Landscape of Climate Finance for Land Use in Brazil 2021-2023

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CLIMATE POLICY INITIATIVE

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About Climate Policy Initiative

Climate Policy Initiative (CPI) is an organization with international expertise in finance and policy analysis. CPI has seven offices around the world. In Brazil, CPI has a partnership with the Pontifical Catholic University of Rio de Janeiro (PUC-RIO). CPI/PUC-RIO works to improve the effectiveness of public policies and sustainable finance in Brazil through evidence-based analysis and strategic partnerships with members of the government, civil society, the private sector and financial institutions.

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List of Abbreviations and Acronyms

ABC Program National Program for Low-carbon emissions in Agriculture (*Programa para Redução da Emissão de Gases de Efeito Estufa na Agricultura - Programa ABC*)

AF Adaptation Fund

AFD French Development Agency (*Agence Française de Développement*)

AFS Agroforestry systems

ANP Brazilian National Agency for Petroleum, Natural Gas and Biofuels (*Agência Nacional de Petróleo, Gás Natural e Biocombustível*)

ASV Authorization for the Suppression of Vegetation (*Autorização de Supressão de Vegetação*)

B3 *Brasil, Bolsa, Balcão*

BCB Central Bank of Brazil (*Banco Central do Brasil*)

BNDES Brazilian Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social*)

BSM Brazil Without Extreme Poverty Plan (*Plano Brasil Sem Miséria*)

CAF Development Bank of Latin America (*Corporación Andina de Fomento*)

CAR Rural Environmental Registry (*Cadastro Ambiental Rural*)

CBIOs Decarbonization Credits *(Crédito de Descarbonização*)

CBS Climate Bonds Standard

CEMADEN National Center for Natural Disaster Monitoring and Alert (*Centro Nacional de Monitoramento e Alerta de Desastres Naturais*)

CIF Climate Investment Funds

CMN National Monetary Council (*Conselho Monetário Nacional*)

COFA Amazon Fund Guidance Committee (*Comitê Orientador do Fundo Amazônia*)

DAC/OECD Development Assistance Comittee/ Organization for Economic Cooperation and Development

DR Rural Duplicate (*Duplicata Rural*)

EMBRAPA Brazilian Agriculture Research Corporation (*Empresa Brasileira de Agropecuária*)

ESG Environmental, Social and Governance

FAT Workers' Support Fund (*Fundo de Amparo ao Trabalhador*)

FCFs Constitutional Financing Funds (*Fundos Constitucionais de Financiamento*)

FCO Constitutional Financing Fund of the Midwest Region (*Fundo Constitucional de Financiamento do Centro-Oeste*)

FINAME Fund for the Purchase of Industrial Machines and Equipment (*Fundo de Financiamento para Aquisição de Máquinas e Equipamentos Industriais*)

FNE Constitutional Financing Fund of the Northeast Region (*Fundo Constitucional de Financiamento do Nordeste*)

FNMC National Fund for Climate Change (*Fundo Nacional sobre Mudança do Clima*)

FNO Constitutional Financing Fund of the North Region (*Fundo Constitucional de Financiamento do Norte*)

FUNAI Brazilian Indigenous Peoples Foundation (*Fundação Nacional dos Povos Indígenas*)

FUNBIO Brazilian Biodiversity Fund (*Fundo Brasileiro para a Biodiversidade*)

GCF Green Climate Fund

GEF Global Environmental Facility

GI Geographical Indication

GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit *(German International Cooperation Agency)*

GHG Greenhouse Gas

GLP Green Loan Principles

IADB Inter-american Development Bank

IBAMA Brazilian Institute of Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis*)

ICMBIO Chico Mendes Institute for Biodiversity Conservation (*Instituto Chico Mendes de Conservação da Biodiversidade*)

IFAD International Fund for Agricultural Development

INMA National Institute of the Atlantic Forest (*Instituto Nacional da Mata Atlântica*)

INPA National Institute for Research in the Amazon (*Instituto Nacional da Mata Atlântica)*

INPE National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais*)

INSA National Institute for the Semi-Arid Region (*Instituto Nacional do Semiárido*)

IPCA Extended National Consumer Price Index (*Índice Nacional de Preços ao Consumidor Amplo*)

IPO Initial Public Offering

IRDB International Bank for Reconstruction and Development

ISSB International Sustainability Standards Board

JBRJ Rio de Janeiro Botanical Garden Research Institute (*Instituto de Pesquisa Jardim Botânico do Rio de Janeiro*)

LANAGRO National Agricultural Laboratory (*Laboratório Nacional Agropecuário*)

LCA Agribusiness Letter of Credit (*Letra de Crédito do Agronegócio*)

MDBs Multilateral Banks

MCFs Multilateral Climate Funds

MCR Rural Credit Manual (*Manual de Crédito Rural*)

MIDR Ministry of Integration and Regional Development (*Ministério da Integração e do Desenvolvimento Regional*)

MMA Ministry of the Environment and Climate Change (M*inistério do Meio Ambiente e Mudança do Clima*)

MME Ministry of Mines and Energy (*Ministério de Minas e Energia*)

NDC National Determined Contribution

NICFI Norway's International Climate and Forest Initiative

NINT Natural Intelligence

NORAD Norwegian Agency for Development Cooperation

NPR Rural Promissory Notes (*Nota Promissória Rural*)

OECD Organization for Economic Co-operation and Development

OGU General Budget of the Union (*Orçamento Geral da União*)

PGPM Minimum Price Guarantee Policy (*Política de Garantia de Preços Mínimos*)

PRA Environmental Regularization Program (*Programa de Regularização Ambiental*)

PNMC National Policy on Climate Change (*Política Nacional de Mudança do Clima*)

PREVFOGO National Center for Forest Fire Prevention and Fighting (*Centro Nacional de Prevenção e Combate aos Incêndios Florestais*)

PROAGRO Agricultural Activity Guarantee Program (*Programa de Garantia da Atividade Agropecuária*)

PRONAF National Program for Strengthening Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar*)

PSR Rural Insurance Premium Subsidy Program (*Programa de Subvenção ao Prêmio do Seguro Rural*)

PTDRS Territorial Plans for Sustainable Rural Development (*Planos Territoriais de Desenvolvimento Rural Sustentável*)

R&D Research and Development

RENOVAGRO Program for Financing Sustainable Agricultural Production Systems (*Programa para Financiamento a Sistemas de Produção Agropecuária Sustentáveis*)

RENOVABIO National Policy for Biofuels (*Política Nacional de Biocombustíveis*)

SAR Amazônia System (*Sistema Amazônia*)

SCN System of National Accounts (*Sistema de Contas Nacionais*)

SES/SUSEP Statistics System of the Superintendence of Private Insurance (*Sistema de Estatísticas da Superintendência de Seguros Privados*)

SFB Brazilian Forest Service (Serviço Florestal Brasileiro)

SGDC Geostationary Defense and Communications Satellite (*Satélite Geoestacionário de Defesa e Comunicações*)

SICOR Rural Credit and PROAGRO Operations System *(Sistema de Operações do Crédito Rural e do PROAGRO*)

SIOP/MPO Planning and Budget Integrated System/ Ministry of Planning and Budget (*Sistema Integrado de Planejamento e Orçamento/Ministério do Planejamento e Orçamento*)

SIPAM Amazon Protection System (*Sistema de Proteção da Amazônia*)

SNCR National Rural Credit System (*Sistema Nacional de Crédito Rural*)

SNPA National Agricultural Research System (*Sistema Nacional de Pesquisas Agropecuárias*)

SNUC National System of Protected Areas (*Sistema Nacional de Unidades de Conservação*)

TCFD Task Force on Climate-related Financial Disclosures

TCU Brazilian Court of Accounts (*Tribunal de Contas da União*)

UN United Nations

UNFCC United Nations Framework Convention on Climate Change

URTs Technological Reference Units (*Unidades de Referência Tecnológica*)

ZARC Agricultural Climate Risk Zoning (*Zoneamento Agrícola de Risco Climático*)

ZARC NM ZARC Management Level (*ZARC Nível de Manejo*)

Introduction

What is Climate Finance?

Climate finance refers to capital flows that have direct or indirect effects on GHG mitigation or generate adaptation to climate change. Flows can also be directed towards activities with dual benefits when they contribute to both mitigation and adaptation. According to the United Nations Framework Convention on Climate Change (UNFCCC), climate finance resources can originate locally, nationally, or transnationally and come from public, private, or alternative sources (UNFCCC nd).

What is Land Use?

This work maps climate finance for land use, which includes:

Agriculture: Agricultural production, from the primary sector to activities in the secondary sector of this value chain, such as agro-industry. This category also includes infrastructure on rural properties, the purchase and production of inputs, rural extension activities, and financial services. It also covers measures for energy efficiency in agro-industry and the generation of renewable energy from sugar cane or agricultural waste, such as the production of biofuels. Finally, it includes policy planning and management, as well as research and development for agriculture.

Forests: Conservation, restoration, and reforestation activities, as well as economic exploitation, such as planted forests. This category also includes policies to combat deforestation, environmental and land regularization, territorial planning, and protection and support for indigenous peoples.

Multisectoral: Policies and projects aimed at reducing vulnerability to climate change, including monitoring and surveillance systems for meteorology, natural disaster alerts, and risk management for hydrological and geological events, among others.
For more details, see the list of climate-aligned activities in Appendix I and the definition of sectors in Appendix III.

In Brazil, activities related to land use play a central role in decarbonizing the economy, as agriculture and deforestation together account for three-quarters of the country's greenhouse gas (GHG) emissions (SEEG 2023). At the same time, the sector has great potential to lead climate solutions, being largely responsible for removing GHGs from the atmosphere.

It is, therefore, necessary to mobilize resources and develop finance strategies that promote the transition to low-carbon, regenerative agriculture—through the adoption of practices such as integrated crop-livestock-forest systems, no-till farming, and crop rotation—combat deforestation and the degradation of native vegetation, support forest restoration and increase climate resilience.

With the aim of identifying climate finance for land use in Brazil, **researchers from Climate Policy Initiative/Pontifical Catholic University of Rio de Janeiro (CPI/PUC-RIO) quantify the financial flows directed toward agriculture and forests between 2021 and 2023 that are aligned with climate objectives.** The work identifies the origin and source of these resources, the disbursement channels and financial instruments used, which sectors are benefiting, and the climate use. Finally, the report identifies opportunities for climate finance for the land use sector in Brazil.

This document is the second edition of the report, the first having been published in 2023, covering the period from 2015 to 2020. The information in this study allows for the continuous monitoring of the status of climate finance for land use in Brazil, serving as a guide to direct efforts and available resources. From the detailed analysis of the data, it is possible to identify five trends over the period tracked (2021-2023):

Trends 2021-2023

1 **There has been a significant increase in climate finance for land use in the country, from an average of US$ 8.6 billion per year between 2015 and 2020 to an annual average of US$ 17.1 billion between 2021 and 2023.** The report notes that part of this increase is due to the self-declared registration of sustainable practices, a requirement for obtaining better credit conditions. This indicates increasing recognition of the importance of the climate agenda in Brazil, particularly as a result of efforts to improve agricultural policy instruments, incorporate socio-environmental requirements, and monitor rural credit operations.

2 **One trend that remains relevant is that domestic finance continues to be the driving force behind the climate agenda in the land use sector, accounting for 97% of tracked resources.** This suggests that, despite the change of government and the adoption of a policy committed to the environment and climate, attracting significant volumes of international resources for climate finance in the land use sector in Brazil is no simple task and will require greater clarity and ambition regarding the guidelines and targets adopted.

3 **A significant portion of climate finance comes from private resources directed by public policies**, such as the Agricultural Plan *(Plano Safra)* and the National Policy for Biofuels (*Política Nacional de Biocombustíveis* - RENOVABIO). Capital market instruments also play an important role in channeling private resources, but they are mainly used to finance consolidated sectors in Brazil, such as biofuels, bioenergy, and planted forests. One point of note, however, is the move away from thematic bonds in the land use sector over the last three-year period tracked.

4 **The native forest sector depends mostly on resources from the federal public budget, supplemented by flows from international sources.** Government spending, which had been on a downward trend since 2016, picked up between 2021 and 2023, reaching pre-Bolsonaro government levels. On the other hand, the administrative budgets of key agencies for environmental preservation, combating deforestation and fires, and protecting indigenous peoples, such as the Brazilian Institute of Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais* - IBAMA), the Chico Mendes Institute for Biodiversity Conservation (*Instituto Chico Mendes de Conservação da Biodiversidade* - ICMBIO), the Brazilian Indigenous Peoples Foundation *(Fundação Nacional dos Povos Indígenas* - FUNAI) and the direct administration of the Ministry of the Environment and Climate Change (*Ministério do Meio Ambiente e Mudança do Clima* - MMA), remained stagnant.

5 **Loss and damage flows, which aim to address the impacts of adverse weather events, grew significantly between 2021 and 2023 due to compensation paid by the federal government via programs such as the Agricultural Activity Guarantee Program (*Programa de Garantia da Atividade Agropecuária* - PROAGRO) and the Crop Guarantee Fund (*Fundo Garantia Safra*)**. In a context in which rural producers are increasingly impacted by extreme weather events and agriculture losses are expected to worsen due to droughts, floods, and fires, it is essential that the Brazilian Agricultural Plan improves risk management policies in agriculture.

Main Results

Climate finance for land use in Brazil had an annual average of US$ 17.1 billion between 2021 and 2023. This figure represents growth of 99% compared to the period between 2015 and 2020, in which an average of US$ 8.6 billion per year was tracked, according to a previous CPI/PUC-RIO study (Chiavari et al. 2023). This growth, driven by rural credit, partly reflects the greater self-reporting of sustainable practices, with a view to obtain more advantageous credit conditions.

Most of tracked resources come from domestic sources, with Brazil as the origin and destination of climate finance, with US$ 16.6 billion per year (97%). **Private sources accounted for 72% of domestic climate finance (US$ 11.9 billion)**. The Agricultural Plan is an important driver of these flows due to the obligation of financial institutions to direct resources to rural credit. The RENOVABIO also played an important role in mobilizing private resources from fuel distributors for the purchase of Decarbonization Credits (*Créditos de Descarbonização* - CBIOs).

International flows mobilized US$ 551 million per year (3%) in climate finance for land use. These resources came mainly from public sources: multilateral banks (US$ 331 million per year), international governments (US$ 155 million per year), and climate funds (US$ 47 million per year). Flows from international governments were mostly destined for the native forest sector, channeling US$ 90 million per year (58%), with the German and Norwegian governments together providing 77% of these funds.

Rural credit is the main instrument for financing activities aligned with climate objectives for land use in the country and is responsible for channeling US$ 9.9 billion per year between 2021 and 2023, which corresponds to 58% of the total tracked. However, this amount represents only 15,5% of total rural credit operations in the country during this period, which averaged US$ 63.7 billion per year. This share increased from 10% in 2019 to 18% in 2023.[1]

Agriculture risk management instruments mobilized US$ 2.6 billion per year, 15% of the total resources tracked. These instruments are the main mobilizers of the climate adaptation agenda, allocating US$ 1.4 billion per year, which represents 54% of the flows tracked for adaptation in the three-year period analyzed. The Rural Insurance Premium Subsidy Program (*Programa de Subvenção ao Prêmio do Seguro Rural* - PSR) accounted for the largest share, channeling an average of US$ 1.1 billion per year.

Thematic bonds—capital market instruments aimed at raising funds to promote investments with social and environmental benefits—were the third most used instrument tracked, raising an average of **US$ 2.5 billion per year**, or 14% of total climate finance for land use.

These funds went to the bioenergy and biofuels (44%) and forest (37%) sectors and for planted forests. However, over the period analyzed, the thematic bonds moved away from the land use sector, going from US$ 4.2 billion in 2021 to just US$ 0.5 billion in 2023.

1 This report only considers the costing, investment, and industrialization purposes of rural credit, disregarding operations for commercialization purposes, both in terms of climate flows and total operations. The commercialization purpose represented 11% of the total rural credit granted over the period.

The federal public budget has channeled US$ 561 million per year in resources aligned with climate objectives, with a growth of 47% between 2021 and 2023, and accounting for 70% of the flows to the native forest sector (US$ 420 million per year). However, flows from government spending are 40% lower than the average tracked between 2015 and 2020, with a significant impact on the administrative budget of the MMA and its agencies.

The crop sector was the main recipient of climate finance, receiving an average of US$ 12.4 billion per year, which corresponds to 74% of land-use flows over the period tracked.

The bioenergy and biofuels sector received US$ 1.9 per year (11%), an increase of US$ 1.5 billion per year compared to what was tracked between 2015 and 2020.

The forest sector received US$ 1.6 billion per year, 9% of the tracked flows, more than half of which went to the planted forest sector through thematic bonds and finance from the Brazilian Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social* - BNDES).

Flows for climate mitigation made up most of the flows tracked, totaling US$ 9.8 billion per year (57%). Resources for climate adaptation totaled US$ 2.7 billion per year (16%), and multiple resources, which include both mitigation and adaptation objectives, totaled US$ 3.5 billion per year (20%).

Expenditure on climate losses and damage mobilized US$ 1.2 billion per year (7%), with growth of 386% between 2021 (US$ 0.4 billion) and 2023 (US$ 2.0 billion). These flows came from compensation paid by the federal government for climate losses in agriculture, of which US$ 1.1 billion (93%) went to the PROAGRO.

Methodology

This report utilizes a methodology to quantify and compare financial flows for land use with climate action components between mitigation, adaptation, dual benefits (mitigation and adaptation), and loss and damage. This approach builds on CPI's international experience in tracking global, regional, and national climate finance developed over more than ten years, starting with the Global Landscape of Climate Finance (Buchner et al. 2023), and is constantly being improved.

This is the second edition of the Landscape of Climate Finance for Land Use in Brazil. The first edition covers the period from 2015 to 2020 (Chiavari et al. 2023); this new edition updates the results for the period from 2021 to 2023. The improved analysis of the data revealed an 18% increase in flows in the previous period mainly the result of a more precise delimitation of rural credit flows.[2]

The methodological criteria adopted in this publication to classify the activities tracked as aligned with climate objectives have been adapted to the Brazilian context. This results in the inclusion of public policies aimed at protecting the rights of indigenous peoples and financing their activities, environmental and land-title regularization, land use planning and combating deforestation, and agricultural practices compatible with the tropical crop model developed in Brazil. Four sources of information were used to incorporate climate criteria for land use in the country:

1. **CPI** - Agriculture and forest-related activities aligned with climate objectives (Rosenberg et al. 2018; Chiriac, Naran, and Falconer 2020; Buchner et al. 2021).
2. **Public Consultation no. 82 of 2021 of the Central Bank of Brazil (*Banco Central do Brasil* - BCB)** - Sustainability criteria applicable to the granting of rural credit (BCB 2021).[3]
3. **CPI/PUC-RIO** - Government policies and actions for the conservation and restoration of forests and for the development of sustainable agriculture that contributes to achieving Brazil's Nationally Determined Contribution (NDC) climate targets (Antonaccio et al. 2018).
4. **Rio Markers for climate change from the Development Assistance Committee of the Organization for Economic Co-operation and Development (DAC/OECD)** - Finance flows aligned with UNFCCC objectives (OECD 2018).

2 The Landscape of Climate Finance for Land Use in Brazil (Chiavari et al. 2023) presented an average of US$ 6.6 billion billion per year, corrected to December 2020. With the methodological improvements included in this version, the new value tracked is US$ 7.8 billion, an increase of 18%. Considering that the figures in this report are presented with monetary correction for December 2023, the average presented here for the period 2015 to 2020 is US$ 8.6 billion per year.

3 Although not listed in the BCB's public consultation No. 82, all the lines of the Program to Reduce Greenhouse Gas Emissions in Crops (ABC+ Program), the National Program to Strengthen Family Farming under the ABC (PRONAF ABC+) and the Northern Constitutional Finance Fund under the ABC (FNO-ABC) were considered to be climate-aligned.

Appendix I presents a detailed list of the criteria used to define which financial flows are aligned with climate objectives in this work. The criteria are divided as follows:

- **Climate use:** (i) mitigation; (ii) adaptation; (iii) mitigation and adaptation; (iv) loss and damage.[4]
- **Area:** (i) rural credit policy; (ii) agriculture risk management; (iii) government spending; (iv) capital markets and other financial instruments; (v) international development and cooperation.
- **Sectors:** (i) crops; (ii) forests; (iii) cattle; (iv) bioenergy and biofuels; (v) multisectoral.

Appendix II describes the five areas relevant to climate finance in Brazil, as well as specifying the databases used for each one. An important methodological precaution was to avoid double-counting financial flows.

This work tracked resources from public and private sources, both domestic and international, extending the research of the previous study to the period from 2021 to 2023. The financial flows were adjusted for Inflation, consumer prices for the United States (FPCPITOTLZGUSA), with December 2023 as the reference. For finance originally granted in a currency other than the US dollar, such as Brazilian Reais or Euros, the amounts were converted into US dollars using the average exchange rate for the year corresponding to the flow and then adjusted by the FPCPITOTLZGUSA.

The main source of data for the international development and cooperation session is the OECD's Development Finance for Climate and Environment report (OECD 2024). The most recent data available is for 2022. For the 2023 data, the analysis used primary data provided directly by the main sources of international resources tracked, in particular multilateral banks (MDBs), international governments, and international climate funds. This was necessary in order to make the data presented in this section compatible with the other databases used in the rest of the report. In future editions of this report, data for 2023 provided by the OECD will be incorporated for a more reliable tracking of international flows.

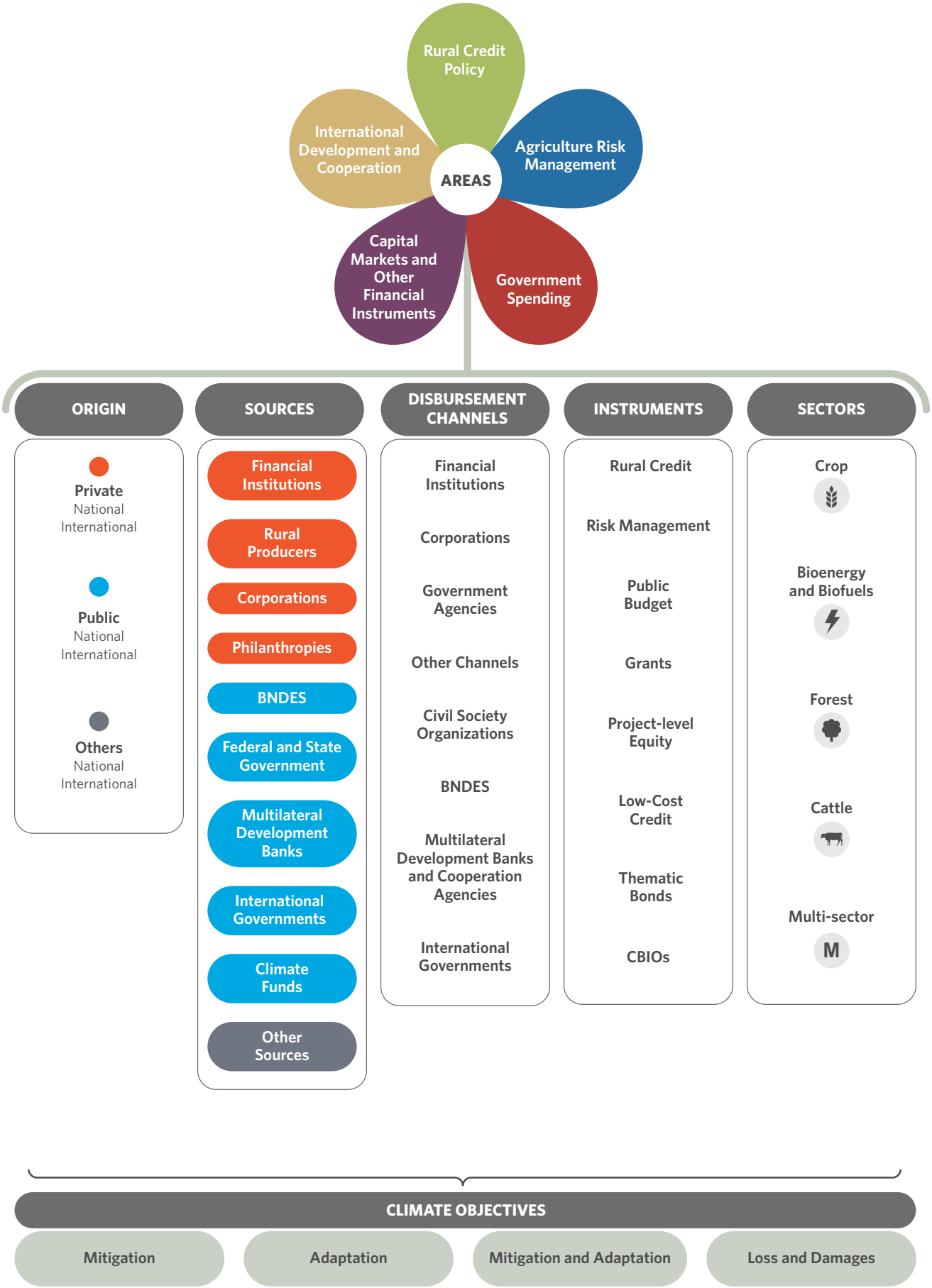
An innovation in this edition of the report was the inclusion of the category of loss and damage among climate uses and the classification and quantification of financial flows earmarked for this agenda. Loss and damage is considered the third pillar of climate action, along with adaptation and mitigation (Broberg and Romera 2020). Unlike adaptation, they take place after the occurrence of climate events and are concerned with the mitigation of the economic and non-economic effects of these events, whether acute or chronic (Stout 2023). This report considers rural compensations expenses for climate losses to be only those resulting from government programs that subsidize these costs, based on the understanding that the compensation paid by private insurers is represented in the policy premium paid by the contractor. This new category has been included because of the significant growth in these compensations caused by climate events and the expectation of an increase in agriculture losses caused by such phenomena in the future.

4 The highlighting of the climate use "loss and damages" is an innovation compared to the previous report, introduced due to the increase in public compensation flows for climate losses in agriculture.

The tracking of climate finance is challenged by a lack of transparency in the application of public and private climate-aligned resources. Private resources especially lack transparency regarding their application and tend to be underreported due to a lack of information about their flows. Consistent alignment with the practices of the environmental, social, and governance (ESG) agenda requires broad disclosure of activities for monitoring by society and shareholders, ensuring a better understanding of the implementation and impact of projects. Clearer and more accessible disclosure of information would allow for more accurate estimates of private resources aligned with climate objectives.

Figure 1 presents the Climate Finance Ecosystem for land use in Brazil, organizing financial flows into five areas: rural credit policy, agriculture risk management, government spending, capital markets and other financial instruments, and international development and cooperation (described in Appendix II). The ecosystem structures the relationship between the different types of actors involved and characterizes climate-aligned financial flows. The databases searched for the five areas of climate finance made it possible to extract information to characterize the flows in terms of the origin of resources, sources of resources, disbursement channels, instruments, sectors, and climate use. Definitions for each of the categories and subcategories in this figure can be found in Appendix III.

Figure 1. Climate Finance Ecosystem for Land Use in Brazil



Source: *CPI/PUC-RIO, 2024*

Landscape of Climate Finance for Land Use

Climate finance for land use in Brazil had an annual average of US$ 17.1 billion for the period between 2021 and 2023. Figure 2 shows that there has been a significant increase of 99% in the flows identified compared to the average of US$ 8.6 billion per year in the previous period analyzed. The growth in tracked climate finance represents both the greater mobilization of resources for the agenda and the reclassification of flows as sustainable. The introduction of more favorable credit conditions for practices aligned with climate objectives encouraged the declaration of sustainable practices, without this necessarily representing the adoption of new practices. This reclassification is partly responsible for the growth shown in Figure 2.

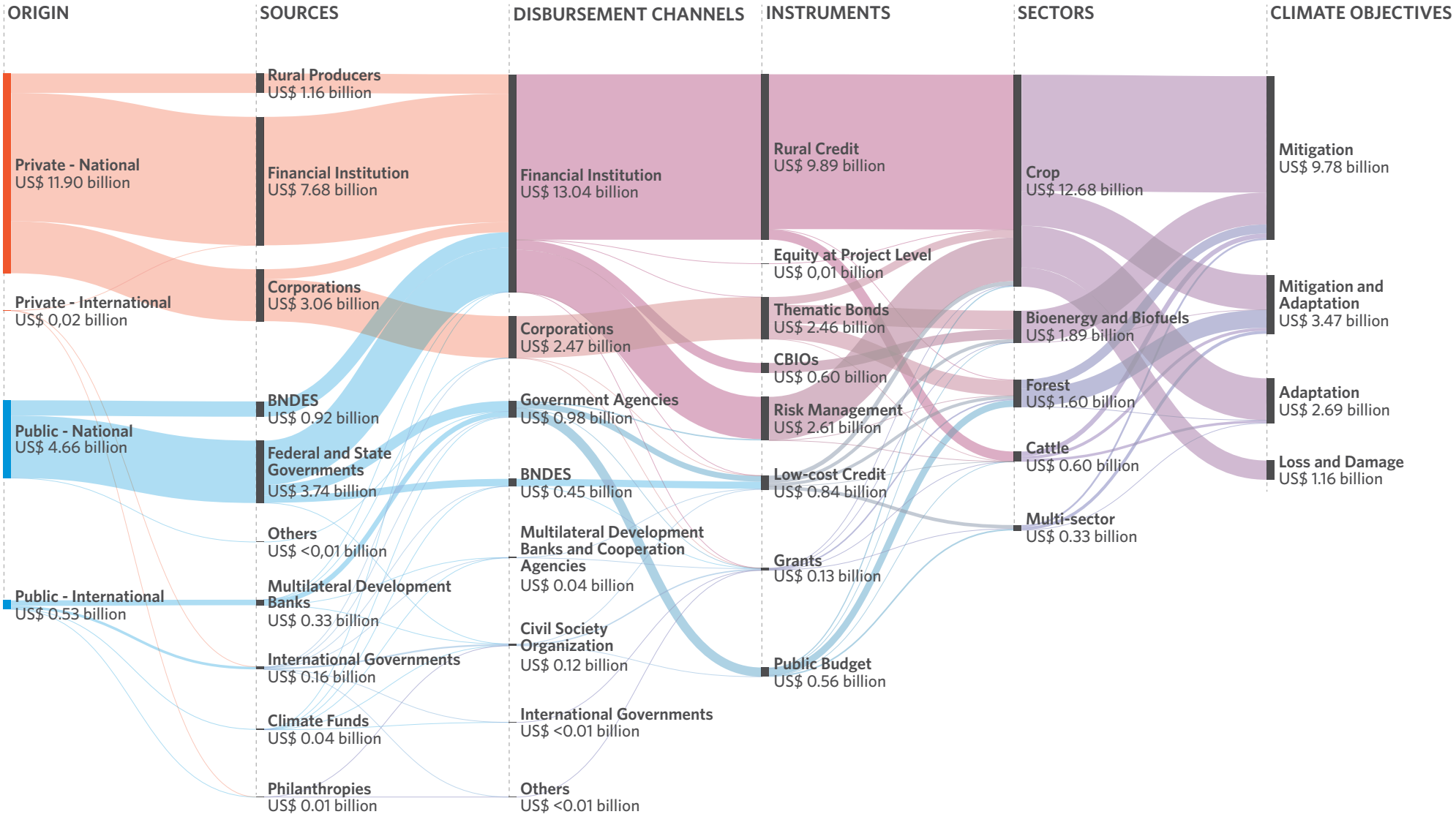
Figure 2. Evolution of Climate Finance for Land Use, 2015-2023

Note: *The figures refer to the annual average, adjusted based on the IPCA, with reference to December 2023.*
Source: *CPI/PUC-RIO with data from SICOR/BCB (2023), SIOP/MPO (2023), MAPA (2023), SES/SUSEP (2023), MMA (2023), BNDES (2023), MME (2023), B3 (2023), NINT (2023), OECD-DAC (2022), IDB (2023), IBRD (2023), KfW (2023), GEF (2023), NORAD (2023), German Federal Ministry for Economic Cooperation and Development (2023), 2024*

Figure 3 shows the Landscape of Climate Finance for Land Use in Brazil through a Sankey diagram, illustrating the flows of public/private and domestic/international resources, as well as their sources, disbursement channels, and financial instruments. It also shows the sectors benefiting from these flows, and the climate use.

Figure 3. Landscape of Climate Finance for Land Use in Brazil, 2021-2023

Annual Average US$ 17.1 billion



Note: *The figures refer to the annual average, adjusted based on the IPCA, with reference to December 2023.*

Source: *CPI/PUC-RIO with data from SICOR/BCB, SIOP/MPO, MAPA, SES/SUSEP, MMA, BNDES, MME, B3, NINT, OECD-DAC, IDB, IBRD, KfW, GEF, NORAD, German Federal Ministry for Economic Cooperation and Development, 2024*

Resources for Land Use Climate Finance

Domestic sources contributed to the majority of the climate-aligned land use finance, accounting for US$ 16.6 billion per year, 97% of the total tracked. The private sector provided 72% of domestic finance (US$ 11.9 billion per year), largely thanks to public policies that mobilized private flows, such as rural credit and CBIOs, to land use investments. The main sources of domestic private resources were financial institutions (46%, or US$ 7.7 billion per year), corporations (18%, or US$ 3.1 billion per year), and rural producers with (7%, US$ 1.2 billion per year). The main domestic public actors tracked were the federal government (23%, or US$ 3.7 billion per year) and the BNDES (6%, or US$ 0.9 billion per year).

International sources mobilized US$ 551 million per year, representing 3% of the flows tracked, with 96% of this, equivalent to US$ 530 million per year, coming from public sources. Multilateral development banks were the main financiers of the climate agenda in land use in Brazil for the period, with 60% of international flows (US$ 331 million per year), with the Inter-American Development Bank (IADB) accounting for 33% (US$ 183 million per year) and the World Bank for 27% (US$ 148 million per year). International governments accounted for 29% of these flows, with Germany standing out with 14% (US$ 74 million per year) and Norway with 8% (US$ 44 million per year), especially in the forest sector.

Disbursement Channels

Disbursement channels are the institutions responsible for intermediating climate finance and allocating resources to different sectors. Financial institutions were responsible for 76% of total flows (US$ 13.0 billion per year), channeling both private national resources (72%, or US$ 9.4 billion per year) and public ones (28%, US$ 3.6 billion per year). Corporations channeled 14% of tracked resources (US$ 2.5 billion per year), coming almost exclusively from thematic bonds.

Government agencies channeled US$ 1.0 billion per year (6%), 64% of which came from the federal budget (US$ 625 million) and 36% from multilateral development banks, international governments and climate funds (US$ 351 million). The BNDES channeled US$ 451 million per year (3%) through direct and indirect finance from its portfolio.

Financial Instruments

Rural credit was the main instrument for financing activities aligned with climate objectives for land use in the country, accounting for US$ 9.9 billion per year between 2021 and 2023, which corresponds to 58% of the total tracked. Financial institutions were responsible for 78% of these resources, directed by the Agricultural Plan.

Agriculture risk management instruments mobilized US$ 2.6 billion (15%) through the PROAGRO, PSR, and Crop Guarantee Fund programs. These were mainly responsible for climate adaptation flows, with US$ 1.4 billion per year, 54% of the adaptation flows tracked in the period, and for all the spending on loss and damages tracked. The PSR accounted for the largest share of adaptation finance, with US$ 1.1 billion per year in climate flows.

Thematic bonds, capital market instruments aimed at obtaining resources to promote investments with social and environmental benefits, raised US$ 2.5 billion per year (14%) in climate finance for land use. These funds went mainly to bioenergy and biofuels (US$ 1.1 billion, or 44%), and forest (US$ 0.9 billion, or 37%), concentrated in planted forests.

Low-cost credit, facilitated by development institutions and international agents, mobilized US$ 842 billion per year (5%). The main player in this agenda is the BNDES, providing US$ 426 billion per year, which in this three-year period concentrated its activities in the areas of bioenergy, biofuels, and forests. Among the international players, multilateral development banks mobilized US$ 328 million per year (39%), while international governments mobilized US$ 76 million per year (10%).

CBIOs, the main instrument implemented by the RENOVABIO, mobilized US$ 600 million per year (3%). Since 2019, the program has financed efforts that have avoided emissions of 109 million tonnes of CO2 equivalent.

The federal public budget has mobilized US$ 560 million per year, with growth of 48% between 2021 and 2023. The forest sector is the main recipient of these resources, with US$ 400 million per year (71%), through the work of strategic agencies for the maintenance of Brazil's native forests such as the MMA, IBAMA, ICMBIO, FUNAI, and the Brazilian Forest Service (*Serviço Florestal Brasileiro* - SFB).

Tracked grants amounted to US$ 129 million per year, representing only 1% of the tracked climate finance for land use, with US$ 112 million per year coming from international sources (86%). The Government of Norway was responsible for 34% of climate grants to the country's land use sector, with US$ 44 million per year for forest.

Sectors

The sector that received the most climate finance resources was crops, totalling US$ 12.7 billion per year, or 74% of the total tracked. The prominence of rural credit and agriculture risk management accounts for the volume of resources directed to this sector. Bioenergy and biofuels received US$ 1.9 billion per year in climate finance (11%), leveraged by thematic bonds (58%) and CBIOs (32%).

The forest sector received a total of US$ 1.6 billion per year, representing 9% of flows, half of the amount that was tracked between 2015 and 2020. The native forest sector received US$ 598 million per year, with 70% (US$ 420 million per year) channeled by the federal government through the public budget, and a further 15% (US$ 91 million) from international governments. Planted forests received US$ 1.0 billion per year, mobilized through thematic bonds (US$ 851 million) and low-cost credit from the BNDES (US$ 128 million).

Climate Use

Flows for climate mitigation accounted for most of the tracked resources, at US$ 9.8 billion per year (57%). Dual objective finance—going to projects that include both mitigation and adaptation objectives—totaled US$ 3.5 billion per year (20%). Resources earmarked exclusively for climate adaptation amounted to US$ 2.7 billion per year (16%), with the agriculture risk management sector accounting for 64% of these flows. Finally, spending on climate loss and damages totaled US$ 1.2 billion per year (7%), with growth of 386% between 2021 (US$ 0.2 billion) and 2023 (US$ 2.0 billion).

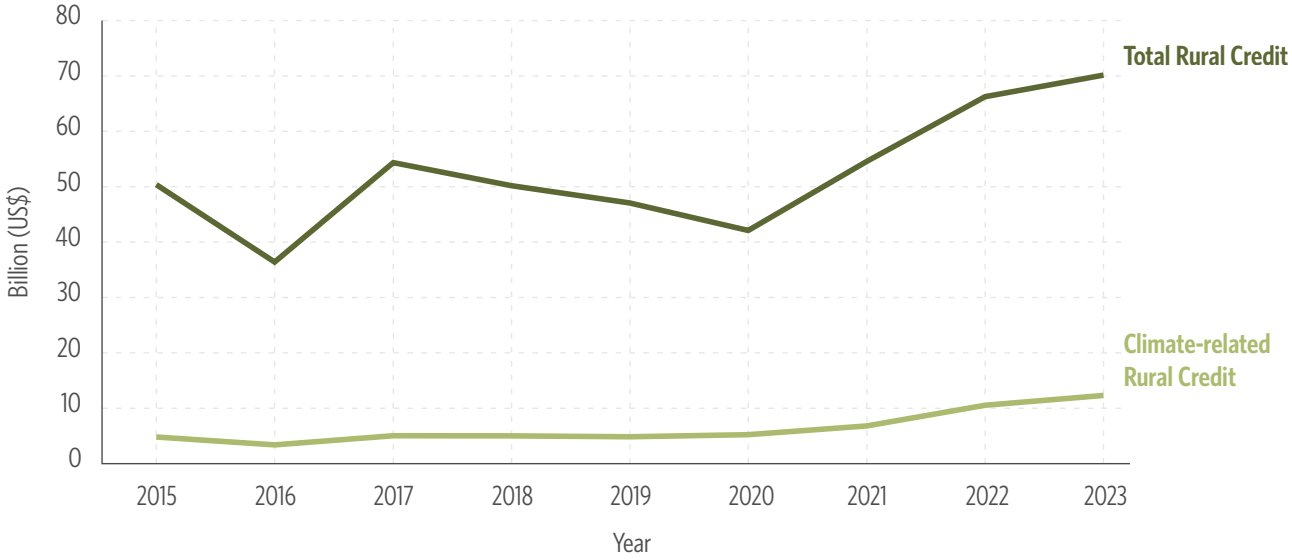
Rural Credit Policy

What is the Rural Credit Policy?

Rural credit is the main instrument used for financing Brazilian agriculture. Related resources and lines of finance are determined in the Agricultural Plan, announced annually by the federal government. Some credit lines offer special conditions for low-carbon crops and other sustainable practices. The Agricultural Plan is capable of fosteringsustainable practices in rural areas through the adoption of finance criteria and incentives associated with climate mitigation and adaptation objectives. These incentives can promote low-carbon agriculture, as in the case of the credit line of the Program for Financing Sustainable Agricultural Production Systems (*Programa de Financiamento a Sistemas de Produção Agropecuária Sustentáveis* - RENOVAGRO), or resilience to climate change through specific planting techniques such as no-till farming.

Rural credit was the instrument tracked as having the largest volume of climate finance for land use in Brazil between 2021 and 2023, at an average of US$ 9.9 billion per year. However, this figure represents only 16% of total rural credit operations in the country during the period, which averaged US$ 63.7 billion per year. Figure 4 shows the evolution of total rural credit, as well as rural credit classified as climate-related, between 2015 and 2023.[5]

Figure 4. Evolution of Total Rural Credit and Climate Credit, 2015-2023



Note: *Evolution of total rural and climate credit for the purposes of funding, investment and industrialization. The marketing purpose was not included.*
Source: *CPI/PUC-RIO with data from SICOR/BCB (2023), 2024*

5 The data for rural credit in this report only considers the purposes of funding, investment and industrialization, disregarding the purpose of commercialization. Rural credit for commercialization purposes was excluded from this analysis and from the calculation of the total amount of rural credit granted over the period, as it can be used to finance the purchase of products through the Minimum Price Guarantee Policy or for refinancing, such as discounting Rural Duplicates (*Duplicata Rural* - DR) and Rural Promissory Notes (*Nota Promissória Rural* - NPR). The annual average of rural credit granted considering all purposes—funding, investment, industrialization, and commercialization—was US$ 73.7 billion per year for the period 2021 to 2023.

The growth in climate-smart rural credit reflects not only an increase in resources earmarked for sustainable practices but also changes in transaction records. The criteria for classifying rural credit as climate-relevant follows the provisions of the BCB's Public Consultation no. 82. No-till farming account for 40% of the growth in climate-smart rural credit between 2019 and 2024. This agricultural practice was not registered in the Rural Credit and PROAGRO Operations System (*Sistema de Operações do Crédito Rural e do PROAGRO* - SICOR) until 2018, though it was widely used for crops such as soybeans, corn, and wheat. However, between 2021 and 2023, US$ 2.2 billion—or 23% of tracked rural credit—was categorized as climate credit solely because it was recorded in SICOR as no-till farming. This represents 13% of the total flows tracked for the period covered in this report. Therefore, part of the growth in rural climate credit reflects a change in database classification, rather than an increase in the allocation of resources to sustainable practices.

In addition, it is important to note that registration with SICOR involves no effective verification mechanisms. With the increase in discourse on sustainability in agriculture and its relationship with the credit agenda, the declaration of no-till farming has come to be viewed as a benefit, prompting a significant increase in registrations. This growth, therefore, may reflect producers' greater interest in reporting this practice.

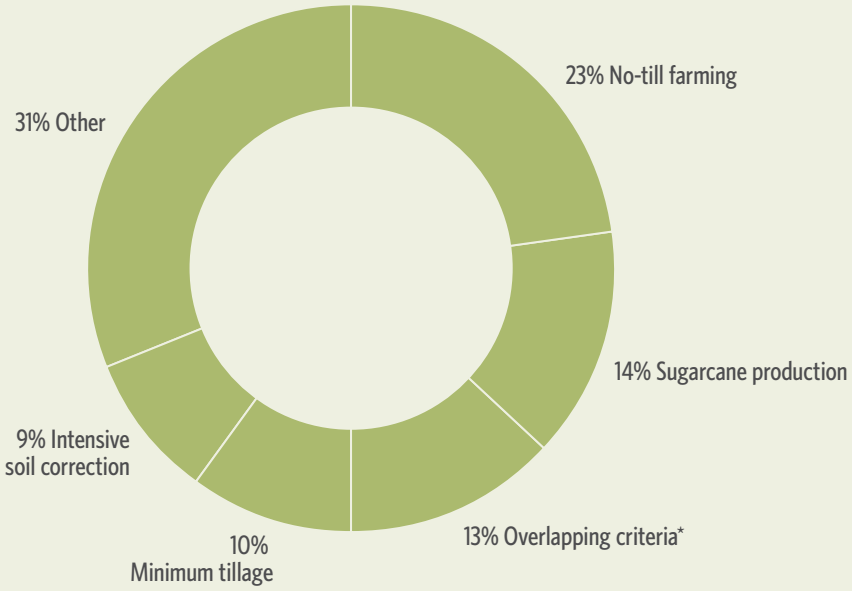
Furthermore, the term "no-till" covers a range of practices, and a better disaggregation of which of these have additionality from a climate perspective would be beneficial. Several national and international initiatives have sought to establish sustainability parameters applicable to the land use sector. While some of these initiatives focus on classification and monitoring, others have the broader objective of directing finance towards sustainable production. A detailed tracking and analysis of the intersections and complementarities between these initiatives is available in a report published by CPI/PUC-RIO (Oliveira et al. 2024). The Brazilian Sustainable Taxonomy—currently under development by the Ministry of Finance in partnership with other ministries, regulatory agencies, the private sector, academia, and civil society organizations—could offer more precise and transparent sustainability criteria for categorizing rural credit.

What Makes Up Climate Rural Credit?

The Central Bank's Public Consultation no. 82 of 2021 suggested sustainability criteria applicable to rural credit, using information on products, planting methods, and techniques adopted. The most relevant criteria between 2021 and 2023 are no-till farming, intensive soil correction, minimum tillage, and sugarcane production, which together account for 69% of tracked climate rural credit (Figure 5).

In particular, all sugarcane production is considered sustainable because it is associated with the production of biofuels, as per the criteria of Public Consultation no. 82. This criterion alone is responsible for the inclusion of US$ 1.4 billion per year, corresponding to 14% of rural climate credit.

Figure 5. Climate Rural Credit Criteria, 2021-2023

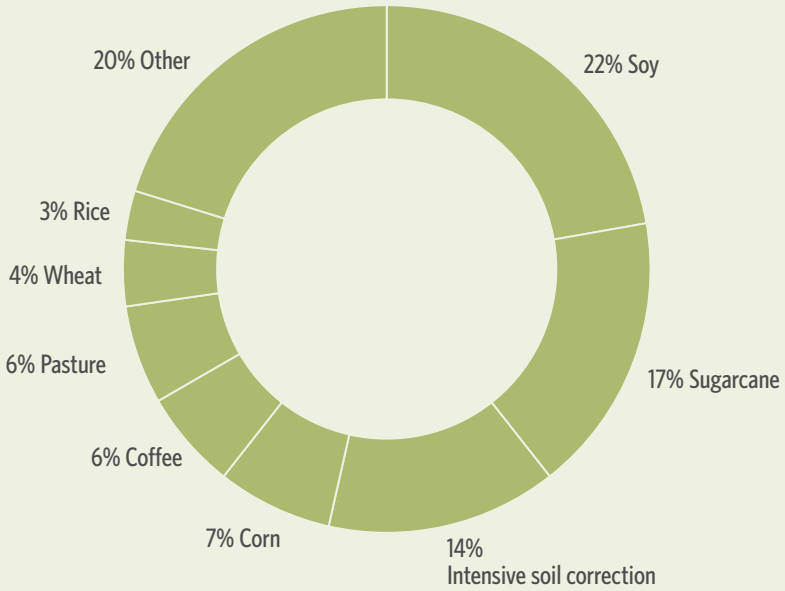


Note: *Overlapping criteria refers to rural credit associated with two or more criteria, among them direct planting, sugarcane, minimum tillage, and intensive soil correction.*
Source: *CPI/PUC-RIO with data from SICOR/BCB (2023), 2024*

Soy is the main product benefiting from climate rural credit, receiving US$ 2.2 billion per year, or 22% of the total tracked (Figure 6). Despite its significance among climate flows, this figure represents only 16% of the total rural credit for soybeans. The classification of soybean production as climate-relevant is due to the planting techniques used: no-till farming is the main reason, accounting for 75% of the rural credit tracked for this product, followed by minimum tillage and agro-sylvo-pastoral systems.[6]

6 This report considers only the purpose of commercialization.

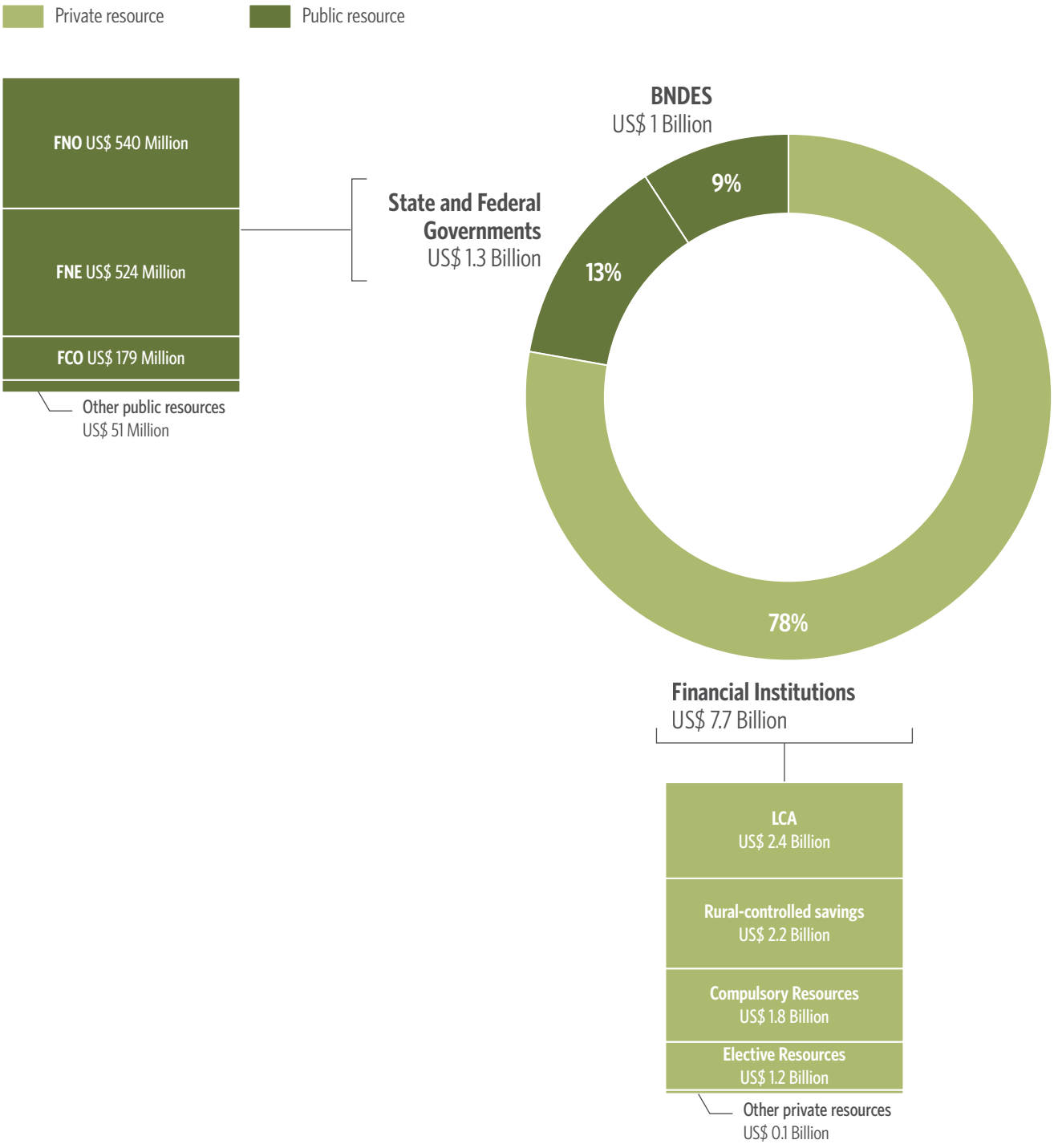
Figure 6. Climate Finance via Rural Credit by Product Financed, 2021-2023



Source: *CPI/PUC-RIO with data from SICOR/BCB (2023), 2024*

Private resources make up 78% of rural credit aligned with climate objectives, totaling US$ 7.7 billion per year, from financial institutions such as private and public banks and credit cooperatives (Figure 7). These resources are directed by the federal government's credit policy, which determines both the allocation and the conditions of finance. Therefore, these flows do not follow the usual market mechanisms. The Agricultural Plan is the main instrument of this policy, annually establishing a set of rules for agriculture finance, including the obligation to allocate part of current account and savings account resources to rural credit.

Figure 7. Climate Finance via Rural Credit by Source of Funds, 2021-2023



Source: *CPI/PUC-RIO with data from SICOR/BCB (2023), 2024*

In the 2023/2024 Agricultural Plan, there was an important change, making it compulsory to direct the funds raised through Agribusiness Letter of Credit (*Letra de Crédito do Agronegócio* - LCAs to rural credit operations from 35% to 50% (MAPA 2023). As a result, LCAs became one of the main sources of climate resources over the period covered by this report, with US$ 2.4 billion per year, or 24% of tracked credit.[7]

Finance from public resources amounted to US$ 2.4 billion per year, representing 22% of the total tracked for rural climate credit. The BNDES is an important financier of rural climate credit, with 9% of the flows tracked (US$ 0.9 billion per year). The federal government was responsible for 13% of the flows, with finance coming from the Constitutional Financing Fund of the North Region (*Fundo Constitucional de Financiamento do Norte* - FNO) (US$ 540 million per year), the Constitutional Financing Fund of the Northeast Region (*Fundo Constitucional do Nordeste* - FNE) (US$ 524 million per year) and the Constitutional Financing Fund of the Midwest Region (*Fundo Constitucional de Financiamento do Centro-Oeste* - FCO) (US$ 178 million per year).

A crucial issue is the need to measure the impacts of climate finance flows on the sustainability of crops and the reduction of GHG emissions. The *ABC Recuperação* credit line, which is the main instrument implemented in recent years for the recovery of degraded pastures in Brazil, has been found to have very limited effectiveness (Oliveira, Souza and Assunção 2024). Use of the credit does not generate a significant increase in the overall quality of pastures and causes very marginal changes in land use.

Another relevant consideration is how to ensure that climate finance flows generate economic incentives that promote sustainable agriculture and forest preservation in an integrated manner. An analysis of the subsidized rural credit granted to properties that deforested between 2020 and 2022 indicates that 31% of those that deforested accessed subsidized credit, totaling an average of R$ 14 billion (US$ 2.8 billion) per year (Mourão, Stussi and Souza 2024). This suggests that credit for sustainable practices, such as the direct planting of soybeans, may also be benefiting properties that deforest.

It is therefore not sufficient to increase the allocation of finance, but it is necessary to monitor the effectiveness of the use and impact of these resources. The more precise inclusion of climate criteria in rural credit is fundamental to promoting the sustainability of agriculture, aligning the sector with climate objectives. It is essential that the public resources allocated by the Agricultural Plan are consistent with these purposes (Mourão, Stussi, and Souza 2024). At the same time, better targeting of private resources can also strengthen agriculture that is compatible with the challenges of climate mitigation and adaptation.

7 An LCA is a fixed-income security issued by financial institutions to finance agribusiness through loans to rural producers, created by Law 11.076 of 2004 (B3 2024).

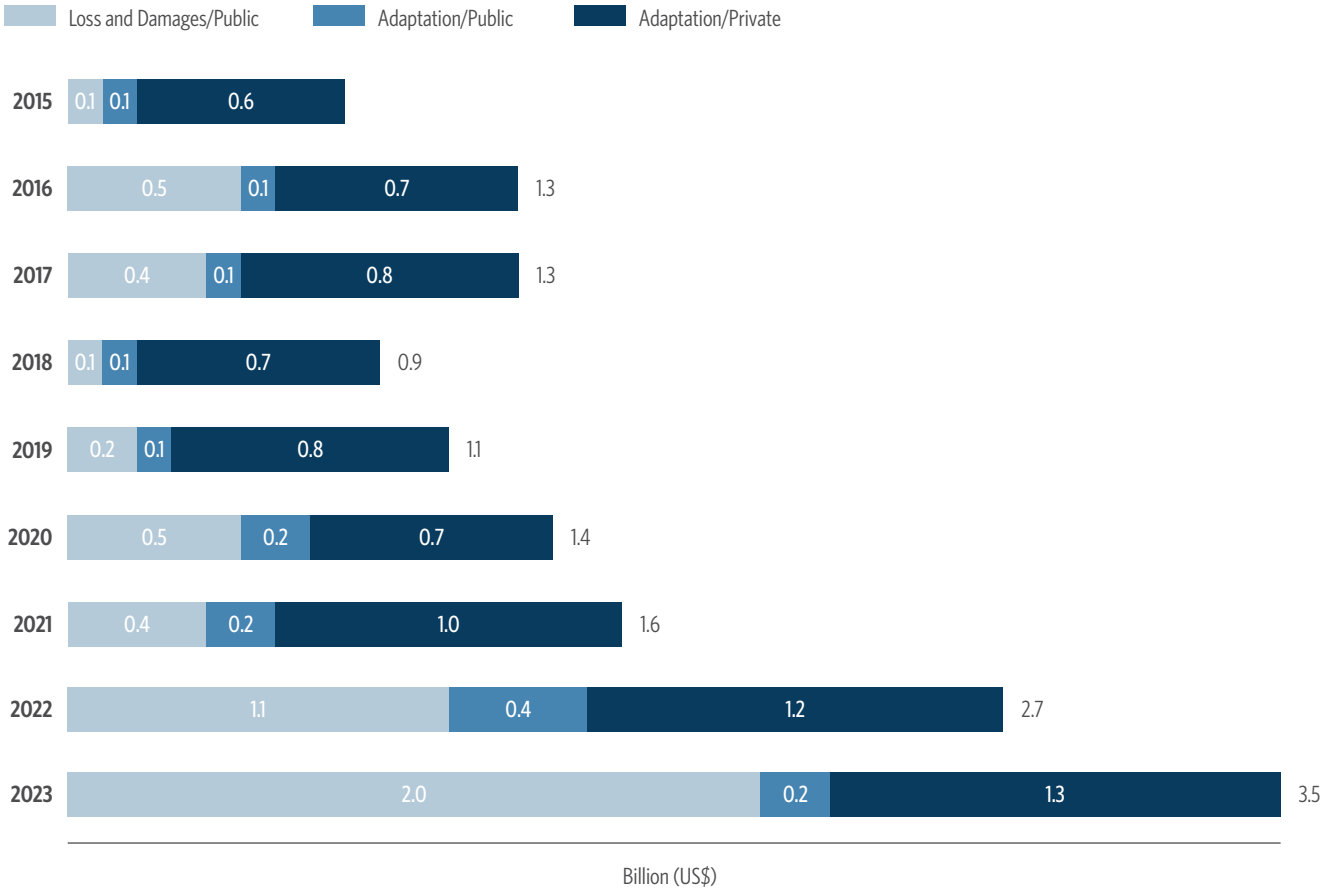
Agriculture Risk Management

What Is Agriculture Risk Management?

Agriculture risk management encompasses the rural insurance sector and other risk management instruments, protecting rural production against adverse climate events. With the increased frequency and intensity of extreme weather events, agriculture has become increasingly vulnerable. Protecting producers from damage caused by major droughts or floods makes it possible to resume farming in subsequent harvests. This chapter accounts for rural insurance flows guided by public policy support for subsidies aimed at increasing resilience in the countryside, including PROAGRO, the PSR, and the Crop Guarantee Fund.

Between 2021 and 2023, agricultural risk management instruments that were aligned with climate objectives totaled US$ 2.6 billion per year. Of this total, US$ 1.4 billion per year (55%) came from public sources. This significant public participation is mainly explained by resources for loss and damages, amounting to US$ 1.2 billion per year (44%). These amounts are associated with compensations paid by federal programs, such as PROAGRO and the Crop Guarantee Fund, to cover agricultural losses resulting from climate events. Figure 8 shows the growth in agricultural risk management flows, segmented by climate use and source of funds.

Figure 8. Climate Finance for Agriculture Risk Management, by Source of Funds and Climate Use, 2015-2023



Source: *CPI/PUC-RIO based on data from /BCB (2023), Siop/MPO (2023), MAPA (2023) and SES/SUSEP (2023, 2024*

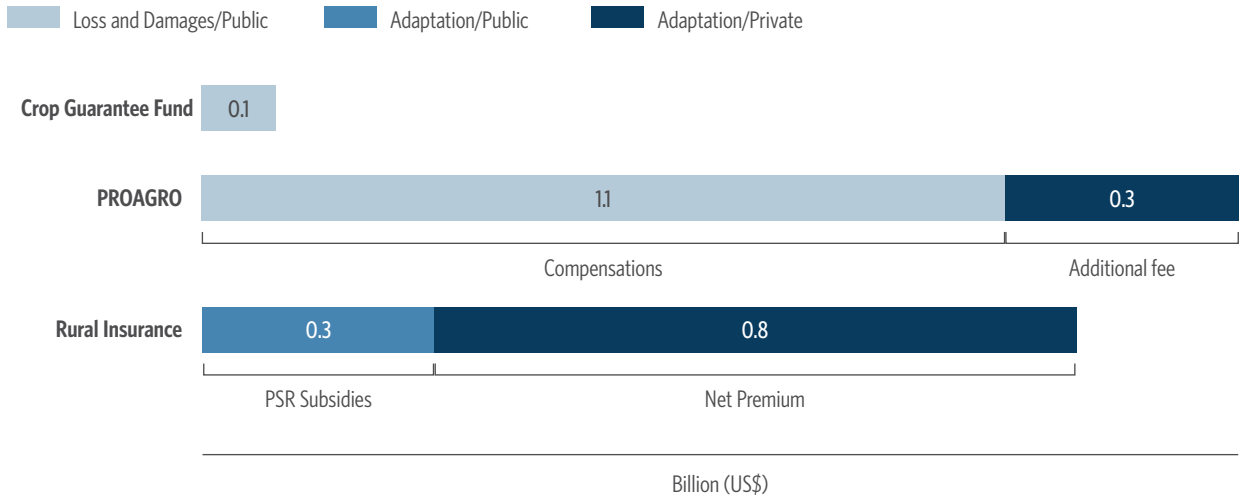
In Brazil, agricultural risk management is encouraged by public policies, as is rural credit. The main programs in this area are PSR, PROAGRO, Crop Guarantee Fund, and the Minimum Price Guarantee Policy (*Política de Garantia de Preços Mínimos* - PGPM) each with different forms of operation, objectives, and target beneficiaries.[8]

These instruments are the main mechanisms for climate adaptation in the area of land use, as they increase the resilience of agriculture activities and reduce vulnerability to adverse climate events, such as excessive rainfall and droughts (Chiavari et al. 2023).[9]

8 The Minimum Price Guarantee Policy is a policy focused on correcting distortions in the prices of agriculture products and therefore has no direct relationship with the occurrence of climate events. As such, this policy was not included in the tracking of climate finance in this study.

9 The analysis only includes financial flows for agriculture risk management with coverage exclusively related to climate risks, such as excessive rainfall, drought, extreme temperature variation, hail, frost, strong winds and cold winds, diseases and pests, among others. Therefore, only a subset of rural insurance policies is accounted for in the figures presented, not including, for example, producer life insurance. For more information, see Appendix II.

Figure 9. Climate Finance for Agriculture Risk Management by Type and Source of Resource, 2021-2023



Note: *The figures refer to the annual average, adjusted as per the IPCA, with reference to December 2023. The additional fee is similar to the "premium" paid when taking out insurance. In PROAGRO, this fee is calculated as a rate of the total amount to be covered by PROAGRO (BCB 2022).*
Source: *CPI/PUC-RIO with data from Sicor/BCB (2023), Siop/MPO (2023), MAPA (2023) and SES/SUSEP (2023), 2024*

Despite the growth in loss and damages finance, adaptation continues to be the main use of climate finance for agricultural risk management, at US$ 1.4 billion per year. This figure represents 54% of climate finance for land use adaptation spending in Brazil over the period. The PSR was responsible for 78% of these flows, amounting to US$ 1.1 billion per year. PROAGRO, mobilized 22% of the flows for adaptation, with US$ 0.3 billion per year.

Agriculture Guarantee Program (PROAGRO)

PROAGRO exempts producers from fulfilling their financial obligations in credit operations rural costing and compensates them for their own resources used for production operating expenses in the event of losses due to adverse climate events. Although the financial institutions are responsible for the program's operations, the risks are assumed by the federal government since public resources are contributed to the PROAGRO fund to guarantee the payment of compensations (Souza, Pereira, and Stussi 2022).

Beneficiaries can join the program by paying the PROAGRO aditional fee, which is similar to an insurance premium. It is calculated annually by the National Monetary Council (*Conselho Monetário Nacional* - CMN) and can be changed in accordance with the federal government's agricultural policy (BCB 2023). Under this model, the program's expenses are shared between rural producers, who pay the premium, and the federal government, which supplements them when the compensations exceed the amount collected with the additional premium.

PROAGRO's additional fee, paid in precaution of climate events, is a resource for climate adaptation. In the period analyzed, the additional amount totaled US$ 315 million per year.

As the government's contributions to the payment of compensations occur in response to climate events and aim to reduce their impacts, these are classified as loss and damages. Between 2021 and 2023, the federal government had US$ 1.1 billion per year in budget expenses for PROAGRO compensations, which rose from US$ 0.4 billion in 2021 to US$ 1.9 billion in 2023.

This sharp growth can be attributed to the recent increase in climate events impacting national agriculture. However, the program's lack of transparency points to the possibility of fraud in the process of activating the compensations, which has led to an audit by the Brazilian Court of Accounts (*Tribunal de Contas da União* - TCU) (TCU 2024).

Rural Insurance Premium Subsidy Program (PSR)

The PSR, administered by the Ministry of Agriculture and Livestock (*Ministério da Agricultura e Pecuária* - MAPA), is a program to support the purchase of rural insurance that aims to ensure the financial recovery of producers from adverse climate events (Souza and Assunção 2020). Through the PSR, the federal government subsidizes the cost of rural insurance policies purchased from private insurers by producers. In the period analyzed, this subsidy averaged US$ 287 million per year, while the net premium paid by rural producers totaled US$ 847 million. However, the program registered a 17% drop between 2022 and 2023.

Crop Guarantee Fund

The Crop Guarantee Fund supports family farming in semi-arid regions and is integrated into the rural credit line of the National Program for Strengthening Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar* - PRONAF). It offers a conditional benefit to producers living in areas that have demonstrably suffered crop losses due to drought or excessive rainfall. The government contribution to this program guarantees the resources needed to pay beneficiaries. During the period analyzed, this contribution averaged US$ 40 million per year. These funds are classified as loss and damages, as they compensate for losses caused by climate events.

The functioning of PROAGRO and PSR is analyzed in detail in a CPI/PUC-RIO report, which reveals how the design of each program generates different incentives for producers, experts, and financial agents, impacting the efficiency of public spending (Souza, Pereira, and Stussi 2022). The study shows opportunities to improve the rules of the programs, in order to reduce fraud and direct resources to more vulnerable producers and those who use more sustainable agriculture practices (See Box below).

Intensification of Climate Events and Public Policy Design

The increase in the frequency and intensity of extreme weather events is generating ever greater losses and increasing unpredictability in crops. This, in turn, increases the demand for rural insurance, as well as the compensations paid and the cost of premiums. In recent years, Brazil has faced serious climate events with strong impacts on agricultural production, such as the severe drought in the 2021/2022 agricultural year, which led to a fourfold increase in compensations compared to the previous year (Souza, Oliveira, and Stussi 2023). In 2024, the floods in Rio Grande do Sul and the worst drought in the country's history reinforced the trend of the worsening of such events.

These extreme phenomena challenge current agricultural risk management instruments. The increase in public spending on programs such as PROAGRO shows that the current model is becoming unsustainable in the face of growing climate risk. Agricultural risk management policies need to be revised to adapt to this new reality without overburdening public accounts and, at the same time, guaranteeing protection for rural producers.

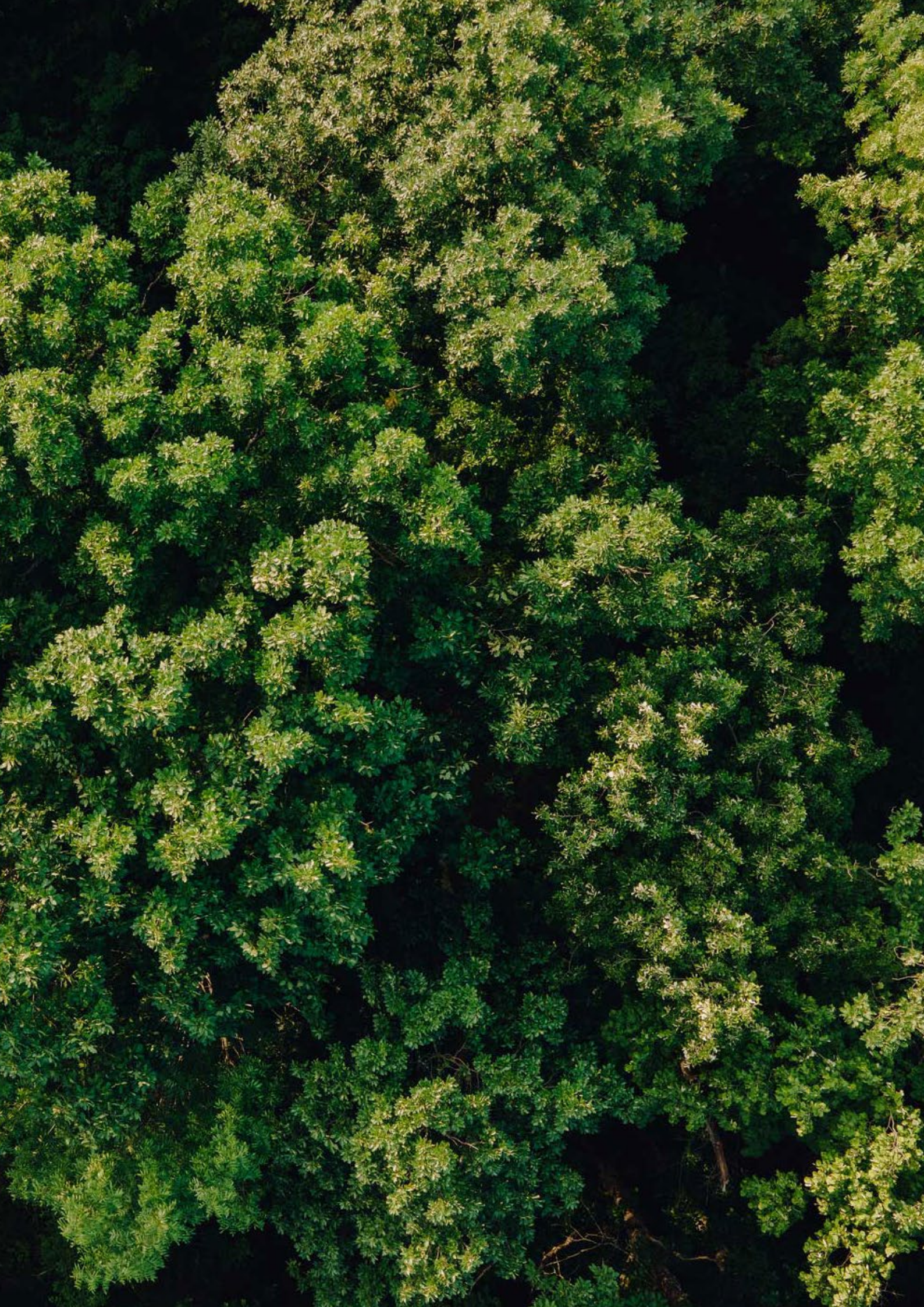
In this sense, Agricultural Climate Risk Zoning (*Zoneamento Agrícola de Risco Climático* - ZARC) has been adopted to define the recommended planting windows, with the aim of reducing climate risks, such as water deficit, during the crop's exposure period in the soil. The ZARC establishes risk ranges of 20%, 30%, and 40%, to deal with the chances of climate problems occurring.

ZARC is a fundamental criterion for both PSR and PROAGRO, influencing the conditions for contracting insurance based on the sustainability techniques employed by producers. Currently, the Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária* - EMBRAPA) is developing the ZARC Management Level (*ZARC Nível de Manejo* - ZARC NM), a more comprehensive modality that incorporates various criteria to assess the producer's level of commitment to sustainable practices, especially in soil management.

The evolution of ZARC and the introduction of ZARC NM are strategic to increase the resilience of agricultural production, as well as to protect public accounts by ensuring that climate risks are mitigated by appropriate agricultural practices. This is expected to reduce losses associated with planting errors and ensure more effective and sustainable risk management.

The review of current programs also needs to address governance issues, such as fraud prevention, which has been a growing concern. This review should also be accompanied by policies that encourage the adoption of better agricultural practices by producers, in order to mitigate risks in the long term.

PROAGRO has recently undergone important changes. In order to encourage safer farming practices in the 2024/2025 Agricultural Plan, compensations began to vary according to the planting season, with a reduction in the amount compensated for operations in risk areas according to ZARC. For planting dates with 30% risk, there was a 25% reduction in the compensations. For planting dates with a 40% risk, there was a 50% reduction in the compensation. In addition, the mandatory limit has been reduced to R$ 270,000 per agricultural year (US$ 54,050), from R$ 335,000 (US$ 67,063), in order to focus the program on small farmers and family farmers.



Government Spending

What Is Classified as Government Spending?

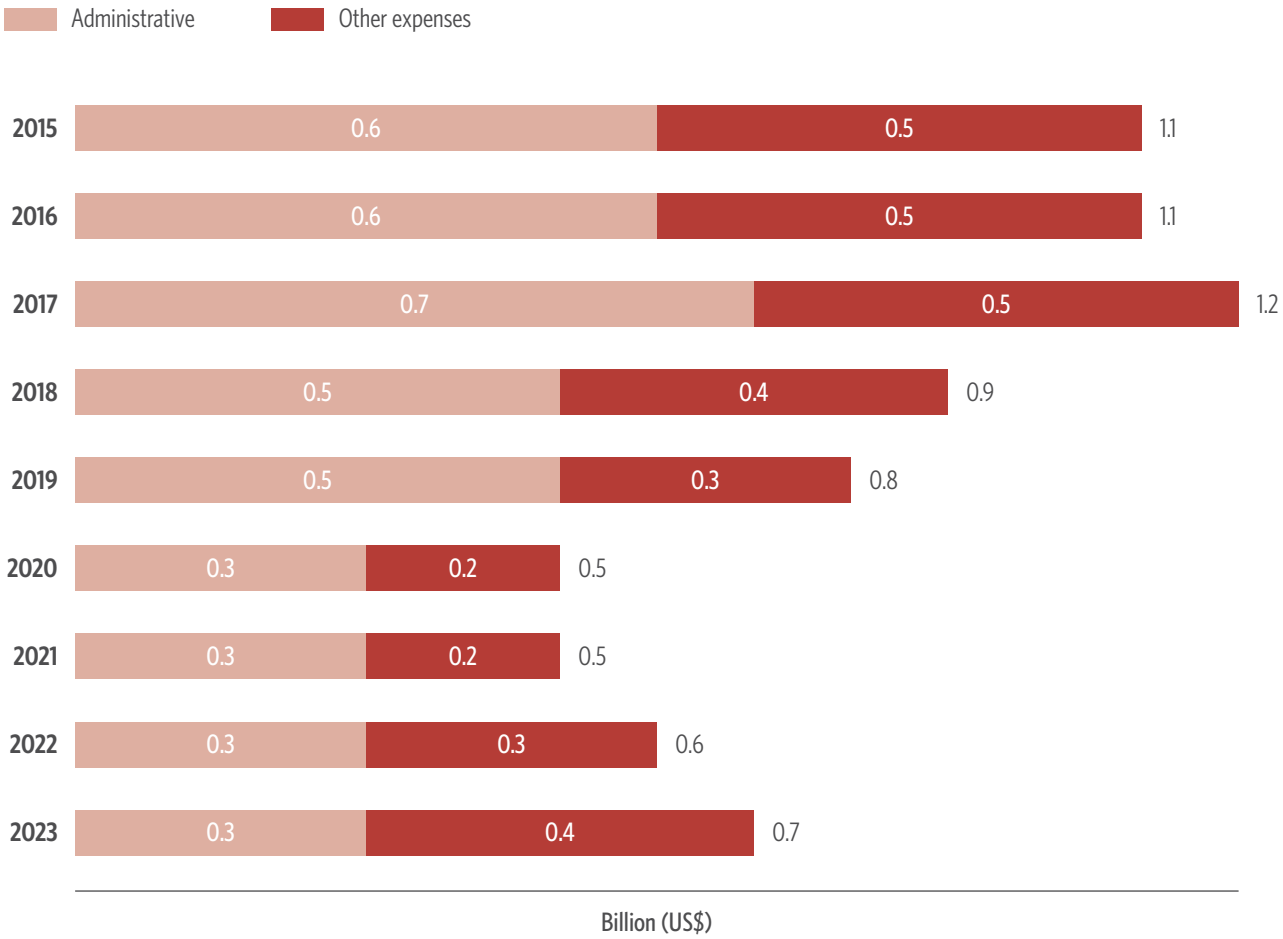
The government spending analyzed in this chapter is the paid expenditure of the federal public budget, including the entire executive sphere and transfers to states and municipalities. Federal public policies are related to flows tracked in various sections of this publication, but the direct budget is highlighted for its structuring role, especially in the native forest sector. This section maps the budget disbursed by federal government ministries and agencies, related to climate objectives for the land use sector. Using this filter, the volume and profile of the federal government's direct action on the agenda is explored.

Between 2021 and 2023, federal public budget spending accounted for 3% of climate resources for land use, totaling US$ 561 million per year.[10] During this period, there was a 48% increase in flows, returning to levels seen prior to the Bolsonaro government (Figure 10). This interrupts a downward trend that had been observed since 2016, which coincided with the change of the federal executive to more liberal coalitions and the adoption of Constitutional Amendment no. 95/2016, known as the "Spending Ceiling", which culminated in the reduction and, in certain cases, the extinction of climate-relevant government programs (IPEA 2021). Despite the change in trend, flows from government spending in the last three years are 40% lower than the average of what was tracked between 2015 and 2020.

The forest sector is responsible for 71% of these disbursements, through the work of key agencies for implementing Brazil's climate commitments in the land use sector, which involves conservation, restoration, and reforestation actions, such as IBAMA, ICMBIO, FUNAI, MMA, the SFB and the Rio de Janeiro Botanical Garden Research Institute (*Instituto de Pesquisas Jardim Botânico do Rio de Janeiro* - JBRJ). These agencies are fundamental to environmental preservation and the protection of native vegetation, the fight against deforestation and fires, and the protection of indigenous peoples. For this reason, their budget was fully accounted for[11] among the climate flows tracked, including administrative expenses,[12] which accounted for 53% of the amounts in the three-year period. However, the administrative budget was stagnant between 2021 and 2023, not keeping pace with the budgetary expansion observed in the sector over the same period.

10 Budget expenditures on compensations for the PROAGRO and Crop Guarantee Fund programs are considered in the Agriculture Risk Management section and are therefore not included in this section.
11 The budget was accounted for with the exception of pensions and precatory payments.
12 This report consides administrative expenses as payroll, benefits for active staff and the administration.

Figure 10. Climate Finance for Land Use via the Public Budget by Type of Resource, 2015-2023



Source: *CPI/PUC-RIO with data from SIOP/MPO (2023), 2024*

On the other hand, the effort to increase non-administrative spending by the federal executive in line with the climate was successful, with a growth of 124% between 2021 and 2023.

Water infrastructure and irrigation projects related to climate adaptation for agriculture in the northeast of Brazil represented the biggest impact on the growth of government spending between 2021 and 2023. In 2023, US$ 92 million was channeled through the Ministry of Integration and Regional Development (*Ministério da Integração e do Desenvolvimento Regional* - MIDR) for water supply projects, in particular the construction of adductor canals taking advantage of the transposed waters of the São Francisco River.

In 2023, spending on environmental and land regularization and land use planning, which are fundamental to the success of policies to combat deforestation, reached a peak of US$ 68 million, an increase of US$ 35 million compared to 2021. The creation, management, and implementation of federally protected areas by ICMBIO had a budget of US$ 36 million in 2023, an increase of 82% on 2021. Activities related to the demarcation, monitoring, and inspection of indigenous lands received US$ 25 million from the public budget in 2023, an increase of 249% on 2021, with FUNAI, ICMBIO, and IBAMA as the main agencies disbursing funds for these activities.

Spending on actions to prevent and control deforestation and fires had a budget of US$ 72 million in 2023, representing growth of US$ 30 million on 2021. ICMBIO's budget for "environmental inspection and preventing and fighting forest fires" increased by US$ 25 million in 2023, 112% more than in 2021.

These activities reinforce the government's role as one of the main financiers of Brazil's forest sector. **The public budget was responsible for two-thirds (67%) of the resources for native forests in Brazil between 2021 and 2023, with US$ 400 million per year.** These government disbursements are structural for the national strategy of monitoring, preventing, and combating deforestation and fires and for promoting the conservation of native vegetation and its recovery. For this reason, it is essential to continue the climate policy and expand government programs and actions aligned with climate objectives, strengthening the aforementioned agencies to ensure concrete, long-term impacts.

National Fund for Climate Change

The National Fund for Climate Change (*Fundo Nacional sobre Mudanças do Clima* - FNMC)—known as the Climate Fund—is an accounting fund linked to the MMA, established by Law no. 12,114/2009 to mobilize resources for projects aimed at climate mitigation and adaptation. In December 2023, it had US$ 260 million available in funds (BNDES 2024a), which are raised through taxes from national oil companies, in addition to receiving resources from public and private institutions (CEPAL 2016). However, difficulties in accessing the fund's resources due to tax, management, and execution issues have limited its impact (INESC 2022). During the period tracked, the Fund mobilized only US$ 30 million per year, between reimbursable and non-reimbursable modalities, of which US$ 14 million per year was related to the land use sector.

The Climate Fund operates through two modalities. The non-reimbursable modality is run by the MMA and operates through grants, mainly to subnational government projects. This modality has mobilized US$ 0.46 million per year, with US$ 0.37 million per year for land use, 86% of which went to projects in Brazil's Northeast Region. The fund's reimbursable modality is managed by the BNDES through low-cost credits under the Climate Fund Program, and has financed US$ 30 million per year, with US$ 14 million per year related to land use. These flows were covered in the "Capital markets and other financial instruments" section of this report because of the financial instrument used to channel these funds.

Although the amount disbursed in the tracked period is limited, the Climate Fund has great impact potential. In August 2023, the MMA and the BNDES announced reforms for the fund, relaunching it as the New Climate Fund, with a contribution of R$ 10 billion (U$$ 2 billion) to the reimbursable finance line and revising its governance model to include the participation of representatives from civil society and the private sector (MMA 2023).

Capital Markets and Other Financial Instruments

What Are Capital Markets and Other Financial Instruments?

This section is dedicated to tracking existing financial instruments, beyond rural credit, that are capable of attracting private investment and mobilizing the capital market for climate objectives in the land use sector. To this end and considering the scarcity of consistent and standardized data in this area, three relevant instruments were analyzed: thematic bonds, CBIOs, and the BNDES' direct and indirect operations. As a result, the flows tracked in this section are likely to be underestimated.

Mobilizing private resources at scale is key to financing the transition to a low-carbon and resilient economy. Public resources will not be sufficient to achieve climate goals, and it is necessary to design a financial model that works with a diversity of sources—including public, private, and mixed-finance—and instruments.

This report explored the relevance of private flows directed by the Agricultural Plan in the section on rural credit. However, the climate transition depends on structuring private investments beyond rural credit, and on catalyzing them through innovative financial instruments.

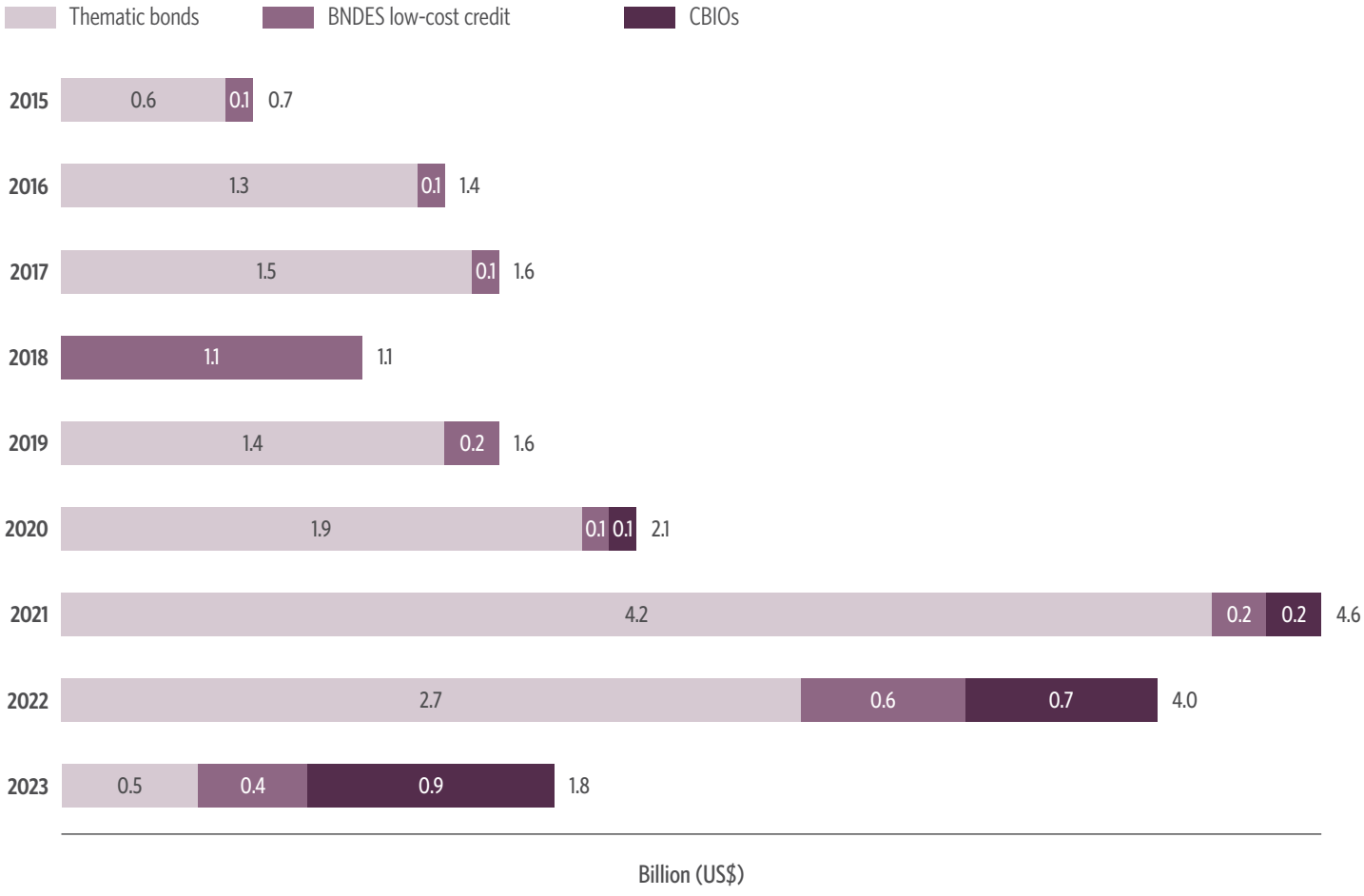
There is great expectation placed upon the capital market's potential to mobilize climate finance in the land use sector, but a lack of transparency surrounding some of the instruments used restricts the ability to map these flows. One example is the limited visibility of the climate criteria used in mechanisms such as sustainable investment funds, which prevents them from being measured and accounted for.

Thematic bonds, on the other hand, are financial assets for capital market funding aimed at projects with measurable environmental and/or social benefits, which receive external evaluations and therefore have explicit evaluation indicators and criteria, generally in line with international standards. However, these bonds represent a small portion of climate finance via the capital market, and it is necessary to expand such transparency to other sustainability financing tools

New initiatives offer greater transparency about the climate impact of financial assets. One example is the launch of B3's[13] Green Bonds, announced in 2024, based on the Green Equity Principles of the World Federation of Exchanges (B3 2024), which establish a certification by evaluation entities for companies listed on this stock exchange or in the process of Initial Public Offering to give credibility and guarantee that they are aligned with environmental commitments. As of October 2024, only two companies have obtained such certification, but this is a promising model for proving that a company is committed to promoting sustainability.

This section explores three mechanisms that are channeling private climate finance to Brazil's land use sector: thematic bonds, CBIOs and BNDES finance. Of tracked finance from these instruments, the bioenergy and biofuels sector received 54% (US$ 1.9 billion per year). This sector is characterized by technological and economic maturity due to robust and long-lasting public policies starting from the 1970s and involving investments in research and development, as well as considerable government subsidies, which were gradually reduced to allow the progressive entry private actors (Chiavari and Tam 2011).

Figure 11. Capital Markets and Other Financial Instruments Flows by Instrument, 2015-2023



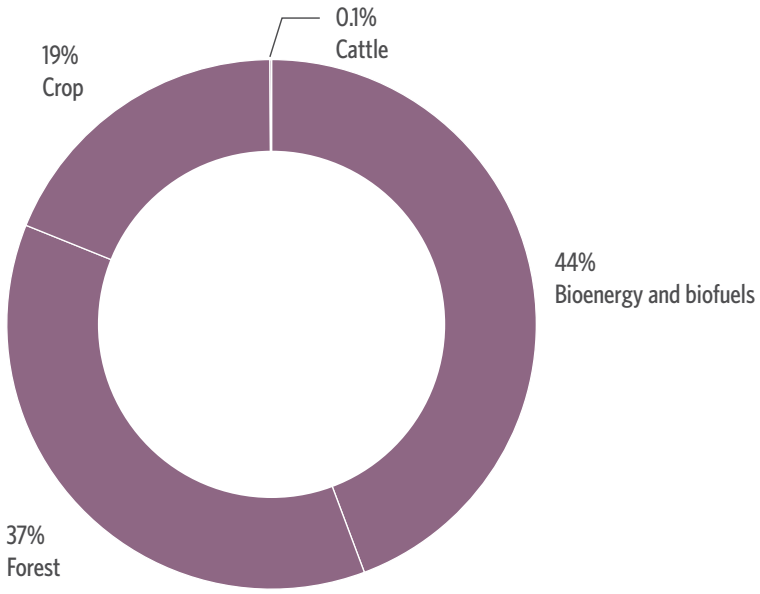
Source: *CPI/PUC-RIO with data from BNDES (2023), B3 (2023) and NINT (2023), 2024*

13 B3 is Brazil's stock exchange, hosted in São Paulo.

Thematic Bonds

Thematic bonds[14] mobilized US$ 2.5 billion per year in climate finance for land use over the period, concentrated in the biofuels and planted forest sectors. This figure represents 14% of the flows tracked—making thematic bonds the third-largest tracked instrument, behind rural credit and risk management instruments—and demonstrates the potential of the capital market for climate finance for the land use sector, despite being an insufficient instrument.

Figure 12. Climate Thematic Bonds for Land Use by Sector, 2021-2023



Source: *CPI/PUC-RIO with data from NINT (2023), 2024*

Between 2021 and 2023, thematic bonds mobilized US$ 1.1 billion per year for the bioenergy and biofuels sector, accounting for 44% of the finance tracked from thematic bonds. This amount was distributed across the biofuel production chain, from sugarcane cultivation to the construction of plants.

The forest sector mobilized US$ 0.9 billion per year, 37% of the tracked bonds, of which planted forests received 94%. The Suzano company[15] concentrated 86% of the forest bonds with three operations between 2021 and 2022, making commitments to reduce GHG emissions and the intensity of water use in its operations.

However, the land use share among thematic bonds issued in the country fell between 2021 and 2023. In 2021, US$ 4.2 billion were issued in bonds tracked by this report, 22% of the ESG bonds issued in the country according to the NINT database. In 2023, only US$ 0.5 billion were issued, 4% of the thematic bonds issued in the year and a drop of 89% in two years.

14 Thematic bonds are debt instruments that raise funds to finance projects with an environmental, social or governance impact. This report selects bonds with established climate targets associated with the land use sector.

15 Suzano is a Brazilian multinational company that produces paper and pulp products from eucalyptus tree. It is the world's largest eucaliptus producer (Suzano nd).

CBIOs

CBIOs, the main instrument of the RENOVABIO, mobilized US$ 600 million per year between 2021 and 2023. Each CBIO corresponds to one ton of carbon equivalent avoided, emitted by biofuel producers. These bonds are bought by fuel distributors, following compulsory annual individual GHG emission reduction targets determined by the Brazilian National Agency for Petroleum, Natural Gas and Biofuel (*Agência Nacional de Petróleo, Gás Natural e Biocombustível* - ANP) (MME 2024).

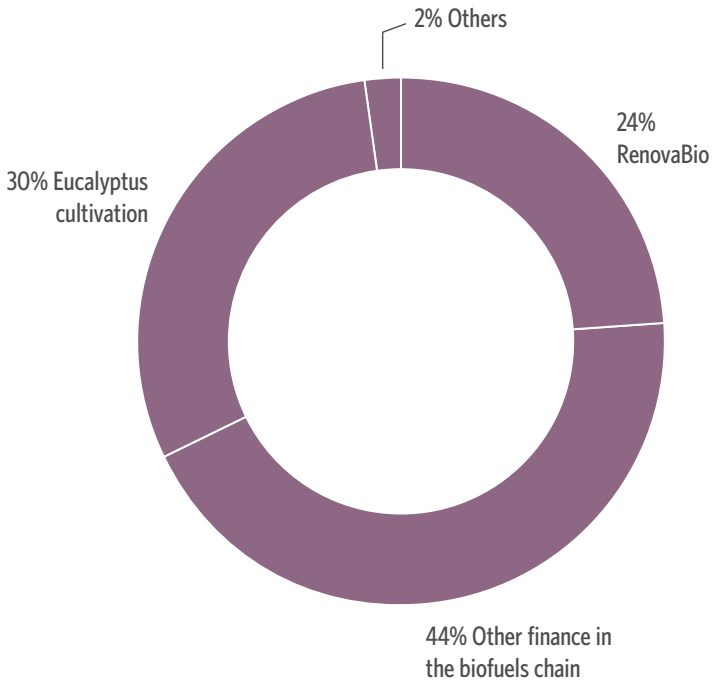
The negotiated value of CBIOs is determined by the demand established by the ANP and rose from US$ 8/CBIO on average in 2021 to US$ 22/CBIO in 2023. This increase has had a disproportionate impact on the growth in CBIO emissions, which between 2020 and 2023 financed 109 million tons of CO2 equivalent not emitted by the use of biofuels.

CBIOs represent an innovative public policy model for mobilizing resources for climate goals, using the polluter-pays and protector-recipient model to finance less polluting fuels. However, the effectiveness of this instrument has been questioned, and it was the subject of TCU Judgment no. 251/2023[16] that criticized its governance model, structure, and the effect of price instability on the market.

BNDES

Development banks, including both the BNDES and regional development banks, have great potential to attract private resources to the Brazilian climate agenda.

Figure 13. BNDES Climate Finance for Land Use (Direct and Indirect Operations), 2021-2023



Source: *CPI/PUC-RIO with data from BNDES (2023), 2024*

16 Learn more at: Tribunal de Contas da União (TCU), Judgment no. 251/2023. bit.ly/3BWaTPd.

The BNDES operates across different areas tracked in this report, including the Climate Fund, the Amazon Fund and on Rural Credit (see Box below). In this section, we explore the bank's direct and indirect finances, operated respectively by the institution itself and by partner financial institutions

The BNDES' direct and indirect finance operations mobilized an average of US$ 422 million in low-cost credit aligned with climate goals for the land use sector. Support for the biofuel production chain[17] was the bank's main area of climate finance for land use in this period, accounting for 67% of its tracked resources, with a highlight being US$ 100 million per year through the BNDES RENOVABIO credit line.[18] Another 30% of the flows were directed to the planted forest sector, with eucalyptus cultivation totaling US$ 126 million per year. Added to the low-cost credit financed by the BNDES, US$ 17 million per year went to grants through the bank's Socio-Environmental Fund, which dedicated 98% of this amount to the Brazilian Biodiversity Fund (*Fundo Brasileiro para a Biodiversidade* - FUNBIO).

17 Among the flows tracked in the biofuel production chain are finances for sugarcane cultivation, classified in the crop sector of this report.

18 BNDES RENOVABIO is a direct support program from the BNDES, within the scope of RENOVABIO, for ESG credit for the biofuels sector, to improve energy and environmental efficiency and certify production, which is necessary for the issuance of CBIOs. Learn more at: National Bank for Economic and Social Development (BNDES). *BNDES amplia para R$ 3,5 bilhões recursos para o setor de biocombustíveis*. 2023. Access date: October 9, 2024. bit.ly/3UggWnX.

The BNDES' Crosscutting Role in the Climate Agenda for Land Use

BNDES is a key player in the Brazilian climate transaction and operates in the land use sector in several areas explored in this report, in addition to that described in this section:

- The BNDES operates rural credit and is the source of 9% of the climate rural credit tracked in this report, US$ 0.9 billion per year, with RENOVAGRO accounting for 20%, compared to 8% of the total climate rural credit tracked.[19]
- The bank operates the reimbursable resources of the Climate Fund, which mobilized US$ 14 million per year over the period, as a channel for financing the transition to a resilient low-carbon economy.
- As manager of the Amazon Fund, the bank directs the resources made available by international governments to protect the Legal Amazon and promote an economy aligned with the sustainable use of the forest. The bank channeled US$ 26 million in 2023, discussed in the International Development and Cooperation section.

The finance channeled by the bank continues to be of great importance not only for its direct operations, but also for the crowding-in effect of investments for the agenda. Blended finance mechanisms, which make use of catalytic capital to mitigate the risk of projects and attract the private sector, have the potential to expand investment agendas in strategic sectors for a climate redirection of the Brazilian economy, and the alignment of the bank's priorities with the needs of this agenda is necessary.

In this context, the BNDES Blended Finance pilot initiative was launched in 2022 to boost socio-environmental investments through a hybrid finance model. The bank launched a call for proposals that received 50 proposals, with R$ 905 million (US$ 174 million) in requested resources. Of the three applicable sectors, the forest bioeconomy sector received the highest demand, of R$ 461 million (US$ 88 million), demonstrating the potential impact of this type of blended finance. Eleven proposals were selected, four of which related to forest bioeconomy with a total demand of R$ 76 million (US$ 14 million), which began to be made available in 2024 (BNDES 2022).

The current management of the BNDES has paid more attention to the native forest sector, and over the last year has announced new mechanisms for financing this agenda, such as BNDES Forest Credits, with R$ 1 billion (US$ 200 million) to stimulate private investments in native forests (BNDES 2024b). The expansion and diversification of innovative instruments to attract private capital to meet climate objectives by the BNDES and subnational development banks is one means of further leveraging resources for this agenda.

19 RENOVAGRO (formerly ABC+) is the Program for Financing Sustainable Agricultural Production Systems, dedicated to reducing environmental impacts in agriculture.

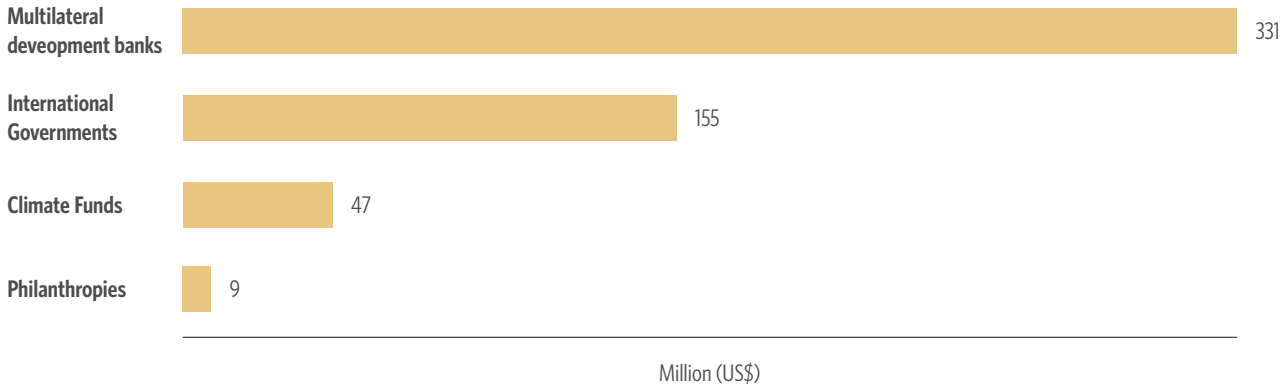
International Development and Cooperation

What is international development and cooperation?

International development and cooperation refers to finance flows of international origin destined for the climate agenda in Brazil, including flows from MDBs, governments, climate funds, and philanthropies, among others. These flows represent the direct contribution of international actors to climate mitigation and adaptation in Brazil.

Resources from international development and cooperation financed US$ 548 million per year on average between 2021 and 2023, 3% of the total tracked for the period. Among these flows, MDBs stand out, responsible for 61% of the resources, and international governments, with 29% of what was tracked, with the forest sector being the main beneficiary. [20]

Figure 14. Climate Finance for Land Use in Brazil for International Development and Cooperation by Source of Funds



Source: *CPI/PUC-RIO with data from BNDES (2023), OECD-DAC (2022), IDB (2023), IBRD (2023), KfW (2023), GEF (2023), NORAD (2023), German Federal Ministry for Economic Cooperation and Development (2023), 2024*

20 The main source of data for this section is the OECD report on Development Finance for Climate and Environment (OECD 2024), which compiles the financial flows from different international sources for the theme. This report is published with reference to data from two previous years after all the data from the originating institutions has been made available. Therefore, the latest year available is 2022.
For the 2023 data, this report has instead sought primary data from the main sources of funding. This represents a methodological change for the year 2023. As a result, the 2023 data will be altered in future updates of this report to reflect the information made available by the OECD, with other flows that are not yet available for consultation and application of this institution's methodology.

Figure 15. International Development and Cooperation by Actor, Instrument and Sector, 2020-2023

	Average 2021–2023	Funding	Financing average	Instruments: Low-cost credit	Instruments: Grants	Sectors: Forest	Sectors: Crop	Sectors: Bioenergy and biofuels	Sectors: Multisector	Sectors: Cattle
BID	US$ 183 M	16	US$ 34 M	99%			44%		56%	
World Bank	US$ 148 M	3	US$ 148 M	100%			34%		66%	
Germany	US$ 74 M	76	US$ 3 M	70%	30%	70%		11%	19%	
Norway	US$ 44 M	83	US$ 2 M		100%	82%			16%	
International Funds	US$ 38 M	18	US$ 6 M	53%	47%	30%	40%		18%	12%
France	US$ 27 M	25	US$ 3 M	94%			99%			
Other Countries	US$ 11 M	119	US$ 0.3 M		100%	25%	51%		24%	
Civil Society	US$ 9 M	30	US$ 1 M		100%	28%	40%		32%	
Amazon Fund	US$ 9 M	5	US$ 5 M		100%	100%				
TOTAL	**US$ 542 M**	**375**	**US$ 4 M**	79%	21%	21%	36%		43%	

Note: *Flows from Germany include resources from the German Ministry for Economic Cooperation and Development, GIZ, and KfW.*
Source: *CPI/PUC-RIO with data from BNDES (2023), OECD-DAC (2022), IDB (2023), IBRD (2023), KfW (2023), GEF (2023), NORAD (2023), German Federal Ministry for Economic Cooperation and Development (2023), 2024*

Multilateral development banks, through the IDB and the World Bank, were the main source of international flows with US$ 331 million per year over the period. This amount was concentrated in a few large multisectoral loan projects for government support of climate goals, with a non-exclusive focus on the forest sector.

The IDB stood out as the main international player over the period, mobilizing 33% of international climate flows in the three-year period, with an average of US$ 183 million per year in 16 different projects. However, only two projects accounted for 83% of these amounts:

- The largest project considered was *Descarboniza Pará*, representing 53% of the bank's flows over the period with US$ 300 million. The Pará state government's project aims to achieve net-zero GHG emissions by 2050, through sustainable land use focused on forest recovery and the implementation of low-carbon agriculture practices (BID 2023).
- The *AgroNordeste* program is a MAPA action plan aimed at strengthening agriculture in the northeastern states and northern Minas Gerais through the adoption of climate-aligned technologies and environmental regularization of properties (CNA 2021). It received USD 230 million from the bank, 61% of which was directed towards climate objectives, amounting to US$ 157 million, which represents 30% of the IDB flows considered over the period.

The World Bank mobilized 27% of international development and cooperation resources in the three-year period, with an average of US$ 148 million per year distributed over just three projects. These include large amounts of finance for projects by state agencies or state governments mobilizing resources for the climate agenda. The Brazilian Climate Finance Project is a project in partnership with *Banco do Brasil* to offer carbon mitigation benefits in the bank's credit lines. It received USD 500 million in credit from the World Bank, counted as 40% aligned with land use, which represents US$ 208 million (considering inflation adjustments). The other projects are credit to support state programs in Goiás and Santa Catarina, respectively, for sustainable recovery and safe water management, totaling US$ 235 million.

International governments, in turn, financed US$ 155 million per year over the period, representing 29% of the tracked international development and cooperation flows. The native forest sector benefited from US$ 91 million per year, especially from the governments of Germany and Norway, representing 15% of the flows to native forests tracked over the three-year period.

Finance from Germany, including the work of GIZ and KfW, represented 14% of what was tracked in this section, with US$ 74 million per year over the period, distributed over 76 different projects, 30% of which was through grants. The native forest sector received 69% of these flows, with the highlight being KfW's 2022 finance to Banco do Brasil for reforestation and restoration of degraded areas, worth US$ 87 million.

The Government of Norway stands out as the largest donor to the forest sector through finance from the Norwegian Agency for Development Cooperation (NORAD), mainly through Norway's International Climate and Forest Initiative (NICFI). There were US$ 44 million per year in 83 different grants, with an average value of US$ 2 million, for afforestation and reforestation, environmental protection, and strengthening indigenous communities.

Norway is responsible for 34% of the total climate grants tracked for the land use sector in the country.

France, for its part, provided 5% of the flows in this section by providing finance for two agricultural ventures in Brazil, in 2021 and 2022, by Proparco, the subsidiary of the French Development Agency (*Agence Française de Développement* - AFD) for private sector development. These two projects accounted for 94% of the country's climate flows over the period, aimed at climate adaptation of agricultural operations.

International funds have allocated US$ 38 million per year in climate finance to the land use sector in Brazil. The International Fund for Agricultural Development (IFAD) was responsible for 39% of these amounts, with US$ 15 million in 2021 for the Planting Climate Resilience in Rural Communities in the Northeast project, in partnership with the federal government and the BNDES.

Amazon Fund

The Amazon Fund is the main climate fund channeling international resources for land use in Brazil, receiving significant grants from international governments and other actors and directing these amounts to projects through the BNDES. This report accounts for BNDES-approved contributions to the fund and does not add grants to the Amazon Fund to climate finance flows to avoid double counting and prioritize tracking at the project level.

The Amazon Fund's operations were suspended between 2019 and 2023, following the dissolution of its structure, formalized with the extinction of the Amazon Fund Guidance Committee (*Comitê Orientador do Fundo Amazônia* - COFA) through Federal Decree no. 9,759/2019. On 1 January 2023, its governance structure was re-established, and the Fund received new grants and resumed approving projects.[21,22]

In 2023, five projects were approved, mobilizing US$ 26 million from the Fund, equivalent to 2% of the international flows tracked over the period. The end beneficiaries of these funds were mainly indigenous peoples, traditional communities, and family farmers in the Amazon region. Throughout 2023, a large volume of new finance was mobilized and announced for the Amazon Fund. New contracts signed totaled R$ 726 million (US$ 145 million) and R$ 3.1 billion (US$ 626 million) in new grants were announced.

21 Learn more at: Decree no. 9.759, April 11, 2019. bit.ly/4f9hc0h.
22 Learn more at: Decree no. 11.368/2023, January 1, 2023. bit.ly/3BZqwFA.

Opportunities for Climate Finance

For climate finance to be expanded and improved in order to reach the scale needed to address the challenges of mitigation and adaptation in the land use sector in Brazil, a set of measures and actions must be taken by public and private actors in the different areas tracked in this publication.

Rural Credit Policy

Rural credit is the main source of climate finance for land use in Brazil, with an average of US$ 9.9 billion per year tracked. However, methods of verifying the sustainability of these resources are limited, mainly due to self-reported information without rigorous monitoring.

To encourage good sustainable practices in the Brazilian agricultural sector, it is important to define criteria that classify such practices and establish differentiated financing conditions, such as interest rate discounts or increased credit limits.

These criteria must be precise, technical, and harmonized with existing initiatives and the Brazilian Sustainable Taxonomy, currently under development by the Ministry of Finance. In addition, sustainable practices need to be reliably measured and aligned producers need to receive efficient incentives. It is essential that these criteria are applied and monitored beyond self-declaration, ensuring transparency and a real impact on the sector's practices.

Given the high fiscal cost of the rural credit policy, which allocated R$ 13.6 billion(US$ 2.7 billion) in subsidies in the 2023/2024 Agricultural Plan, it is crucial that these resources generate effective returns that modernize the sector and promote the transition to low-carbon and sustainable agriculture.

Financial institutions should reinforce environmental requirements when granting rural credit, checking the property's deforestation history, and requiring the presentation of an administrative instrument that authorizes deforestation in a given area, such as the Authorization for the Suppression of Vegetation (*Autorização de Supressão de Vegetação* - ASV) or equivalent documentation. In addition, it is essential to regularly monitor for new deforestation after the credit has been granted, with the operation being suspended if the producer fails to prove the legality of the deforestation. The BNDES has adopted this practice since February 2023.

Within the scope of RENOVAGRO, which finances practices for low-carbon agriculture, it is important to rigorously monitor the implementation of the projects financed, as well as better coordination with technical assistance and risk management instruments. This monitoring aims to ensure that the subsidized resources produce the expected sustainability results. RENOVAGRO credit lines, such as those aimed at recovering pastures, require constant monitoring to ensure that the projects are implemented correctly.

Finally, the Agricultural Plan should encourage environmental regularization among rural producers and compliance with the Forest Code, offering differentiated credit conditions for those in compliance with environmental legislation. Producers that are in compliance with the Forest Code, have surplus Legal Reserves, or have joined the Environmental Compliance Program (*Programa de Regularização Ambiental* – PRA) should be given priority. Incentives can include an increase in the credit limit, discounts on interest rates, or a longer period of finance for environmental restoration and adaptation projects. The Agricultural Plan has crucial instruments to encourage the implementation of the Forest Code, which is essential for balancing agricultural production and environmental conservation.

Agriculture Risk Management

Agriculture risk management instruments mobilized an average of US$ 2.6 billion per year, and were the main finance mechanism for climate adaptation and payments for loss and damages. The resources tracked for agriculture risk management grew by 123% compared to the 2015-2020 data. This increase has generated a significant impact on public accounts, with an annual cost of US$ 1.1 billion per year, which makes necessary a review of agriculture risk policies.

As the frequency and intensity of adverse weather events increases, demand for agriculture insurance tends to grow. However, the cost of policies also increases due to the higher volume of compensations. In fact, insurers may find it difficult to maintain the supply of insurance for certain products and regions. Given that the costs of climate change are already materializing, it is essential to implement public policy strategies that guarantee the resilience of agricultural production, one of the sectors most vulnerable to the effects of climate.

Subsidies from the Rural Insurance Premium Subsidy Program (*Programa de Subvenção ao Prêmio do Seguro Rural* - PSR) must follow the same social, environmental, and climate criteria already applied to rural credit. The new National Agricultural Risk Management Plan (*Plano Nacional de Gestão de Risco Agropecuário*) incorporates some of these criteria, such as the prohibition of resources for properties involved in slave labor, embargoed areas, indigenous lands, conservation units, archaeological sites and quilombola communities. Although this plan represents an important step forward, it is not yet fully harmonized with rural credit restrictions, which also include analysis of the status of the Rural Environmental Registry (*Cadastro Ambiental Rural* - CAR), especially in cases of CAR cancellation or suspension, as well as properties located in Type B Public Forest areas.

It is essential that the socio-environmental criteria for the PSR subsidy cover the entire area registered in the CAR, and not just the insured portion. In addition, PSR and PROAGRO resources should be directed as a priority to producers who are not involved in illegal deforestation and who adopt sustainable agriculture practices. Given the scarcity of PSR resources, the allocation of subsidies could be used as an incentive to promote better practices in the sector. It would also be strategic to direct the subsidy toward producers who take out credit lines aimed at sustainability, such as RENOVAGRO. Another proposal is to broaden the coverage of the PSR to include nurseries and activities related to environmental restoration.

PSR resources should, as a priority, favor small producers and regions with insufficient coverage. Small farmers face greater difficulties in accessing risk management instruments and currently rely mostly on PROAGRO, whose limit for coverage has been reduced this year, which could leave many producers destitute. In regions with a high climate risk, there is a tendency for insurance companies to raise prices, limit the supply of insurance or even decide not to enter the market, leaving producers even more vulnerable. Brazil has regions and profiles of producers with little or no access to insurance and other risk management tools.

Advancing the regulation and operationalization of a public-private fund is key to ensuring the expansion of the rural insurance market. This fund would help protect insurers against widespread losses, which make it difficult to pay claims, especially in the face of growing climate risk. Reinsurers also play a fundamental role in the functioning of this market, and are essential for guaranteeing the solvency of insurers in times of crisis.

Government Spending

Expenditure from the federal public budget on land use with climate mitigation and adaptation objectives amounted to an average of US$ 561 million per year between 2021 and 2023, representing 3% of the total tracked for this period. These flows fell by 60% between 2016 and 2021 (from US$ 1.1 billion to US$ 453 million), a period of fiscal austerity and non-prioritization of the climate and forest agenda. The resumption over the period analyzed, with growth of 47%, reaching US$ 680 million in 2023, points to the resumption of prioritization of the agenda. However, the amount is still insufficient to guarantee an ambitious and effective environmental and climate policy.

The public budget is the main instrument channeling resources for policies in the native forest sector, which involves conservation, restoration and reforestation actions. The functioning of the MMA and agencies, such as IBAMA, ICMBIO and FUNAI, which are essential for environmental preservation, combating deforestation and protecting indigenous peoples, depends on these government expenditures. It is necessary to recover and expand the administrative budget to guarantee the capacity of these agencies to operate.

In addition, the National Fund for Climate Change—a state instrument with disruptive potential for financing a low-carbon economy—has had difficulty mobilizing its available resources. Facilitating access to credit and grants, together with the already announced contribution of resources, could unlock a major financier of the climate agenda in the country, though not exclusive to the land use sector.

In order to improve government spending on the environment and climate, it is essential to promote transparency and efficiency in the use of resources, maximizing the impact of public policies. The continuity and consistency of these policies are fundamental for government programs and actions to generate lasting and effective impacts.

For this to be possible, the planning and financing of initiatives must be anchored in long-term strategies, ensuring that climate policies are not vulnerable to political changes. **Adopting stable budget forecasts and financial mechanisms can reduce volatility in finance, providing the stability needed for results to be achieved and impacts to be consolidated.** Multi-year budgets, for example, allow for more consistent allocation, which is especially

important for conservation and restoration projects, given that these often take years to show concrete results.

An accessible and comprehensive monitoring system that tracks spending on environmental and climate policies is equally essential. Regular reports on the execution of these budgets facilitate evaluation and enable strategic adjustments, promoting more effective use of resources.

In addition, it is crucial to integrate sustainability goals across all government ministries, inserting environmental and climate criteria into the budget guidelines for sectors such as crops and energy. This amplifies the positive impact of public investment and facilitates an inter-ministerial approach to achieving climate goals.

These improvements to public policy will help make the public budget more effective and sustainable, promoting concrete results for environmental preservation and the fight against climate change in Brazil.

Capital Markets and Other Financial Instruments

Thematic bonds mobilized an average of US$ 2.5 billion per year in climate finance for land use over the three-year period, representing 14% of the flows tracked. This amount, however, reflects a peak of US$ 4.2 billion in 2021, followed by an 88% drop until 2023, when it registered only US$ 0.5 billion. The high financial cost and the time needed to label a bond have kept the market away from this type of asset. **It is, therefore, essential that other capital market instruments adapt to provide the transparency needed to measure climate impacts.**

CBIOs have been important mechanisms for financing the biofuels sector in the country, generating US$ 0.6 billion per year. Established under RENOVABIO, CBIOs direct flows from polluting agents to emission-mitigating agents. However, CBIOs have been criticized for their governance, structure, and price volatility.

It is also important to highlight the role of the BNDES as a transversal actor in climate finance in Brazil, operating on several fronts tracked in this study and with significant potential to attract private flows, especially through *blended finance* mechanisms. The bank's climate finance for land use totaled US$ 0.4 billion per year, with a focus on biofuels and planted forests. However, the current BNDES management is developing new fronts for native forests, which could diversify finance options and strengthen the forest sector.

The mobilization of private resources through the capital market still encounters barriers, especially the lack of transparency in operations and funds earmarked for sustainability. **In order to guarantee the capital market's commitment to building a low-carbon economy, it is necessary to establish solid mechanisms for evaluating and measuring the flows earmarked for the climate agenda**.

It is essential to improve the transparency of data sources, establish guidelines for classifying flows, and increase the availability of detailed data at the project level, including specific project locations. Clearer disclosure regulations and standards will allow for

more accurate estimates. It is also important to align with global climate disclosure and transparency standards, such as those established by the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB), which are widely recognized and contribute to increasing investor confidence.

Mobilizing private resources at scale is crucial to financing the transition to a low-carbon economy, as public resources are insufficient to meet climate targets. Brazil has significant potential to leverage sustainable agriculture practices and promote forest conservation and restoration, generating opportunities for private investment. The development of innovative financial products is key to expanding the portfolio of instruments, such as impact bonds linked to conservation and sustainable land use.

In particular, the regulated carbon market and its connection to Brazil's NDC can also be an important catalyst for leveraging investments in the climate transition. This market can offer regulatory certainty, create new business opportunities and establish a robust framework for measuring and reporting carbon emissions, fostering investor interest.

International Development and Cooperation

Sources of funds for international development and cooperation channeled, on average, US$ 542 million per year in climate finance for land use in Brazil between 2021 and 2023, representing 3% of climate-aligned financial flows. These resources came mostly from MDBs, responsible for 61% of the resources, and international governments, with 29% of what was tracked.

A significant part of international finance has been allocated to the forest sector, with the governments of Germany and Norway representing 15% of the flows to native forests tracked between 2021 and 2023.

The Amazon Fund, on the other hand, has a great potential impact in the region, contributing to combating deforestation, promoting conservation and strengthening a sustainable economy aligned with the forest. After a hiatus between 2019 and 2022, the fund resumed its activities in 2023, allocating US$ 26 million to five projects. The new announcement of R$ 3.8 billion (US$ 771 million) in grants signals a significant expansion of the fund's operations, which could have a greater impact on protecting and enhancing the region. **The re-establishment of the Amazon Fund's governance structure was essential in attracting the trust of international donors, promoting a management model that inspires partnerships and new grants.**

Despite the change of government and the adoption of a policy committed to the environment and climate, the figures show that international fundraising is still below potential. There are high expectations that Brazil will be able to attract large volumes of international finance for this agenda, but this ability is directly linked to the government's commitment to ambitious and clear climate targets**.** This includes a commitment to zero deforestation, the transition to low-carbon agriculture, and the expansion of the use of clean energy. **Establishing finance targets for specific sectors can facilitate the flow to strategic areas.**

In this context, defining the Brazilian Sustainable Taxonomy in a robust and measurable way can leverage the attraction of resources for the climate agenda. The taxonomy should provide a classification structure that will allow for greater transparency and traceability of investments. By defining clear criteria on what constitutes a sustainable investment, Brazil can increase international confidence, attracting new flows and fostering the construction of a low-carbon and resilient economy.

Other initiatives have been adopted, using innovative concepts, with the potential to facilitate the attraction of long-term foreign private investment and make decarbonization projects in the Brazilian economy viable. In particular, it is worth highlighting the creation by the federal government in 2024 of the Foreign Private Capital Mobilization and Exchange Protection Program, better known as Eco Invest Brasil, within the scope of the FNMC. The initiative aims to facilitate the raising of funds abroad by Brazilian entities for sustainable finance and to encourage the development of long-term foreign currency hedging solutions, mitigating the risks associated with exchange rate volatility. [23]

23 Learn more at: Tesouro Nacional. *Eco Invest Brasil - Sobre o programa*. nd. Access date: October 25, 2024. bit.ly/4elEv5Q.

References

Antonaccio, Luiza, Juliano Assunção, Maína Celidonio, Joana Chiavari, Cristina L. Lopes et al. *Ensuring Greener Economic Growth for Brazil: Opportunities for Meeting Brazil's Nationally Determined Contribution and Simulating Growth for a Low-Carbon Economy*. Rio de Janeiro: Climate Policy Initiative, 2018. bit.ly/GreenerEconomic.

Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais (ANBIMA). *Regras e procedimentos para investimentos em ativos sustentáveis*. 2023. bit.ly/3wXLZft.

B3. *Ações Verdes*. 2024. Access date: August 6, 2024. bit.ly/3YFGIEN.

Banco Central do Brasil (BCB). *Consultas Públicas Encerradas nº 82/2021*. 2021. Access date: July 20, 2023. bit.ly/42BCuge.

Banco Central do Brasil (BCB). *Programa de Garantia da Atividade Agropecuária PROAGRO - Relatório Circunstanciado 2018 a 2021.* 2023. bit.ly/3NG6Bhq.

Banco Interamericano de Desenvolvimento (BID). *BID e estado do Pará unem esforços para a descarbonização.* 2023. Data de acesso: 25 de setembro de 2024. bit.ly/4hjeUx4.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES). *BNDES amplia para R$ 3,5 bilhões recursos para o setor de biocombustíveis*. 2023. Access date: October 09, 2024. bit.ly/3UggWnX.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES). *Relatório Financeiro – FNMC 2º semestre 2023*. 2024a. bit.ly/3A34eCf.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES). *BNDES lança programa para impulsionar investimentos em florestas nativas do país.* 2024b. Access date: October 09, 2024. bit.ly/3YAmnk2.

Broberg, Morten and Beatriz M. Romera. "Loss and damage after Paris: more bark than bite?". *Climate Policy* 20, 2020: 661-668. bit.ly/3Yjyssv.

Brscan, Ivan M, Joel Lamoglia and Eduardo Henrique de Oliveira. "Embrapa demonstra vantagens do plantio direto, da subsolagem e da integração lavoura-pecuária". *Embrapa.* 2015. Access date: October 07, 2024. bit.ly/48nSpTH.

Buchner, Barbara, Baysa Naran, Pedro de A. Fernandes, Rajashree Padmanabhi, Paul Rosane et al. *Global Landscape of Climate Finance 2021*. London: Climate Policy Initiative, 2021. bit.ly/GlobalLandscape2021.

Buchner, Barbara, Baysa Naran, Rajashree Padmanabhi, Sean Stout, Constanza Strinati et al. *Global Landscape of Climate Finance 2023*. Climate Policy Initiative, 2023. bit.ly/GlobalLandscape2023.

Chiavari, Joana and Cecilia Tam. *Good Practice Policy Framework for Energy Technology Research, Development and Demonstration (RD&D) - Information Paper*. Paris: International Energy Agency, 2011. bit.ly/3C0qZaz.

Chiavari, Joana, Priscila Souza, Gabriela Coser, and Renan Florias. *Landscape of Climate Finance for Land Use in Brazil.* Rio de Janeiro: Climate Policy Initiative, 2023. bit.ly/LandscapeLandUse2023.

Chiriac, Daniela, Baysa Naran and Angela Falconer. *Examining the Climate Finance Gap for Small- Scale Agriculture*. London: Climate Policy Initiative, 2020. bit.ly/ClimateFinanceGap.

Comissão Econômica para a América Latina e o Caribe (CEPAL). *Avaliação do Fundo Clima*. 2016. bit.ly/443b6bI.

Confederação da Agricultura e Pecuária do Brasil (CNA). *Programa Agronordeste*. nd. Access date: September 25, 2024. bit.ly/4e14CyZ.

Comissão de Valores Mobiliários (CVM). *Direito do mercado de valores mobiliários – 2ª edição*. Rio de Janeiro: Comissão de Valores Mobiliários, 2022. bit.ly/456f2tA.

Instituto de Estudos Socioeconômicos (INESC). *Fundo Nacional sobre Mudança do Clima: governança, recursos, gestão e desafios*. 2022. bit.ly/3YjzcOj.

Instituto de Pesquisa Econômica Aplicada (IPEA). *Boletim de Análise Político-Institucional 29 - Edição Especial: Dez anos da Diest.* Brasília, 2021. bit.ly/40oCNNR.

Lopes, Cristina L. and Joana Chiavari. *Forest Restoration in Brazil: Essential Factors for Promoting Restoration at Scale*. Rio de Janeiro: Climate Policy Initiative, 2024. bit.ly/ForestRestorationInBrazil.

Ministério da Agricultura e Pecuária (MAPA). *Com a disponibilização de R$ 364,2 bilhões em crédito rural, Mapa fez o maior Plano Safra da história*. 2023. Access date: September 14, 2024. bit.ly/3AemPuW.

Ministério da Agricultura, Pecuária e Abastecimento (MAPA). *Plano setorial para adaptação à mudança do clima e baixa emissão de carbono na agropecuária 2020-2030: Plano operacional*. Brasília: MAPA/DEPROS, 2021. bit.ly/496fkBU.

Ministério do Meio Ambiente e Mudança do Clima (MMA). *MMA e BNDES relançam Fundo Clima com aporte de R$10 bilhões*. 2023. Access date: October 10, 2024. bit.ly/4fdKRFa.

Mourão, João, Mariana Stussi and Priscila Souza. *Credit Where It's Due Unearthing the Relationship between Rural Credit Subsidies and Deforestation*. Rio de Janeiro: Climate Policy Initiative, 2024. bit.ly/CreditDeforestation.

Oliveira, Wagner, Gabriela Coser, Carolina M. de Moura and Priscila Souza. *Brazilian Sustainable Taxonomy: Inputs for Classifying Land Use Activities.* Rio de Janeiro: Climate Policy Initiative, 2024. bit.ly/BrazilianTaxonomy.

Oliveira, Wagner, Priscila Souza and Juliano Assunção. *The Impact of Brazil's ABC Program Credit on Pasture Recovery: Evidence from the Cerrado.* Rio de Janeiro: Climate Policy Initiative, 2024. bit.ly/4fe8XjB.

Organization for Economic Cooperation and Development (OECD). *Development Finance for Climate and Environment*. 2024. Access date: June 10, 2024. bit.ly/3YBADsM.

Organization for Economic Cooperation and Development (OECD). *OECD DAC Rio Markers for Climate: Handbook*. 2018. bit.ly/3AjTr6y.

Rosenberg, Anja, Adeline Dontenville, Angela Falconer, Charlie Parker and Padraig Oliver. *Land- use Finance Tool*. EU REDD Facility, Climate Policy Initiative, 2018. bit.ly/3ypDzLs.

Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa (SEEG). *Emissões Totais.* 2023. Access date: September 2, 2024. bit.ly/3NDFyDh.

Souza, Priscila Z. and Juliano J. Assunção. *Risk Management in Brazilian Agriculture: Instruments, Public Policy, and Perspectives.* Rio de Janeiro: Climate Policy Initiative, 2020. bit.ly/40vkoPu.

Souza, Priscila, Leila Pereira and Mariana Stussi. *Revealing Incentives: Implications of the Design of Public Rural Insurance Policies in Brazil.* Rio de Janeiro: Climate Policy Initiative, 2022. bit.ly/RuralInsuranceinBrazil.

Souza, Priscila Z., Wagner Oliveira and Mariana Stussi. *Challenges of Rural Insurance in the Context of Climate Change: the Case of Soybeans*. Rio de Janeiro: Climate Policy Initiative, 2023. bit.ly/ChallengesofRuralInsurance.

Stout, Sean. *"Beyond Adaptation": Coming to Terms with Loss & Demage*. Climate Policy Initiative, 2023. bit.ly/3UoYeKW.

SUZANO. *We are Suzano*. nd. Access date: October 29, 2024. bit.ly/48BZujM.

Tribunal de Contas da União (TCU). *Relatório de Fiscalizações em Políticas e Programas de Governo – RePP 2024*. Brasília, 2024. bit.ly/4feVSpQ.

United Nations Climate Change. *Introduction to Climate Finance*. nd. Access date: August 14, 2024. bit.ly/3Ujsabq.

United Nations Environment Programme (UNEP). *About Loss and Damage – What is Loss & Damage?* nd. Access date: July 18, 2024. bit.ly/40k51sV.

Appendix I. Criteria for Defining Financial Flows Aligned with Climate Objectives

Table A1 shows the criteria used to identify climate-related financial flows for land use. The table identifies mitigation and adaptation activities and those that act to mitigate and adapt to climate change.

Table A1. Criteria for Classifying Climate Financial Flows for Land Use in Brazil

Caption

Area

- Rural Credit Policy
- Agricultural Risk Management
- Government Spending
- Capital Markets and Other Financial Instruments
- International Development and Cooperation

Sector

- Crop
- Bioenergy and biofuels
- Forest
- Cattle
- M — Multi-sector

CLIMATE OBJECTIVE: MITIGATION

ACTIVITIE	SUB-ACTIVITIES
Crop production projects that improve and/or do not eliminate existing carbon pools	No-tillage, implementation and improvement of no-tillage with straw mulching systems.
Environmental adaptation, policies on property rights and land regularization	Creation, management, inspection and implementation of Protected Areas. National System of Protected Areas (*Sistema Nacional de Unidades de Conservação* – SNUC).
	Environmental recovery of family farming properties through the Environmental Regularization Program (*Programa de Regularização Ambiental* – PRA).
	Land governance and management of the Rural Environmental Registry (*Cadastro Ambiental Rural* – CAR). Environmental regularization of rural properties in the states. Support to subnational agencies to implement the CAR and environmental regularization.
	Regularization, demarcation and inspection of indigenous lands and protection of isolated indigenous peoples. Recognition and reparation of *quilombola* territories. Environmental management and ethno-development.
	Adaptation of rural properties to environmental legislation, including recovery of legal reserves, permanent preservation areas, recovery of degraded areas and implementation and improvement of sustainable forest management plans.
	Modernization of land management and land regularization of state and federal public lands and settlements.

CLIMATE OBJECTIVE: MITIGATION

ACTIVITIE	SUB-ACTIVITIES
Sugar cane production, including for energy generation	Expansion and renovation of sugarcane fields, harvesting optimization and expansion of sugarcane crushing capacity. Includes purchase of machinery, equipment and construction of storage units for ethanol and sugar.
Renewable energy generation and measures for energy efficiency	Environmental sustainability and renewable energy actions. Renewable energy technologies, environmental and small hydroenergetic applications.
	Industry and crop modernization to increase efficiency, expansion of renewable energy exports, investments in energy efficiency.
	Energy conservation and demand-side efficiency measures to reduce energy consumption.
	Construction of substations and transmission lines for connection to the national electricity grid.
	Solar energy for centralized grids, including photovoltaic cells and concentrated solar power systems, and for isolated grids and autonomous systems, including mini-grids and residential solar systems.
	Water and waste treatment for energy production from biogas.
	Production of steam and energy co-generation from sugarcane.
	Power plants powered by biofuels that use biomass and biogases for direct energy generation.
Farming, processing, industrialization or extraction of native species or sustainable products	Açaí, cocoa, sugar cane, Brazil nut, cedar, cupuaçu, palm oil, yerba mate, wood, walnut, olive and rubber tree.**

** Product considered sustainable in the BCB's public consultation No. 82 of 2021.

Caption

Area
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- M Multi-sector

CLIMATE OBJECTIVE: MITIGATION

ACTIVITIE	SUB-ACTIVITIES
Payroll with staff from government agencies directly linked to activities that will allow Brazil to achieve its climate commitments to reduce GHG emissions	IBAMA
	ICMBIO
	FUNAI
	SFB
Payment for forest conservation	Forest Grant Program.
	Payment to families in extreme poverty for providing natural resource conservation services in rural areas through the Support Program for Environmental Conservation – Green Grant Program. Registration, implementation and monitoring of income transfer and promotion of socio-productive inclusion actions of the program.
Actions to prevent and control deforestation and fires	Budget support to federal or subnational authorities for deforestation control and environmental management policies, in addition to other technical assistance activities, including awareness raising and training.
	Development and implementation of deforestation monitoring systems, in addition to control, inspection, environmental monitoring and fight against environmental infractions, including through satellite systems.
	Amazon Protection System (*Sistema de Proteção da Amazônia* – SIPAM) and development, launch and operation of satellites, and associated infrastructure. Implementation of the Amazônia System (SAR).
	Construction of the headquarters of the National Center for Forest Fire Prevention and Fighting (*Centro Nacional de Prevenção e Combate aos Incêndios Florestais* – PREVFOGO.
Production of biofuels, including biodiesel and bioethanol	Modernization of equipment, processes and industrial and farming facilities. Construction of ethanol storage tanks. Investments to mitigate environmental, legal, labor and operational risks.
	Issuance of CBIOs by biofuel producers and importers based on commercialization of their production.
Projects that reduce methane or other GHG emissions	Purchase of cattle for slaughter from non-deforested areas and from areas that do not overlap with protected areas and protected territories.

Caption

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CLIMATE OBJECTIVE: ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Production of biological and organic crop pesticides	Development and innovation of the bioinput sector.
	Manufacturing of organic fertilizers, biological pest control products and development of new technologies.
Development of climate risk zoning and matrix	Studies, implementation and maintenance of the ZARC. Development of an agricultural risk matrix.
	Carrying out productive environmental zoning and application of sustainability indicators in agroecosystems in selected territories.

CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Financial services	Financial intermediaries and services for the agricultural sector.
	Microcredit, savings and credit cooperatives, etc.
	ABC Program, PRONAF ABC and FNO-ABC.
	PROAGRO.
	PSR.
	Crop Guarantee Program.
	Rural insurance for farming and forestry.

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Activities to reduce emissions from deforestation and degradation	Forest conservation, restoration and recovery of degraded areas, including native vegetation and permanent preservation areas, to improve water supply. Private forest reserve projects.
	Technologies aimed at recovery, conservation and sustainable use of the Amazon biome.
	Management of protected areas (protected areas and indigenous lands), including territorial and environmental management plans.
	Agroecological systems, agroforestry systems (AFS) and organic agricultural production systems.
	Extractive production, community forest management and socio-environmental projects of agroextractive organizations, with skills development , technical support and associativism actions. Plant oil, wild cocoa and rubber value chains and strengthening of non-timber forest production chains.
Management and monitoring for water use and sanitation	Water supply, sanitation and hygiene programs.
	Construction or restoration of dams, tanks and water collection systems. Implementation of water storage systems to protect against the effects of seasonal drought.
	Infrastructure projects and institutional activities for integrated management of river basins.
	Drip irrigation, other types of irrigation, reservoirs and groundwater exploitation for agriculture.
	Implementation of gray water reuse systems for agroecological production, consumption, commercialization by families and schools to reduce vulnerability to local climate change.
	Public water supply in riverside communities on the São Francisco, Parnaíba, Itapecuru and Mearim rivers (Water for All Program). Construction and adaptation of public sewage systems in riverside communities.
Rural extension to improve agronomic practices and access to technology and infrastructure	Technical assistance and rural extension, training of technical experts and producers, structuring of state entities for technical assistance.
	Non-formal agricultural training.

Caption

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Farming infrastructure and technologies	Protected cultivation and farming in a controlled environment to prevent damage caused by weather, disease or pests. Greenhouses, nurseries (artificial lighting, seedlings, seeds, bags, canvas, trays, vases).
	Biological nitrogen fixation.
	Equipment and tools for precision agriculture.
	Cattle and buffalo traceability systems.
Waste treatment	Implementation, improvement and maintenance of animal production waste management systems for energy generation and composting.
	Biodigestor, manure pit, biological oxidation tanks and water and sewage treatment.
Erosion, soil quality and pasture management	Improvement of soil water retention (e.g. through use of cover crops, organic fertilizers, minimum tillage).
	Pasture.**
	Renovation and recovery of degraded pastures. Soil recovery, intensive correction or intensive fertilization.
Activities related to the planted forest, pulp and paper industry	Implementation, maintenance and improvement of the management of commercial forests, including those intended for industrial use or charcoal production, as well as commercial eucalyptus and pine forests, both through renovation and implementation of new areas.
	Procurement and construction of infrastructure for wood processing. Planting and replanting, production and purchase of seedlings, soil preparation, and protection and maintenance of planted seedlings until harvest.
	Investments in industrial modernization and maintenance of the productive capacity of the pulp and paper industry in line with the environment.
Agroforestry, silvopastoral or pasture/ field management systems that offset CH4 emissions	Implementation and improvement of integrated crop-cattle, crop-forest, cattle-forest or crop-cattle-forest and AFS.

** Product considered sustainable in the BCB's public consultation No. 82 of 2021.

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Monitoring and surveillance systems	Meteorological and climatological services in the national network.
	Platforms for collecting meteorological and oceanographic data.
	National Center for Natural Disaster Monitoring and Alerts (*Centro Nacional de Monitoramento e Alerta de Desastres Naturais* – CEMADEN).
	Interoperability of defense systems and flood warning information.
	Studies, projects and works carried out to contain or buffer floods and to contain marine and river erosion.
	Management of geological information, geological-geotechnical mapping in critical municipalities susceptible to geological risks. Operation of the hydro-meteorological network, hydro-geological surveys, implementation of infrastructure for water security. Research, studies and geoscientific surveys.*
	Development and monitoring of agro-food traceability systems.
	Surveillance and control of activities with genetically modified organisms, control of the production and sale of animal genetic material, raw material for animal feed and products for veterinary use.*

* For General Budget of the Union (*Orçamento Geral da União* - OGU) financial flows, the values are weighted based on the scoring system for climate markers from the OECD-DAC Rio Markers (OECD 2018). Due to the specificities of Brazilian public policies, different assumptions were adopted for some activities, and therefore, the marker may differ from the OECD methodology. The financial flows of actions not explicitly related to climate objectives but indirectly contribute to the country achieving these objectives accounted for 40% of the total expenditure value.

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Policy management and planning, training and guidance	Policies, laws, regulations, economic instruments, seminars and meetings for measures related to conservation, energy, environment and water use, such as the National Policy on Climate Change (*Política Nacional sobre Mudança do Clima* – PNMC), among others.
	Tax policy, administration and non-tax revenue.
	Science, technology and innovation at the National Institute of the Atlantic Forest (*Instituto Nacional da Mata Atlântica* – INMA), National Institute for Research in the Amazon (*Instituto Nacional de Pesquisas da Amazônia* – INPA), National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais* – INPE), National Institute for the Semi-Arid Region (*Instituto Nacional do Semiárido* – INSA).*
	Management and maintenance of administrative structure: FUNAI, IBAMA, ICMBIO, INPA, MMA and SFB.*
	Projects and studies for municipalities or municipal public consortia to mitigate GHG emissions and adapt to the effects of climate change.
	Studies and research and development projects related to climate change and oceanographic and climatological monitoring of the Blue Amazon. Logistical support for scientific research in Antarctica.*
	Low-carbon farming and sustainable production systems, regional production chains, control of organic farming (Pro-Organic), sustainable development of farming production chains and their territories and fighting rural poverty in the semiarid region of the Northeast.
	Conservation and sustainable use of genetic resources for farming and food. Artisanal agro-food production. Geographical Indication (GI) of Agricultural Products. Structuring and consolidation of family farming socio-productive networks.*
	Digital and precision agriculture.
	RENOVABIO and agroenergy development.
	Design and social management of Territorial Plans for Sustainable Rural Development (*Planos Territoriais de Desenvolvimento Rural Sustentável* – PTDRS) and promotion of the structuring and consolidation of family farming socio-productive networks within the scope of the Territories of Citizenship Program.

* For OGU financial flows, the values are weighted based on the scoring system for climate markers from the OECD-DAC Rio Markers (OECD 2018). Due to the specificities of Brazilian public policies, different assumptions were adopted for some activities, and therefore, the marker may differ from the OECD methodology. The financial flows of actions not explicitly related to climate objectives but indirectly contribute to the country achieving these objectives accounted for 40% of the total expenditure value.

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
R&D, knowledge management systems	Databases, inventories, environmental profiles, impact studies.
	Research related to plant improvement, genetic resources, animal health and crop biotechnology.
	Generation and dissemination of information on agriculture and agri-food supply. Development of a management platform for agro-environmental sustainability indicators and indicators for agro-environmental policies. Demographic, Agricultural and Geographical Censuses.*
	Adaptation, expansion, revitalization and modernization of the infrastructure of EMBRAPA units. R&D for sustainable and low-carbon agricultural production, adaptation to global environmental changes, increased competitiveness of production by family farmers and traditional communities.
	Research and technology transfer on pest management in agricultural and forestry production systems.
	Technological Reference Units (*Unidades de Referência Tecnológica* – URTs) of the Brazil Without Extreme Poverty Plan (*Plano Brasil Sem Miséria* – BSM) and the National Agricultural Research System (*Sistema Nacional de Pesquisas Agropecuárias* – SNPA). Research, monitoring and evaluation of crops and post-harvest losses. Survey and interpretation of soil information.*
	R&D, innovation and studies of the biofuel industry.
	Development and launching of satellite operations, suborbital rockets and satellite launch vehicles and associated infrastructure.* Transfer for development of the Geostationary Defense and Communications Satellite (*Satélite Geoestacionário de Defesa e Comunicações* – SGDC).*
	Technology dissemination and transfer for sustainable development of agriculture and agroforestry systems in cocoa producing regions.
Nutrient management and pest control Cattle and veterinary services	Projects for animal health and management, genetic resources, food resources.
	Plant protection, pest control and agrochemical supply.
	National Agricultural Laboratory (*Laboratório Nacional Agropecuário* – LANAGRO) Control of residues and contaminants of animal and plant products, inspection of crop and cattle production services.*
	Conservation and sustainable use of genetic resources for food and farming. National Platform of Genetic Resources.*

* For OGU financial flows, the values are weighted based on the scoring system for climate markers from the OECD-DAC Rio Markers (OECD 2018). Due to the specificities of Brazilian public policies, different assumptions were adopted for some activities, and therefore, the marker may differ from the OECD methodology. The financial flows of actions not explicitly related to climate objectives but indirectly contribute to the country achieving these objectives accounted for 40% of the total expenditure value.

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CLIMATE OBJECTIVE: MITIGATION AND ADAPTATION

ACTIVITIES	SUB-ACTIVITIES
Biosphere and biodiversity conservation and restoration	Measures to protect endangered species, habitats and nature reserves.*
	Expansion and modernization of infrastructure for the study of biodiversity, technological innovation and sustainability of Amazonian ecosystems in the face of global changes.
Incentives for democratic participation by civil society on climate change	Associations, human rights institutions, feminist and women's rights organizations that promote democracy, citizen participation, advocacy and civic education.
Farming projects and development	Farmers' organizations and cooperatives.
	Integrated projects for rural development, land management and rural-urban integration.
	Marketing, storage, transportation and strategic reserve policies.
Education and training for climate change	Education and training programs on environmental and energy issues.
Development of fishing activities	Exploitation, use and protection of fish stocks, as well as aquaculture and integrated fishery projects.

* For OGU financial flows, the values are weighted based on the scoring system for climate markers from the OECD-DAC Rio Markers (OECD 2018). Due to the specificities of Brazilian public policies, different assumptions were adopted for some activities, and therefore, the marker may differ from the OECD methodology. The financial flows of actions not explicitly related to climate objectives but indirectly contribute to the country achieving these objectives accounted for 40% of the total expenditure value.

Source: *CPI/PUC-Rio based on the classifications of Rosenberg et al. (2018), Chiriac, Naran and Falconer (2020), BCB (2021), Antonaccio et al. (2018) and OECD (2018), 2024*

Caption

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Appendix II. Climate Finance Areas and Data

Table A2. Areas and Databases Related to Climate Finance for Land Use in Brazil

Area	Description/ Instrument	Data and Sources
Agricultural Credit Policy	Finance for rural producers (individuals or legal entities) and their cooperatives, under the conditions established annually in the Rural Credit Manual (*Manual de Crédito Rural* – MCR) of the BCB. The finance in these operations are registered in the SNCR. **Instrument:** rural credit.	**1) Data:** Amount of rural credit operations contracted with financial institutions, for finance, industrialization and investment purposes. **Source:** BCB Rural Credit PROAGRO Operations System (*Sistema de Operações do Crédito Rural e do Proagro* – SICOR). **Note:** Despite the agricultural credit policy being defined for the crop year (July to June), this study used data considering the calendar year (January to December) to make it compatible with the other databases.

Area	Description/ Instrument	Data and Sources
Agricultural Risk Management	Insurance and other financial mechanisms that cover losses in agriculture and the forest sector resulting from climate phenomena, such as excessive rain, drought, sudden temperature changes, hail, frost, strong winds, cold winds, diseases and pests, among others. Government programs to protect rural producers from climate risks: PSR, *Crop Guarantee* and PROAGRO. **Instrument:** risk management.	**1) Data:** Government expenditures paid within the System of National Accounts (*Sistema de Contas Nacionais* – SCN): (i) Federal contributions to the *Crop Guarantee* Fund (ii) PROAGRO compensations by the federal government. **Source:** Planning and Budget Integrated System/ Ministry of Planning and Budget (*Sistema Integrado de Planejamento e Orçamento/Ministério do Planejamento e Orçamento* – SIOP/MPO). **2) Data:** PSR. **Source:** Rural Insurance Atlas/ MAPA. **3) Data:** Amount of net premium paid for contracting a rural insurance policy. **Source:** Statistic System of the Superintendence of Private Insurance (*Sistema de Estatísticas da Superintendência de Seguros Privados* – SES/SUSEP) and Rural Insurance Atlas/MAPA. **4) Data:** Amount paid by rural producers to contract PROAGRO (additional fee). **Source:** SICOR/BCB. **Note:** The financing source is considered private when it is paid for by rural producers, and is considered public when paid by the government.

Area	Description/ Instrument	Data and Sources
Government Expenditures	Federal government expenditures on policies, actions and institutions that govern land use, including forest conservation and restoration and the development of sustainable agriculture. States and municipalities expenditures as financial counterpart for projects approved with non-reimbursable finance from the FNMC. **Instruments:** public budget and grants.	**1) Data:** Government expenditures paid within the SCN. **Source:** SIOP/MPO. **2) Data:** Amount approved for non-reimbursable projects of the FNMC. **Source:** MMA. **Note:** Government expenditures paid within the SCN do not include federal government expenditures on transfers to the BNDES, credit and rural insurance policies, and finance for FNMC non-reimbursable operations. This is done to avoid overlap with flows identified in other government areas.

Area	Description/ Instrument	Data and Sources
Financial Market	BNDES operations granted to legal entities requested and negotiated directly with the bank or through a financial institution. Issuance of CBIOs in the primary securities market. Thematic bonds issued in the primary securities market, including in foreign currency, such as CRA, debentures, among others. **Instruments:** low cost credit, CBIOs, thematic bonds.	**1) Data:** Amount approved for non- automatic direct and indirect BNDES operations. It does not include rural credit operations with BNDES finance, as these are already accounted for in the agricultural credit policy area. **Source:** BNDES. **2) Data:** CBIOs traded financial value in the primary market. **Source:** Ministry of Mines and Energy (*Ministério de Minas e Energia* – MME) and market data from B3. **3) Data:** Financial value of the issuance of thematic bonds in the domestic and international primary market. **Source:** Natural Intelligence Group (NINT). **Note:** For CBIOs and thematic bonds, only issuances in the primary market were considered, i.e., the one in which a new issuance of a security is negotiated directly between the issuer and investors (subscribers of the issuance) and the finance are allocated to investment projects or the issuer's cash equity (CVM 2022). Law no. 10,303/2001 determines the bond and collective investment contracts that are considered securities, such as shares, debentures and commercial notes, among others.

Area	Description/ Instrument	Data and Sources
International Development and Cooperation	International financing channeled through specific programs or projects as well as through technical cooperation with the federal government, subnational governments, multilateral banks or civil society organizations, among other arrangements. They include, among others, financing operated by the Amazon Fund and Multilateral Climate Funds (MCFs), such as the Green Climate Fund (GCF), Adaptation Fund, Climate Investment Funds (CIF) and the Global Environment Facility (GEF). **Instruments:** grants, low-cost credit, and project-level equity.	**1) Data:** Approved value for projects financed by MCFs, multilateral development banks, private philanthropy foundations and foreign governments, such as cooperation agencies in developed countries. **Source:** OECD creditor reporting system (OECD/DAC) and Inter-American Development Bank (IDB)[24]. For 2023 data, project bases from the World Bank, KfW, the Norwegian Agency for Development Cooperation (NORAD), the German Federal Ministry for Economic Cooperation and Development, and the Green Environment Fund (GEF). **2) Data**: Amount approved for projects financed by the Amazon Fund. **Source:** BNDES.

Source: *CPI/PUC-RIO, 2024*

24 Grants from to the international governments to the Amazon Fund were excluded from OECD data, as flows from this Fund were accounted for at project level based on data available by BNDES.

Appendix III. Definitions of the Finance Landscape Categories

Table A3. Description of Categories of Climate Financial Flows for Land Use in Brazil

Category	Category Definition	Subcategory	Subcategory Definition
Origin of Finance	Finance can be public or private, national or international.	Private	Finance that originate from private actors, such as financial institutions, corporations, rural producers and philanthropic foundations, among others.
		Public	Finance from government sources such as the National Treasury, Constitutional Finance Funds, BNDES' own finance, finance from multilateral development banks and international government agencies, among others.
		National	Finance from the country's governmental or private internal sources.
		International	Finance from government or private sources in other countries.

Category	Category Definition	Subcategory	Subcategory Definition
Source of Finance	Organizations providing finance.	Financial Institution	Public banks, private banks, and credit unions. These are resources belonging to these financial institutions for rural credit operations offered at non-controlled rates (free negotiation with the customer) and at controlled rates (operations receiving government subsidy for interest rate equalization).
		Rural producers	Investments are made with the producers' own resources, regardless of their profile – family, medium or large.
		LCA	Finance from rural credit are raised via Agribusiness Letter of Credit (*Letra de Crédito do Agronegócio* – LCA).
		Corporations	Companies in the agribusiness chain. Includes companies dedicated to crop production, agribusiness (sugarcane, bioenergy, planted forests, pulp and paper, animal protein and fertilizer production) and fuel distributors.
		Philanthropies	Non-profit private foundations financed by resources from families, private companies or individuals. The Citi Foundation of Citi Bank and the Gordon and Betty Moore Foundation are examples of philanthropic entities.
		BNDES	Free-reign BNDES resources, those offered at uncontrolled rates (free negotiation with the customer), and Financing Fund for the Acquisition of Industrial Machinery and Equipment (*Fundo de Financiamento para Aquisição de Máquinas e Equipamentos Industriais* – BNDES/FINAME).

Category	Category Definition	Subcategory	Subcategory Definition
Source of Finance	Organizations providing finance.	Federal and state governments	FCFs, Workers' Support Fund (*Fundo de Amparo ao Trabalhador* – FAT), national treasury bonds, financial counterparts from subnational governments for FNMC projects, and other finance operationalized by the OGU.
		Multilateral development banks	Institutions created by a group of countries, which provide financing and professional advice for development purposes, such as the World Bank, Development Bank of Latin America (*Corporación Andina de Fomento* – CAF) and the IDB, among others.
		International governments	Finance administered mainly through international cooperation agencies and programs such as the German International Cooperation Agency (*Deutsche Gesellschaft für Internationale Zusammenarbeit* – GIZ), UK government Prosperity Fund, Norwegian government programs, among others.
		Climate Funds	Finance established within and outside the UNFCCC and financial mechanisms of the Paris Agreement with the aim of supporting developing countries in fighting climate change, such as the Amazon Fund and the Green Climate Fund, among others.
		Others	Other sources of finance that could not be classified properly.

Category	Category Definition	Subcategory	Subcategory Definition
Disbursement Channels	Organizations that intermediate flows to their final beneficiaries or grant financing.	Financial Institution	Public and private banks, non-federal development banks and national development agencies, credit unions and insurance companies.
		Corporations	They are the companies (legal entities) in the agribusiness chain. This includes companies devoted to crop production, agribusiness (sugarcane, bioenergy, planted forests, pulp and paper, animal protein and fertilizer production) and fuel distributors.
		Government agencies	Ministries of the Brazilian Executive Branch and their related agencies, state-owned companies and subnational government agencies (states and municipalities).
		Others	Channels that could not be identified or categorized.
		Civil society organization	Civil society organizations are non-profit private entities that carry out public interest activities (IPEA 2018). They include community organizations and village associations, environmental groups, women's rights groups, farmers' associations, religious organizations, trade unions, cooperatives, professional associations, chambers of commerce, independent research institutes (OECD 2018).
		BNDES	Operations granted to legal entities negotiated and intermediated by BNDES.
		Multilateral development banks and cooperation agencies	Multilateral development banks and specialized agencies of the UN.
		International governments	International cooperation agencies and programs such as GIZ, the UK government's Prosperity Fund, Norwegian government programs, among others.

Category	Category Definition	Subcategory	Subcategory Definition
Instruments	Financial instruments used to channel tracked finance.	Rural credit	Financing for rural producers (individuals or legal entities) and their cooperatives, under the conditions established annually in the MCR of the BCB).
		Risk management	Insurance and other financial mechanisms that cover losses in agriculture and forest resulting from climate phenomena (rural insurance, PSR, *Garantia-Safra* and PROAGRO).
		Equity at project level	Capital investment that depends on the project's cash flow for repayment (Buchner et al. 2021).
		Thematic bonds	Private bonds issued in the primary securities issuance market that follow voluntary guidelines and standards, such as the GBP, Green Loan Principles (GLP), and the Climate Bonds Standard, among others.
		Low-cost credit	Financing granted under preferential conditions compared to those practiced in the market (Buchner et al. 2021). It does not include Rural Credit operations.
		CBIOs	CBIO issuance by biofuel producers and importers.
		Public budget	Expenditures paid by the federal government, including transfers to subnational governments (states and municipalities). It also includes counterpart financing by subnational governments in projects with non-reimbursable finance from the FNMC.
		Grants	Transfers made in cash, goods or services for which reimbursement is not required (Buchner et al. 2021).

Category	Category Definition	Subcategory	Subcategory Definition
Sectors	Economic activity sectors in which the financing was applied.	Crop	Activities related to farming production, such as implementation of crop practices and infrastructure on rural properties, purchase and production of inputs, among others. It also includes ancillary activities such as rural extension, financial services and policy management and planning, training and guidance for the sector.
		Forest	Forest conservation, restoration and reforestation activities, as well as economic exploitation, such as planted forests, pulp and paper. It also includes environmental adaptation policies, property rights, and land regularization.
		Cattle	Cattle production, through activities such as implementation of systems for integration and infrastructure on rural properties, waste treatment and pasture renewal, among others. It also includes ancillary activities such as rural extension, financial services and policy management and planning, training and guidance for the sector.
		Bioenergy and fuels	Renewable energy generation and measures for energy efficiency from sugarcane or crop residue. Production of biofuels, including biodiesel and bioethanol, and policy management and planning, training and guidance for the sector.
		Multi-sector	Policies and projects aimed at reducing vulnerability to climate change. Monitoring and surveillance systems for meteorology, natural disaster alerts, risk management for hydrological and geological events, among others.

Category	Category Definition	Subcategory	Subcategory Definition
Climate Objective	Contribution that the financed activities provide in the face of climate change: mitigation, adaptation, or both.	Mitigation	Activities that contribute to reducing or avoiding GHG emissions, including gases regulated by the Montreal Protocol, or to the maintenance or improvement of GHG sinks and reservoirs (Buchner et al. 2021).
		Adaptation	Activities that aim to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, while maintaining or increasing adaptive capacity and resilience (Buchner et al. 2021)
		Mitigation and Adaptation	When the financed project generates a double benefit as it finances activities with both adaptation and climate mitigation components and meets the respective criteria for each category (Buchner et al. 2021).
		Loss and Damage	Loss and damage flows are expenditures made after the occurrence of adverse climatic events to reduce their economic and non-economic effects (Stout, 2023).

Source: *CPI/PUC-RIO, 2024*

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