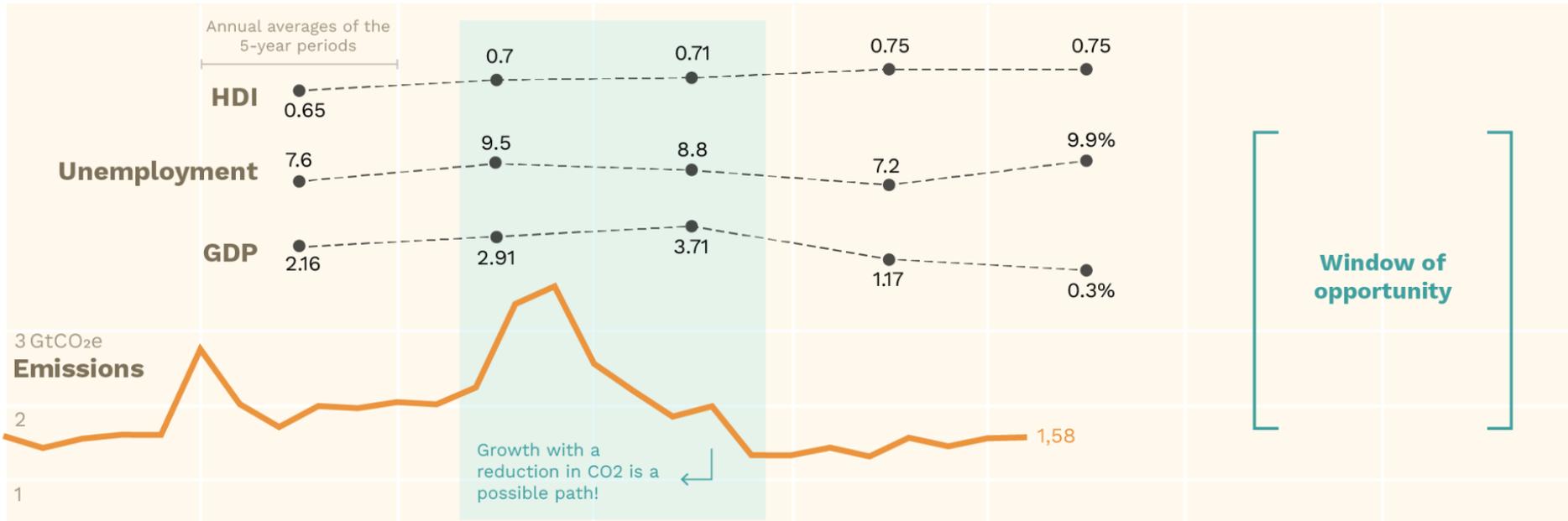
The process of technical and political consultations provided evidence that it is not necessary to choose between development and decarbonization: these paths are complementary and carrying out the transition does imply sacrifices for our economy. More than this, it is desirable that Brazil makes the transition to low carbon as soon as possible, in order to qualify its development and become more competitive in the global climate race.

Many Brazilian actors are ready to accelerate development with low emissions as a way to increase prosperity in Brazil. A vibrant ecosystem of Brazilian actors is committed to net zero goals – at the latest – by 2050. Up to October 2021, these actors had covered more than 58% of the national emissions. They want to capture the opportunities of the global economy of low emissions, while at the same time wanting our industries to strengthen and our communities and cities to become more prosperous, safer and cleaner.

It is necessary here and now to have the same courage that we have demonstrated in the past (see the Timeline below) to take significant decisions and to believe in the capacity for innovation of Brazilian society, with a focus on energy decarbonization, the eradication of deforestation and caring for people.

We have the responsibility and the opportunity to create jobs, to end the loss of forests, to eliminate incentives for land grabbing and to invest in cheap and clean energy that is accessible to all Brazilians. The path of climate justice is non-negotiable and we cannot lose this moment.

# TIMELINE



Source: World Bank and 4th National Inventory (MCTI)

1990	1995	2000	2005	2010	2015	2020 — 2030
<p><b>1990:</b> First data of the deforestation of the Amazon</p> <p>First IPCC report</p> <p><b>1992:</b> <b>Rio-92 (UNFCCC; CBD)</b></p> <p>Creation of MMA</p> <p>←</p> <p><b>1973:</b> Creation of EMBRAPA</p> <p><b>1975:</b> Pro-alcohol</p> <p><b>1988:</b> INPE - Prodes Federal Constitution</p> <p>Creation of IPCC</p> <p><b>1989:</b> Creation of IBAMA</p>	<p><b>1997:</b> <b>Kyoto Protocol</b></p>	<p><b>2000:</b> SNUC - National System of Conservation Units</p> <p><b>2001:</b> <b>Blackout</b></p> <p>Statute of the City</p> <p><b>2002:</b> ARPA - Protected Areas of the Amazon</p> <p><b>2003:</b> Family Allowance</p> <p>Start of the manufacture of flex cars</p> <p><b>2004:</b> Launch of the PPCDAM</p>	<p><b>2005:</b> Soya Moratorium</p> <p><b>2006:</b> Law of Atlantic Forest</p> <p>Law of Management of Public Forests</p> <p><b>Discovery of Pre-salt</b></p> <p><b>2007:</b> PAC 1</p> <p>Creation of the ICMBio</p> <p><b>2008:</b> Operation Boipirata</p> <p><b>2009:</b> <b>PNMC (National Policy on Climate Change)</b></p> <p><b>Reduction of the IPI tax for cars</b></p> <p>Meat Moratorium</p> <p>Legal Land Program</p> <p>My House My Life Program</p>	<p><b>2010:</b> National Policy of Solid Waste</p> <p>Aichi Targets (biodiversity)</p> <p>Program of Low Carbon Agriculture</p> <p>Start of PPCERRADO</p> <p><b>2011:</b> Belo Monte</p> <p>PAC 2</p> <p>Green Grant Program</p> <p><b>2012:</b> <b>Government zeroes the IPI tax for cars</b></p> <p>Forest Code + CAR</p> <p>National Policy of Urban Mobility</p> <p>MPV 592/2012</p> <p><b>2013:</b> Brazil 2040</p> <p><b>2014:</b> PMR Brazil Project</p>	<p><b>2015:</b> <b>Paris Agreement</b></p> <p><b>NDC</b></p> <p><b>2016:</b> <b>National Policy of Adaptation - PNA</b></p> <p><b>2017:</b> Initial Proposal for Implementation of the Brazilian NDC - FBMC</p> <p><b>2018:</b> End of the PPCDAM</p> <p><b>2019:</b> Produce, Conserve and Include (PCI) Strategy in Mato Grosso State</p>	<p><b>2020:</b> <b>New NDC</b></p> <p><b>2021:</b> <b>COP26</b></p> <div style="background-color: black; color: white; padding: 10px; text-align: center;"> <p>What will be the focus in this decade?</p> </div> <p>KEY OF THE EVENTS/DECISIONS</p> <ul style="list-style-type: none"> <li>● directly linked to the climate agenda</li> <li>● contributed to the increase of emissions</li> </ul>

# 3. THE SCENARIOS AND THE PATHWAYS TO BRAZIL 2030

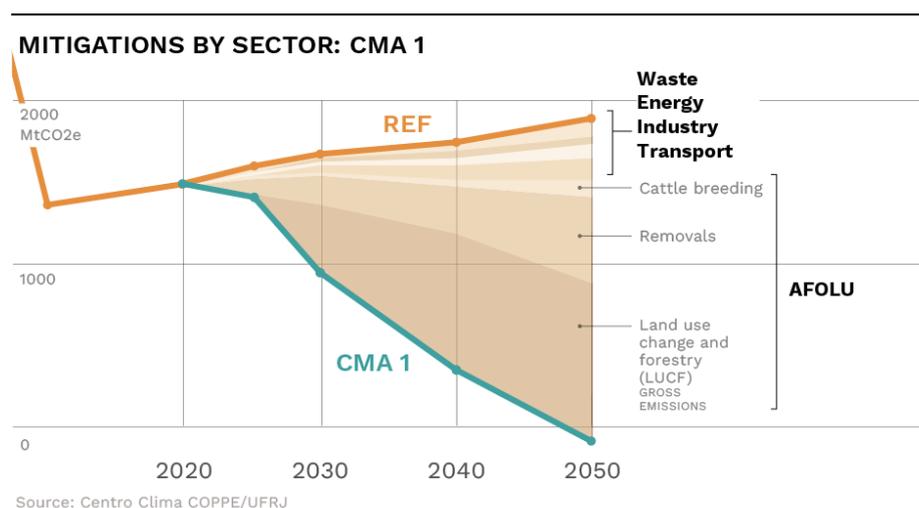
With the intention of contributing to an increase in the ambition of the Brazilian mitigation, in view of the climate emergency, we developed 3 scenarios of GHG emission in Brazil up to 2030.

The Scenario of Reference (REF) does not consider additional measures of mitigation and reaches 1.7 Gt CO<sub>2</sub>eq emitted in 2030, above the commitment made in the NDC (1.6 Gt CO<sub>2</sub>eq). In contrast, the two scenarios of ambition (CMA - scenarios of additional mitigation, CMA1 and CMA2) are well below this limit, reaching, respectively, 0.96 Gt CO<sub>2</sub>eq and 0.50 Gt CO<sub>2</sub>eq in 2030.

- Scenario of **Economic Recovery** (REF)
  - Increase of annual deforestation up to 2023, slight fall from 2023 to 2025, and stability by 2030
  - Continuation of the ABC Plan, Renovabio and current mitigation programs, at the current pace;
  - No explicit carbon pricing or new climate policies up to 2030.
- Scenario of **Recovery and Fair Transition** (CMA1)
  - Combines 66% reduction of emissions in 2030, in relation to 2005, with economic growth, jobs and income
  - Compatible with zero net emissions in 2050;
  - 2/3 of the effort of the reductions of GHG emissions in this decade come from changes in land use and forestry, because they have the greatest potential for mitigation with a low cost for the reduction of GHG emissions
  - In 2030, the emissions related to changes in land use decrease 40% in relation to the reference, of which 99% comes from the reduction of deforestation. Furthermore, the carbon removals rise by 30%, mainly

due to the increase in the protected areas (indigenous lands and conservation units).

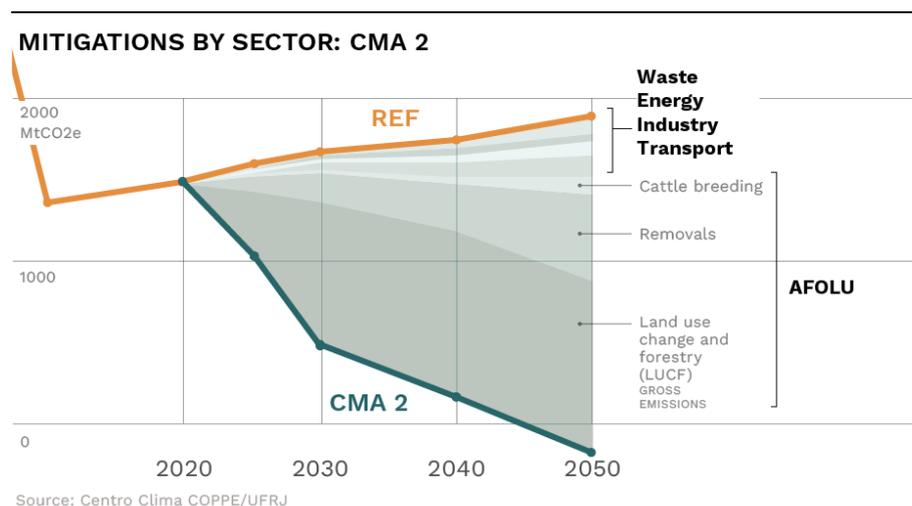
- The remainder (1/3 of the effort) via carbon pricing, from part of the GHG emissions:
  - Grows linearly from 2021, until reaching 9.5 US\$/tCO<sub>2</sub>e in 2025 and 19 US\$/tCO<sub>2</sub>e in 2030;
  - Neutral from a tax point of view; 100% of the revenues used in the reduction of labor charges and compensation for the loss of the purchasing power of the poorest families;
- Cheaper measures for the reduction of sectoral emissions enter first;
- It stimulates not only mitigation actions, but also the care and protection policies for the traditional peoples and populations who are responsible for the management of the territories and the measures of transition and energy security for the peripheral communities and others.



- Scenario of **Recovery**, with a **Fair Transition** and an annual rate of **Zero Deforestation** in the Amazon and Atlantic Forest (CMA 2)
  - Combines 82% reduction of emissions up to 2030;
  - Compatible with net zero emissions in 2050;
  - Most of the reductions of GHG emissions come from changes in land use and forestry, because they have the greatest potential for mitigation with a low cost for the reduction of GHG emissions: > 2/3 of the effort in this decade
  - In 2030, the emissions related to change of land use will reduce 84% of the CO<sub>2</sub>e emissions in relation

to the reference, of which 99% are from the reduction of deforestation. Furthermore, the carbon removals increase by 30%, thanks mainly to the increase in the protected areas (indigenous lands and conservation units);

- Annual rates of deforestation in 2030 are reduced to zero in the Amazon and Atlantic Forest biomes and decrease moderately in the other biomes;
- Identical to the Scenario of Fair Transition in the other parameters, measures and instruments (pricing, etc).



**Reduction of emissions at negative costs.** The optimization and diversification of the modes of cargo transport, qualification of public transport by bus and electric mobility (buses and electric trucks in the main metropolises), the use of ethanol in passenger transport, various energy efficiency measures in industry and practices of sustainable agriculture (no-till system and biological nitrogen fixation) have negative implementation costs, once a small carbon pricing is inserted, on the horizon for 2030.

The portfolio of identified mitigation actions has a decline in the marginal returns of abatement of emissions after the price of 15.2 USD/t CO<sub>2</sub>eq, which enables 89% of all the identified potential. This is mainly due to the basic hypothesis of only relying on the abatement technologies that are currently available. This illustrates the mitigation potential that is ready to be exploited at low cost in Brazil, even before the implementation of new disruptive technologies that may come to be adopted on a larger scale and in the longer term.

It is worth mentioning that the additional investment (CAPEX) in mitigation actions in CMA 1 and 2 (in comparison to REF) is BRL

92.2 billion accumulated in 2030, which is a very reasonable amount for the size of the economy and the available financial means (explored in section 4 below).

**Deforestation.** The Amazon is heading towards a point of no return in which the forest will lose its capability of regeneration and carbon sequestration. This risk and the losses associated with deforestation, including commerce and investment, in addition to the quality of life of the affected population, raise the issue to the highest level of priority in this decade.

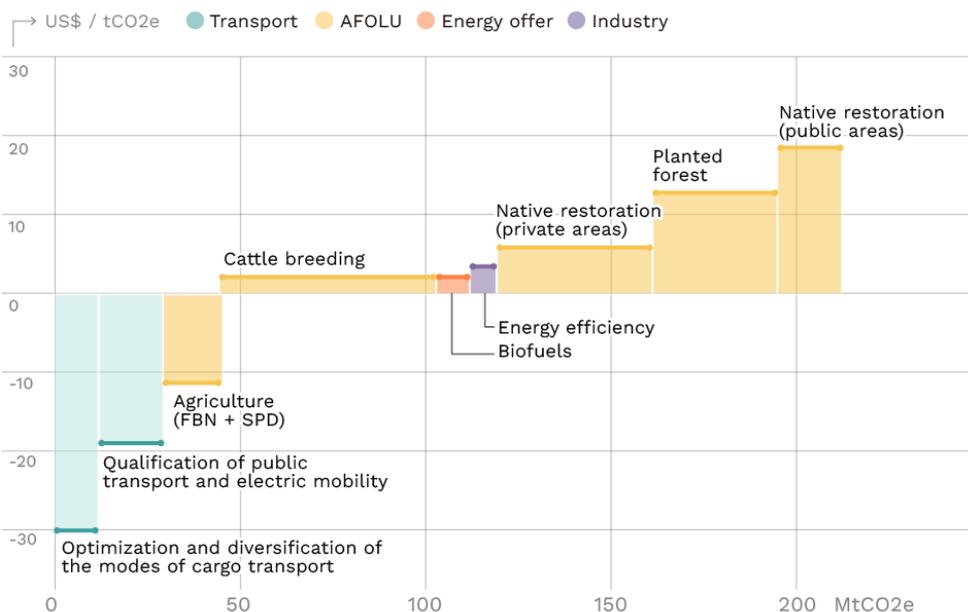
We consider that the end of illegal deforestation cannot be restricted to future time periods, such as goals of "zero illegal deforestation": the stance of "zero tolerance" should be immediately adopted in relation to the problem (Climate Coalition, Agriculture and Forestry, 2020). The premises of the scenarios consider that, in 2023, when, unfortunately, the deforested areas will reach a level that is 15% higher than in 2019, the efforts to prevent and control deforestation will be firmly resumed. CMA1 considers a 41% reduction of the deforested area in all the biomes in 2030, in comparison to 2023. In CMA2, the Amazon and Atlantic Forest biomes achieve zero deforestation in 2030 and the other biomes reduce by 20%, relative to 2023, heading towards zero deforestation in all the biomes.

**Forest restoration.** The focus on an economy of the restoration of forests is a measure that is aligned with existing commitments, such as the Bonn Challenge and the National Plan for the Recovery of Native Vegetation (Planaveg). The CMA1 and CMA2 scenarios point to the effort to generate 4.8 Mha of additional restored forests.

**Carbon pricing.** The carbon pricing policy provides the complementary mitigation actions that are required in other sectors other than land use and forests in order to enable the scenarios of ambition proposed up to 2030. The path illustrated by the CMA1 and CMA2 scenarios to place the country on course to net zero emissions can be achieved with a carbon price of 19 USD/t CO<sub>2</sub>eq. The modeling indicates that higher carbon values would bring a small marginal benefit.

## MARGINAL ABATEMENT COST

2021-2030. Carbon Tax = 19 US\$/tCO<sub>2</sub>e



Source: Centro Clima COPPE/UFRJ

**Strategy for the benefit of society.** The revenue obtained from the carbon pricing is distributed back to the economy, maintaining the evolution of the net capacity of financing of the government identical in the scenarios, under the following rules: i) part of the carbon revenues are transferred back from the government to the families to neutralize the effect of the carbon price on the purchasing power; ii) the rest of the carbon revenues are used to reduce labor charges. This last factor reduces the distortions in the economy and is fundamental for the creation of 150,000 additional jobs in the most ambitious scenarios. These jobs are created mainly in the sectors of services, transport, forests and biofuels.

**Social and economic results.** The highest levels of employment and salaries in the most ambitious scenarios improve the income distribution. The positive impact on the income levels of families is particularly important in Classes 1 and 2 (60% of the base), which depend more on income from work. The families that belong to Class 1 (20% of the poorest families, most of which were below the extreme poverty line in 2015, which was the base-year) benefit even more from the ambitious scenarios due to the direct transfers of the carbon revenues collected by the government.

## MACROECONOMIC INDICATORS

	2015	2020	SCENARIO REF			CMA 1 / CMA 2		
			2025	2030	2050	2025	2030	2050
 Population in millions, IBGE estimate	203	212	219	225	233	219	225	233
 GDP R\$ trillions, 2020	7.4	7.2	8.3	9.3	13.9	8.3	9.3	13.9
GDP in the CMA variation in relation to the REF	-	-	-	-	-	0.04%	0.30%	0.10%
GDP per capita R\$ thousands, 2020	36.4	34.2	37.7	41.4	59.5	37.8	41.6	59.6
Trade balance % of the GDP	-0.4%	-1.0%	-0.2%	-0.4%	-0.2%	-0.2%	-0.5%	-0.9%
Rate of unemployment %	9.5%	7.6%	7.2%	6.9%	7.4%	7.2%	6.8%	7.2%
Index of prices of the CMA in relation to the REF (REF=1)	-	-	-	-	-	1.00	1.01	1.04
Jobs millions	102	108	111	113	108	111	113	108
 Net emissions MtCO <sub>2e</sub>	-	1,488	1,598	1,665	1,889	1,448	1,005	17
Carbon price US\$/tCO <sub>2e</sub>	-	-	-	-	-	9.5	19.0	19.3
Carbon revenues pricing in R\$ billions, 2020	-	-	-	-	-	7.6	16.0	43.0
Emissions per capita tCO <sub>2e</sub> /cap	7.5	7.0	7.3	7.4	8.1	6.6	4.5	0.1
Emissions per GDP intensity, in kgCO <sub>2e</sub> /R\$	0.20	0.21	0.19	0.18	0.14	0.18	0.11	0.00

Therefore, these ambitious scenarios allow for the significant reduction of emissions in 2030 and place Brazil on course to neutralize GHG emissions in 2050, at the same time that an intelligent recycling of the carbon pricing revenues, combined with strategic investments and public policies, can mitigate racial, social and gender inequalities. Compensating vulnerable families by the increase of prices through green checks and promoting employment through the reduction of labor taxes are the main enablers to maximize the synergy between the social, climate and tax policies.

In addition to the above points, it is important to emphasize that the modeling of the scenarios have restrictions in relation to the inclusion of qualitative aspects that arose in the consultations of the political committee. These contributions (for example, related to the recognition and protection of quilombola lands and the protection of mangrove areas, among others) were then considered qualitatively as part of the ambition of the proposed scenarios.

## 4. THE CALL TO ALL: FROM AMBITION TO ACTION

We recommend 2 scenarios of ambition: a recovery and a fair transition to climate neutrality, with 66% fewer emissions than in

2005, and another of recovery, fair transition and the end of deforestation with 82% fewer emissions than in the same base-year.

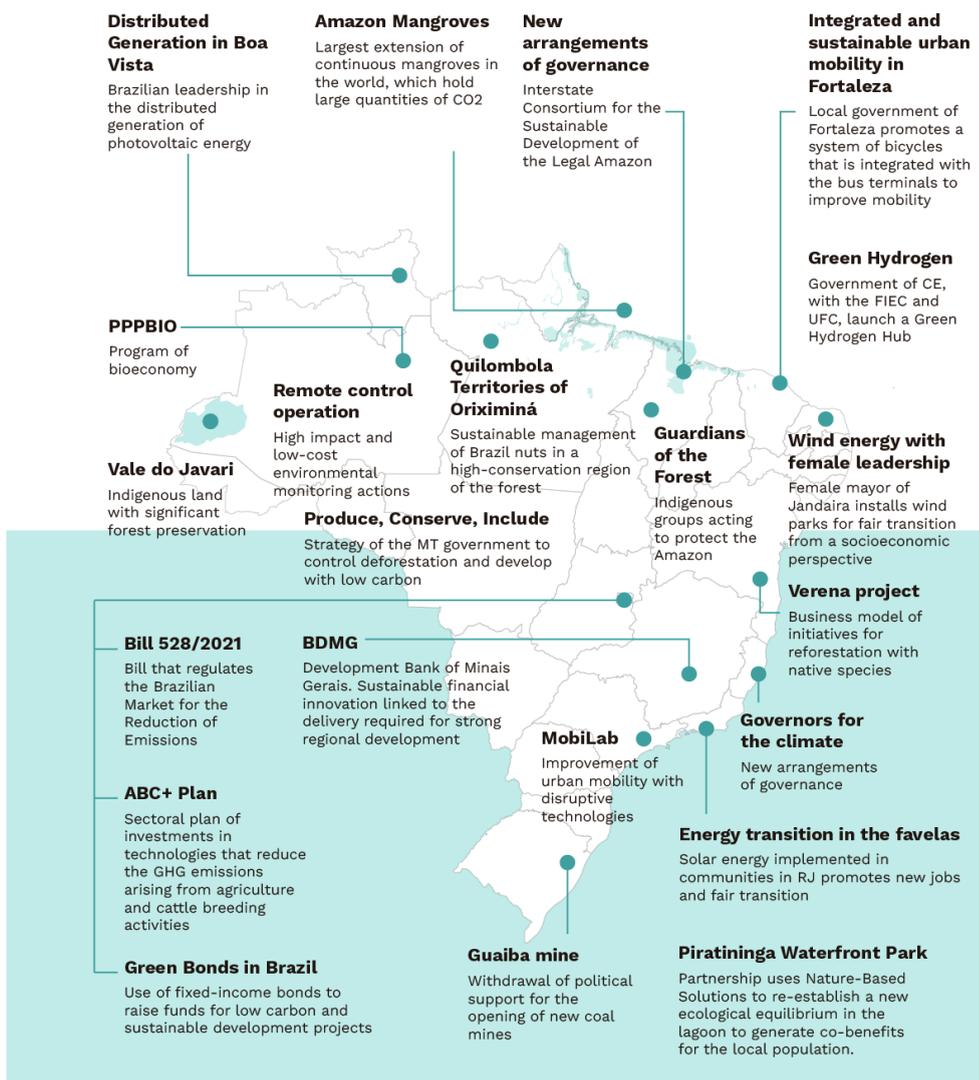
They are **progressive levels** of national contribution for the reduction of emissions, anchored in an agenda of choices and critical focusing to break away from the current inertia and to reposition Brazil in a leading role in the race for decarbonization, still in this decade, while at the same time resuming economic development, generating jobs, reducing inequalities and improving the quality of life of the population.

These scenarios serve as **practical references (benchmarks)** for a wide range of actors to ambitiously align themselves with the Paris Agreement. For example, subnational governments and private actors can formulate or revise their intermediate goals of transition towards net zero considering the scenarios proposed herein. Similarly, investors and entrepreneurs can take the indications of the scenarios and proposed paths to take advantage of the business and investment opportunities in markets that tend to "heat up."

Achieving these scenarios will depend fundamentally on the **mobilization of Brazilian society** and the building of social and institutional capabilities to advance our definitive and inclusive transition to low carbon, in all the sectors and regions.

We strongly recommend **considering what has already been done** in Brazil as a starting point. On the map below, we present cases that can serve as inspiration for the realignment of visions of development for the country, in addition to the scaling of activities and similar actions.

## Map of cases



In order to enable the most ambitious scenarios, it is necessary to unlock climate finance in the country: both from the point of view of carrying out the **transition from the financial system to a low carbon system**, and to **finance the transition** proposed herein. The creation of a carbon pricing instrument is a necessary condition (however, it is not sufficient on its own, given the profile of emissions of the country).

A menu of **measures and policies** is suggested, such as:

- Increase the transparency of the tax subsidies and incentives granted in the country, especially for carbon intensive activities;
- Eliminate the incentives to invade public lands and promote their complete removal by 2030;
- Discourage the expansion of speculative agricultural frontiers;

- Protection and investments in indigenous lands, quilombola territories and other sustainable territorial arrangements;
- Promote low carbon agriculture as a criterion for public investment and expand it toward achieving 100% under the public rural credit scheme (Safra Plan);
- Command-and-control policies combined with the restriction of the access to public credits of farmers and cattle breeders who do not comply with the Forest Code;
- Create training programs for the workforce to operate in the low carbon economy, especially in the peripheral regions;
- Creation of a taxonomy of sustainable finances, by means of federal law, aligned with taxonomies that are internationally accepted and used;
- Grant of incentives destined to improve collective transport, using the recovery of public transport as a central area of urban decarbonization;
- Public infrastructure programs (existing and future) to be aligned with the scenarios proposed herein, becoming instruments of transition through projects and technologies of low emissions and the adoption of carbon shadow pricing;
- Achieve at least 2% of the GDP in actions to combat climate change, including public budgeting;
- Unlocking of climate funds, including the R\$ 3 billion from the Amazon Fund at BNDES;
- Stimulate technological innovation and research and development (R&D) for low carbon technologies, as well as provide scale and/or repeat successful cases in different areas and segments.

The complete list of suggestions for instruments and also the proposed means of implementation for specific actors, prepared from the listening process and supported by evidence of effectiveness, [is available here](#).

## CREDITS

This document seeks to reflect the valuable contribution of several high-level experts and leaders, to whom we express our gratitude for having dedicated their time to this process.

The list of participants, supporters and collaborators is included in the complete document. It can be accessed [here](#). Participation in the consultations does not constitute an endorsement of the recommendations.

This summary was jointly developed by teams from the Climate Center of COPPE-UFRJ and the Talanoa Institute.

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## INITIATIVE

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