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BIDeconomics

Landscape of opportunities

BRAZIL

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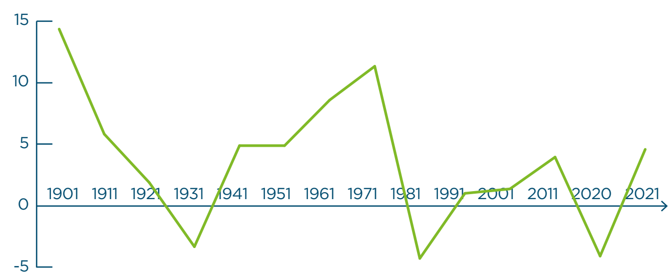
Brazil in numbers

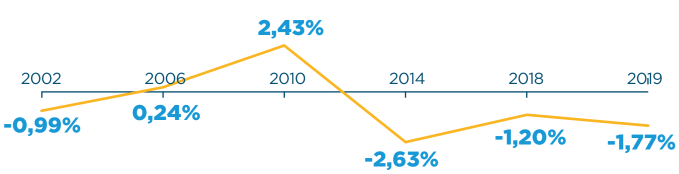
Economic growth has been long-term decaying and volatile

GDP real growth (%) in 120 years



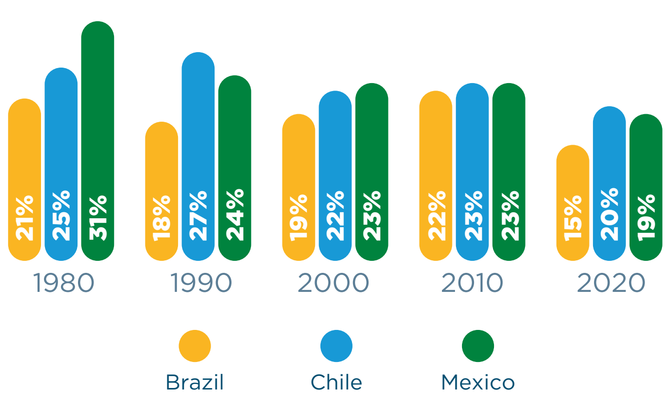
Source: Ipeadata

Productivity did not take off in two decades
The evolution of total factor productivity in Brazil



Source: FGV and Penn World Table

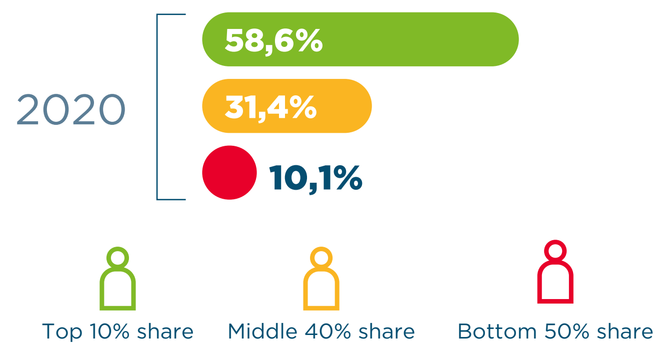
And investment has been low for more than 40 years
The evolution of the Investment-to-GDP Ratio



At the same time, social progress remains insufficient

Households in the top 10% of the income distribution received 58.6% of all pretax income, while those in the bottom 50% received just 10% during 2020

Distribution of income in Brazil, 2020



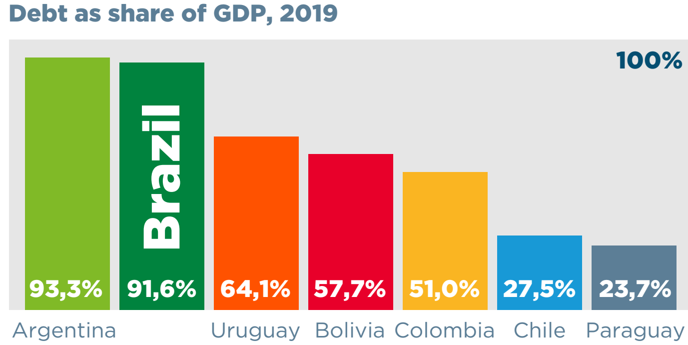
Source: World Inequality

62,5
million Brazilians lived under the poverty line in 2021

Source : IBGE

With levels of public debt that risk macroeconomic stability

Debt as share of GDP, 2019



Source: WEO-IMF

INTRODUCTION

A new way into lasting, sustainable and inclusive growth in Brazil

Brazil is faced with numerous challenges that have historically stalled the possibility of securing continuous sustainable growth and prosperity for all Brazilians. Based on its strengths and the progress achieved in different areas, **Brazil has the chance to start paving the way into a new reality where economic growth and highly efficient public policies are able to support the advancement of critical social indicators and ensure a more inclusive and greener society.**

Growth on its own, -as proven throughout Brazil's recent history- without a strong fiscal framework and ambitious social programs, is not capable of curbing structural inequalities and increasing inclusion. Therefore, the country stands before a unique window of opportunity to break free from this endless cycle and transform realities for the people in the country.

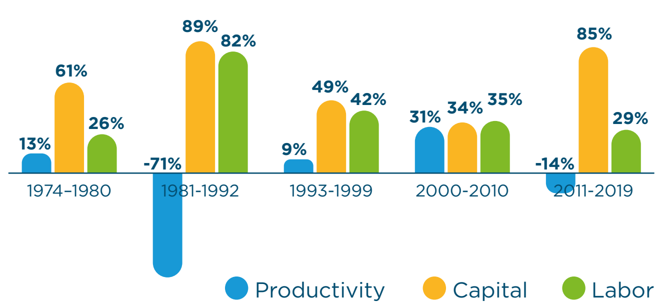
Brazil's recent history has been defined by two structural challenges: unsteady economic growth and high levels of poverty and inequality. **In recent decades, the country has seen itself somehow stuck in pattern: sharp declines in economic activity followed by pale recoveries** that set back progress in equality, inclusion and poverty indicators.

For example, the deep recession between 2014 and 2016 impacted economic activity and recent advances in social indicators. Then, from 2017 to 2019, GDP growth, at an annual average rate of about 1%, fell short in helping the country recover from the losses after the recession. The Gini coefficient fell from 0.545 in 2018 to 0.543 in 2019, approaching but not reaching its historical low of 0.524 in 2015.

This dynamic in Brazil's economy responds to a set of factors that range from low levels of productivity across all sectors of the economy -aggregate productivity indicators have behaved weakly in the past decades-; to chronic fiscal and public debt imbalances and ineffective public policies, aggravated by measures required during the COVID-19 pandemic, that have undermined macroeconomic stability.

GDP growth in the country has relied heavily on capital and labor and very timidly on productivity and competitiveness. Productivity growth rates in Brazil's three major sectors have been substantially uneven. Between 1995 and 2021, the service sector's average productivity growth rate has been at 0.4% per year; agricultural productivity grew rapidly by an average of 5.6% per year, but productivity in the manufacturing sector declined by an average of 0.2% per year.

Gains in productivity have not been the main engine of economic growth
Growth Accounting: 1974 – 2019



Source: Bonelli and Bacha (2011) and Velloso et. al. (2020)

At the same time, the Brazilian economy -beyond agriculture and mining- is not able to compete abroad. Brazil is in the 59th place out of 62 countries in the World Competitiveness Ranking 2022, three positions below from 2020. Additionally, its business environment poses serious challenges for companies to expand: according to the WEF Global Competitiveness Index published in 2019, Brazil ranked last -out of 141 countries- in terms of the burden of government regulation.

Simultaneously, **Brazil has experienced deep levels of poverty and inequality. By 2019 the poverty rate was 24.7%, meaning that 51.7 million Brazilians were living on less than R$436 (US$ 80.00) per month prior to the pandemic; the extreme poverty rate was 6.5%, implying that 13.69 million people were living on less than R$151 per month**[1].

Income inequality is also high. In 2020, households in the top 10% of the income distribution received 58.6% of all pretax income, while those in the bottom 50% received just 10%[2]. At the same time, gender and racial disparities stand out. In 2019, the average wage among employed Brazilians of European descent (brancos) was 73.4% higher than the average for pretos and pardos[3] while men of all ethnicities earned 29.6% more than women.

The World Economic Forum's 2021 global gender report found that Brazilian women were underrepresented in politics, received lower pay, suffered more harassment, and were more vulnerable to unemployment than men.

All of these structural challenges have been heightened by the COVID -19 pandemic, **creating an opportunity to put forward a comprehensive and simultaneous set of policies to secure medium-term growth** and break the recurrent pattern that has stalled Brazil's sustainable and inclusive development.

This document contains actionable recommendations intended for creating a new growth model based on four strategic pillars: **(i) Promoting an efficient and resilient economy; (ii) Adopting a new social agenda (iii) Fostering innovation; and (iv) Unleashing a greener economy.**

1 Brazilian Institute of Geography and Statistics Instituto Brasileiro de Geografia e Estatística, IBGE.

2 World Inequality Database 2020.

3 These terms are used by the IBGE, which disaggregates economic data across five racial categories: pretos, pardos, brancos, amarelos (people of East Asian descent), and indígenas (people of Amerindian descent). The term "pardo" primarily refers to people of mixed ethnic heritage, but it may also encompass certain Asian and Amerindian communities.

PROMOTING AN EFFICIENT AND RESILIENT ECONOMY
A Brazilian economy more closely integrated with international markets, featuring better infrastructure and a stronger private sector, will boost growth and productivity while contributing to reductions in poverty and inequalities.

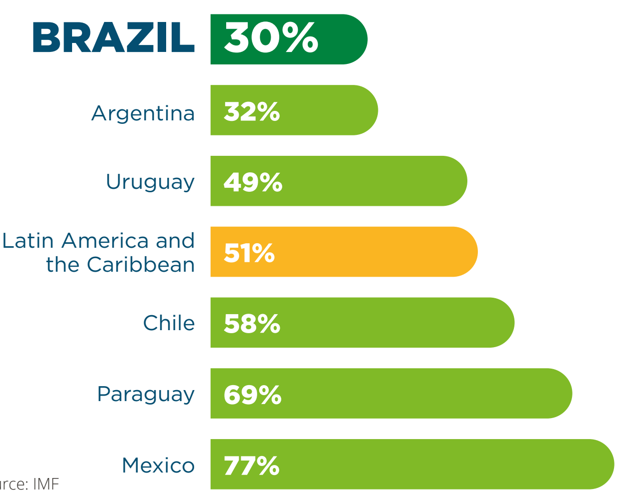
Brazil now has the opportunity to pursue a more ambitious strategy for **supporting international and regional integration and business growth,** far beyond the steps taken until today, by accelerating regional integration; making progress on trade policy agenda; strengthening investment, logistics and export promotion activities. Ensuring deeper integration becomes a powerful tool for growth that reduces production costs, consumer prices and increases social welfare.

At the same time, **boosting investments in infrastructure** is critical for an integrated economy and to spark productivity and growth: by investing, anually, 2% of GDP in transportation infrastructure, Brazil can increase its GDP by 27% in 10 years.

Building a National Public Investment System and developing Private-Public Partnerships (PPPs) could prove to be key steps to accelerate changes in this front. The first would enable centralized project evaluation, clear criteria for project selection and the integration of cost-benefit analysis into the investment cycle. PPPs, on the other hand, are an effective way to engage the private sector in the country's development while making Brazilian infrastructure investment and social policies more transparent and efficient. It is likely that in 2023[4], Brazil could grant 141 assets to the private sector, mobilizing almost R$245 billion (US50 billion) in new disbursements focused on infrastructure.

A **stronger fiscal framework**, set in motion by effective policies, is essential to ensure a resilient and efficient economy in Brazil, as well. Fiscal reforms will have to play a key role in lessening the impact of the pandemic on fiscal accounts and offering better social protection while maintaining macro and socio-economic stability—a necessary condition for more buoyant growth.

Brazil is not as integrated internationally as other economies in the Region.
Trade as a share of GDP (%)



Source: IMF

Traditional trade barriers are high.
Brazil has an average applied most-favored nation (MFN) tariff rate of
13.3%
the third-highest in Latin America

Source: UNCTAD (2021)

4 PPI, 2022.

ADOPTING A NEW SOCIAL AGENDA

The COVID 19 pandemic amplified deep-rooted inequities in Brazil, affecting the lives of the most vulnerable population. If not addressed in a systemic and timely manner, this situation will have a negative impact on the country's long-term growth and social cohesion.

Now, as the worst of the pandemic is behind, Brazil has the chance to move towards more efficient policies that help people achieve a good standard of living. **Hence, rethinking and rebuilding the social agenda presents itself as a core task when seeking to guarantee better and long-lasting social outcomes.**

This will require a deliberate effort in creating **public policies focused on reducing poverty and inequalities** while improving the quality of social expenditure in education and health. Efforts around promoting universal access to high-quality preschool education; enhancing student and teacher's performance; addressing the educational needs of minority groups; and reinforcing socio-emotional skills would be a step forward in building a more equal and inclusive society.

It also becomes of the utmost importance to advance in **building strong social protection and labor** system where people have the right skills to secure good jobs, feel protected against any job security risks, feel productive and invest in their health and education, while simultaneously supporting the aging population.

Brazil has higher levels of unemployment than many comparable countries

BRAZIL

8.1%

in 2022

Chile **7.22%** • Mexico **3.5%** • United States **3.68%**

Source: IMF

Safe and inclusive cities also prove essential to development. Several phenomena such as violence, inadequate housing, socio-spatial exclusion, insecurity of tenure and homelessness threaten the well-being of citizens.

In order to create lasting and structural changes in the quality of life for the Brazilian population, governments should prioritize violence prevention, increase police effectiveness, improve the governance of the justice system and support comprehensive community urbanization programs and social inclusion efforts.

Brazil's new social agenda would fall short without improving **accessibility, quality, efficiency, and equity of health services, all while making cities safer and inclusive**. Today, a significant share of Brazilians faces barriers to accessing healthcare, making it pressing to increase the share of public financing towards reinforcing Universal Health Coverage, improve the efficiency and quality of services and use innovative health services modalities.

In 2019, over

5 million

private households were estimated to be part of informal settlements (i.e., slums) =
7.8% of all households and 60% above the level recorded in 2010.

Source: Fundação João Pinheiro – FJP

FOSTERING INNOVATION

Digitalization and innovation are driving radical changes in business ecosystems, labor markets, production systems and lifestyles across the world.

By creating deeper connections between entrepreneurship, innovation and digitalization through targeted public policies, Brazil could jumpstart the beginning of a modern, thriving and more competitive economy. Actions that promote innovation, strengthen digital talent and facilitate entrepreneurship are at the heart of this transformation.

The country has already made significant progress in terms of nurturing a prolific startup market, according to the Brazilian Startup Association, the number of startups jumped from 4,151 to 14,044 between 2015 and 2021. The main areas of startup growth are fintech, health, artificial intelligence, and gaming. Venture capital financing of startups has grown almost exponentially in less than 10 years, from US$100 million in 2011 to US$3.5 billion in 2020. Additionally, a survey from Nielsen showed that 54% of young people under the age of 18 want to start their own businesses.

Nevertheless, subsisting challenges regarding innovation and digital talent require decisive efforts from the public sector. Brazil is declining in the international rankings related to innovation, ranking 57th out of 131 economies in the Global Innovation Index 2021, placing it fourth among countries from the Latin American and Caribbean Region.

On parallel, **most Brazilian workers are not ready to join the new digital economy:**

Brazil ranked 51st out of 63 countries in the Global Digital Competitiveness Index, occupying **the last position in "Talent".**

All this considered, Brazil could start paving the road ahead by moving forward policies that:

i.) enhance the efficiency of public investment in innovation, science and technology, crowding-in the private sector as well;

ii.) create new financial instruments for startups and companies;

iii.) support the incubation and acceleration of startups.

UNLEASHING A GREENER ECONOMY

Brazil is one of the most biodiverse countries in the world. Its forested area -the second largest- accounts for 13% of the world's forests; and it has the largest area of tropical forest.

However, the expansion of agricultural activities and ranching are behind ecosystem degradation, deforestation and greenhouse emissions in Brazil.

In the last **35 years, 64 million hectares throughout the country were deforested and converted to pastureland** while Brazil's ranching sector is eroding the natural capital it depends on for long-term success.

More than half of Brazil's 173 million hectares of pastureland are classified as degraded, and nearly a quarter as severely degraded. All the while, deforestation, agriculture and the energy sector are the main drivers of Brazil's greenhouse gas emissions.[5]

On one hand, **it proves necessary to mobilize a set of incentives aimed at decreasing deforestation while decisively promoting a bioeconomy** based on the use of natural renewable biological resources to obtain food, materials, and energy, while ensuring the availability of resources for future generations. This would prove beneficial considering bioeconomies deepen connections between the primary sector, manufacturing, and services, thus contributing to wide economic development.

Additionally, **by building a sustainable infrastructure, Brazil can create climate resilience, protect and enhance natural capital, and promote inclusion and equity.** Low-carbon, resilient infrastructure offers a US$ 1.3 trillion opportunity for green investments in Brazil across climate-smart transportation, water and waste management, buildings, and energy efficiency.[6] In this sense, it is key to keep **pursuing energy transition** towards renewable sources by expanding solar, wind, and biomass generation, and the gradual introduction of new technologies such as offshore wind, floating solar PV, and battery energy-storage systems.

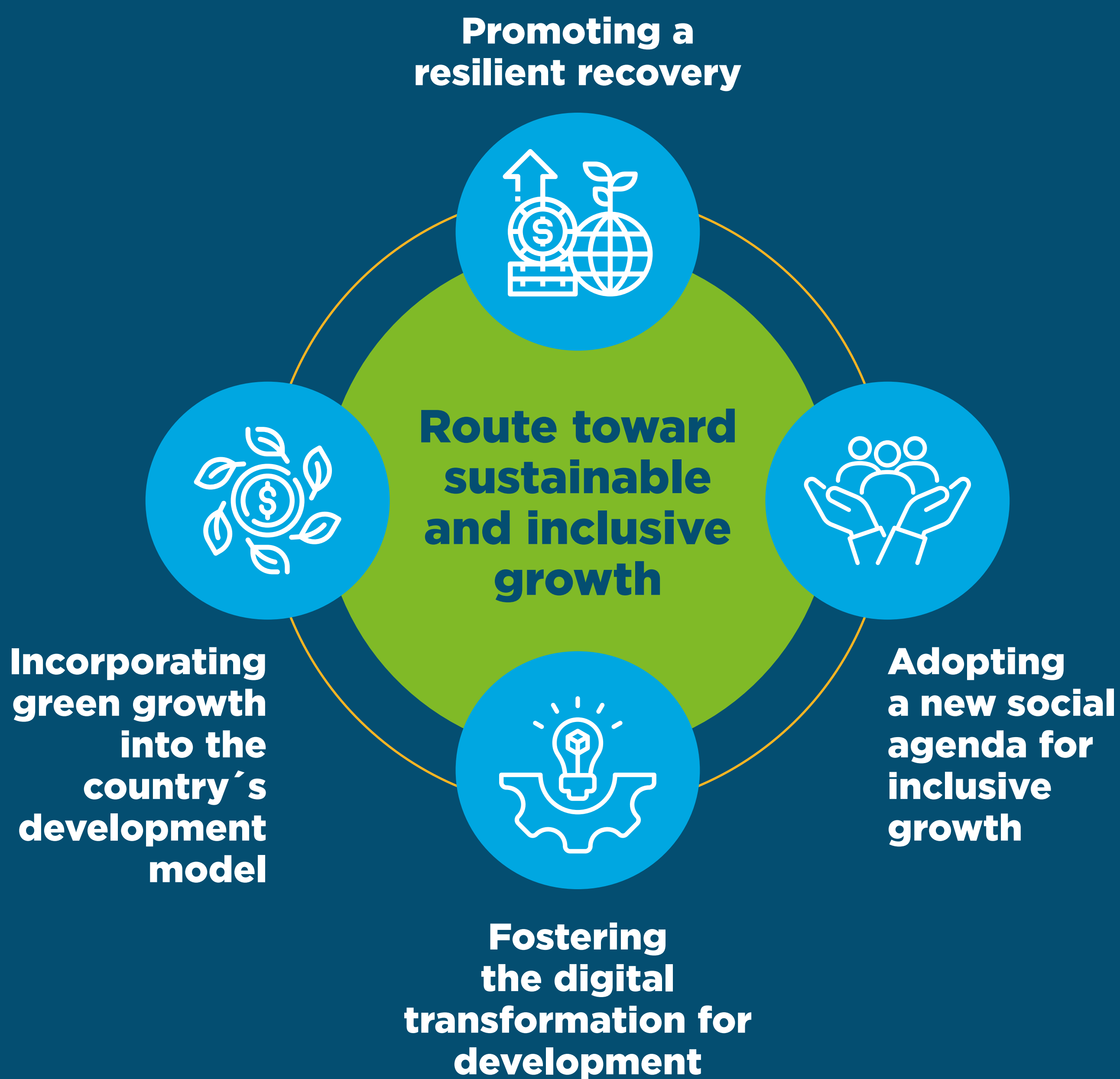
All efforts in moving into a greener and more sustainable economy will require a highly engaged financial sector able to channel financial resources and ensure adequate levels of investment in Brazil's new green agenda. Even though Brazil's financial sector is among the more advanced in LAC in incorporating social and environmental principles and the country's public and private financial institutions are regional leaders in addressing social and environmental risks, there is more work to be done to **promote green financing**. The sector would benefit from incorporating socio-environmental analysis policies and processes to all layers of financing alongside tools that facilitate the process of socio-environmental risk analysis, while establishing -with national and subnational development banks- a clear pipeline of sustainable and green projects.

5 Climate Action Tracker. 2022.

6 https://www.climatebonds.net/resources/press-releases/2021/07/potencial-de-investimento-verde-no-brasil-chega-us-13-trilh%C3%A3o

RECOMMENDATIONS

After careful analysis and consideration of Brazil's most pressing areas of opportunities, we propose a set of policies -structured around four pillars- that aspire to become beacons of hope and optimism as well as stepping stones into achieving lasting and meaningful changes in Brazil's development and growth story:



PROMOTING AN EFFICIENT AND RESILIENT ECONOMY

A Brazilian economy more closely integrated with international markets, featuring better infrastructure and a stronger private sector, will boost growth and productivity while contributing to reductions in poverty and inequalities.

STRONGER CONNECTIONS WITH INTERNATIONAL MARKETS

Attract foreign investment, improve trade and promote exports by:

- Creating an Electronic Single Window for Investment allows foreign and domestic investors to encounter a more frictionless experience and guidance through all administrative processes while using simplified digital channels.

- Measuring, reengineering and systematizing post-incorporation processes for companies in industries with export potential eases their operations in the country.

- Supporting the expansion and improvement of financial instruments, such as export credit guarantees for SMEs, enhances their exports performance and investment activities.

- Introducing a simpler and more efficient importing experience by optimizing and automating customs and border processes; as well as reducing clearance times and border inspections by using appropriate data and predictive analytical models to improve risk management.

Accelerate regional integration through the negotiation a full-scope free-trade agreement (FTA) with Mexico; the harmonization of regional trade agreements, especially the ones between Mercosur and the Pacific Alliance; and close work with Mercosur partners to strengthen the bloc.

A MORE DYNAMIC BUSINESS ECOSYSTEM

Advance the regulatory framework to improve Brazil's business climate: simplifying today's regulatory structure, adding transparency, ensuring compliance and eliminating redundant responsibilities between regulatory agencies reduces regulatory risks, compliance costs, and enhances confidence.

Streamline administrative processes by simplifying regulation and leveraging technology, where a stronger oversight of the regulatory process cuts the proliferation of requirements and new technologies can play a role in consolidating services and reducing delays and the need for in-person visits to government offices.

Encourage investment and expand financial access by promoting credit, developing capital markets, and crowding in private sources of finance. Here, the approval of the new framework for guarantees (Novo Marco de Garantias), by the Congress would mark a step in the right direction.

Pursue full compliance to the OECD: the steps that must be taken to access the OECD pose an opportunity for Brazil's business environment to become more modern, efficient, and transparent. As of June 2022, Brazil had already complied with over 44% of the instruments needed for accession, more than any other non-member country.

FISCAL EFFICIENCY

Boost planning, budget and performance at the institutional level: consolidating a results-oriented budgeting framework enables policy results to be examined through performance indicators and systematic evaluations to be used as input for allocating resources in the future.

Adopt a Medium-Term Budget Framework (MTBF) could boost the credibility of fiscal policy, identifying fiscal risks related to expenditures and revenues and permitting timely action to comply with fiscal rules. An MTBF linked to evaluations of public policies could facilitate compliance with the spending rule introduced by Constitutional Amendment 95 of 2016, laying the groundwork for more rigorous and strategic budgetary decisions.

Fiscal reporting should be extended to all state-owned companies and public banks, to produce an overview of the fiscal performance of the entire public sector. Public balance sheets should fully reflect the market value of government infrastructure, underground assets, as well as the benefits and entitlements of all public officials. The key elements of fiscal policy and sources of fiscal risk should be disclosed to the public in greater detail.

Digital tools can help to better control public expenditure: according to the Federal Court of Accounts (TCU), the highest federal audit institution, the use of data analytics to oversee the public sector's payroll has already generated annual savings of nearly US$80 million since 2015

Improve the tax system: reducing the number of taxes, sharing information between tax authorities, and adopting automatic, universal taxation systems with less room for exceptions and special regimes could enhance the efficiency of tax collection, improve the business environment and increase competitiveness. A more progressive taxation would assist in the reduction of income inequality.

ADOPTING A NEW SOCIAL AGENDA

Policies to increase growth and help the economy recover are necessary; nevertheless, the stubborn persistence of poverty and social inequalities points out that growth -by itself- cannot reduce them once and for all.

PUBLIC POLICIES FOCUSED ON REDUCING POVERTY AND INEQUALITIES

Promote universal access to high-quality preschool education to hinder skills gaps in the early years, especially among children from disadvantaged backgrounds.

Address the educational needs of minority groups by implementing targeted programs and materials for Brazil's rural, indigenous, and quilombola population, to decrease disengagement, underperformance, and potential dropout.

Enhance student performance via: (i) in-person and online tutoring programs, aimed at students with gaps; (ii) lowering barriers to staying in school, by promoting family support or providing financial assistance through conditional cash transfers and scholarships. iii) strengthening socio-emotional skills

Increase teaching effectiveness by reforming teacher-management policies, such as ensuring more meritocratic career paths, better selection for school principals and incentives to work in hard-to-staff schools, to recruit, support, and motivate the best candidates.

STRONGER SOCIAL PROTECTION AND LABOR SYSTEM

Expand and improve social protection by increasing the focus of social programs, enhancing their coordination, ensuring protection for workers while fostering productivity and expanding protection for informal workers.

Increase investments in the Public Employment System to better match jobseekers with vacancies through (i) the use of technological and AI-based tools for matching purposes; (ii) coordination with unemployment insurance and training programs; and (iii) accessibility of physical facilities and staff training.

Deepen the technical and socio-emotional skills of students and workers via i) Deploying incentives for employers to invest in training that is relevant to their demand for skills can increase productivity and formality; ii) Leveraging public-private partnerships that can help identify firms' needs and skills gaps and build a feedback ecosystem; iii) modular and stackable training courses along with certification systems can improve students and workers' employability.

Monitor and adjust the pension system due to the accelerating rate of demographic ageing, striving to make federal and state-level pension systems more sustainable and equitable. A first step would be establishing the objectives of the pension system, based on its capacity and the coverage and quality of healthcare and long term-care programs. This would help federal and state programs define suitable parameters and quantify the necessary funding, while shedding light on and helping remove existing inequities.

ACCESSIBILITY, QUALITY, EFFICIENCY AND EQUITY OF HEALTH SERVICES

Reinforce Universal Health Coverage (UHC) and improve the efficiency and quality of services by increasing the share of public financing from general revenues. International best practices show that public financing helps achieve UHC, better health results and expands access to health services. Also, changes in payment modalities for healthcare providers could improve the use of resources.

Improve the efficiency of hospital services by leveraging recent progress in medical technology and the use of ICT in the health sector that facilitate remote recovery monitoring and at-home treatments. Complementary health services, such as long-term intermediate care for chronic or subacute patients, can reduce the overall intensity of health-resource use and release hospital beds for acute care.

Boost innovative health-service modalities that reduce hospitalizations and costs. International experience proves that outpatient surgery, home care, and intermediate-care hospitals that use semi-intensive bed models can effectively reduce hospitalization costs.

SAFE AND INCLUSIVE CITIES

Prioritize prevention through targeted and evidence-based preventative interventions that result more cost-effective. Brazil can benefit from effective practices to reduce violence and crime, such as social crime prevention, situational prevention through urban management, and improvements to the deterrent capacity of police.

Improve the governance of the justice system by ensuring the permanence of the Ministry of Public Safety, responsible of coordinating a national public safety policy on violence prevention, police management, criminal intelligence, drug policy, gun control, and private security surveillance, and largely financed by the federal government; the Ministry would withhold a National Public Safety School and a National Institute of Public Safety Studies.

Develop urban renewal programs with high-quality public spaces and socially oriented interventions to contain urban violence with a greater focus on lighting and visibility, urban signage, mixed-use to promote lively areas, and the availability of emergency services improve security perception and safety. A new paradigm for public spaces should seek to reduce insecurity, improve functionality and guarantee accessibility and walkability to all.

Encourage innovative tools to increase housing supply and tackle the housing deficit, urban decay, and urban poverty: the production of new housing units should shift from the highly subsidized model prevalent over the last 20 years to a more diversified, sustainable approach that includes: (i) support for social rental programs aimed at families who cannot afford to buy, or at those in temporary situations (students, young couples, highly mobile professionals); (ii) promotion of subsidized rental housing ("housing as a social service") for the most vulnerable, (iii) retrofit programs to convert vacant or degraded units into housing, with or without use shift.

ON THE SPOTLIGHT

GENDER EQUALITY AND SOCIAL DIVERSITY

Brazilian women receive lower pay, are underrepresented in politics, suffer more harassment and are more vulnerable to unemployment than men

Average income

Men	Women
R$ 2,621	R$ 2,095

Labor market participation

Women	Men
50.7%	71.2%

Unemployment

Women	Men
17.4%	11.4%

Women occupation rate

41.9%

Men occupation rate

63.1%

Formal employment

Women	Men
60.4%	59.6%

Women subutilization rate

35.4%

Men subutilization rate

22.9%

Source: IBGE – Synthesis of Social Indicators 2021

Enabling Brazilian women
to secure productive work opportunities

Build and expand affordable childcare and eldercare support to increase female labor force participation. An IDB-financed public childcare program in Rio de Janeiro in 2008 led to a 27% increase in mothers' employment, while finding that direct transfers to mothers via vouchers were more cost-effective than the public provision of childcare.[7]

The private sector can help boost female participation in the workforce and reduce discrimination towards minority groups by partnering with academia to update job specifications and skills demanded to better reflect labor market needs. All this while encouraging female participation in STEM programs supported by mentorship networks and opportunities for women interested in STEM careers.

Improve access to credit for SMEs owned by women and Afro-Brazilians:

- In Brazil less than 5% of start-ups in innovative sectors were founded exclusively by women, while 90% were founded exclusively by men.[8] Lack of incentives and problematic access to finance are major barriers to female participation in the innovation ecosystem.

- Jumpstarting change requires i) better and more-inclusive risk assessment policies; ii) a greater share of women in decision-making positions at investment companies; iii) increasing diversity among investors and iv) access to networking channels.

Increasing the quality of life
in Brazil's vulnerable population

Prioritize the social inclusion and autonomy of people with disabilities (PWDs):

- A national certification system could ensure the consistency of eligibility criteria and the accessibility of programs that promote the autonomy of PWDs, from enrollment to graduation.

- Access to qualified care services should be encouraged as an alternative or complement to unpaid family care for the ones who are functionally dependent.

7 Mateo Diaz, M. & Rodriguez-Chamussy, L. *Childcare and women's labor participation: evidence for Latin America and the Caribbean.* Technical Note – IDB, 2013.

8 Female Founders Report 2021: Liderança feminine e empreendimentos no ecossistema brasileiro de inovação.

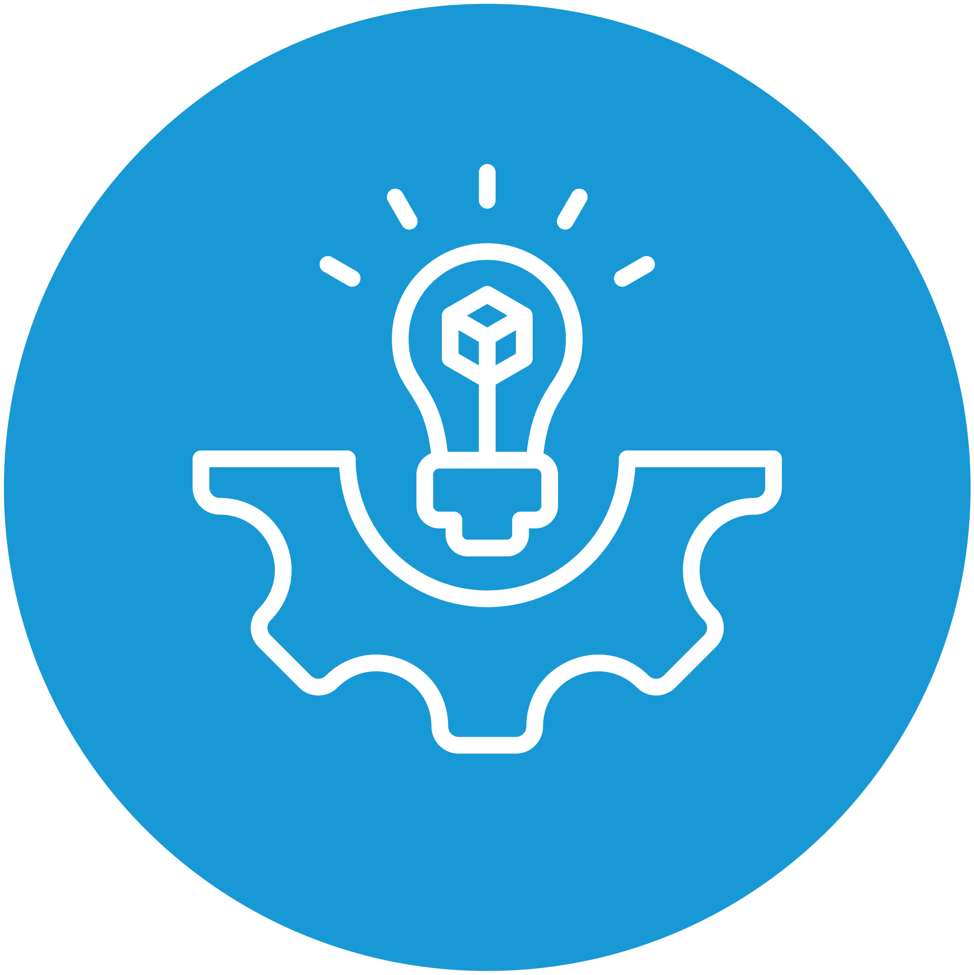
- More research is necessary to expand knowledge about the situation of PWDs in Brazil, the existing services for them and the potential cost of extending their reach.

Develop a comprehensive long-term care policy for the functionally dependent:

- Most people who are functionally dependent and in need of long-term care are elderly and live supported by informal caregivers. Maintaining their quality of life requires access to long-term, comprehensive care from interdisciplinary teams, with the aim of reversing or slowing down the pace of loss of functional capacity, ensuring dignity and well-being, and providing guidance and support to caregivers.

- A systematic, in-depth review of day-services models available in Brazil and internationally becomes critical toward designing a better socio-sanitary community-based service for elderly people in a situation of functional dependence.

- Adopt strategies to improve socioeconomic integration of migrants, such as i) improvement in school capacity, ii) language training to migrants, iii) the facilitation on the accreditation of Venezuelan education degrees or the certification of competencies, iv) strengthening in labor market insertion policies (job intermediation, training, awareness of legal rights, and assistance with documentation); v) and supporting voluntary relocation programs to places with favorable employment opportunities and labor force scarcity.



FOSTERING INNOVATION

As innovation impacts productivity and growth, countries that seize this opportunity are able to compete abroad from a stronger standpoint and harness positive consequences from introducing new technologies and innovation into their economic and social policies.

EFFICIENT PUBLIC INVESTMENT IN INNOVATION, SCIENCE AND TECHNOLOGY, CROWDING-IN THE PRIVATE SECTOR

Scale up public policies that nurture science, innovation, and technology in manufacturing to better address the needs of companies, particularly SMEs, by condensing the ones currently sponsored by the federal, state and municipal government.

Use public procurement to increase investment in innovation: thanks to New Framework for Startups (the Marco Legal das Startups) and other improvements in regulation, public procurement—which is worth approximately 20% of GDP—can better be used to finance innovative solutions, potentially more effective and efficient than traditional purchases, facilitating the access of startups to the public procurement process.

INCUBATE AND ACCELERATE STARTUPS

Increased efforts in this area are especially relevant after the phasing out of the Startup Brazil program and the migration along the startup value chain of many established incubators and accelerators. **Startups can benefit from receiving more mentorship and guidance** on issues ranging from operational management to modalities and timing of funding.

NEW FINANCIAL INSTRUMENTS FOR STARTUPS AND COMPANIES

Improve access to private finance for innovation and technology adoption via new dedicated instruments based on blending and other recent trends in innovation finance, to offer more agile underwriting and execution.

- Regarding investments for the bioeconomy and sustainable development in the Amazon region, loans for innovation can be combined with donations to increase their attractiveness or be packaged together with conditional loans to startups as recovery grants.

Leverage new sources and instruments of financing to better support early-stage startups:

- The involvement of Brazil's well-developed network of angel investors' in early-stage startups has room to grow.
- Match-funding arrangements could crowd-in additional resources for early-stage startups from angel investors and crowdfunding, which has grown significantly as a source of financing for startups worldwide.
- Connecting entrepreneurs with venture debt and blended finance solutions could grant them more choice when addressing their financing needs.

Create open innovation financing instruments considering they not only enable the public sector to request services from startups, but they tend to have low implementation costs and strong economic and social impacts.

ON THE SPOTLIGHT

DIGITALIZATION

New technologies, digital transformation and innovation create opportunities to introduce positive and lasting shifts in the country's productivity, the quality of life of Brazilians and the efficiency and transparency of the public sector.

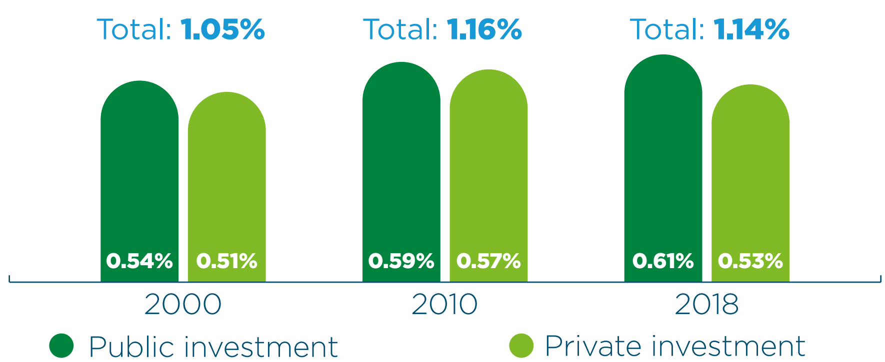
Brazil ranks 52nd out of 64 countries on digital competitiveness (51.48 points out of 100). The ranking analyses countries' ability to adopt and explore digital technologies leading to transformation in government practices, business models, and society overall

19,7 million Brazilians
did not have broadband access in 2021

A 10% growth
in broadband access can increase Brazil's GDP in
0,77%

45 million people
in Brazil have no access to banking services
= R$800 billion a year
(close to 10% of GDP) in resources

The gap between public and private investment in R&D in Brazil has remained stable since the early 2000s, while private investment in innovation has been expanding across the world



Source : MCTI

Leverage new technologies to boost productivity

Accelerate the digital transformation with efforts tailored to the digital maturity of each firm: A tool for assessing the digital maturity of firms when applied to thousands of MSMEs, could allow for the design of initiatives proportionate to their level of maturity: the most mature SMEs could benefit from vouchers for digital extension services relevant to their sectors and objectives, while less digitally mature firms could receive free or subsidized online training courses or services targeted to their needs.

Reduce the fiscal burden on the adoption or adaptation of foreign technology in manufacturing firms. The OECD recommends reducing the special tax on royalties and administrative and technical services provided by non-residents (CIDE), as well as simplifying the taxation of goods and services arising from new business models enabled by digitization.

Improve the quality of life and inclusion using new technologies

Promote digital literacy programs for senior citizens and vulnerable populations to decrease the digital divide and to enhance their use of public and private digital services.

Expand municipal broadband connectivity in public buildings and in public spaces, to foster opportunities to enhance the supply and accessibility of public services through digital channels.

Assist municipal authorities in developing and implementing data management policies for urban planning with a focus on the following priority areas: i) strategy for open and secure data; ii) the digitization of urban services; iii) sharing of knowledge and best practices on data protection and cybersecurity; iv) and the establishment of dedicated teams within municipalities to manage and analyze urban data.

Build capacity among public officials on matters related to smart cities, data management, and urban development considering they are a novel and multi-faceted field where technologies evolve rapidly. Therefore, access to capacity-building programs in areas such as digital technologies, data management, and data privacy, as well as in the intersection of urban development with big data, artificial intelligence, machine learning, Geographic Information Systems (GIS), and cloud computing become critical for public officials.

Increase financial inclusion:

- The banking sector can play a role in boosting microcredit. For this, institutional support on funding, risk mitigation, and capacity building to assess and manage risks to the banking sector is key. In parallel, partnerships with smaller banks and credit unions can ensure better regional distribution of financial services, especially in the North and Northeast.
- A faster and broader expansion of fintech companies can increase access for the unbanked, considering that digital banks are a natural fit for underserved segments of the population and young customers, with amplified effects on financial inclusion, and offer potential to expand SME lending.

Digital technologies, such as digital biometric identification, can improve the targeting of social programs by facilitating beneficiary cross-checking and verification by multiple agencies. At the same time, integrated beneficiary databases can be used to coordinate multidimensional interventions tailored to individual households.

Use the technology to improve the efficiency and transparency of the public sector

Adopt digital technologies to support fiscal management and enable higher tax compliance:

- Digital technologies can compile detailed and reliable information about taxpayers and their transactions more quickly, at a lower cost, and in a format that is more conducive to analysis.
- Electronic invoices and other electronic fiscal documents could allow Brazil's tax administration to prepare pre-filled returns for VAT, as it already does for income tax.
- Mobile connectivity can let taxpayers make inquiries and complete transactions with the tax administration and prepare, fill, and monitor their tax returns, as well as support the work of tax inspectors on the ground.
- Application program interface (API) technologies can help businesses connect their information management systems directly to the tax administration, adding flexibility and reducing compliance costs.
- Blockchain technology can reduce tax fraud along territorial frontiers, increase the efficiency of the customs administration, and improve payroll taxation.

Leverage new technologies to strengthen expenditure management:

- Applications that make greater use of the public financial information generated by the Integrated Financial Administration System for the Federal Government (Sistema Integrado de Administração Financeira do Governo Federal, SIAF) can improve the efficiency of budget preparation, execution, and auditing.

- Big data analytics could enhance public investment planning and prioritization, by aligning policy priorities with the demands and needs of the population.

Public financial management can benefit from big data analytics to guide budget allocation, optimize cash management, and improve financial programming. By increasing the use of SIAF data, and integrating it into expenditure and statistical databases, agencies can use automated diagnostics, visualizations, and forecasts to improve financial planning, strengthen cash and debt management, and enhance fiscal risk assessments.

UNLEASHING A GREENER ECONOMY

Placing an environmental agenda in the center of Brazil's new growth model can contribute to sustainable economic growth, make the country more resilient to climate change and ecosystem destruction; and curb poverty and inequality. These efforts should engage different sectors of the society committed to a more efficient, resilient and sustainable country.

PROMOTE A BIOECONOMY

Enact targeted policies to support the bioeconomy by pushing forward measures as: i) grants for basic research; (ii) subsidies or credits for R&D; (iii) support for the development of prototypes and proof-of-concepts that aim to solve social or industrial challenges, or to replace fossil fuel-based products; (iv) seed capital for bioeconomy startups; (v) a focused program of public procurement for bio-based products; and/or, (vi) the provision of catalytic public goods, such as research infrastructure, specialized equipment, biorefineries, or support services.

- Initiatives that support the ecosystem for research and innovation in the bioeconomy: (i) legal and regulatory change to improve the business climate; (ii) efforts to attract, develop, and retain specialized talent; and (iii) the promotion of angel and venture-capital investment in the sector.

Accelerate the productive transformation of the bioeconomy through regulatory reforms in these areas: i) processes to import biological materials (i.e., cells, tissues, DNA, antibodies, enzymes, virus, viral plasmids, and reagents); ii) intellectual property regulation; iii) the tax system; iv) and the mechanisms for reducing CO_2 emissions.

Boost advances across several value chains, increase the value-added of their products and preserve key sources of biomass by supporting the provision of public goods such as biorefineries, specialized equipment, and other research infrastructure and services.

Promote innovation and research to create sustainable business opportunities by creating incentives for investment into climate-change mitigation and adaptation projects, such as the development of climate-resistant crop varieties or sustainable-forestry value chains; deploying appropriate policies to promote the responsible exploitation of biodiversity-based products and strengthen the market for them; and developing measures that promote sustainable value chains for biodiversity-derived products in the Amazon area, which includes some of Brazil's least-developed regions.

SUSTAINABLE INFRASTRUCTURE AND ENERGY TRANSITION

Advance efforts to diversify the electricity matrix through further expansion of solar, wind and biomass generation, and the introduction of offshore wind, floating solar PV, and battery energy-storage systems.

Modernize existing hydroelectric power plants to recover and increase their efficiency. The estimated US$15 billions of investment this requires would improve system flexibility and energy security, offer additional capacity in times of drought and a more-efficient integration of solar or wind sources.

Adopt a green growth strategy in transportation comprised of:

- Action plans aligned with the Paris Agreement, setting out specific goals for each transport mode
- Emission targets in 17 major cities to promote hybrid and electrified urban transport, across both public fleets and private vehicles
- Sustainable urban mobility plans in prioritized cities
- A 4.0-SURE Roads Program, with net-zero targets for both the construction and operational phases
- R&D on sustainable fuels in aviation, maritime and waterways transport
- Urban land regulation for sustainable mobility
- Green bonds and other innovative financial sources and business models

Support logistics corridors and multimodal transport by structuring and developing strategic transport and logistics projects with private participation. A strong pipeline of road infrastructure investment and concession projects can improve the quality and capacity of road assets, increasing climate resilience as well as road safety.

Upgrade port and airport infrastructure and improve operational efficiency to service larger vessels in strategic terminals and reduce logistics costs by ensuring stronger connections between ports and domestic rail, road, and waterway networks. Addressing airport capacity constraints demand infrastructure upgrades and operational improvements, including the use of concessions.

BOOST GREEN FINANCING

Establish a clear pipeline of sustainable projects and investment opportunities aligned with the government's commitment to low-carbon development. Here, national and sub-national development banks can provide a pipeline of green projects and authorities can implement policies to enable green-project development at scale according to international standards.

Promote green financing by ensuring measures that foster stronger connections between socio-environmental issues and risk management:

- Introduce socio-environmental analysis policies and processes to all layers of financing, considering the type of operation and client.
- Monitor the effectiveness of institutions' socio-environmental policies and processes while improving tools that facilitate the process of socio-environmental risk analysis.
- Establish a qualitative rating of ESG aspects that are analyzed along with economic-financial aspects.
- Develop probability scenarios, in which analyses of share price sensitivity to ESG aspects are incorporated into the recommendations of analysts for management.
- Adopt the Corporate Sustainability Index (CSI) portfolio as a benchmark for responsible investments.
- Increase the importance of socio-environmental risk analysis in pension funds through precise mandates with active management generating demand within the industry for integration of socio-environmental risks.

Build a global climate-information architecture to facilitate assessments of transition-related risks and opportunities in the corporate sector, to prevent greenwashing and foster climate finance markets. This would include a set of climate-related disclosure standards coupled with high-quality, reliable, and comparable data on climate-related indicators, including forward-looking metrics reinforced by verification and audits.

ON THE SPOTLIGHT

CLIMATE CHANGE

Climate change is a developmental challenge—not just an environmental one—that will compromise development and socio-economic progress. Thus, curbing deforestation, and pursuing a green transition become necessary to protect the country from current and expected climate risks.

Deforestation is the main hazard for a green economy

The number of deforestation alerts in Brazil **in the first five months of 2022 was the highest since 2016**

2,744
thousands of km²

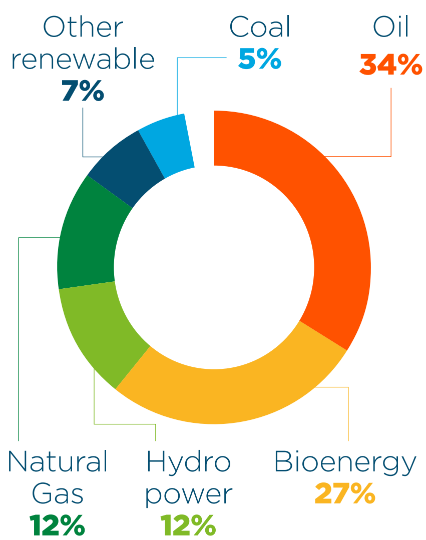
Source: INPE

Agriculture and cattle ranching account for
72%
of Brazil's greenhouse gas emissions

Changes in land use and forests
44%

Farming and Agriculture
28%

Renewable sources make
up 46%
of Brazil's energy matrix



Brazil's electricity production relies heavily on hydropower generation, **which is vulnerable to climate change**

Electricity installed capacity by source 2019 (GWh)

Hydro	109
Thermo	41
Wind	15
Solar	2
Nuclear	2

Source: Energy Dossier 2022. Brazil a focus on electricity sector (IDB, 2022)

Source: Observatório do Clima (Climate Observatory), 2021.

Curb deforestation rates

Enact a coherent set of incentives, based on a thorough and transparent assessment of potential policy trade-offs, as well as negotiation and agreement with all stakeholders on realistic mutual commitments.

Exclusive reliance on command-and-control policy instruments could give way to a more nuanced framework, combining voluntary or market-led action, economic incentives (e.g., extension, directed credit, and subsidies), and enforcement on forest protection.

Mitigate risks from the green transition and developing the carbon market

Energy, climate, and fiscal plans should be aligned in support of an orderly transition consistent with the green growth agenda. This will demand serious adjustments of public investment focused on climate mitigation and adaptation actions, as well as changes in consumer behavior, companies and governments, leading to the partial or total abandonment of technologies and goods with the highest carbon footprint.

It also becomes key to boost job training for easing the transition from emission-intensive industries to greener jobs.

Brazil faces the need to define its position and legislation on carbon trade. The government should strengthen institutional and legal frameworks for forest protection, while promoting green-power certifications and carbon pricing. This becomes even more relevant now that a growing number of firms in Brazil are showing an interest in certifying that the power they use comes from renewable energy sources: 5 million “International standard RE Certificates” were issued in 2020, and the number could reach 20 million in 2022.

Approving the carbon market regulation in Bill No. 528 of 2021 which has been under discussion in the House of Representatives since 2021, would be a step in the right direction.

Incorporate climate change on public policies by proposing a green fiscal policy and reducing fossil fuel subsidies

Public finances could benefit from mechanisms that diversify risks and build financial buffers, as well as from broader governance and risk management capacity within the responsibility of finance ministries.

Fiscal policy has the chance to address the distributional impacts of the ecological transition on the affected economic sectors and workers through fiscal, public investment and spending management tools; and can also establish incentive frameworks, propose public investments and implement regulatory reforms to enhance private investment in the green economy.

Other fiscal policies to mitigate the impacts of climate change include: (i) building a strategic fiscal planning for climate change; (ii) incorporating the assessment of extreme climate events and transition risks in the fiscal framework; (iii) green markers for the budget; (iv) inclusion of environmental criteria in public investment management; and (v) green public procurement.

Energy subsidies are inefficient at protecting the welfare of poor households but increases in energy prices impact them, stressing the importance of evaluating potential compensatory transfers. A possible carbon-tax agenda for Brazil can embrace the assessment of economic, redistributive, and environmental impacts from higher effective rates on carbon, as well as design options for carbon taxation (coverage, sectorial and social compensatory measures, tax rate, use of collected resources, and evaluation methodology).

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