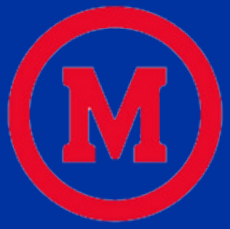


A BRAZILIAN OVERVIEW ON THE TOPICS OF NY-BRAZIL FORUM

Mack Integrity on
Climate Week
2024



**Mackenzie
Integrity**



Who we are?

The MACKENZIE CENTER FOR PUBLIC POLICIES AND INTEGRITY POLICIES (MACKENZIE INTEGRITY) is a research center with scientific, technological, and innovative activities, established by the Presbyterian Mackenzie Institute. It is responsible for conceptualizing, stimulating, developing, and disseminating basic or applied studies and research, as well as developing projects, products, services, and processes to enhance or propose public policies and corporate guidelines, with a governmental, corporate, and academic approach from the perspective of Integrity Policies.

It's our goal to bring together faculty and students, researchers, and representatives from the public and private sectors to analyze Brazilian challenges and develop studies and solutions that can be implemented in public policies, fostering advancements for the country.

Our research units are organized into multidisciplinary and transdisciplinary thematic areas, including the Energy, Sustainability, and Regulation; State Governance and Citizenship; Tax Reform, Transparency and Anti-Corruption Policies; Technological Innovations, Agrobusiness, among others.

Schedule



September 20th 8-11am

- Panel 1: Infrastructure projects: public policies and investment opportunities – Successful cases from the US.
- Panel 2 : Brazilian Energy Sector in the new economy: overcoming financial, regulatory frameworks and corporate governance constraints to capitalize on green energy.

SPEAKERS:

Prof. **Michael Gerrard**

Prof. **Cacia Pimentel**

Prof. **Maria Joao Rolim**

Prof. **Luisa Palacios**

Prof. **Romany Webb**

Erivaldo Gomes, Former World Bank Director, BID consultant.

Ambassador **Adalnio S. Ganem**, Consul-General of Brazil in NY

Martin Dietrich Brauch



September 23rd 6-9pm

- Panel 3: Global financial cooperation: how to mobilize funds from international and multilateral organization
- Panel 4: Global guidelines for developing Integrity Policies: responsibility and management of social, environmental and climate risks

SPEAKERS:

Prof. **Michael Burger**

Prof. **Gabriel Wedy**

Prof. **Julio Meneghini**

Ana Maria Camelo Vega

Prof. **Raphael Heffron**

Prof. **Patricia Iglecias**

Prof. **Rosa Ramos**

Claudia Prates, Head of the Climate Transition Department at BNDES Bank

Infrastructure projects in Brazil: public policies and investment opportunities

Infrastructure projects

Brazil is a country full of infrastructure projects and with a great potential for new investments. The International Energy Agency listed, on its report regarding Brazil Energy Profile, 6 of the major infrastructure projects that are currently either on construction phase or feasibility studies phase.

Table 2 Major infrastructure projects in Brazil

	Project	Size	Date online	Status	Description
Oil and gas	Pre-salt (Etapa 3 & 4)	+0.5 mb/d (target 2.2 mb/d)	2027	●	Oil and gas
Hydrogen/ammonia	Port of Pecem - Base One	600 kt H ₂ /year (production)	2025	●	Dedicated hydro
	Unigel, phase I	10 kt H ₂ /year (capacity)	2023	●	Dedicated wind
Nuclear	Angra 3	1 405 MWe	2028	●	Nuclear reactor
CCUS	Lucas do Rio Verde, FS Bioenergia	0.4 Mt CO ₂ /year	2030	●	BECCS
Transmission, interconnections	Graça Aranha-Silvânia (HVDC)	800 kV	2028	●	1 440 km

Status ● Feasibility study ● Under construction

Source: IEA, Brazil Energy Profile, 2023.

In June 2024, Brazil inaugurated its first pilot plant for Sustainable Aviation Fuel production via the HEFA route, which will use biogas derived from organic waste and green hydrogen at the Itaipu Binacional biodigestion unit.

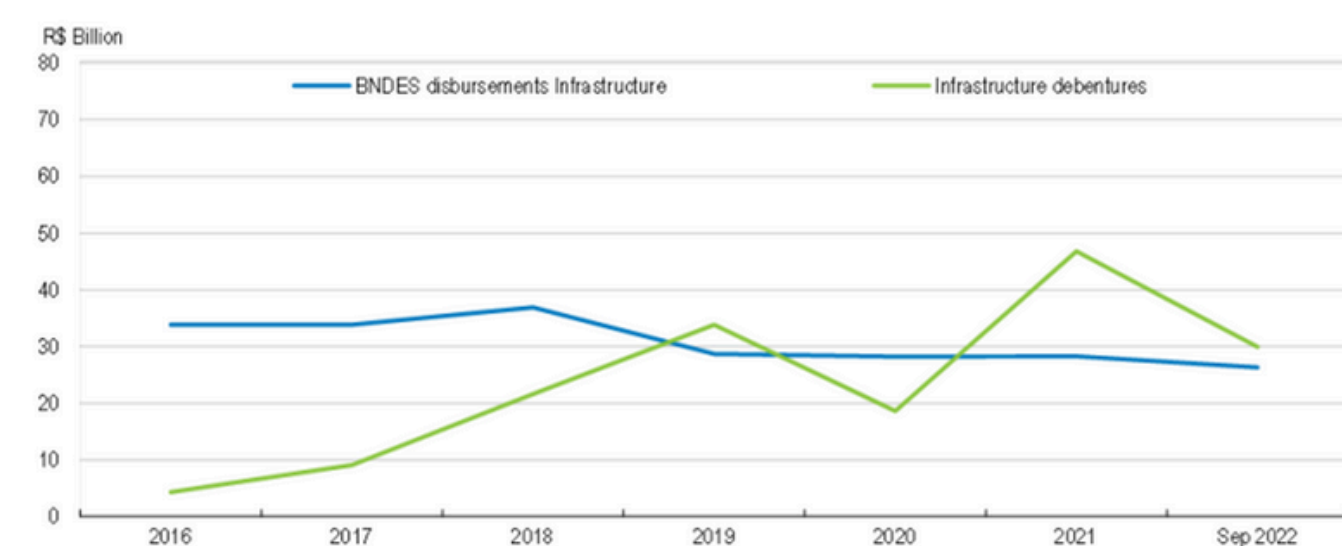
Public Policies and Investments Opportunities

Infrastructure Bonds

Since 2011 (Laws No. 12,431/2011 and 14,801/2024), Brazil has been developing and implementing a special infrastructure bond market called “debentures” to increase the possibilities of raising funds for investment in infrastructure projects by promoting differentiated tax incentives. The initiative aims to reduce project’s costs and make them economically viable and attractive.

As stated in OECD’s report, infrastructure bonds have become the first source of infrastructure financing in the country. According to the Ministry of Economy's Incentivized Debentures Informative Bulletin (2022), Energy was the sector that issued debentures the most, totaling over R\$ 24 million reais in bonds. However, these debentures represent, on average, 58% of the projects' CAPEX, which means that this form of fundraising is insufficient to cover the costs of energy projects in the country and must be complemented with more private and public investments.

Figure 20. Infrastructure bonds have become the first source of infrastructure financing



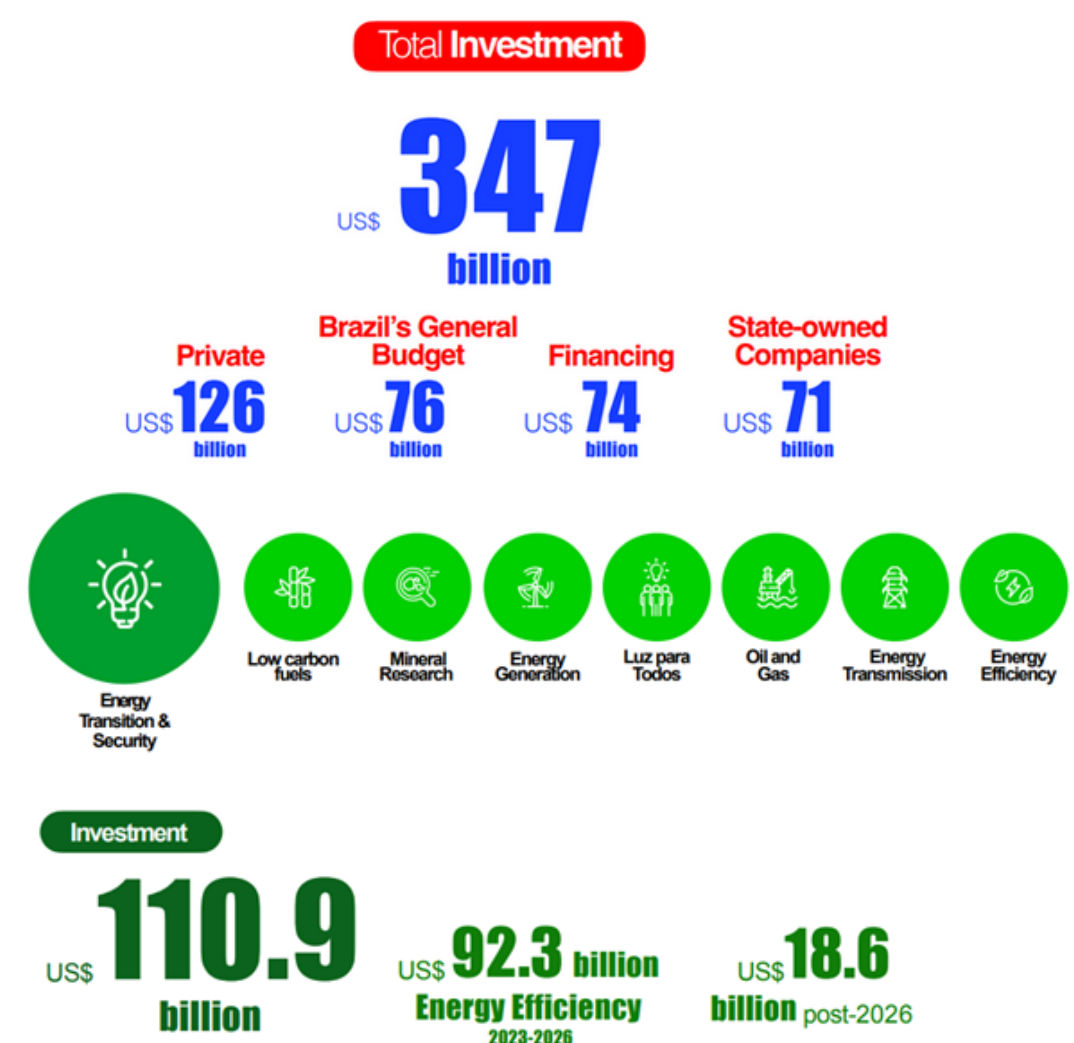
Source: Ministry of the Economy, (2022b).

Source: OECD, 2024.

The New Growth Acceleration Program (“Novo PAC”)

The new Government Program aims to promote economic and social development through increasing public and private investments on the country. It provides a plan with the government’s main objectives for nine axes, including Energy and Transportation sectors.

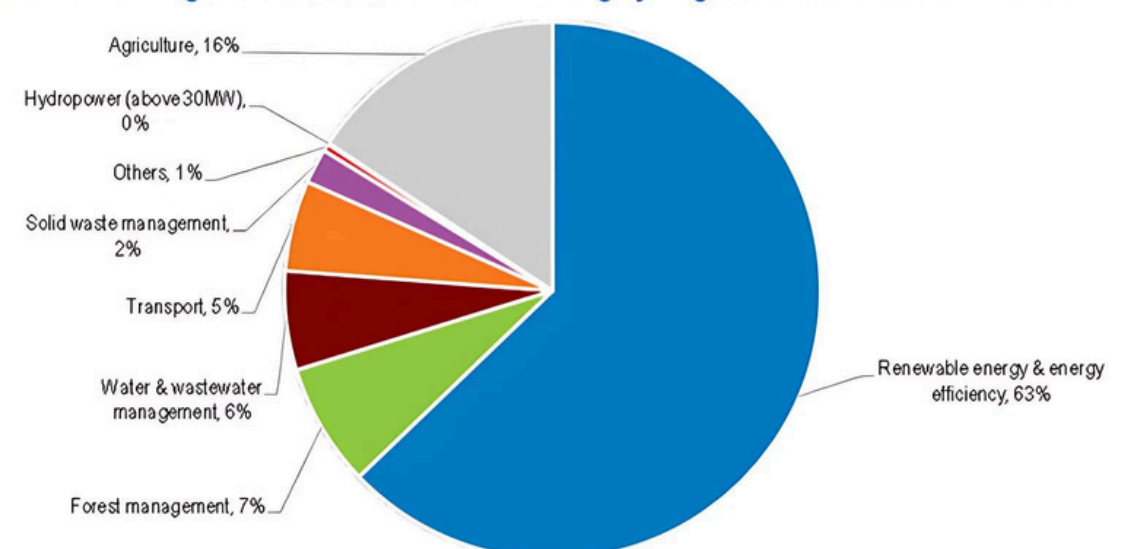
It is expected a total investment of R\$ 1,7 trillion reais (approximately US\$ 347 billion dollars) coming from both the private and public sectors. Around 32% of the total investment will be placed on Energy Transition & Security Projects including infrastructure and research projects. Furthermore, almost 21% will be allocated on efficient and sustainable transportation projects.



Source: Novo Pac website.

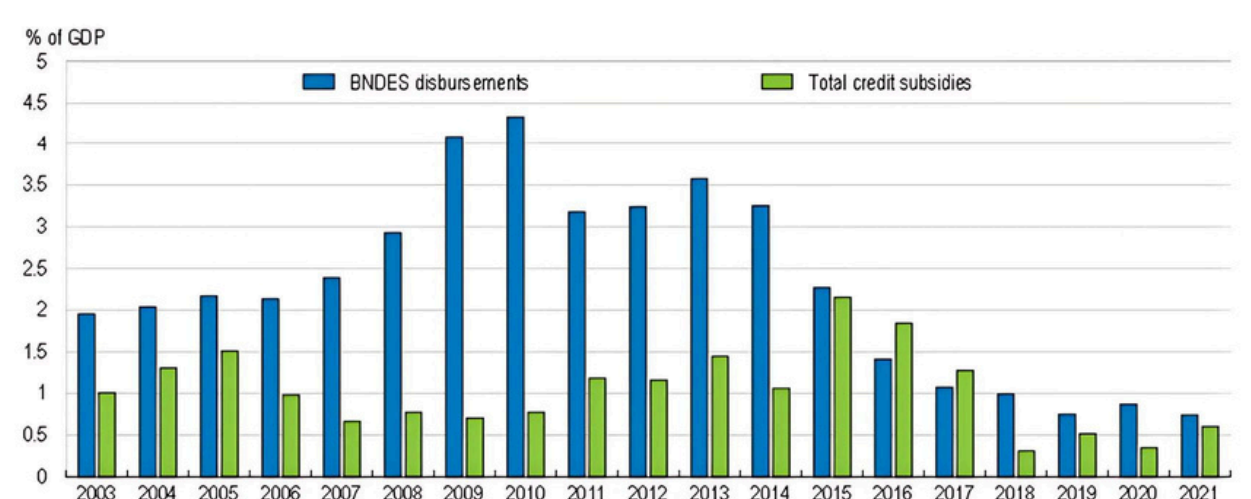
In this context, BNDES is playing a crucial role in advancing green finance in the country, despite a reduction in its subsidies over recent years (OECD, 2024).

Figure 25. BNDES’s green finance disbursements largely targeted sustainable infrastructure



Note: Data for 2021. Source: BNDES; and OECD calculations.

Figure 16. BNDES disbursements and credit subsidies have decreased



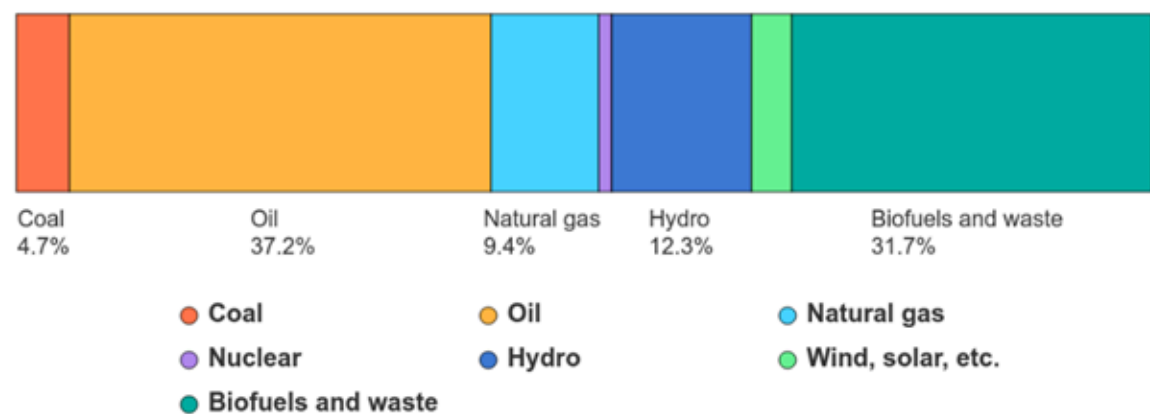
Source: BNDES; Ministry of Economy; and OECD calculations

Source: OECD, 2024.

Brazilian Energy Sector: an Overview

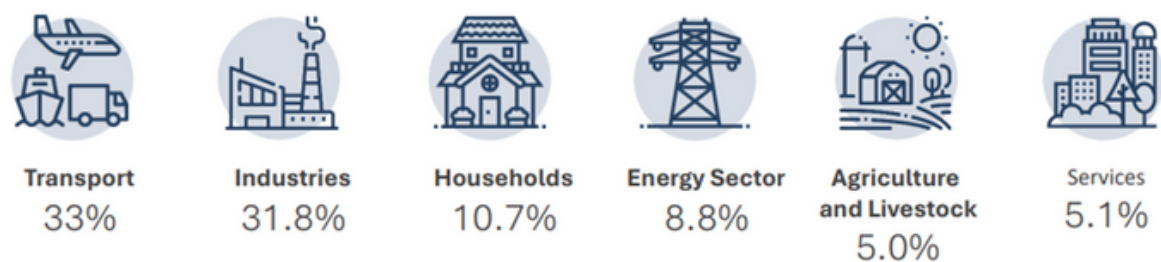
According to the International Energy Agency (2023), Brazil's energy supply – defined as the energy required to provide end users with resources that can be used directly or converted into fuels and electricity – is predominantly derived from oil (37.2%), biofuels and waste (31.7%), and hydroelectric power (12.3%).

Total energy supply, Brazil, 2022



Source: International Energy Agency. Licence: CC BY 4.0

Furthermore, in 2023, 64,8% of Brazil's Energy consumption was for cargo and passenger transportation and for the industrial sector (EPE, BEN 2024). Transport and Industries were also the two biggest sources of CO2 emissions in the country, emitting 217.0 Mt CO2 and 73.9 Mt CO2 in the atmosphere respectively.

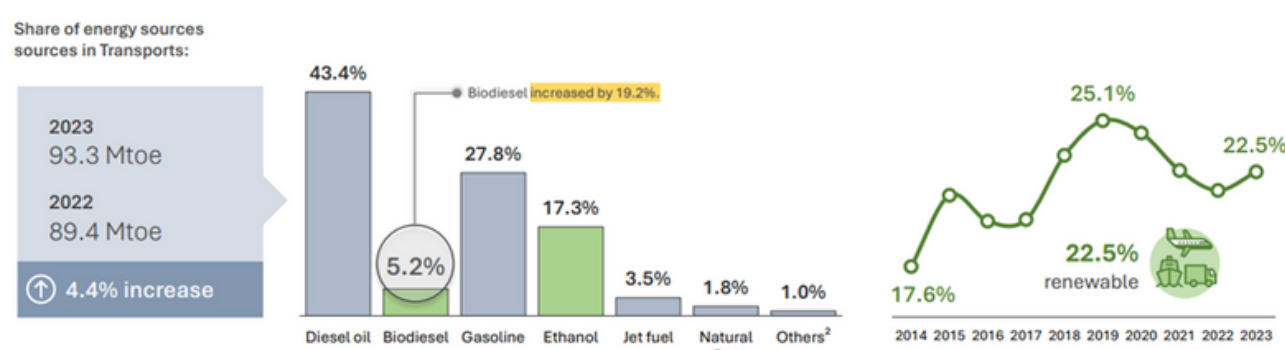


Source: EPE, BEN 2024, page 26.

Based on these data, the following considerations are made:

• Brazilian transport system still relies heavily on fossil fuels.

As reported by EPE's BEN 2024, energy consumption in transportation is predominantly based on diesel oil (43,4%) and gasoline (27,8%). The renewable percentage in this sector is only 22,5%, mostly Ethanol (17,3%) and Biodiesel (5,2%).



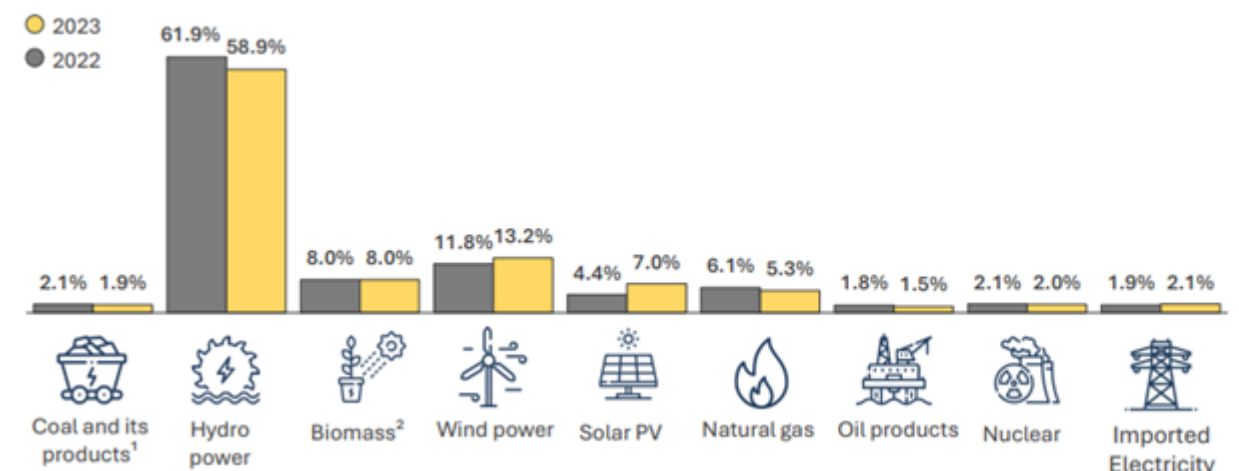
Source: EPE, BEN 2024, page 22.

The reliance on fossil fuels can also be related to subsidies. In 2022, subsidies for fossil fuels amounted to R\$ 80.9 billion reais (INESC, 2023). For renewables sources the subsidies do not reach this level. The biggest renewable subsidies are allocated on the electricity sector. According to ANEEL, micro and microgeneration amounted R\$ 40.3 billion in 2023.

Another Brazilian peculiarity is that the cargo and passenger transport model is predominantly based on road transportation. For instance, this mode represents 54,5% of cargo transport in the country which increases diesel consumption (FGV, Energy Transition in Transport Sector, 2022).

• Brazil is the second largest hydropower producer in the world.

When it comes to the electricity generation matrix, Brazil stands out for having a predominantly sustainable mix, consisting of hydroelectric, solar, and wind energy. As shown in the graph of the energy balance report below, the share of hydroelectric power has slightly decreased in recent years. One reason for this is the growing contribution of wind and solar sources.



Source: EPE, BEN 2024, page 38.

• Brazil is the second largest biofuels producer in the world.

Based on EPE's BEN 2024, the growth of biofuels production over the years in Brazil was favored by the policies of adding biofuels to fossil fuels. For instance, that is the case of Biodiesel final consumption.



Source: EPE, BEN 2024, page 22.

New Policies in Brazil

It is expected that the Biofuel and Hydrogen energy supply increases in the next years due to the approval of two new regulatory frameworks in the country: the hydrogen regulatory framework law and the fuels of the future program bill ("Programa Combustível do Futuro").

<p>Low-Carbon Hydrogen Law No. 14,948/2024</p>	<p>Establishes the legal framework for low-carbon hydrogen; outlines the National Policy for Low-Carbon Hydrogen; sets incentives for the low-carbon hydrogen industry; establishes the Special Regime of Incentives for Low-Carbon Hydrogen Production (Rehidro); creates the Low-Carbon Hydrogen Development Program (PHBC), among others.</p>
<p>Fuels of the Future Bill No. 528/2020* Status Sep 15th, 2024: Approved on the Congress. Waiting for Presidential approval to become law.</p>	<p>Addresses the promotion of low-carbon sustainable mobility and the geological capture and storage of carbon dioxide; establishes the National Program for Sustainable Aviation Fuel (Pró BioQAV), the National Green Diesel Program (PNDV), and the National Program for the Decarbonization of Natural Gas Producers and Importers and Incentive for Biomethane</p>

Brazil in Global Financial Cooperation

In recent decades, Brazil's profile has shifted from primarily benefiting from financial cooperation to also playing a role in promoting such cooperation (Source: Ministry of Foreign Affairs).

Brazil is part of several international forums and multilateral organizations such as:

- **International Monetary Fund (IMF)**



Global organization that works to achieve sustainable growth by supporting economic policies that promote financial stability and monetary cooperation (Source: IMF website).

- **Bank for International Settlements (BIS)**



Central banks' support to pursuit monetary and financial stability through international cooperation. Act as a bank for central banks (Source: BIS website).

- **Financial Stability Board (FSB)**



International body that monitors and makes recommendations about the global financial system. Coordinates national financial authorities and international standard-setting bodies towards strong regulatory development (Source: FSB website).

- **Group of Twenty - G20 (Presidency in 2024)**



The G20 is the main forum for international economic cooperation that aims to shape and reinforce global governance on major economic issues. Initially focused on macroeconomic concerns, the group has expanded its agenda to include environment, trade, sustainable development, climate change, energy, and other themes. Its members account for about 85% of global GDP and over 75% of global trade (Source: G20 website).

Brazil is conducting working groups for International Finance Architecture, Sustainable Finance, Global Partnership for Financial Inclusion

- **Brazil, Russia, India, China and South Africa Group (BRICS)**



The BRICS is not a formal economic group but rather a partnership among five of the world's largest emerging economies: Brazil, Russia, India, China, and South Africa. Together, these countries account for 23% of global GDP and 18% of international trade (Source: BRICS website).

- **MERCOSUR**



The Southern Common Market is a South American trade bloc, whose full members are Argentina, Brazil, Paraguay, Venezuela and Uruguay. Mercosur main objective is to promote a common space that generates business and investment opportunities through the competitive integration of national economies into the international market (Source: Mercosur website).

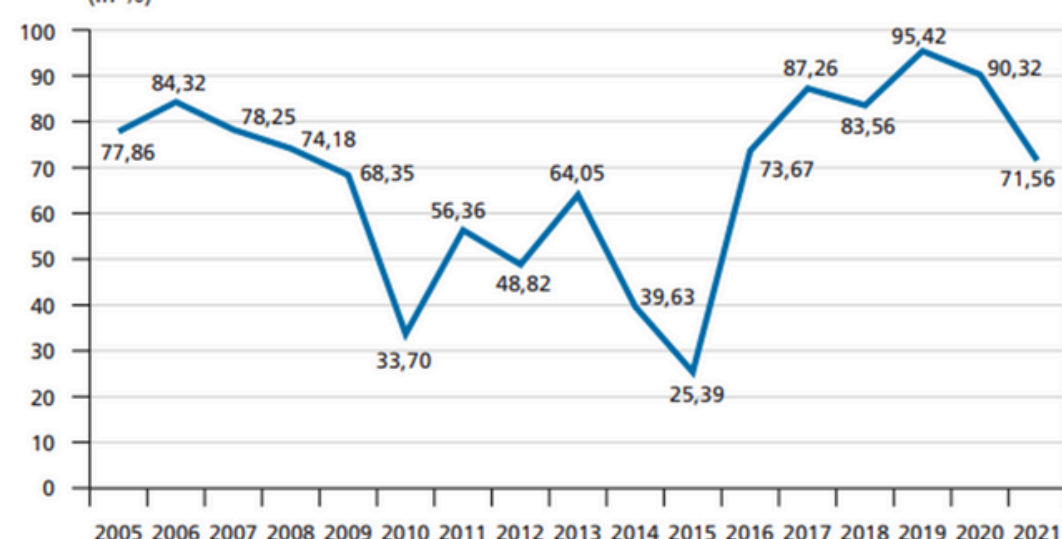
- **Brazil is also in the process of joining the OECD**



The Organization for Economic Co-operation and Development (OECD) is an international organization that works to build better policies for better lives by establishing evidence-based international standards and searching for solutions to social, economic and environmental challenges (Source: OECD website).

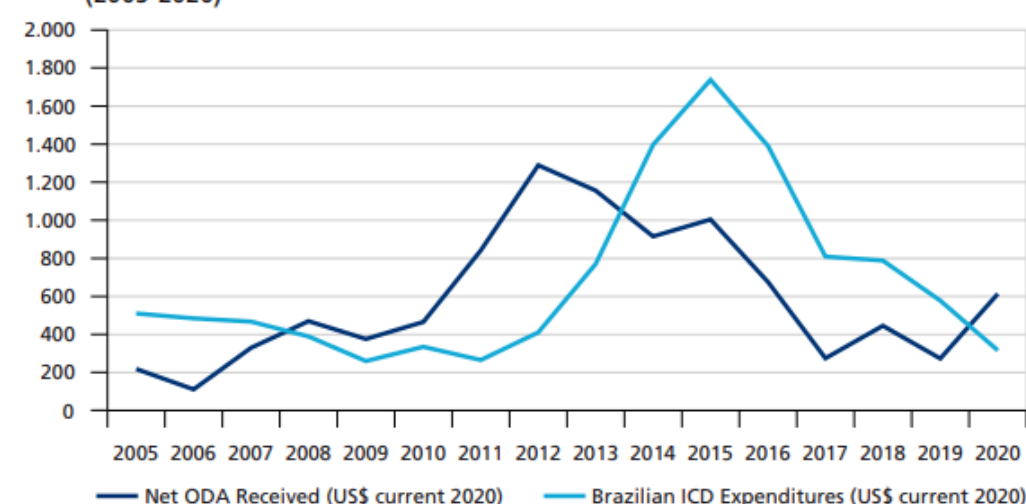
According to IPEA (Institute for Applied Economic Research), between 2005 and 2021, Brazil spend, on average, 68% of the total annual expenditures on International Development Cooperation (IDC) to international institutions, which includes compulsory and voluntary contributions, as well as capital contributions to International Financial Institutions (IFIs).

FIGURE 1
Share of the Brazilian IDC's contributions to international organizations in relation to total expenditure (2005-2021) (In %)



Source: Ipea and ABC (2010; 2013; 2017; 2020); Ipea (2022a; 2022b).
Obs.: The figure does not include the capital integralization to the New Development Bank (NDB), amounting to R\$ 3.452 billion in 2021.

FIGURE 3
Net official development assistance to Brazil versus Brazilian expenditures in IDC (2005-2020)



Source: DAC/OECD; Ipea and ABC (2020); Ipea (2022b).
Obs.: ODA and Brazilian expenditures on IDC in 2020 current values. Nominal annual expenditure deflator: IPCA.

Some Brazilian guidelines for developing Integrity Policies: responsibility and management of social, environmental and climate risks

According to Brazilian laws, the Integrity Program is designed to offer anti-corruption measures aimed at preventing, detecting, and addressing wrongful acts against both national and foreign public administrations.

In its Integrity Program Report, the Office of the Comptroller General of the Union (CGU) outlines five key pillars that companies should adhere to when developing their integrity policies, ensuring compliance with the expectations set forth by the Clean Company Act.



Attention: There is no one size fits all integrity program!
Each Integrity Program must be developed to meet the company's needs according to the characteristics and risks of the company's business area.

- 1) Those are the ones with the responsibility to promote a culture of ethics and respect of laws and for the effective implementation of the Integrity Program.
- 2) This department must be autonomous, independent and unbiased to effectively operate and access the decision-making boards.
- 3) The company must know its own processes and organizational structure, identify its area of business, its main business partners to be able to assess the risk of committing the wrongful acts.
- 4) Each company must create or update its code of ethics or conduct and its rules, policies and procedures to prevent irregularities; define disciplinary and remediation measures for cases of violation and develop irregularity reporting or detection mechanisms, based on the company's characteristics, profiles and risks.
- 5) The company must define procedures to make the Integrity Program applicable to the company routine and develop mechanisms of continuous improvements and adjustments.

Source: CGU, Integrity Program, 2015.

Risks associated with climate change in Brazil, according to the Central Bank:

Box 6: Physical and transitional climate risks

Classification	Definition
TRANSITION RISKS	Possibility of losses for the institution caused by events associated with the process of transition to a low-carbon economy, in which the emission of greenhouse gases is reduced or compensated and the natural mechanisms for capturing these gases are preserved.
Policy and legal	Changes in legislation, regulations or governmental conduct, associated with the transition to a low-carbon economy, that negatively impacts the institution.
Technology	Technological innovation, associated with the transition to a low-carbon economy, that negatively impacts the institution.
Market	Change in the supply or demand for products and services, associated with the transition to a low-carbon economy, that negatively impacts the institution.
Reputation	Unfavorable perception of customers, the financial market or society in general that negatively impacts the institution's reputation in terms of its contribution to the transition to a low-carbon economy.
PHYSICAL RISKS	Possibility of losses to the institution caused by events associated with frequent and severe weather or long-term environmental changes, which may be related to changes in climate patterns.
Acute	Extreme weather conditions including drought, inundation, flood, storm, cyclone, frost, and wildfires.
Chronic	Permanent environmental change, including sea level rise, scarcity of natural resources, desertification, and change in rainfall or temperature patterns.

Source: Laclima, FGV Law SP, 2022.

According to Laclima and FGV Law SP Report, during decision making processes or during creation of integrity programs, companies should pay attention on climate governance to indicate how the company manages decisions related to climate change.

The report mention two key aspects on this topic:

- Internal governance of responsibility for managing climate risks and opportunities, including the information reporting chain, the frequency of senior leadership discussions and deliberation on climate issues, the existence of committees specializing in climate issues, and whether the Board of Directors with expertise on the subject.
- Linking executive compensation to ESG performance, including the climate topic.

Source: Laclima, FGV Law SP, 2022.

Companies must also address their stance on managing social and environmental issues to access financial institutions regulated by the Brazilian Central Bank. The Bank has established social and environmental (S&E) criteria that must be met to secure credit from Brazilian banks.

Regulation on S&E sustainability

Norm	Scope	Comments
CMN Resolution No. 3,545/2008	Rural Credit - Amazon	It is mandatory the documentation of environmental compliance (to be provided by the borrowers to the financial institutions).
CMN Resolution No. 3,814/2009	Rural Credit - Sugar cane crop expansion	Regulation forbids financing for crop expansion in Amazon, Pantanal and other zones.
CMN Resolution No. 3,876/2010	Rural Credit - Slave-like work conditions	Regulation forbids rural credit granting either to individuals/businesses who keep workers in slave-like conditions.
CMN Resolution No. 3,896/2010	Rural Credit - Low Carbon Agriculture	Through the 'ABC Program', the Brazilian Development Bank (BNDES) finances sustainable agricultural activities (low-carbon emission practices).
CMN Resolution No. 4,008/2011	Credit for mitigation/adaptation to climate change	Specific credit funded by resources from the National Plan for Climate Change (FNMC).
CMN Resolution No. 4,327/2014	Financial Institutions E&S Responsibility	Guidelines for implementation of the PRSA by the entities regulated by BCB.
BCB's Circular No. 3,846/2017	Internal Process of Capital Adequacy Assessment - ICAAP	Mandatory disclosure of any kind of exposition to S&E risks in the financial institutions' risk assessment process and in the calculation of the capital adequacy.

Source: Brazilian Central Bank website

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