CIF CLIMATE INVESTMENT FUNDS

Meeting of the SCF Trust Fund Committee

Washington, D.C. (Hybrid) Thursday

Thursday, February 27 and Friday, February 28, 2025

BRAZIL (NPC) INVESTMENT PLAN

CLIMATE INVESTMENT FUNDS
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SCF/TFC.19/02
January 27, 2025

PROPOSED DECISION

The SCF Trust Fund Committee, having reviewed the document *Brazil NPC Program Investment Plan- "From the Arc of Deforestation to the Arc of Restoration in the Tocantins-Araguaia Basin"* (*SCF/TFC.19/02*):

i. thanked the Government of Brazil for the work it has done in preparing the Investment Plan;

ii. endorsed the investment plan as a basis for the further development of the projects foreseen in the plan and took note of the total requested loan funding of USD 47 million for the World Bank (IBRD) to support the project**: Support for the Arc of Deforestation;**

iii. took note of the Dedicated Grant Mechanism (DGM) allocation of USD 5 million, which comes through a financing window that is separate from the Investment Plan allocation;

iv. requested the Government of Brazil, in the further development of the proposed projects, to take into account comments made at the meeting and any additional written comments submitted by members.

MINISTÉRIO DA FAZENDA
Secretaria de Assuntos Internacionais
Subsecretaria de Financiamento ao Desenvolvimento Sustentável
Coordenação-Geral de Finanças Sustentáveis
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Carta SEI nº 3/2025/MF

To Ms. Tariye Gbadegesin
Chief Executive Officer
Climate Investment Funds - Administrative Unit
1818 H Street NW
Washington D.C. 20433, USA

January 13, 2025.

Dear Ms. Gbadegesin,

I am pleased to submit Brazil's Investment Plan for the Nature, People and Climate (NPC) Program under the Climate Investment Funds (CIF). This Plan reflects Brazil's commitment to advancing sustainable land use practices, promoting forest restoration, and addressing climate change while ensuring social inclusion and economic development. The Government of Brazil appreciates all the support that the CIF, the World Bank (WB), and the Inter-American Development Bank (IADB) have provided to develop this Investment Plan.

This Investment Plan, coordinated by the Ministry of Finance, in collaboration with the Ministry of Environment and Climate Change, the Brazilian Forest Service, and the National Bank for Economic and Social Development (BNDES), was developed through a participatory process involving multiple stakeholders, including federal and state agencies, civil society, academia, private sector representatives, and local communities.

The NPC Brazil Investment Plan focuses on the Tocantins-Araguaia Basin, an ecologically and economically critical region spanning the Amazon and Cerrado biomes. The Plan aims to support large-scale forest restoration, prioritizing areas degraded by deforestation within the region defined as the Arc of Deforestation, leveraging Nature-Based Solutions (NbS) such as ecological restoration.

The Plan proposes the deployment of USD 47 million from CIF-NPC concessional resources, which will be transferred to the private sector through BNDES existing credit lines to catalyze forest restoration projects. This blended finance approach leverages concessional financing from CIF, co-financing from the Brazilian Climate Fund, and additional co-financing from the World Bank. The proposed budget envelope for the NPC Brazil Investment Plan is as follows:

Funding Source	**USD**
CIF Concessional Loan - NPC	47 million
World Bank Co-financing Loan	100 million

Funding Source	USD
Brazilian Climate Fund Co-financing Loan	100 million
TOTAL VALUE OF NPC BRAZIL	**247 million**

The expected outcomes of this Investment Plan are transformative. It is estimated that the Plan will enable the restoration of 54,000 hectares of forests, directly and indirectly employ up to 21,000 people, and contribute to the reduction of up to 7.75 million tons of CO_2e through greenhouse gas mitigation. In addition, the Plan emphasizes a just ecological transition, ensuring gender equity, social inclusion, and the empowerment of local communities.

The Brazilian government is grateful for the opportunity to take part in the NPC Program. We look forward to working with the Climate Investment Funds and our partners to implement this Investment Plan and contribute to global efforts to combat climate change while promoting sustainable development.

Please find Brazil's Investment Plan for the NPC Program attached.

Yours sincerely,

Document signed electronically

ANTÔNIO COTTAS DE JESUS FREITAS

Deputy Secretary for International Affairs

Ministry of Finance of Brazil

Documento assinado eletronicamente por **Antônio Cottas de Jesus Freitas**, **Secretário(a) Substituto(a)**, em 13/01/2025, às 17:46, conforme horário oficial de Brasília, com fundamento no § 3º do art. 4º do Decreto nº 10.543, de 13 de novembro de 2020.

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BRAZIL'S INVESTMENT PLAN NATURE, PEOPLE AND CLIMATE (NPC) CLIMATE INVESTMENT FUNDS (CIF)

From the Arc of Deforestation to the Arc of Restoration in the Tocantins-Araguaia Basin

January | 2025

Graphic design & layout

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Picture from ish consul in Unsplash

SUMMARY

ACRONYMS

ABC+ - Sectoral Plan for Adaptation to Climate Change and Low Carbon Emissions in Agriculture, with a view to Sustainable Development

AC – State of Acre

AM – State of Amazonas

AMACRO – Border between Amazonas, Rondônia and Acre

APP – Permanent Preservation Area

ARR – Afforestation, Reforestation and Revegetation

ATER – Technical Assistance for Rural Extension

BB – Bioeconomy of the Amazon

BIP – Brazil Platform for Climate Investments and for Ecological Transformation

BNDES – National Bank for Economic and Social Development

BTG PACTUAL – Forestry Investment Group (TGI)

CAR – Rural Environmental Registry

CETEM - Mineral Technology Center of the Ministry of Science, Technology and Innovation

CIF – Climate Investment Funds

CNA – National Confederation of Agriculture

Conaveg – Executive Commission for the Control of Illegal Deforestation and Recovery of Native Vegetation

CO2 eq – Carbon dioxide equivalent

COP - Conference of the Parties

COP 30 – Conference of the Parties 30

Deter – Rapid survey of alerts of evidence of forest cover change in the Amazon, carried out by INPE – National Institute for Space Research

DGM – Dedicated Grant Mechanism

EMBRAPA – Brazilian Agricultural Research Corporation

ENREDD+ - National Strategy for the Reduction of Greenhouse Gas Emissions from Deforestation and Forest Degradation

EUROCLIMA – A program funded by the European Union that aims to reduce the impact of climate change in Latin America

FAO – Food and Agriculture Organization of the United Nations

FGV - Fundação Getúlio Vargas

FINEM Environment – A credit line from the National Bank for Economic and Social Development (BNDES) that offers financing for projects that contribute to the environment

FIP/CIF – Forest Investment Program

FUNBIO – Brazilian Fund for Biodiversity

GCF – Green Climate Fund

GEF – Global Environment Funds.

GHG – Greenhouse gases

GIP – Integrated Landscape Management

GWP – Global Warming Potential

HDI – Human Development Index

HPP – Large Hydroelectric Power Plants

IBAMA – Brazilian Institute of the Environment and Natural Resources

IBGE – Brazilian Institute of Geography and Statistics

IBRD – International Bank for Reconstruction and Development

ICLFS – Crop-Livestock-Forest Integration

ICMBio – Chico Mendes Institute for Biodiversity Conservation

IDB – Inter-American Development Bank

IDHM – Municipal Human Development Institute

IFC – International Finance Corporation

INCRA – National Institute of Colonization and Agrarian Reform

IPCC – Intergovernmental Panel on Climate Change

IPEA – Institute of Applied Economic Research

IPS – Social Progress Index

IRIS/GIIRS – Metrics used in the GIIRS Rating to determine an overall social and environmental impact rating of a fund, regardless of an organization's geography.

IUCN – International Union for Conservation of Nature

IVS – Secondary Vegetation Index

JPA – Together for Araguaia Program

KFW – German Development Bank

LPVN – Native Vegetation Protection Law

LULC – Land Use and Land Cover (LULC)

LULUCF – Land Use, Land Use Change and Forestry

MAPA – Ministry of Agriculture and Livestock

MAP Biomes – Project that maps land cover and land use in Brazil, in addition to monitoring territorial changes. The project is an initiative of the Climate Observatory and is developed by a collaborative network of universities, NGOs and technology companies.

MATOPIBA – Border between Maranhão, Tocantins, Piauí and Bahia

MDA – Ministry of Agrarian Development.

MDB - Multilateral Development Bank

MDIC – Ministry of Development of Industry, Commerce and Services.

MEL – Monitoring, Evaluation and Learning

MF – Ministry of Finance

MMA – Ministry of Environment and Climate Change

MME – Ministry of Mines and Energy

MSMEs – Micro, Small and Medium Enterprises

NbS – Nature-Based Solutions

NDC – Nationally Determined Contribution

NGOs – Non-Governmental Organizations

NPC – Nature, People and Climate Program

OECD – Organization for Economic Cooperation and Development.

PDRIS – Sustainable Integrated Regional Development Project

PEAA – Amazon Now State Plan

PES – Payments for Environmental Services

Planaveg – National Plan for the Recovery of Native Vegetation

PNGATI – National Policy for Territorial and Environmental Management of Indigenous Lands

PNMC – National Policy on Climate Change

PNPSA – National Policy on Payments for Environmental Services

Polamazônia – Program of Agricultural and Agromineral Poles of the Amazon.

PPCDAm – Action Plan for the Prevention and Control of Deforestation in the Legal Amazon

PPC Cerrado – Action Plan for the Prevention and Control of Deforestation and Fires in the Cerrado Biome

PRA – Environmental Regularization Programs

PRAD – Project for the Recovery of Degraded or Altered Areas

PRA-MT – Environmental Regularization Program – Mato Grosso

PRODES – Deforestation Monitoring Project in the Legal Amazon by Satellite, a program of the National Institute for Space Research (INPE).

PRODOESTE – Midwest Development Program.

PRONAF – National Program for the Strengthening of Family Agriculture

Proveg– National Policy for the Recovery of Native Vegetation.

PRVN Pará – Native Vegetation Recovery Plan of the State of Pará

PUC PR – Pontifical Catholic University of Paraná

REDD+ - Reducing Emissions from Deforestation and Forest Degradation.

Renasem – National Registry of Seeds and Seedlings, a service of the Ministry of Agriculture, Livestock (MAPA).

RLs – Legal Reserves

RO – State of Rondônia

Ruraltins – Rural Development Institute of Tocantins

SAF – Agroforestry Systems

SDG – Sustainable Development Goals

SFB – Brazilian Forest Service, of the Ministry of Environment and Climate Change (MMA).

SHP – Small Hydroelectric Power Plants

SICAR – National Rural Environmental Registry System

SIGA – Integrated Environmental Management System

SIMCAR – Mato Grosso Rural Environmental Registry System

SNUC – National System of Nature Conservation Units

SOBRE – Brazilian Society for Ecological Restoration.

SROI – Social Return on Investments

TAC – Conduct Adjustment Term

TCU – Federal Court of Accounts

Terraclass – Project that maps the use and land cover in deforested areas, with the objective of qualifying deforestation.

TFFF – Tropical Forest Forever Fund

TI – Indigenous Lands

TSE – Superior Electoral Court

UC – Conservation Units

UN – United Nations

UNDP – United Nations Development Program

WWA – World Weather Attribution

LIST OF FIGURES

LIST OF TABLES

PRESENTATION

Brazil is a very diverse country, responsible for maintaining the largest area of tropical forest on the planet and for a unique diversity of ecosystems, landscapes, and traditional people and communities. It is also a country that strives to overcome enormous social inequality and consolidate a development trajectory that delivers quality of life, fair opportunities and sustainability for its entire population, in all regions of the country.

Brazilian environmental policy recognizes these challenges jointly and has consolidated instruments to promote the protection and sustainable use of natural resources and address the impacts of climate change. The country has a National System of Conservation Units (SNUC) that protects almost 160 million hectares (equivalent to three times the area of Spain). Added to other protected areas, such as the territories of indigenous people, 32% of the national territory is under some level of protection. In private areas, the Native Vegetation Protection Law (known as the Forest Code), determines rules for the protection and sustainable use of native vegetation in sensitive areas, such as river banks and hilltops, and requires the maintenance of areas of native vegetation that can only be used under a sustainable management regime. There are more than 7.5 million rural properties that add more than 200 million hectares of areas with some type of protection or restriction of use.

The conservation of native vegetation is a cross-cutting principle of Brazilian environmental policy and aims to protect biodiversity and traditional ways of life, ensure the supply of water resources and soil quality, maintain the stability of the regional climate regime and promote income generation in a sustainable way. The protection of native vegetation areas is, therefore, one of the Nature-Based Solutions (NBS) that Brazil has internalized in its legislation.

Still, the country faces major challenges in the land use sector. The vitality of the agricultural sector, added to the fragility of land consolidation, especially in the Amazon and parts of the Cerrado, means that deforestation is stimulated for the sale of land and the expansion of productive activity. The income resulting from these activities feeds a formal and informal economy that, in several municipalities in the country, represents most of the economic activity. As a result, there is great political pressure at the local level to maintain or expand the conversion of new areas of native vegetation. The Amazon has lost about 20% of its original native cover, while the Cerrado has already lost about 50%.

Despite this, Brazil has been able to control and reduce deforestation in the Amazon and Cerrado in recent years. In 2024, there was a 31% drop in the Amazon compared to the previous year, the lowest rate in the last nine years. In the Cerrado, the drop was 26%, the lowest rate in the last three years.

Even with more positive recent numbers, there is an urgent need to promote alternatives for generating employment and income in forest areas in Brazil based on sustainable productive activities. In addition to public conservation policies, the country began to formulate and implement specific actions related to the recovery of native vegetation. Based on the National Policy for the Recovery of Native Vegetation (Proveg), established in 2017, a National Plan for the Recovery of Native Vegetation (Planaveg) was developed to recover 12 million hectares of forests and other native formations by 2030. The states are advancing in the implementation of the Environmental Regularization Programs (PRA), within the scope of the Forest Code, with the objective of facilitating and accelerating the process of recovery of environmental liabilities on private properties. Civil society has promoted governance spaces, monitoring platforms, and direct restoration actions. More recently, the private sector has started to promote restoration initiatives based on the exploitation of timber and non-timber products, agroforestry systems and the commercialization of carbon credits, in partnership with local landowners. Taking advantage of the positive moment of the native vegetation recovery agenda in Brazil and the opportunities to trade carbon credits in the international market, several companies have been created specifically for this purpose, raising resources in the hundreds of thousands of dollars.

The consolidation of the recovery of native vegetation as an economic activity is a

fundamental strategy of the Brazilian government to promote the generation of employment and income in the Amazon and the Cerrado.

The inputs necessary for the production of seeds and seedlings, soil preparation, planting and maintenance of recovered areas have the potential to generate up to 2.5 million jobs in Brazil. There is also a need to promote technical training, the development of inputs and machines and the establishment of demonstration units in various regions of the country. In addition to the environmental and climate benefits, the recovery of native vegetation has the potential to consolidate itself as one of the main initiatives of the bioeconomy in Brazil.

In this spirit, the Brazilian government has invested its own resources and increased international funding to foster the recovery of native vegetation on different fronts. The investment lines for the implementation of Sustainable Agroforestry Systems (SAFS), forest planting and recovery of native vegetation offered by the federal government exceed R$ 3.2 billion. The National Bank for Economic and Social Development (BNDES) has prioritized the recovery of native vegetation and has financed actions with reimbursable and non-reimbursable resources. The Amazon Fund and the Living Forest Program contribute about R$ 570 million in donation resources to foster recovery in priority areas through civil society organizations. The Climate Fund provides more than R$ 500 million for private funding and the implementation of large restoration projects.

The Tocantins-Araguaia basin, chosen as the focus of this proposal, occupies a transition area between the Cerrado and the Amazon, totaling about 920 thousand km² (11% of the national territory), constituting one of the largest river systems in South America. It is an ecologically sensitive region and highly pressured by the advance of agricultural activity. But it is also a region that has the infrastructure, institutional capacity, manpower, and economic vigor to sustain the structuring of different production chains. In this context, Brazil's Investment Plan aims to complement the financing capacity offered by the Brazilian government, through BNDES, to foster restoration actions in the Tocantins-Araguaia basin by private actors. Considering the legal demands and economic opportunities associated with the recovery of native vegetation, it is expected to expand forest cover in the region through ecological restoration and the implementation of agroforestry systems, in partnership with landowners and local communities, promoting carbon removal, protection of water resources, and biodiversity conservation.

Picture from Nathalia Segato in Unsplash

1. EXECUTIVE SUMMARY

1.1 BRAZIL'S INVESTMENT PLAN FOR NPC

The Brazilian Investment Plan (IP) for the NPC, coordinated by the Brazilian Government, was prepared between 2023 and 2024, in a participatory manner with the Ministry of Finance (MF), the Ministry of Environment and Climate Change (MMA), the Brazilian Forest Service (SFB) and the National Bank for Economic and Social Development (BNDES), with the support of the World Bank and the International Finance Corporation (IFC), plus the Inter-American Development Bank (IDB).[1]

The Brazilian IP carries lessons learned in other projects with the CIF, with the Multilateral Development Banks, and with the country's own internal experiences in decades of formulating Policies and Public Plans that resulted in the current stage of economic development in Brazil.

The preparation of the IP also included a broad process of interviews, consultations and meetings with social stakeholders from different sectors (federal and state government agencies, NGOs, the private sector, development banks, academia and traditional communities). Annex 1 presents the process of participatory construction of the IP, informing the organizations and people engaged in the various consultation processes.

Brazil's IP for the NPC will focus on supporting large-scale forest restoration in the Tocantins-Araguaia Basin, prioritizing degraded areas within the region defined as the Arc of Deforestation. Actions will include ecological restoration,

Picture from Brazilian Forest Service Archive

1 In addition to the Scoping Mission held between September 4 and 6, 2023 in Brasilia, and the Joint Mission held between September 25 and 26 in Brasilia (see the Term of Reference and the Mission Memory Aid), the Country and World Bank team also promoted interactions with technicians from the Climate Investment Funds, in a working video conference held to discuss planning by the Theory of Change methodology on October 24, 2024 and also in a face-to-face meeting in Brasília on November 1, 2024.

Picture from Brazilian Forest Service Archive

prioritizing assisted natural regeneration in areas with potential for spontaneous recovery; productive restoration, with the use of Agroforestry Systems and other sustainable agroforestry practices appropriate to the different biomes present in the region (Cerrado and Amazon); and reforestation with native species, selected according to technical criteria and considering the participation of local communities in the selection process. The goal is to achieve ambitious quantitative targets of restored hectares, combining different approaches to maximize the effectiveness and resilience of ecosystems.

Brazil brings in its IP an innovative proposal to include private sector stakeholders as vehicles for promoting the desired impacts. It is expected that such an impact will have the necessary strength to deepen the induction of the perennial value chain for forest restoration in the country – which several other government initiatives described in this IP have been consolidating in the last decade.

With the entry of private companies capable of mobilizing capital on a large scale and generating the necessary value to cover the capital costs of the NPC, among other sources of financing, it is believed that it is possible to perpetuate such efforts in one or more business models in which a nascent Brazilian forest restoration industry ensures the obtaining of capital and the necessary scalability to meet the restoration of degraded areas of the country.

Taking advantage of BNDES's expertise, Brazil proposes in this IP to apply NPC resources as part of blended finance with which BNDES will be able to develop forest restoration projects with private sector borrowers, under the conditions agreed.

Figure 1 below exemplifies the expected disbursement flow to private sector stakeholders within the scope of the NPC Brazil Investment Plan.

Projected Disbursement Flow for
Forest Restoration Companies - Example

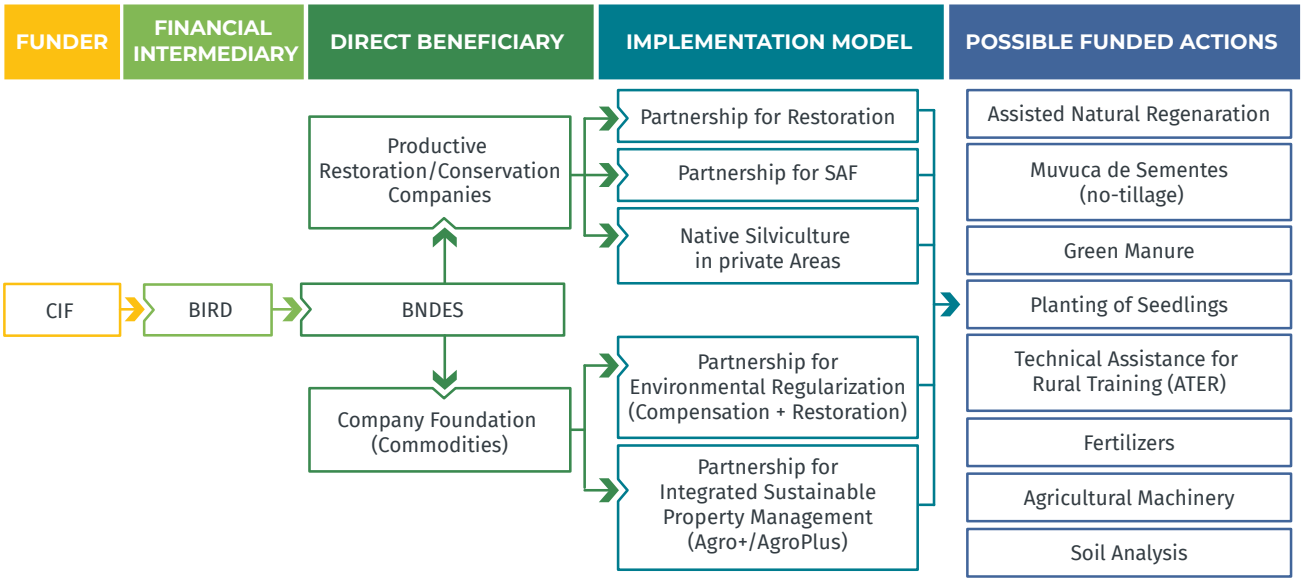


Figure 1 Example of Expected Disbursement Flow for Restoration Companies in the Scope of NPC Brazil's Investment Plan

1.2 BNDES AS A BORROWER FROM THE NPC AND LEVERAGER OF TRANSFERRED CREDITS

BNDES was created with the aim of promoting the country's economic and social development, and is the main development agency in Brazil. Over time, it has supported several projects and programs to combat climate change, sanitation, waste management, energy efficiency and conservation of biomes.

BNDES currently has at least three large resource funds with which it has been expanding its portfolio of credits for forest restoration actions: the Amazon Fund, the Climate Fund and FINEM Environment.

BNDES' decades of experience in structuring and managing blended finance gives security to the proposal of the Brazilian Investment Plan for the NPC to use the resources of USD 47 million of concessional loan from the CIF, as part of a blended finance that will also be composed of co-financing resources of USD 100 million from the Climate Fund and another USD 100 million from the World Bank. The added resources will be lent to private companies in the forest restoration market in Brazil, through credit lines offered by BNDES.

The anchoring of NPC resources in Brazil for the infrastructure of credit operations to promote the forest restoration production chain is also in line with the achievement of the goals of Planaveg, in particular, and of several national and subnational Plans, Programs and Public Policies in the country – determined to contain deforestation, restore the forest and promote social inclusion in the Amazon and Cerrado for the sustainable economic development of the prioritized territory.

The choice of this financial arrangement aims to obtain a cost of transfer of resources to the private sector that is competitive with other long-term financing options to the private sector in Brazil, expanding the availability of resources in an amount for the greatest possible impact in stimulating the forest restoration value chain in the country[2].

2 See approaches to this issue also presented in the Nature-Based Solutions chapters and the Implementation Potential & Risks chapter.

1.3 THE TERRITORY OF TRANSFORMATIONAL IMPACT BY THE BRAZILIAN INVESTMENT PLAN

The central objective of Brazil's IP for the NPC is to promote forest restoration in areas of the Tocantins-Araguaia Basin, in the Arc of Deforestation region, located in the states of Pará, Tocantins, Maranhão and Mato Grosso, and based on a thriving forest economy sector, local communities will be strengthened and become more resilient to climate change, contributing to a just transition with gender equality and social inclusion (Figure 2).

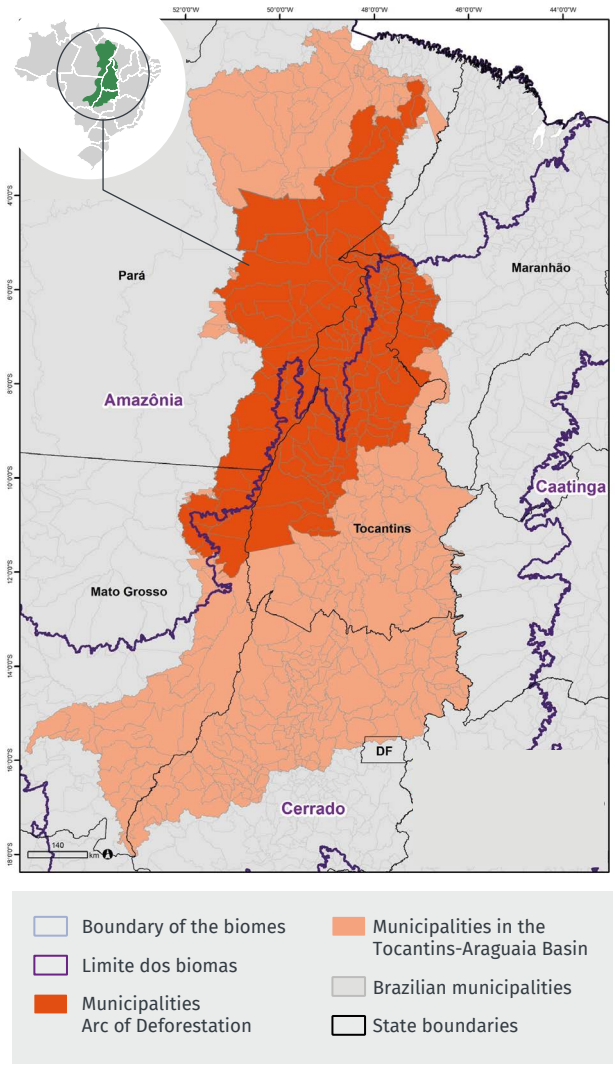


Figure 2 Map of the territory of application of the resources of the IP of Brazil (in dark orange, the region of the priority municipalities of the IP, in the Tocantins-Araguaia Hydrographic Basin located in the region called Arc of Deforestation of the Amazon).

The Tocantins-Araguaia Basin is a drainage area of 918,822 km2 (11% of Brazil), constituting one of the largest river systems in South America. It extends in a north-south direction, located entirely in the Brazilian territory and covers the states of Pará (30% of the region's area), Tocantins (30% and the state located entirely in the region), Goiás (21%), Mato Grosso (15%) and Maranhão (4%), in addition to the Federal District (0.1%), totaling 453 municipalities (Strategic Plan for Water Resources of the Tocantins and Araguaia River Basin (IBGE, 2021).

The basin covers two Brazilian biomes: the Amazon and the Cerrado. In recent decades, activities such as large-scale agriculture, aquaculture with non-native fish, mining, and hydroelectric power have promoted major changes in land cover, hydrology, and environmental conditions without these changes having impacted on better social or economic indicators. Recent studies also show that the flows of the Araguaia and Tocantins River basins are gradually decreasing, impacting on the decrease in water supply (Gomes et. al. 2021).

The Arc of Deforestation delimits the region where the highest rates of deforestation in the Amazon are found. It is a territory that goes from the west of Maranhão and south of Pará towards the west, passing through Mato Grosso, Rondônia and Acre. The Belém-Brasília and Cuiabá-Porto Velho highways, built in the 1960s, initiated the actions that led to the design of this Arc, and currently corresponds to the territory of 266 municipalities that concentrate the highest rates of deforestation in the Amazon.

1.4 BRAZIL'S IP THEORY OF CHANGE

Brazil's IP will support the transformation of a territory with high rates of deforestation, environmental degradation and social exclusion, generating resilient regions adapted to the effects of the climate crisis, and contributing to the mitigation of the impacts of climate change, with a global impact.

The preliminarily expected results will be the result of NBS projects, notably ecological and

productive forest restoration models, associated with sustainable forestry such as Sustainable Agroforestry Systems, regenerative agriculture and other conservationist technologies associated with low-carbon cultivation, in which Brazil stands out, generally associated with innovative opportunities in the bioeconomy, also with unique experiences developed by the private sector Brazilian.

Currently, the demand (Figure 3) for these models is mainly driven by companies that have large environmental liabilities that must be restored by legal obligations (Forest Code and other environmental policy instruments) or market obligations (certificates of deforestation-free chains of exporters). In addition, the growing demand for forest carbon credits and agricultural commodities that are compatible in integrated systems with native forests, such as cocoa and coffee, has the potential to leverage reforestation initiatives beyond the compulsory ones.

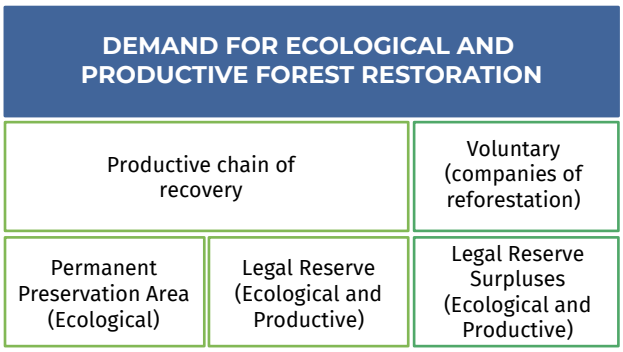


Figure 3 Main sources of demand for ecological and productive forest restoration. Source: prepared by the authors.

In terms of potential results for Brazil's IP, estimated based on bibliographic references and simplified models, it is believed to be possible to achieve 54 thousand hectares of forest restoration, employ up to 21 thousand people, directly and/or indirectly, and originate Ecosystem Services Programs for Reductions and Emissions of greenhouse gases (Carbon Credits) that could reach up to 7,750 thousand t/CO2eq.

Thus, Brazil's IP Theory of Change (ToC) plans to achieve the greatest possible impact on the restoration of native biomes and the adoption of sustainable land uses, re-establishing the ability to avoid and sequester greenhouse gases emitted into the atmosphere, while creating opportunities


Picture from Brazilian Forest Service Archive

for the development of other associated ecosystem services, as well as the recovery of Permanent Preservation Areas (APP), which contribute to sustaining the water supply and biodiversity in the Tocantins-Araguaia Hydrographic Basin.

This intended transformational impact should be obtained through projects financed by the private sector, which will contractually include monitorable and evaluable actions, with positive effects for the strengthening of local communities, making them resilient to climate change, thus ensuring a just ecological transition, with diversity, engagement, gender equality and social inclusion. It is worth mentioning that the realization of these investments will induce the progressive expansion of the supply capacity of the production chain to meet the additional demand for forest restoration, enabling new investments in this area outside the context of the IP, fundamental to give scale and continuity to the desired transformational change. In this context, the following links stand out: production of seeds and seedlings of native species, technical assistance services, marketing.

The consolidated institutional arrangement for dealing with the issue of forest restoration in Brazil, including their respective goals with the Climate Convention via Planaveg, will produce the necessary synergy to mobilize these investments. Thus, the expected results will also contribute to the fulfillment of Brazil's new NDC, on a perennial basis, as the business models of the private sector are consolidated in the Brazilian forest restoration value chain.

Based on the information described, the Theory of Change proposed in this IP is presented below.

Figure 4 NPC Brazil's Theory of Change.

The impacts intended by NPC Brazil's IP are essentially "the restoration of native biome areas and the adoption of sustainable land uses, re-establishing the net removal of atmospheric carbon and other associated ecosystem services, including the protection of water resources and biodiversity" in the territory of the Arc of Restoration in the Tocantins-Araguaia River Basin in Brazil, and based on a thriving forest economy sector, local communities will be strengthened and become more resilient to climate change, contributing to a just transition with gender equality and social inclusion.

1.5 THE IMPLEMENTATION OF BRAZIL'S IP FINANCING INSTRUMENTS

Brazil's IP is based on obtaining concessional financing of USD 47 million for BNDES, which will transfer, through its existing credit lines, resources to the private sector through forest restoration projects in the area covered by this proposal.

The Brazilian private companies, borrowers of BNDES resources – composed of a loan from the CIF-NPC and embedded in a blended finance with resources of US$ 100 million from the Climate Fund and another US$ 100 million from the IBRD loan,[3] will submit the forest restoration projects prepared by them for the territory of the Arc of Deforestation in the Tocantins-Araguaia Hydrographic Basin. The CIF-NPC guidelines embedded in the structure of accountability indicators with documentary evidence will be observed. This structure, already consolidated in the BNDES, follows its internal rules and practices established in the Brazilian market.

To make the IP Strategy in Brazil viable, the country hopes to introduce an important element of innovation: the engagement of private companies to structure business models and forest restoration projects, which produce a return on value to own and third-party capital, developing forest restoration projects with a transformational impact on local communities.

Brazil understands that the private sector in the country already has the conditions, with the presence of the first large companies dedicated to forest restoration business models – which work supporting community engagement and social inclusion projects, to consolidate the forest restoration value chain with the IP of Brazil, making its results perennial over the next few years.

1.6 MONITORING AND EVALUATION OF BRAZIL'S IP

Brazil has a good infrastructure for monitoring areas where deforestation occurs and there are degraded lands, which provides government and private Program Plans with reliable data that can be internationally validated. This infrastructure will also be used to provide CIF-NPC with the monitoring and evaluation of forest restoration project results and social impact indicators on local communities. All Plans and Programs derived from Brazilian public policies have result measurement structures that, in many cases, verify similar and adaptable indicators to support the IRF.

The Brazilian Government is committed to the indicator: the area identified as secondary vegetation in the Amazon and Cerrado Biomes, in hectares, extracted from the TerraClass system.

Without compromising the IRF objectives, the adjustment of a set of indicators by others already available in Brazil's Plans and Programs will reduce the Monitoring and Evaluation costs of the NPC IP Brazil - in addition to offering long statistical series for better measurement.

3 The IBRD was appointed as the Multilateral Development Bank that will support the preparation and implementation of the CIF/NPC loan to BNDES – following the guidelines approved in this Investment Plan for Brazil.


Picture from Brazilian Forest Service Archive

2. COUNTRY CONTEXT

2.1 CHALLENGES AND OPPORTUNITIES IN THE LAND USE SECTOR

Brazil is a country with a large territorial extension, with 64.5% of native forest cover, of which 73% is represented by the extension of the Amazon Forest. It has six different biomes: Amazon, Cerrado, Caatinga, Pantanal, Atlantic Forest and Pampa, which cover tropical forest, savannah, semi-arid and wetlands.

Brazilian biomes have unique ecological and landscape characteristics, with specific biodiversity, climate, and hydrological cycle. Brazil is one of the most biodiverse countries in the world, home to about 70% of known species of animals and plants, including 14% of amphibians, 17% of birds, and 14% of fish. The country has approximately 103,870 species of animals and more than 43,000 species of plants.

With a population of more than 203 million inhabitants (IBGE, 2022) of which 51.5% are women and 48.5% men, Brazil has a diverse ethnic-racial composition, with 55.5% of the population self-declaring itself black and brown, 43.5% white, 0.6% indigenous and 0.4% yellow.

In a composition of emission sources that differs from that of more developed countries, Brazil's contribution to the emission of Greenhouse Gases (GHG) is predominantly originated in fires and changes in land use – since the country has one of the cleanest energy matrices in the world.

It is, therefore, illegal deforestation that represents a threat to the national natural capital - being the main source of reduction in the supply of Environmental Services that sequester and store GHG emissions in the soil.

Since 2009, emissions linked to deforestation have decreased significantly compared to previous years. Outside of the Land Use, Land Use Change and Forestry (LULUCF) sector, emissions have been declining since 2013. In total terms, emissions have increased since 2017, due to the inclusion of the LULUCF sector. Of the other sectors, Energy has had a downward trend since 2014, with some stability in the other sectors in the same period. In 2020, the LULUCF

(4), Agriculture (3) and Energy (1) sectors had a share of 38.0%, 28.5% and 23.2% in total emissions, respectively[4].

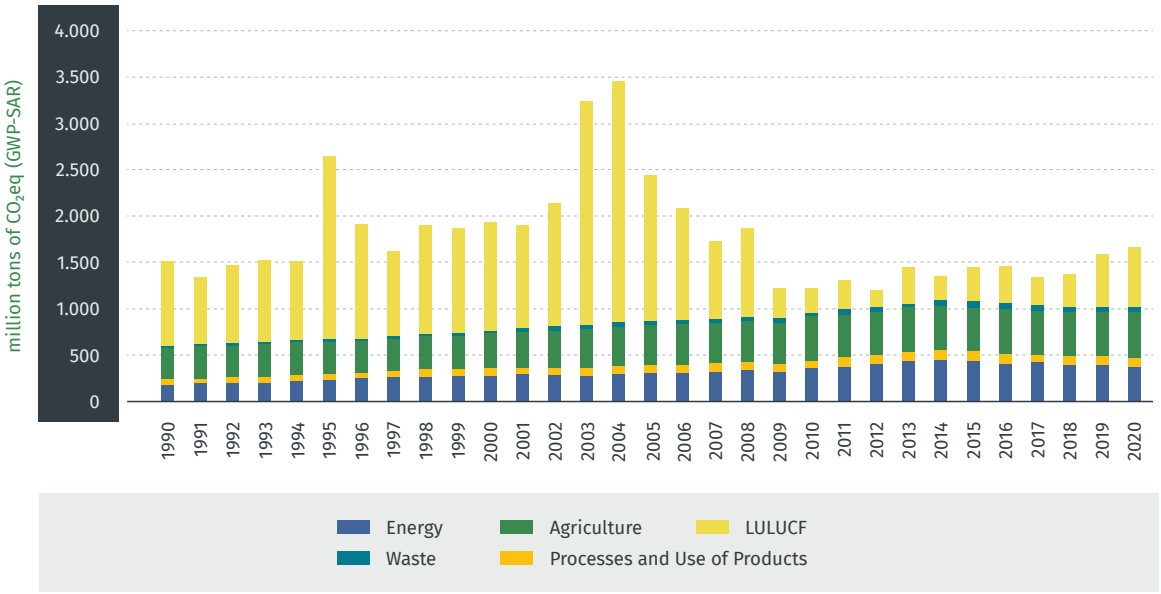


Figure 5 Brazil's sectoral emissions, in CO2 eq[5], from 1990 to 2020. Source: Ministry of Science, Technology and Innovation, 2022

Despite the importance of Brazilian forests, practices that lead to illegal deforestation pose a risk to the natural capital base, in addition to increasing long-term climate risks. Addressing the key drivers of forest loss is crucial not only to reducing greenhouse gas emissions, but also to protecting and restoring nature, ensuring economic development, and creating sustainable and inclusive business opportunities. Sustainable development, water and food security are directly linked to the ability to protect and restore natural environments.

The Brazilian government has made direct and specific efforts to eliminate the causes and contain deforestation throughout the national territory. The PPCDAm (Action Plan for the Prevention and Control of Deforestation in the Legal Amazon – in its 5th Phase 2023-2027)[6] and the Action Plan for the Prevention and Control of Deforestation and Fires in the Cerrado Biome (PPCerrado 4th Phase 2023-2027)[7] are the main instruments to combat deforestation in these biomes. Added to these public policies is Planaveg, updated in 2024 and which aims to expand and strengthen public policies, financial incentives, markets, good agricultural practices and other measures necessary for the recovery of native vegetation.

Despite the efforts of the command-and-control mechanisms, MapBiomas data point out that "the historical loss of natural areas in Brazil until 1985 totaled 20% of the territory. In the following 39 years (1985-2023), this loss advanced to another 13% of the territory (110 million hectares), totaling 33% in 2023. Natural areas include native vegetation, water surface, and non-vegetated natural areas such as beaches and dunes. Half of this total (55 million hectares) occurred in the Amazon" (Figure 6).

4 Annual Estimates of Greenhouse Gas Emissions in Brazil. 6th. Edition, 2022 – Ministries of Science, Technology and Innovations. Accessed at: Ministry of Science, Technology and Innovation.

5 All carbon dioxide equivalent (CO2eq) results in this report are based on the Global Warming Potential (GWP) metric of the IPCC's Second Assessment Report (SAR).

6 https://www.gov.br/mma/pt-br/ppcdam_2023_sumario-rev.pdf

7 https://www.gov.br/mma/pt-br/assuntos/combate-ao-desmatamento-queimadas-e-ordenamento-ambiental-territorial/controle-do-desmatamento-1/ppcerrado/ppcerrado_4fase.pdf

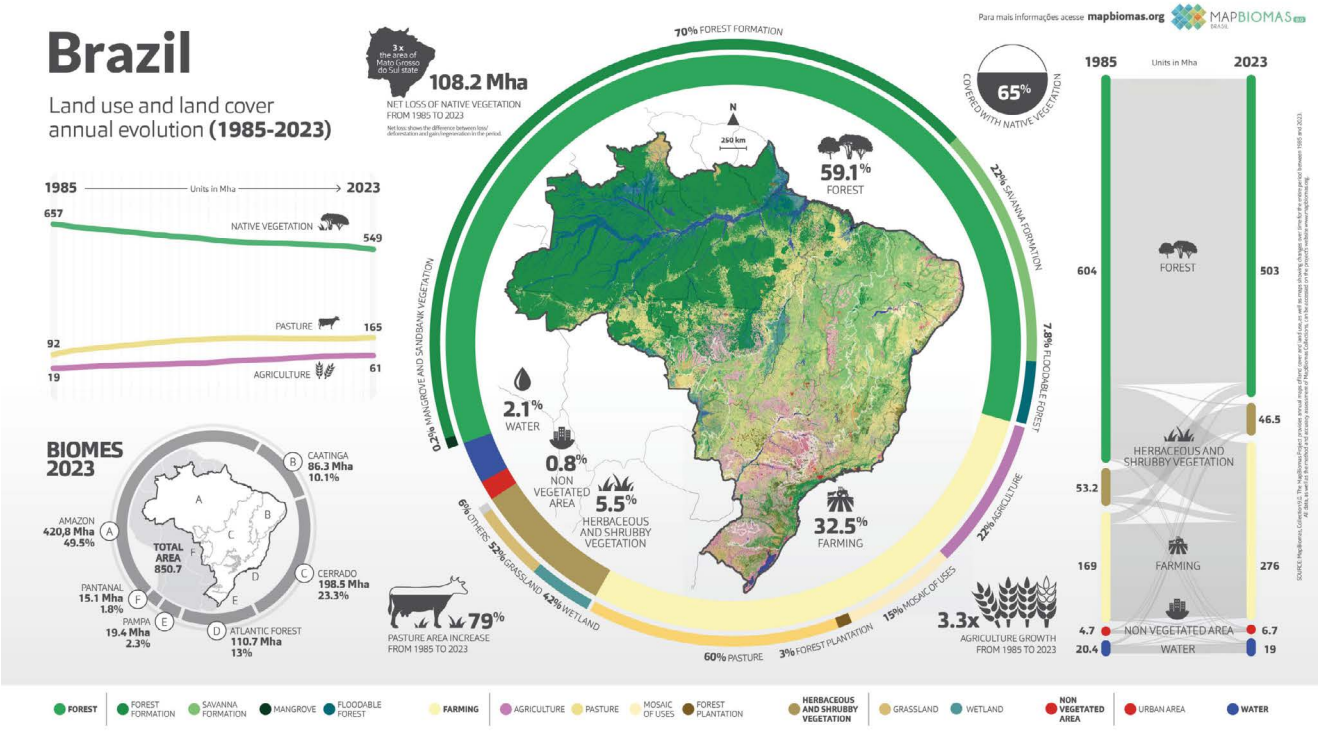


Figure 6 Land Cover and Land Use in Brazil in 2023

Source: Collection Annual mapping of land cover and use in Brazil from 1985 to 2023, accessed on 10/27/2024 through the link: Annual mapping of land cover and use in Brazil from 1985 to 2023

To date, the Amazon has lost 14% (55.3 million hectares) and the Cerrado, 27% (38.2 million hectares) of native vegetation cover. The Figure 7 and Figure 8 below illustrate the annual evolution of land cover and land use in the period from 1985 to 2023 in the two biomes that are inserted in the territory of the IP of Brazil.

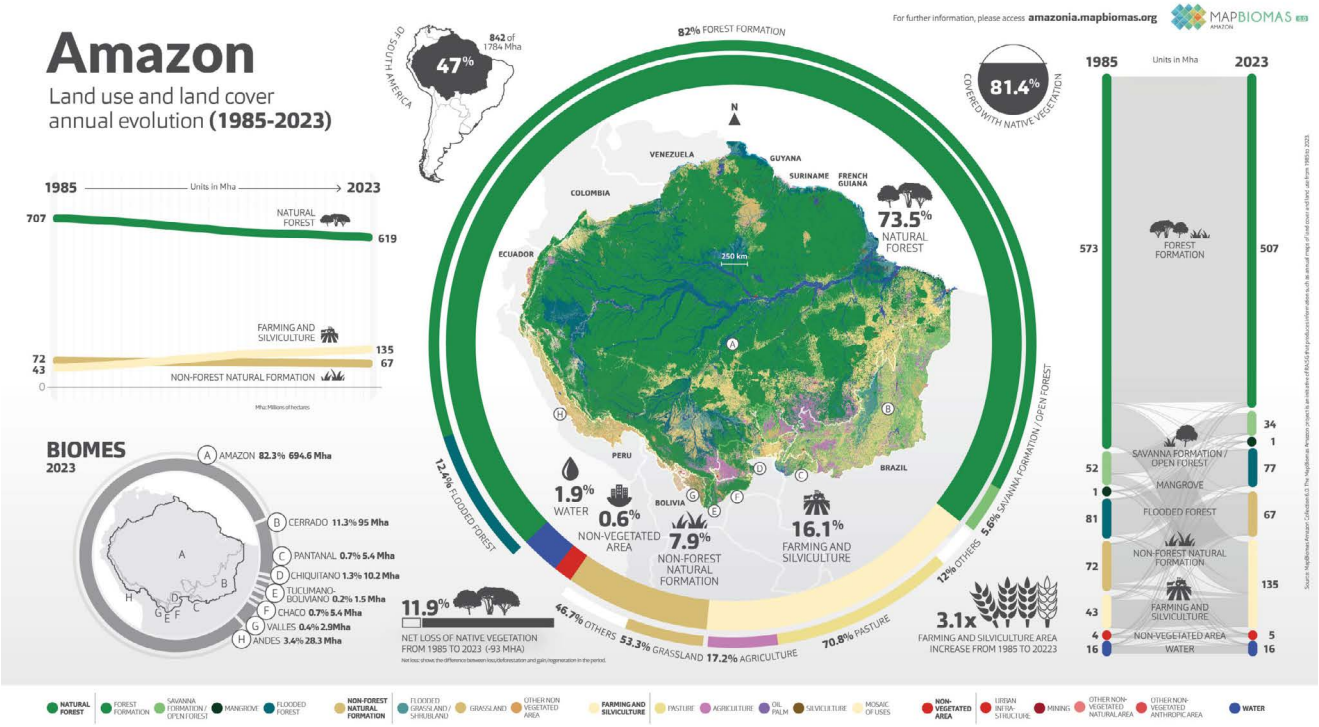


Figure 7 Annual evolution of land cover and land use in the Amazon from 1985 to 2023.

Source: MapBiomas Amazônia Project – Infographics Collection of annual land cover and use maps, accessed on 10/27/2024 through the link: MapBiomas Amazon

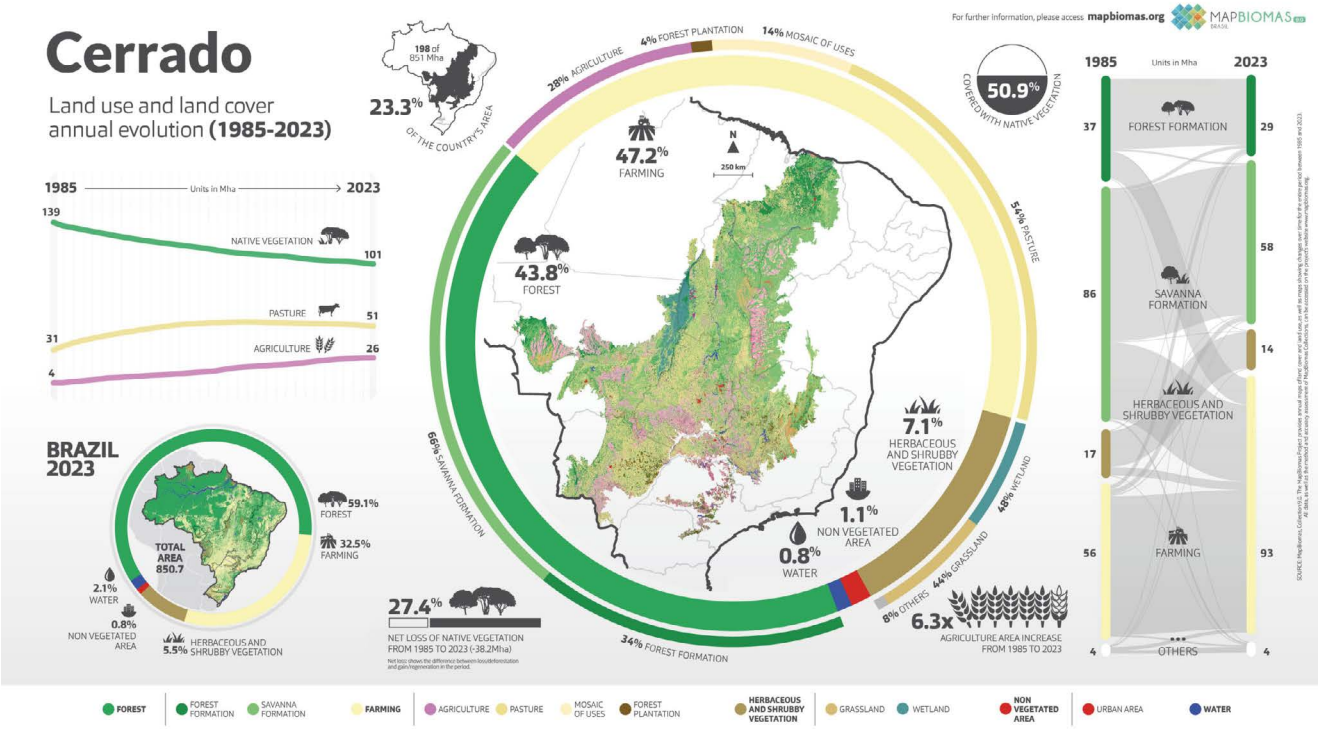


Figure 8 Annual evolution of land cover and land use in the Cerrado from 1985 to 2023.

Source: Infographics Collection of annual land cover and use maps - Cerrado, accessed on 10/27/2024 through the link: MapBiomas Brasil

This context of land use change takes place in a scenario where Brazil is a global leader in agricultural production and one of the main exporters of agricultural commodities, such as soybeans, beef, coffee, sugar and cotton. Thirty-two percent of the Brazilian territory is dedicated to agricultural production, and the sector is responsible for 20% of the GDP.

As the land use, land use change and forestry (LULUCF) and agriculture sectors stand out in Brazil's GHG emissions matrix, representing 46% and 27% of total emissions, respectively. Considering these challenges, the Brazilian government submitted its new Nationally Determined Contribution (NDC) with the goal of reducing greenhouse gas emissions by 48% by 2025 and by 53% by 2030, compared to 2005 emissions. Specific sectoral plans are being prepared and the objective is for the land use and agriculture sectors to offer major contributions to the reduction and removal of GHGs to meet the country's goals.

2.2 THE IMPACTS OF CLIMATE CHANGE IN BRAZIL

Brazil has been suffering from extreme weather events, compromising biomes that are essential for the planet's climatic conditions – as well as for the loss of biodiversity and for the reduction of the Earth's total water supply.

In 2024, for example, the country recorded the highest number of forest fires in the last 14 years and the Amazon experienced one of the worst droughts[8]. The episode reduced the volume of rivers to minimum levels in more than 120 years of measurement, completely drying up in some stretches and affecting tributary

8 The rapid attribution analysis, released by *the World Weather Attribution (WWA),* was prepared by an international team of 18 climate scientists from universities and meteorological agencies in Brazil, Denmark, the United Kingdom and the Netherlands. Five Brazilian researchers participated in the study. The work was peer-reviewed. According to the researchers, the data sets analyzed indicate that the 'exceptional' and 'devastating' event, such as the one that occurred last year on a large scale, could occur every 350 years.

rivers, and impacted millions of people living in the region. The scientists identified that global warming made the drought that hit the region 30 times more likely and that the increase in temperatures was decisive for the intensity and extent of the episode – giving rise to a strong reduction in the phenomenon "*Flying Rivers*", which brings water vapor to the production of food and electricity from hydroelectric plants in the Cerrado biome in the Midwest of Brazil (Figure 9) and ensures thermal regularity in the Brazilian Southeast, where the large metropolises of South America are located.

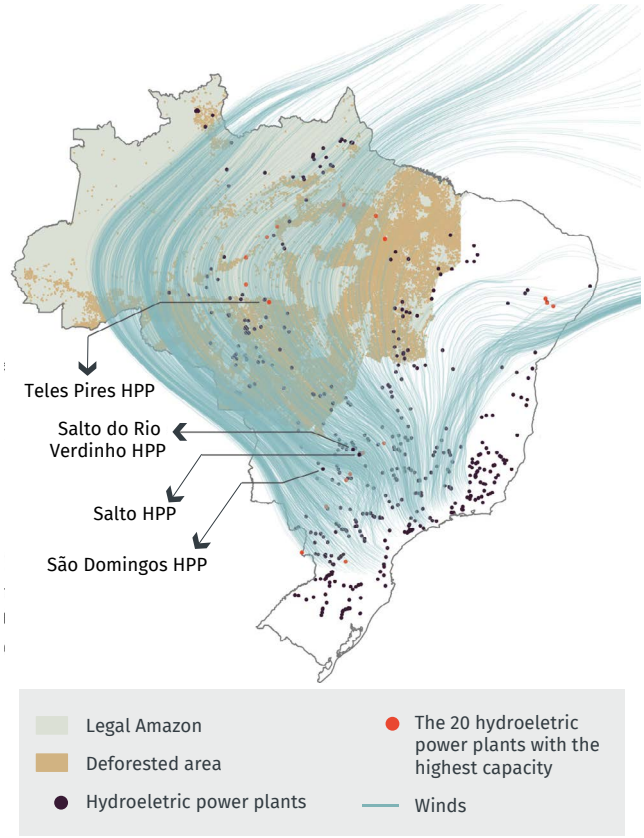


Figure 9 Brazilian hydroelectric plants and the trajectory of the winds (*Flying Rivers*).

Source: Pinto et al. (2024).

In the Caatinga biome, in the south of the Northeastern State of Bahia, the first area declared arid was recorded – transforming part of the Brazilian semi-arid into a desert that may expand in the coming years. And in the southern region of Brazil, floods devastated Rio Grande do Sul, where approximately 75% of the state's agricultural land was impacted by the waters of a micro climate shock never seen before in the region.

In recent decades, many studies have shown how the process of destruction of the Amazon through fires and deforestation, together with increasingly intense and frequent droughts, is affecting the forest's ability to recover and pushing it to a point of no return – which has only increased its vulnerability to react to the effects of other events on Earth's climate.

It is precisely in the region of the Arc of Deforestation, where Brazil has increased the concentration of resources, that the highest rates of destruction are found, consequently the areas most vulnerable to the deforestation of forest areas in large areas, destruction of biodiversity, especially of endangered species[9], drought and with less regeneration capacity. Certainly, the territory of the Arc of Deforestation is where the forest may cease to exist more quickly, along with its ability to regulate the climate in several of the other Brazilian, South American and equatorial biomes.

The agricultural sector, one of the main emitters of GHGs, is also one of the most vulnerable to weather conditions and extreme weather events. In 2022, the National Confederation of Agriculture (CNA) estimated that prolonged drought and soil degradation in important producing areas contributed to a loss of 25.2 million tons in grain production. This shortage of production has increased food prices and has had a significant impact on inflation in recent years. In a scenario of population growth, a shift to more sustainable production models that comprise sustainable and low-carbon management technologies is imperative to ensure food security.

The Cerrado has the largest range with the largest absolute degraded area, ranging from "18.3 million hectares to 43 million hectares – an area that

9 "It is in the Arc of Deforestation region where the main discoveries of new species have occurred in recent years. Among these, several types of monkeys stand out that are directly affected by the disappearance of the trees they depend on for their survival. In recent years, in the arc of deforestation, some of these new primates have included Mico rondoni, Mico schneideri, Plecturocebus grovesi, Plecturocebus parecis, Pithecia vanzolinii, and Plecturocebus grovesi. In addition to them, other mammals, mainly marsupials, rodents and a porpoise (Inia araguaiaensis); reptiles of all kinds; birds in large numbers, and at once 15 new species were discovered, most (12) endemic to Brazil and all in the arc of deforestation. Most of the new species discovered are already in danger of extinction, as they are in an area that has been destroyed with dizzying speed. These discoveries, however, hide a sad fact, as they reveal that many other species must have gone extinct before they were discovered." Dias, 2023.

corresponds to 19.2% and 45.3% of the remaining native vegetation in the biome, respectively" and the Amazon has huge degraded areas: from almost 19 million hectares to 34 million hectares[10].

These factors are important to the extent that they allow actions to be taken to restore, conserve and connect forest fragments.

According to the AdaptaBrasil platform, of the Ministry of Science, Technology and Innovation (MCTI), more than half of the 5,570 Brazilian municipalities have a high or very high vulnerability index to geo-hydrological disasters, such as floods, floods and landslides. On the other hand, 48% of the country's municipalities have low or very low capacity in the face of drought events.[11]

Between 2014 and 2023, according to the Digital Atlas of Disasters of Brazil[12], climate change affected 83% of Brazilian municipalities, caused damages of more than R$ 421 billion, left 1.5 million homes damaged and affected 177.41 million people, 4.98 million of them directly. "In 2023, Brazil stood out as the country in the Americas with the highest number of internal displacements, with more than 745 thousand displacements due to disasters."[13]

Crisis situations tend to intensify inequalities, and the climate crisis is no different, as global, regional, and national studies point out. The population with the greatest vulnerability is disproportionately more affected by climate change and extreme weather events. In Brazil, the black population, traditional peoples and communities, and indigenous people, considering the intersectionalities of gender and territory, are most severely affected.

A recent study identified the impacts of heat waves, which have become more frequent and intense with climate change, in 14 main Brazilian urban centers (where 35% of the country's population lives). Between the 1970s and 2010s, annual heat waves in Brazil went from a maximum of 3 per year to 11, with the greatest impact in the northeast, north and Midwest regions, the poorest regions of the country. Between 2000 and 2018, the study concluded that there were 48,000 additional deaths to the average during heat waves, a number more than 20 times higher than that referring to people killed in landslides, more commonly associated with climate change. The study concluded that, during heat waves, deaths from cardiovascular, respiratory and cancer treatment crises increase and disproportionately affect people with low education, black people, women and elderly people. Inequalities in terms of access to social determinants of health mean that the effects of climate change are much more severe in vulnerable groups, especially in the regions most affected by extreme weather events.[14]

Women, who are mainly responsible for the care economy and domestic tasks, paid and unpaid, in the face of the effects of climate change, end up absorbing an additional workload (physical and mental). And the impacts affect "especially women in conditions of greater exposure and vulnerability, who have fewer tools and incomes to face such changes, given the gaps in wages, jobs, access to public goods and services, representation and rights" (Olivera et al. 2021, p. 24). This additional burden increases women's time scarcity, and this negatively affects the possibilities of income generation and social mobility. With regard to the health impacts of climate change, women are also more exposed to the proliferation of diseases and diseases by be the main caregivers. It is also noteworthy that climate crises also increase the risks of violence based on Gender.

2.3 BRAZILIAN PUBLIC POLICIES

The Brazilian federal and state governments have been implementing integrated strategies that cover multiple areas of public policy for decades. One of the most recognized concerns

10 https://brasil.mapbiomas.org/2024/07/05_ate-25-da-vegetacao-nativa-do-brasil-pode-estar-degradada/

11 V. Climate Plan, available in https://www.gov.br/mma/pt-br/composicao/smc/plano-clima/plano-clima-adaptacao

12 The Atlas is available in https://atlasdigital.mdr.gov.br/

13 Internal displacements are even greater, as the calculation does not account for migrations that occur slowly in the months following the disaster. Information available at https://brasilparticipativo.presidencia.gov.br/processes/planoclima/f/311/proposals. and https://www.internal-displacement.org/countries/brazil/

14 Monteiro dos Santos D, Libonati R, Garcia BN, Geirinhas JL, Salvi BB, Lima e Silva E, et al. (2024) Demographic and social inequalities of the twenty-first century of heat-related deaths in Brazilian urban areas. PLoS UM 19(1): e0295766. https://doi.org/10.1371/journal.pone.0295766

poverty reduction, including initiatives in social assistance, income transfers, health, education, housing and the environment, among others.

Over the years, the environmental sector has also developed and executed integrated strategies. An integrated approach is the most valuable arrangement for the implementation of this Investment Plan, which is based on two main pillars: (i) conservation and restoration of native forests and (ii) supply chains for restoration. These two pillars are aligned with governmental and non-governmental policies and programs.

As part of a holistic approach, the activities will be developed in a cross-cutting integrated strategy, aligned with governmental and non-governmental climate goals, policies and programs that are highlighted in this Investment Plan.

2.3.1 NATIONAL POLICY ON CLIMATE CHANGE – PNMC (FEDERAL LAW NO. 12,187/2009)

The PNMC establishes initiatives and measures to reduce the vulnerability of natural and human systems to the current and expected effects of climate change, in addition to providing for the adverse effects of climate change, such as changes in the physical environment resulting from climate change that have significant degradation effects on the composition, resilience or productivity of natural and managed ecosystems, in the functioning of socioeconomic systems or in human health and well-being; and technological changes and substitutions that reduce resource use and emissions per unit of production, as well as the implementation of measures that reduce greenhouse gas emissions and increase sinks.

The instruments of the PNMC are: the National Plan on Climate Change; the National Fund on Climate Change; Action Plans for the Prevention and Control of Deforestation in biomes, among other political and institutional instruments.

The National Plan for Adaptation to Climate Change (MMA Ordinance No. 150/2016), in line with the PNMC, was designed to reduce vulnerability to climate change and mitigate its risks. It identifies future and current climate change impacts and vulnerabilities, defining actions for adaptation or mitigation in 11 sectors, such as Agriculture, Biodiversity and Ecosystems, Natural Disasters, Vulnerable People and Populations, Water Resources, Health, Food Security and Nutrition.

Law No. 14,904, of June 27, 2024, establishes guidelines for the preparation of climate change adaptation plans, with the objective of implementing measures to reduce the vulnerability and exposure to risks of environmental, social, economic, and infrastructure systems in the face of the current and expected adverse effects of climate change.

According to the report Gender Equity in the Spaces of Federal Climate Governance by the Climate Observatory, the National Plan and the PNMC did not incorporate the gender theme. The National Adaptation Plan, created in 2016, incorporates social and gender issues, in an approach focused on the vulnerability of women and other social groups and not on their ability to contribute to the issue.

The National Fund on Climate Change (Law 11.114 and 9/12/2009), an instrument of the PNMC, linked to the Ministry of the Environment and Climate Change with the purpose of guaranteeing resources to support projects or studies and financing of projects aimed at mitigating climate change and adapting to the effects of climate change.

The Climate Fund provides resources in two modalities, reimbursable and non-reimbursable. The reimbursable resources are managed by BNDES. The non-reimbursable resources are operated by the MMA.

The BNDES Climate Fund Program is intended to apply the portion of reimbursable resources from the National Fund on Climate Change, with its regulations defined by Decree No. 9,578, of 11/22/2018, and amended by Decree No. 11,549, of 06/05/2023.

The Federal Government instituted the National Policy for the Recovery of Native Vegetation, known as Proveg[15]. Proveg aims to articulate,

15 See National https://www.gov.br/mma/pt-br/composicao/secex/dfre/fundo-nacional-sobre-mudanca-do-climaPolítica for the Recovery of Native Vegetation – PROVEG (Federal Decree No. 8,972/2017) and its National Plan for the Recovery of Native Vegetation – PLANAVEG (Interministerial Ordinance No. 203/2017)

integrate and promote policies, programs and actions that induce the recovery of forests and other forms of native vegetation and to promote the environmental regularization of Brazilian rural properties, under the terms of Law No. 12,651, of May 25, 2012, in a total area of at least twelve million hectares. until December 31, 2030.

The main instrument for the implementation of Proveg is Planaveg, launched in 2017 and revised in 2024. The objective of the Plan is to expand and strengthen public policies, financial incentives, markets, sustainable agricultural practices and other measures necessary for the recovery of native vegetation – at least 12 million hectares by 2030, mainly in permanent preservation areas (APPs) and legal reserves (RLs), but also in degraded areas with low productivity.

Planaveg 2025-2028 aims to structure and consolidate the agenda for the recovery of native vegetation on its various fronts: monitoring, promotion of the production chain, financing and research, with implementation arrangements which aim, in turn, to unlock the demand for recovery at scale from the effective progress in the implementation of laws such as the LPVN (Native Vegetation Protection Law/Forest Code), the SNUC (National System of Conservation Units), the PNGATI (National Policy for Territorial and Environmental Management of Indigenous Lands), among others, connecting stakeholders and instruments in systemic flows of action and integrated with concrete action in the territory.

Planaveg is carried out following the guidelines of the Executive Commission for the Control of Illegal Deforestation and Recovery of Native Vegetation (Conaveg), an interministerial decision-making body coordinated by the MMA.

Figure 10 below illustrates the strategies and implementation arrangements of Planaveg.

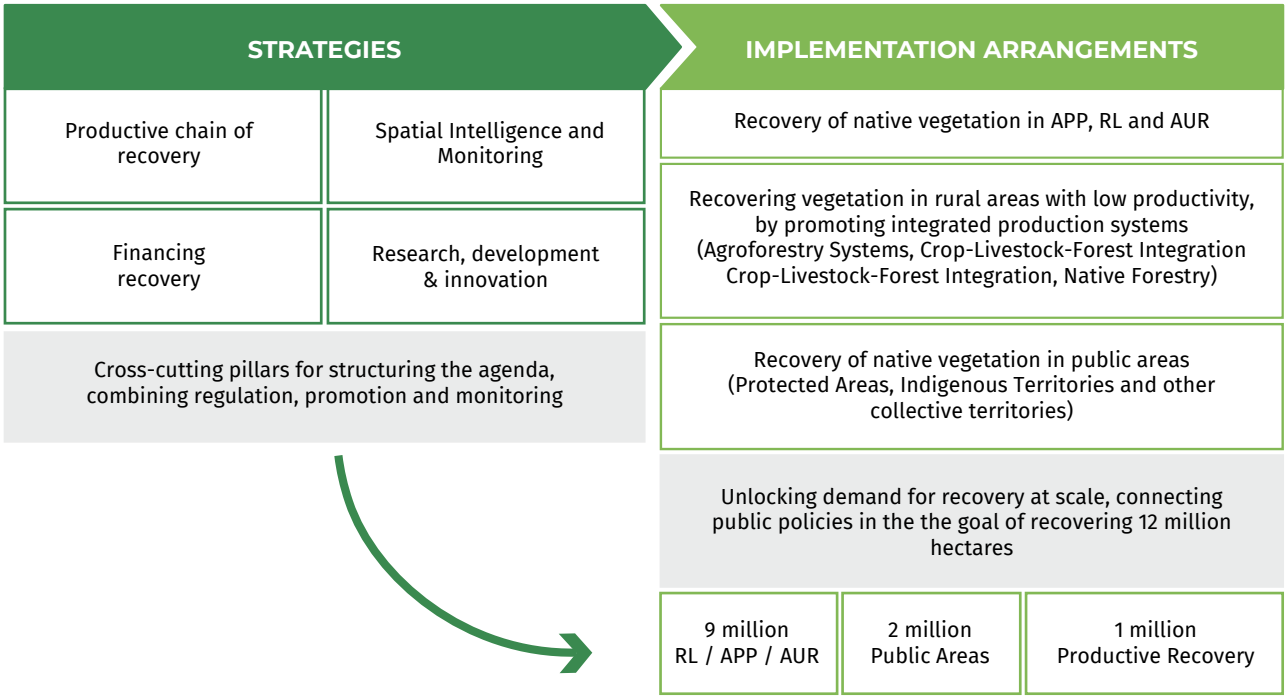


Figure 10 Planaveg's strategic implementation system.[16]

Source: MMA, 2024.

16 Ministry of Environment and Climate Change (MMA). Department of Forestry, Secretariat of Biodiversity, Forests and Animal Rights (DFLO/SBIO). National Plan for the Recovery of Native Vegetation (PLANAVEG) 2025 - 2028 - Executive Summary - 1st edition. Brasília: MMA, 2024. 8 p.

2.3.2 NATIONAL STRATEGY FOR REDD+ – ENREDD+ (MMA ORDINANCE NO. 370/2015)

ENREDD+ formalizes the way in which the federal government has structured its efforts in coordinated actions to prevent and control deforestation and forest degradation, promote forest recovery and foster sustainable development. The general objective established by ENREDD+ is to contribute to the mitigation of climate change through the elimination of illegal deforestation, the conservation and restoration of forest ecosystems, and the development of a sustainable low-carbon forest economy, generating economic, social, and environmental benefits.

Decree No. 11,548, of June 5, 2023, establishes the National Commission for the Reduction of Greenhouse Gas Emissions from Deforestation and Forest Degradation, Conservation of Forest Carbon Stocks, Sustainable Forest Management, and Increase of Forest Carbon Stocks - REDD+, with the objective of coordinating, monitoring, monitoring, and reviewing the National Strategy for REDD+ - ENREDD+ and coordinating the preparation of requirements for access to results-based payments REDD+ in the country, recognized by the United Nations Framework Convention on Climate Change.

2.3.3 NATIVE VEGETATION PROTECTION LAW (FOREST CODE. LAW NO. 12,651/2012).

The Native Vegetation Protection Law, also known as the Forest Code (Law No. 12,651, of May 25, 2012), is one of the most important environmental public policies in Brazil. It is the main public policy for the protection, conservation and restoration of native vegetation. The implementation of this law is essential for the country to achieve its climate goals, conserve its biodiversity, and develop a deforestation-free economy, while recovering its forest cover and ensuring the provision of environmental services relevant to socially inclusive economic development. In this regard, Nature-Based Solutions (NBS) are one of the driving forces of this process because they have the role of reducing the social cost of the transition to a low-carbon economy (Rodrik 2014), facilitating investments in conservation of natural landscapes, restoration of degraded areas and sustainable forest management in private areas.

The Forest Code established general rules on the protection of vegetation, Permanent Preservation Areas (APP) and Legal Reserve (RL) areas and created the Rural Environmental Registry (CAR) and the Environmental Regularization Program (PRA), with the objective of integrating the environmental information of rural properties and possessions, composing a database for control, monitoring, environmental and economic planning and combating deforestation. The CAR consists of the mandatory nationwide electronic registration of environmental information of all rural properties in the country.

The implementation of the PRA in the states was heterogeneous, but since 2023 it has gained priority and there has been a constant increase in the analysis of CARs and in the implementation of PRA in the states. Figure 11 illustrates the timeline of the process of environmental regularization of rural properties, in line with the Forest Code.

Picture from Brazilian Forest Service Archive

FLOW OF IMPLEMENTATION OF THE FOREST CODE AT THE FEDERAL LEVEL

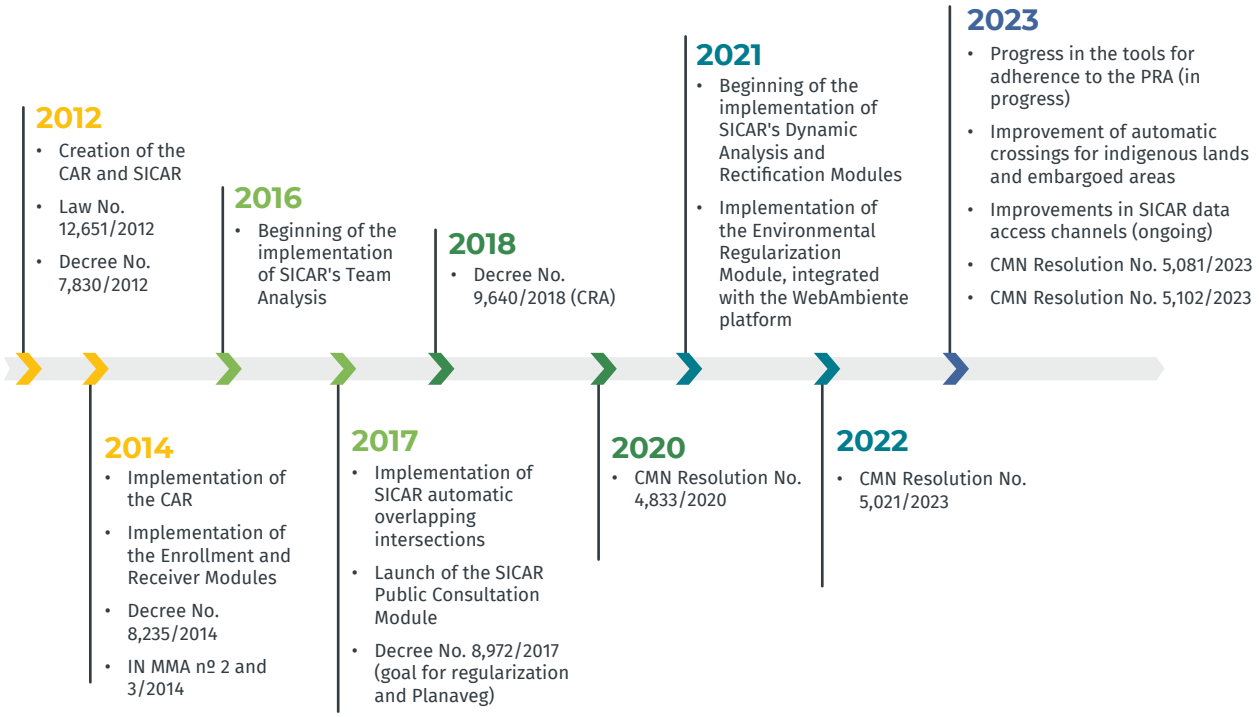


Figure 11 Timeline of the implementation of rural environmental regularization, revised in the Forest Code. Source, Brazilian Forest Service, 2024

Within the scope of the IP Territory of Brazil, Pará and Mato Grosso are the states that have made the most progress in the implementation of environmental regularization of rural properties, with emphasis on Pará, which "is the state that most innovates and advances in the analysis of the CAR and in the regularization of rural properties, with the increase of areas in environmental adequacy" (Lopes et al., 2023).

2.3.4 NATIONAL POLICY ON PAYMENTS FOR ENVIRONMENTAL SERVICES – PNPSA (FEDERAL LAW NO. 14,119/2021)

The PNPSA encourages the preservation of ecosystems, water resources, soil, biodiversity, genetic heritage and associated traditional knowledge, valuing ecosystem services in an economic, social and cultural way. The policy promotes the maintenance, recovery and improvement of vegetation cover in priority areas for conservation, in order to combat habitat fragmentation and encourage the formation of ecological corridors. It provides that payments can be made through different modalities, including direct payment (monetary or non-monetary), the provision of social improvements for rural and urban communities, the Environmental Reserve Quota and the negotiation of green bonds, which opens space for the monetization of preserved areas and stimulates the voluntary carbon market.

2.3.5 THE BRAZILIAN EMISSIONS TRADING SYSTEM - SBCE

The Federal Law no. 15.042 from December 11th, 2024, establishes the new regulated carbon credit market in Brazil. This opens new perspectives for the possible results of the IP, since the international voluntary markets (especially those that trade Carbon Credits certified by the Verra Standard).

2.3.6 SECTORAL PLAN FOR ADAPTATION TO CLIMATE CHANGE AND LOW CARBON EMISSIONS IN AGRICULTURE, WITH A VIEW TO SUSTAINABLE DEVELOPMENT (2020-2030) – ABC+

ABC+, for the period from 2020 to 2030, aims to consolidate national agriculture based on sustainable, resilient, and productive systems, such as science-based adaptation and mitigation solutions. Thus, the plan seeks to continue the actions to promote the establishment of a more sustainable, resilient national agriculture, capable of controlling its GHG emissions, and that guarantees the supply of food, grains, fibers and bioenergy, in quantity and quality, with conservation of natural resources, even in the face of growing climate uncertainty.

2.3.7 UNION WITH MUNICIPALITIES PROGRAM FOR THE REDUCTION OF DEFORESTATION AND FOREST FIRES IN THE AMAZON (DECREE NO. 11,687, OF SEPTEMBER 5, 2023)

The Union with Municipalities Program foresees investments of R$ 730 million to promote sustainable development and combat deforestation and forest fires. The initiative is part of the PPCDAm. The Program provides resources to be applied in productive forest recovery and environmental and land regularization, as well as rural technical assistance.

2.3.8 RAINFORESTS FOREVER FUND (TFFF)

The TFFF was recently launched by the Brazilian Government. The fund will have resources reverted to the preservation and mitigation of the impacts of climate change, with an expected funding of US$ 125 billion, 20% of which through long-term loans granted by developed countries and philanthropic entities. These funds will be combined with 80% of capital from institutional and retail investors, who will be able to purchase debt securities issued by the fund. The TFFF is expected to be operational for COP 30 to be held in Belém, Brazil, in 2025.

2.3.9 BRAZIL PLATFORM FOR CLIMATE INVESTMENTS AND ECOLOGICAL TRANSFORMATION (BIP)

BIP is an initiative of the Brazilian government created with the ambition of expanding investments in ecological transformation towards the decarbonization of the economy, the sustainable use of resources and the improvement of the quality of life of the population. Led by the Ministry of Finance (MF), together with the ministries of Environment and Climate Change (MMA), Development, Industry, Commerce and Services (MDIC), and Mines and Energy (MME), the Platform supports the Ecological Transformation Plan and other government climate transition and adaptation plans in key sectors[17]. BNDES will act as the Secretariat of the Platform, managing the day-to-day operations. The Platform will support three priority sectors, one of which is NBS and Bioeconomy, which represents an opportunity to connect Brazilian projects in this area to an extensive network of financial institutions to help scale the mobilization of public and private capital.

2.3.10 THE AMAZON FUND

The Amazon Fund[18] is an instrument for financing actions to Reduce Emissions from Deforestation and Forest Degradation (REDD+). The Amazon Fund aims to raise donations for non-reimbursable investments in actions to prevent, monitor and combat deforestation, and

17 https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/bip

18 More detailed information about the Fund and its portfolio of initiatives can be found on the Amazon Fund website, at the address https://www.fundoamazonia.gov.br/pt/home/

to promote the conservation and sustainable use of the Legal Amazon.

The Fund also supports the development of deforestation monitoring and control systems in the rest of Brazil and other tropical countries. It was created on August 1, 2008, by Decree 6,527 and its operation began in 2009. The Fund is managed by BNDES, which is responsible for contracting and monitoring the supported projects, as well as for disseminating the activities and results, acting as an important agent for promoting environmental conservation and restoration through its credit granting instruments.

The Amazon Fund has already received approximately R$ 3.4 billion in donations, 93.8% of which came from the government of Norway, 5.7% from the government of Germany, through KfW Entwicklungsbank, and 0.5% from Petróleo Brasileiro S.A. (Petrobras).

2.3.11 STATE POLICIES RELEVANT TO THE NPC AREA IN BRAZIL

Public policies of the State of Pará: (i) Native Vegetation Recovery Plan; (ii) Amazon Now State Plan (PEAA - Decree No. 941 of 2020); (iii) Regulariza Pará Program (Decree No. 2,745 of 2022); (d) Integrated Action Program for Sustainable Territories; (iv) "Empodera Pará" (2019), a credit line from Banco do Estado do Pará. Additionally, in the Native Vegetation Recovery Plan of the State of Pará – PRVN, public policies with a high degree of relevance to the recovery of native vegetation with a focus on the State of Pará are presented[19].

There is also the State Program of Payments for Environmental Services of the Government of the State of Pará, which has the support of the Inter-American Development Bank (IDB).

Public policies and programs of the State of Mato Grosso: (i) Decree No. 1,199: MT Environmental Regularization Program; Environmental Regularization Program – PRA – MT – Provides for the Environmental Regularization Program – PRA, regulates the Rural Environmental Registry – CAR, the Environmental Regularization of Rural Properties and the Environmental Licensing of Polluting Activities or Users of Natural Resources, within the scope of the State of Mato Grosso. The PRA-MT allows environmental regularization with the recovery and compensation of degraded areas, such as Legal Reserves and Permanent Preservation Areas; (ii) Integrated Environmental Management System (SIGA) Mato Grosso Rural Environmental Registry System (SIMCAR) - electronic system, mandatory of the CAR of Mato Grosso, in which producers must register their rural property or rectify the information already registered. Together for the Araguaia Program (JPA) - is considered the largest watershed recovery initiative in the world and is carried out in partnership between the Governments of Mato Grosso and Goiás. The program aims to restore ten thousand hectares (five thousand in each state) of degraded areas in the Upper Araguaia River Basin. Juntos pelo Araguaia aims to implement projects to restore native vegetation, soil and water conservation on rural properties in the region, as well as to promote a change in culture on sustainable practices for occupying the territory. The program provides for small and medium-sized producers to act directly in the recovery of degraded areas already declared in the Rural Environmental Registry (CAR).

Public policies and programs of the State of Tocantins: (i) Plan to Prevent and Combat Deforestation and Forest Fires in Tocantins; (ii) Restaura Program – TO - Focusing on ecological-economic restoration in degraded and altered areas in Tocantins, through the rational use of flora and native vegetation cover, the project called Restaura-TO has been developing activities since 2017, by the Rural Development Institute of Tocantins (Ruraltins), together with several institutions; (iii) Sustainable Integrated Regional Development Project - PDRIS - Developed through a loan signed with the International Bank for Reconstruction and Development (IBRD). One of the components of the project provides for the structuring and execution of policies aimed at environmental sustainability and the recovery of vegetation cover in Tocantins; (iv) Native Vegetation Restoration Booklet and the Native Vegetation Restoration Manual, 2019.

19 See National https://www.gov.br/mma/pt-br/composicao/secex/dfre/fundo-nacional-sobre-mudanca-do-climaPolítica for the Recovery of Native Vegetation – PROVEG (Federal Decree No. 8,972/2017) and its National Plan for the Recovery of Native Vegetation – PLANAVEG (Interministerial Ordinance No. 203/2017)

Public policies and programs of the State of Maranhão: (i) Forest + Amazon Project - Memorandum of Understanding with the United Nations Development Program (UNDP), so that Maranhão can have access to resources from the Green Climate Fund (GCF), to preserve the forest areas of the Legal Amazon, recover degraded areas and produce in the permitted areas; (ii) Green Maranhão Program, which aims to foster and develop environmental conservation and recovery projects. The program also aims to improve the quality of life and income of the population in situations of extreme poverty; (iii) Green Maranhão – Indigenous Axis - Focuses on contributing to the guarantee of transfer and income generation for various indigenous peoples of Maranhão, always considering local knowledge and ways of life, thus investing in social development and committing to environmental conservation. It advocates rescuing the richness, diversity and peculiarity of indigenous production from the construction of an integrated chain for incentive, technical assistance and commercialization of productive projects carried out in the villages; (iv) State Law No. 10,276, of July 7, 2015, which established the Environmental Adequacy Program for Rural Property and Activity in the State of Maranhão; (v) Ordinance No. 027, of April 29, 2021 - Establishes criteria and procedures for the recovery of degraded areas preparation, analysis, approval and monitoring of the execution of the Project for the Recovery of Degraded or Altered Areas - PRAD through the use of seeds, seedlings and fauna.

2.3.12 BRAZIL'S EXPERIENCE WITH THE FIP/CIF [20]

Brazil implemented the Forestry Program Investment Plan (FIP Brazil 2012-2024), which sought to promote sustainable land use and improve native vegetation management in the Cerrado, the second largest biome in Brazil and South America, contributing to reducing pressure on remaining native vegetation, reducing GHG emissions, and increasing CO2 capture.

The projects included in the IP have had a significant impact on improving environmental governance in Brazil's Cerrado. Climate change mitigation and adaptation permeate its projects, and its actions contribute directly or indirectly to the sustainable use of natural resources and the reduction of GHG emissions. In terms of governance and environmental monitoring, the actions were carried out in two themes: (i) management and management of anthropized areas and (ii) generation and management of forest information. The IP promoted: (i) consolidation of environmental regularization in Brazil, with emphasis on support for the analysis of data declared in the Rural Environmental Registry (CAR), and the registration of rural properties of up to 4 fiscal modules and territories of traditional peoples and communities (FIP/CAR Project); (ii) the adoption of low-carbon agricultural practices in the Cerrado biome; (iii) the integrated management of rural landscapes (FIP Rural Landscapes), (iv) the monitoring, prevention and control of GHG emissions through the establishment of systems to monitor the loss of vegetation cover and the risk of vegetation fires in support of deforestation control policies (FIP Cerrado Monitoring Project); and (v) the inventory of forest resources (including carbon stocks) and sustainable ecosystem management (IFN/FIP Cerrado Project).

In addition, important actions aimed at sustainable land use practices were implemented through incentives for the biodiesel supply chain (FIP Macaúba Project); and actions aimed at improving the lives of indigenous peoples and traditional communities in the Cerrado biome and their engagement with FIP, REDD+ and other similar programs focused on climate change at the local, national and global levels (FIP/DGM Project). The FIP also contributed to the inclusion of vulnerable and excluded groups, such as women, in decision-making processes, producing and systematizing knowledge and making strategic information on the management of ecosystem resources available to society.

In terms of lessons learned, FIP projects bring together key factors for advancing the environmental and rural development agendas: funding and effective participation of government and

20 Brazil also carried out a second Investment Plan with the Climate Investment Funds, the Renewable Energy Integration Program Co-Lead Climate Investment Funds, mentioned but not detailed in this Investment Plan, since NPC Brazil represents a direct development of lessons learned and actions that complement, now as a private sector, the efforts for Brazilian forest restoration.

civil society, especially women. The projects played an instrumental role in the implementation of climate change mitigation policies and policies included in the Brazilian Forest Code. The FIP initiatives highlighted the paramount importance of strengthening inter-institutional relations and improving the governance capacity of the key stakeholders working on these policies. They involve civil society stakeholders, such as small and medium-sized farmers, indigenous peoples and traditional communities, as well as individuals and companies in the environmental sector – all with special attention to women. These interinstitutional arrangements leverage synergies and support the alignment of strategies between decision-makers, funding entities, and the private sector.

Brazil has a high success rate in implementing sustainable FIP management practices, as per the 2023 FIP Investment Plan Monitoring and Reporting Report for the FIP 3 (FIP MR 2024 Report[21]), "Brazil overwhelmingly led the annual contributions to FIP Theme 1.1 in 2023 (data tallied until June), reporting 367,168,731 hectares covered, with the project Environmental Regularization of Rural Lands in the Cerrado of Brazil". The area covered by sustainable land management practices was 4.993% higher than the original target (7,353,472 hectares). Regarding subsistence co-benefits, in 2021, Brazil supported 6,458 beneficiaries, exceeding the goal of 4,000 people.

It is important to note that Brazil has great experience in the implementation of Government Policies and Programs inducing transformational changes that need, for many years, a large volume of capital to be consolidated. In this direction, the engagement of the private sector in an increasing way with replicable and scalable business models is essential. This is the main innovation, among others, proposed in the Brazilian Investment Plan submitted here.

In addition, this entire set of Plans, Policies and Tools offer a large volume of data on the territory proposed for this IP, from which information can be extracted that similarly meets the CIF-NPC Integrated Results Framework, and complements, even with longer historical series, the "*NPC Investment Program Evaluation and Learning Toolkit: Maximizing the transformational intent and impact of NPC investments.*"

For Brazil, this IP is also an opportunity to take a step forward in relation to the CIF-FIP mentioned above, incorporating lessons learned in the FIP, and also in the other Plans and Policies implemented in recent years, now adding the contributions of private sector agents, and the combination of forest restoration initiatives with impacts on water restoration from an important Hydrographic Basin to the Amazon and Cerrado biomes.

2.4 BRAZIL'S NATIONALLY DETERMINED CONTRIBUTION (NDC)

The United Nations Framework Convention on Climate Change (Climate Convention) has consolidated the recognition of forestry activities as part of the climate solution throughout the history of decisions of the Conferences of the Parties (COP) (D. M. da C. Teixeira, 2022), with emphasis on COP 13 – Bali, COP 15 – Copenhagen, COP 16 – Cancun, COP 19 – Warsaw and COP 21 – Paris. In the latter, the Nationally Determined Contributions (NDC) are established, which correspond to the national emission reduction objectives, encompassing measures that must be complied with by a given nation to comply with the Paris Agreement (limit of + 1.5ºC) (Christofoli 2017).

Brazil became the second country to present its second NDC, with commitments to be reached by 2035. The Brazilian commitment aims at a reduction of 59% to 67% compared to 2005 levels, which represents an emission of between 1.05 and 0.85 gigatons of CO2 equivalent (GtCO2e). This target covers all sectors of the economy (across the economy), aligning with global efforts to mitigate climate change[22], as illustrated in the Figure 12.

21 Further information: https://fip.funatura.org.br/wp-content/uploads/2024/10/PIB-FIP-MR-2023_POR.pdf

22 https://agenciagov.ebc.com.br/noticias/202411/cop29-como-brasil-calculou-sua-nova-meta-de-reducao-de-gases-de-efeito-estufa

BRAZIL'S EMISSIONS TRAJECTORY AND REDUCTION **GOAL FOR 2035**

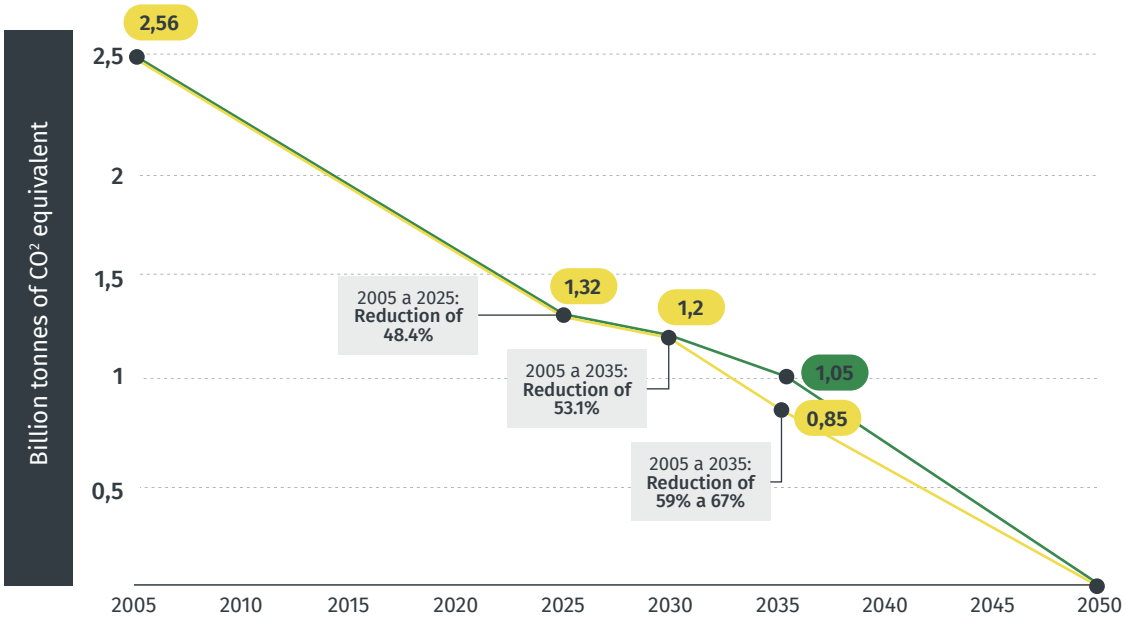


Figure 12 Brazil's emissions trajectory and reduction target for 2035.

Source: https://agenciagov.ebc.com.br/noticias/202411/cop29-como-brasil-calculou-sua-nova-meta-de-reducao-de-gases-de-efeito-estufa

Due to the profile of its emissions, the national mitigation strategy[23] emphasizes coordinated efforts of various sectoral plans and public policies to suppress illegal deforestation, encourage the conservation of native vegetation and the restoration of degraded areas. In this sense, the Plans for the Prevention and Control of Deforestation in the Biomes (PPCDAm and PPCerrado), Planaveg, the ABC+ Plan, the National Program for the Strengthening of Family Agriculture (Pronaf), the Brazil Sociobiodiversity Bioeconomy Program, among others, are included.

It is also noteworthy that the new Brazilian NDC[24] brings advances with regard to the integration of gender and race as guiding aspects of national policies, with emphasis on the update of the National Plan on Climate Change, which will incorporate into its legal framework, in an unprecedented way, the concepts of just transition and climate[25] justice. Among the guidelines for the National Adaptation Strategy is the "promotion of climate justice based on its dimensions of gender, race, ethnicity, age, social class and other factors that influence vulnerability"[26], and among the guidelines for the National Mitigation Strategy is the just and inclusive transition. In the Pact for Ecological Transformation between the three branches of the Brazilian state, by including an

23 https://unfccc.int/sites/default/files/2024-11/Brazil_Second%20Nationally%20Determined%20Contribution%20(NDC)_November2024.pdf?fbclid=PAZXh0bgNhZW0CMTEAAaaw3nFGcb1h196ET50x-onRqmxcU2TeXdDW-qo2zVqwRIohFzxZ7gKAjARc_aem_GmETDE-t8Qr8SF37LticLmw

24 https://unfccc.int/sites/default/files/2024-11/Brazil_Second%20Nationally%20Determined%20Contribution%20%28NDC%29_November2024.pdf and https://www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/planoabc-abcmais/abc/metas-do-abc

25 According to the document, "Brazil will promote "Climate Justice", understood as an approach to combat social, racial and gender inequalities, among others, and to promote human rights, and in particular the rights of indigenous peoples and traditional populations, in the face of climate change, with special attention to vulnerable groups". Brazil. NDC do Brasil National determination to contribute and transform. 2024. pp. 34-35. https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/brasil-entrega-a-onu-nova-ndc-alinhada-ao-acordo-de-paris/copy_of_Final-NDCversaoemportugues.pdf accessed on November 25, 2024.

26 Among the 16 sectoral and thematic plans that are being prepared, the following were included: racial equality and the fight against racism; traditional peoples and communities; and indigenous peoples. Women and gender issues will not be the subject of a specific plan. Brazil. NDC do Brasil National determination to contribute and transform. 2024. https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/brasil-entrega-a-onu-nova-ndc-alinhada-ao-acordo-de-paris/copy_of_FinalNDCversaoemportugues.pdf accessed on November 25, 2024.

axis of sustainable development with social, environmental and climate justice (axis III), there is implicit mention of gender issues. The new NDC also mentions that the Ecological Transformation Plan, which supports the implementation of the National Plan on Climate Change, "will raise economic productivity by generating decent work, promoting climate justice, and reducing regional, gender, and racial inequalities"[27].

In this way, the Brazilian government demonstrates its commitment to updating its policies aimed at climate change with the aim of mainstreaming gender and race issues, incorporating an intersectional perspective, in addition to increasing women's capacity to contribute with proposals and solutions to climate change[28].

2.5 POVERTY AND INEQUALITY IN THE COUNTRY

Brazil has a population of more than 203 million people (IBGE 2022), of whom 51.5 percent are women and 48.5 percent are men. The country's ethnic-racial composition is diverse, with 55.5 percent of the population self-declaring themselves as Black and multiracial; 43.5 percent as white; 0.6 percent as Indigenous; and 0.4 percent as "yellow".

In 2021, the country's Municipal Human Development Index (MHDI)[29] was 0.766, placing it in the high human development category. However, as a country marked by structural gender, ethnic-racial, and class inequalities, resulting from patriarchal Portuguese colonization and the enslavement of Indigenous and African people, this development does not reflect the reality of many population groups. There is a "loss of 22.5 percent in human development for the country, due to inequality in its distribution", positioning Brazil as a country with low human development, corresponding to a value of 0.591 (UNDP 2024).

Thus, despite the drop in the percentage of people living in poverty[30] and the improvement in income distribution in recent years[31], Brazil is still one of the most unequal countries in the world, ranking 14th in the Gini Index[32] (UNDP 2022). The richest 1 percent of Brazilians earn an average monthly income 32.5 times higher than the poorest 40 percent33 (IBGE 2022). In turn, the most socioeconomically vulnerable population are those that identify as Black, multiracial, and Indigenous.[34]

In terms of gender inequality, according to the World Economic Forum's Global Gender Gap

27 Brazil. NDC do Brasil National determination to contribute and transform. 2024. p. 24. https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/brasil-entrega-a-onu-nova-ndc-alinhada-ao-acordo-de-paris/copy_of_FinalNDCversaoemportugues.pdf accessed on November 25, 2024.

28 During the Brazilian presidency of the G20 (2024), Climate Justice was defined as one of the three priority themes of the Working Group on "Women's Empowerment", coordinated by the Ministry of Women. Based on the approval of the member countries and invited countries and entities, four delivery plans were established on the topic of women and climate justice: mapping studies on climate change and gender; Mapping experiences and good practices of women's groups in the context of sustainable development solutions; Survey of successful experiences of women and girls' participation in decision-making spaces on climate; and Survey of public and private financing mechanisms for initiatives related to the environment and climate and the promotion of gender equality.

29 The HDI is a measure that brings together three basic dimensions of human development: longevity, education, and income.

30 Data from the IBGE's Continuous National Household Sample Survey (2022) showed a downward trend in the percentage of people living in poverty and extreme poverty, from 36.7 percent in 2021 to 31.6 percent in 2022, and from 9 percent to 5.9 percent respectively, with a more significant drop in the North and Northeast regions. However, when considering young people up to the age of 14, this percentage was higher than for the rest of the population: 49.1 percent were poor and 10 percent extremely poor in 2022. https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/38545-pobreza-cai-para-31-6-da-populacao-em-2022-apos-alcancar-36-7-em-2021

31 According to the IBGE, income inequality in Brazil has reached the lowest level in the time series of the Continuous National Household Sample Survey (2012–22), with a value corresponding to 0.518, and will remain so in 2023. https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/39809-em-2023-massa-de-rendimentos-e-rendimento-domiciliar-per-capita-atingem-recorde

32 The Gini Index is an instrument for measuring the degree of income concentration in a given group, showing the difference between the incomes of the poorest and the richest.

33 https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/39809-em-2023-massa-de-rendimentos-e-rendimento-domiciliar-per-capita-atingem-recorde

34 According to the IBGE (2022), among people of Black or multiracial background, 40 percent were poor, twice the rate of the white population (21 percent); and 7.7 percent were extremely poor, more than double the rate among whites (3.5 percent).

Index 2024,[35] Brazil dropped back to 70th place out of 146 countries analyzed, with the biggest gap referring to women's participation in politics.

Brazilian women have less access to income than men and higher rates of unemployment;[36] on the other hand, they spend almost twice as much time caring for people and/or doing household chores (unpaid work) as men.[37]

Women are better educated than men, especially at the more advanced levels of the education system,[38] but they still face barriers in certain areas of knowledge, particularly those more closely linked to exact sciences and the sphere of production, areas in which men are in the majority.[39] In the labor market, only 39.3 percent of managerial positions were held by women, with disparities found according to economic activity group and average income. The main economic activities in which there were more women than men in leadership positions in 2022 were linked to care, such as education and human health and social services. In activities linked to agriculture, livestock, forestry, fishing, and aquaculture, there were only 15.8 percent of women in management positions. In extractive industries, manufacturing, electricity, and gas—the sector with the highest number of managerial positions in 2022—only 31 percent were held by women.

With regard to women's participation in institutional politics, although they account for 52.7 percent of the electorate, Brazil ranks 133rd among 186 countries in terms of women's participation in the Legislature, and is last among Latin American countries.[40]

It is worth noting that women are not a homogenous group, and other social markers such as race, class, disability, sexuality, and origin, among others, expose certain groups of women to multiple forms of discrimination and place them at an even greater social disadvantage.

When analyzing gender and race, for example, it becomes clear that Black women are the population group at the bottom of the social pyramid, with "more fragile working conditions and possibilities more limited access to income, as well as family arrangements that offer them little autonomy for work, less agency, and greater exposure to violence" (UNDP 2024). Black women make up the largest part of the Brazilian population (28.5 percent of the total) and correspond to the largest percentage of the working-age population (28.4 percent); yet, only 10.7 percent of the total income received from work in the country goes to them.[41]

The funds provided through social programs (such as cash transfer programs) are

35 Since 2006, the Global Gender Gap Index has monitored the current state and evolution of gender parity in four main dimensions: economic participation, political participation, educational attainment, and health. The report is available at https://www.weforum.org/publications/global-gender-gap-report-2024/in-full/.

36 According to the IBGE, women's income was equivalent to 78.9 percent of men's income. The inequality is greater when it comes to women with disabilities, who earn around 72 percent of men. Regarding the unemployment rate, women have higher rates than men: 11.8 percent of women (14 percent of Black or multiracial women, and 9.2 percent of white women) and 7.9 percent of men (9 percent of Black or multiracial men, and 6.3 percent of white men) were unemployed. (Gender statistics: social indicators for women in Brazil 2024).

37 Black and multiracial women devoted 1.6 hours more than white women to caring tasks and/or household chores. The lower a woman's income, the more hours she spends on domestic work, which restricts her participation in the labor market. IBGE, Estatísticas de Gênero: Indicadores sociais das mulheres no Brasil, 2024. https://www.ibge.gov.br/estatisticas/multidominio/genero/20163

38 In the 18–24 age group, 32.6 percent of women and 28.1 percent of men were studying in 2022, with the biggest difference being between white women (39.7 percent) and Black or multiracial men (24.6 percent). The percentage of white men with higher education was 2.4 times higher than that of Black or multiracial men, while the percentage of white women with higher education was almost double that of Black or multiracial women (Gender statistics: social indicators for women in Brazil 2024).

39 Despite the broad advantage in terms of access to higher education in general, women face barriers in certain areas of knowledge, particularly those more closely linked to exact sciences and the sphere of production: women accounted for 60.3 percent of students graduating in face-to-face undergraduate courses; but in STEM courses (science, technology, engineering, mathematics and interdisciplinary programs covering these areas) they accounted for only 22 percent of graduates. IBGE, Estatísticas de Gênero: Indicadores sociais das mulheres no Brasil, 2024.

40 In November 2023, women represented 17.9 percent of all federal legislators in office; and only 9 women held a ministerial position in Brazil's 38 ministries. According to the Higher Electoral Court (TSE), in the 2024 elections, 18.24 percent of all positions in municipal Legislatures will be held by women, and around 13 percent of Brazil's municipalities elected a female mayor.

41 Black women earn only 16 percent of the total income compared to 24.1 percent for Black men, 24.7 percent for white women, and 35.1 percent for white men. UNDP. Special Report 2023 | 25 Years: Human Development in Brazil. Building paths, agreeing new horizons. 2024, p. 41–3, available at: https://www.undp.org/pt/brazil/publications/relatorio-especial-2023-25-anos-desenvolvimento-humano-no-brasil

fundamentally used by Black women, who are the target of 46.5 percent of these policies. Although these programs are essential for the composition of these women's incomes, they are clearly insufficient (UNDP 2024).

The effects of these disadvantages are reproduced and exacerbated when we consider that the households for which Black women are responsible (27.4 percent of the total) have proportionally more people and children compared to the other groups (UNDP 2024). The household arrangement formed by Black or multiracial women, without a spouse and with children under the age of 14 concentrated the highest incidence of poverty: 72.2 percent of residents were poor, and 22.6 percent were extremely poor (IBGE 2022).

Finally, it should be remembered that the social and economic disadvantages resulting from structural gender and race inequalities in Brazil are compounded by high rates of violence against the Black population and women. According to the Atlas of Violence (Cerqueira et al. 2024), in 2022, Black and multiracial people were the victims in 76.5 percent of all homicides recorded in the country, corresponding to 35,531 people. From 2012 to 2022, at least 48,289 women were murdered in Brazil, with an estimated murder rate of 4.3 per 100,000 in 2022. Applying the racial cut-off, in 2022 Black women accounted for 66.4 percent of the victims.

2.6 TRADITIONAL PEOPLES AND COMMUNITIES AND THE RIGHT TO LAND

Brazil has an enormous diversity of traditional peoples and communities, considered "culturally differentiated groups that recognize themselves as such, that have their own forms of social organization, that occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition"[42]. There are 28 segments of traditional peoples and communities nationally recognized[43] for their important role in the conservation of biodiversity, through production systems based on the socio-bioeconomy, present in all biomes of the country.

Indigenous peoples and quilombolas[44] are guaranteed recognition in the Constitution of the Republic.

Currently, about 272 indigenous ethnic groups inhabit the national territory. According to the IBGE, the country's indigenous population reached 1,693,535 people in 2022, which represents 0.83% of the total inhabitants. The majority of the country's indigenous population (75.71% of the total) is concentrated in the North and Northeast regions. A total of 6,245 indigenous groups (locations with the presence of an indigenous population) were identified in the country, 1,023 of which were outside Indigenous Lands. The number of indigenous people living within Indigenous Lands is 622,844 people, and outside them is 1,071,992.

The indigenous population has worse social indicators than the general population. Despite an improvement in literacy rates, the percentage of literate indigenous people aged 15 and over (84.9%) remains below the national average (93.0%), and unlike the trend of the total population, the illiteracy rate is higher for indigenous women, and this difference increases in the population residing in indigenous territories

42 This is the definition adopted by Decree No. 6,040 of February 7, 2007, which instituted the National Policy for the Sustainable Development of Traditional Peoples and Communities.

43 According to Decree No. 8,750/2016 (updated by Decree No. 11,481/2023), the following traditional peoples or communities are recognized: andirobeiros; ever-living flower pickers; caatingueiros; caiçaras; mangaba pickers; cipozeiros; gypsy peoples; pasture bottom and pasture communities; Extractive; coastal and marine extractivists; faxinalenses; geraizeiros; Islanders; Moroccians; pantaneiros; artisanal fishermen; Pomeranian people; indigenous peoples; healers; quilombola communities; terreiro peoples and communities/peoples and communities of African origin; babassu coconut breakers; raizeiros; Araguaia retirees; Bordering; vazanteiros; wetlanders and caboclos.

44 Quilombolas are ethnic-racial groups predominantly made up of the black population, rural or urban, whose historical trajectory is related to resistance to enslavement, and which has specific territorial relations, traditions and cultural practices of their own.

(IBGE, 2022[45]). In addition, about 69.1% of the indigenous people living in permanent private households lived with at least one situation of precariousness or absence of basic sanitation, related to water supply, sewage disposal or garbage disposal[46].

The quilombola population, in turn, is 1.32 million people, or 0.65% of the total inhabitants of the country. The Northeast Region concentrates the largest number of quilombolas, corresponding to 68.19% of the total, and 32.16% of the quilombola population resides in the municipalities of the Legal Amazon. 494 officially delimited Quilombola Territories were identified in the country, which were home to 167,202 quilombolas, corresponding to only 12.6% of the quilombola population (IBGE, 2022[47]). The National Institute of Colonization and Agrarian Reform (Incra) indicates the existence of 1,802 land regularization processes.

The struggle for the right to land is common to traditional, indigenous and quilombola peoples and communities. For these groups, the bond with the land is part of individual and collective identity, being a form of historical-cultural manifestation. The slow processes of demarcation of indigenous lands and titling of quilombola lands contrast with the rapid expansion of agribusiness, monoculture and mines, aggravating conflicts and violence and violations against these groups.

Violence against indigenous, traditional and rural peoples, most of whom are black, and especially against women who fight for their lands and territories[48], are accentuated to the extent that they affirm their leadership in defense of their peoples and territories (Furtado 2022). Civil society organizations that monitor violence against human rights defenders in Brazil, including rural worker leaders, denounce that 140 of the 169 defenders murdered between 2019-2022 were fighting for the right to land, territory, and an ecologically balanced environment (Rights 2023). Community leaders who are human rights defenders "face specific challenges based on gender and are subject to or affected by specific forms of violence in a particular way"[49].

2.7 INEQUALITIES IN THE COUNTRYSIDE

Land inequality is also one of the country's challenges. Properties with more than 2,500 hectares represent 0.3% of rural properties in Brazil, but account for 32.8% of the total area of agricultural establishments in the country; On the other hand, properties with less than 50 hectares are 81% of agricultural establishments and occupy only 12.8% of the total area. The larger the area of the establishments, the greater the predominance of white farmers. These, although fewer in number, hold almost 60% of Brazil's land. Thus, blacks or browns are a minority in the management of large establishments (IBGE 2020).

As for the gender cut, according to the last Agricultural Census, only 19% of the producers in the country's agricultural establishments are

45 https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/41490-censo-2022-ibge-divulga-informacoes-de-alfabetizacao-registros-de-nascimentos-e-caracteristicas-dos-domicilios-da-populacao-indigena-na-casa-brasil-ibge

46 In indigenous territories, 95.6% of indigenous residents did not have some of the adequate sanitation conditions (IBGE, 2022). https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/41490-censo-2022-ibge-divulga-informacoes-de-alfabetizacao-registros-de-nascimentos-e-caracteristicas-dos-domicilios-da-populacao-indigena-na-casa-brasil-ibge

47 https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/37464-brasil-tem-1-3-milhao-de-quilombolas-em-1-696-municipios

48 "Territorial community feminism affirms the defense of territories not only because women need the "natural resources" to live, but because there is a deep connection between the territory and the body, between the violence resulting from the expropriation of territories and the destruction of traditional ways of life and violence against women's bodies. For indigenous, peasant and traditional women, the struggle for land is a struggle to confront violence against women, because it is on the land and in their territories where they guarantee the subsistence and material and cultural reproduction of their communities" (Furtado 2022, p. 46).

49 According to a report by the UN Women office in Brazil, "In the country, the work of women human rights defenders has always been confronted by violence. The structural causes of this violence go back not only to conflicting interests in relation to the most diverse agendas in which they work, but also to the deviation from the roles and social expectations traditionally reserved for women." (Dantas 2021, p. 11).

female and this number drops to 8.7% when it comes to cooperative producers. (IBGE, 2017[50]) There is also a big difference in the size of the land that women have access to, even in family farming. Women represent 22.6% of the properties of up to 20ha and 12.88% of the areas between 20ha and 500ha, a proportion that remains similar as the size of the areas increases. Thus, women are in greater number and proportion in smaller establishments.

The gender difference in land ownership is present not only in Brazil, but throughout Latin America, and results from five main factors: preference given to men in inheritance; male privilege in marriage; male bias in both community and state land distribution programs; and gender bias in the land market. In addition, men and women tend to acquire land in different ways: the main way for women to become owners is by inheritance, while the land market is a relatively more important means of land acquisition for men (Deere and Léon 2003). Faced with this situation, women end up having little access to decision-making about land uses and find themselves even more vulnerable when there is marital breakdown and migration of men.

3. NATIONAL CONTEXT OF NATURE-BASED SOLUTIONS (NBS)

The NPC Brazil Investment Plan plans to finance Nature-Based Solutions primarily in forest restoration of native vegetation, in line with the new Brazilian NDC and benefiting local communities in multiple ways.

3.1 FOREST RESTORATION AS A NATURE-BASED SOLUTION BY NPC BRAZIL

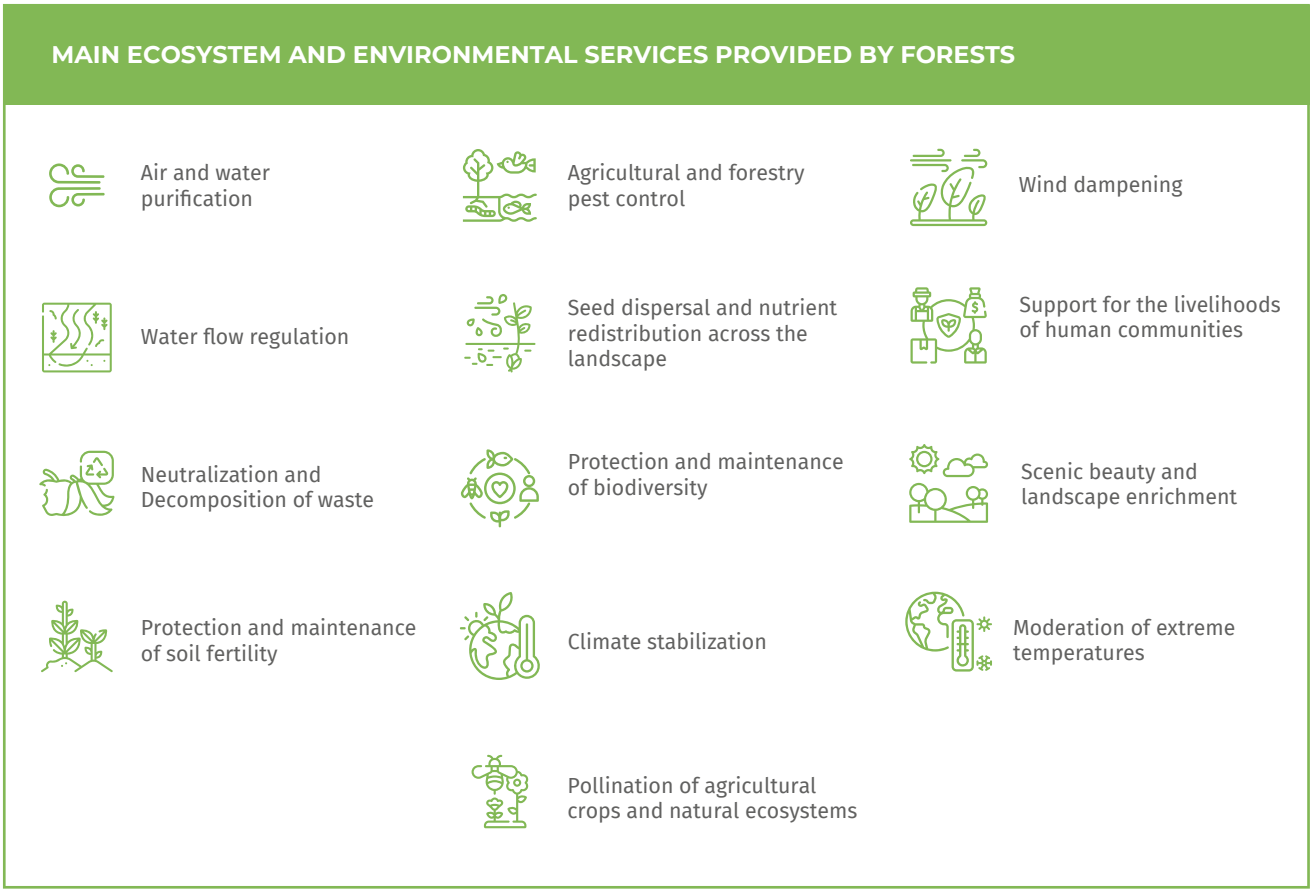
Forests provide several environmental services relevant to the maintenance of human well-being, reaching both local populations and those

Picture from Brazilian Forest Service Archive

50 https://www.ibge.gov.br/estatisticas/economicas/agricultura-e-pecuaria/21814-2017-censo-agropecuario.html

in regions far from forest areas (Born 2005), as listed below. Thus, the loss and degradation of these ecosystems imply direct damage to economic activities, especially those most dependent on the carrying capacity of the environment, such as agriculture.

MAIN ECOSYSTEM AND ENVIRONMENTAL SERVICES PROVIDED BY FORESTS



Source: adapted from Scherr et al. (2004).

Regarding climate, forests are the largest carbon sink, absorbing about 2 billion tons of CO2 per year (UN 2021). In this process, atmospheric carbon is captured by plant biomass and, when trees die, it accumulates as leaf litter and is later incorporated into the soil as organic matter (FAO 2020). However, deforestation and degradation release this carbon back into the atmosphere, exacerbating climate imbalances. Therefore, afforestation and reforestation represent "emissions while deforestation results in "positive emissions". It is estimated, albeit simplistically, that for every 7 trees planted, it is possible to sequester 1 ton of carbon in its first 20 years of age[51].

Data from the Food and Agriculture Organization of the United Nations (FAO 2022) indicate that tropical forest loss accounts for 91% of current global deforestation. From 1990 to 2020, 420 million hectares of forests were converted to other uses, mainly in sub-Saharan Africa and Latin America and the Caribbean, while temperate countries expanded these areas (Meyfroidt and Lambin 2011) (Figure 13). Consequently, the global forest carbon stock fell from 668 to 662 Gton of CO2 and in the same period, with two-thirds located in Asia, North and Central America, and South America (UN 2021).

51 See https://www.ibflorestas.org.br/conteudo/compensacao-de-co2

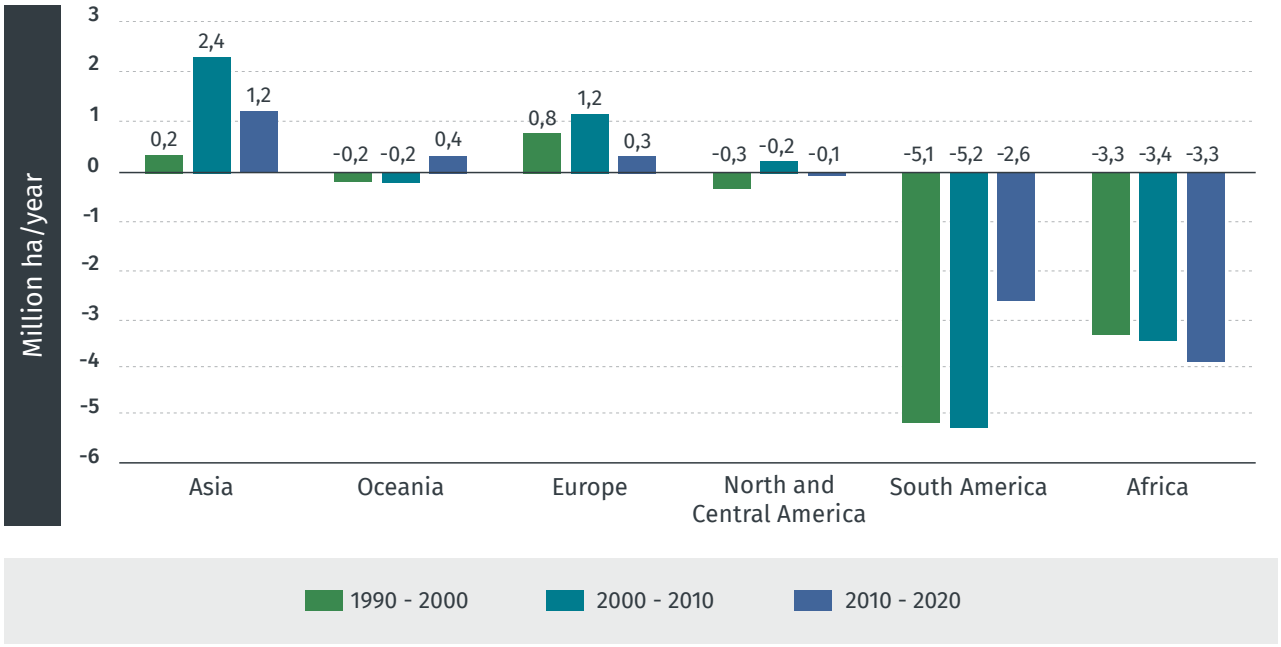


Figure 13 Average Annual Change in Forest Area, by Decade and Region, 1990s-2020s.

Source: Teixeira et al. (2023).

The causes for tropical forest loss are closely linked to the specific land use dynamics of each country or region (Barbier, Burgess, and Grainger 2010). However, some direct factors are commonly identified, the main one being the expansion of the agricultural frontier, which is responsible for 50% of all global deforestation (FAO 2022) (Figure 14). This is reflected in the emissions profile of the economies with the largest tropical forests, especially Brazil, which has a significantly higher share of land use and land cover changes than the world average (Figure 15).

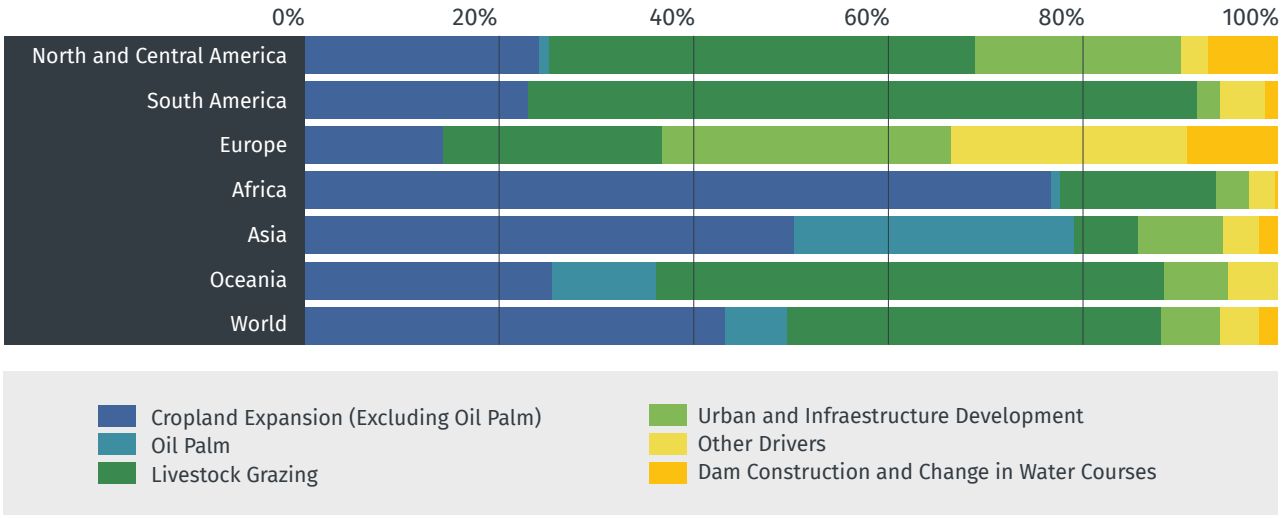


Figure 14 Participation of Direct Determinants of Deforestation by Region, 2000-2018.

Source: FAO FRA 2020 Remote Sensing Survey.

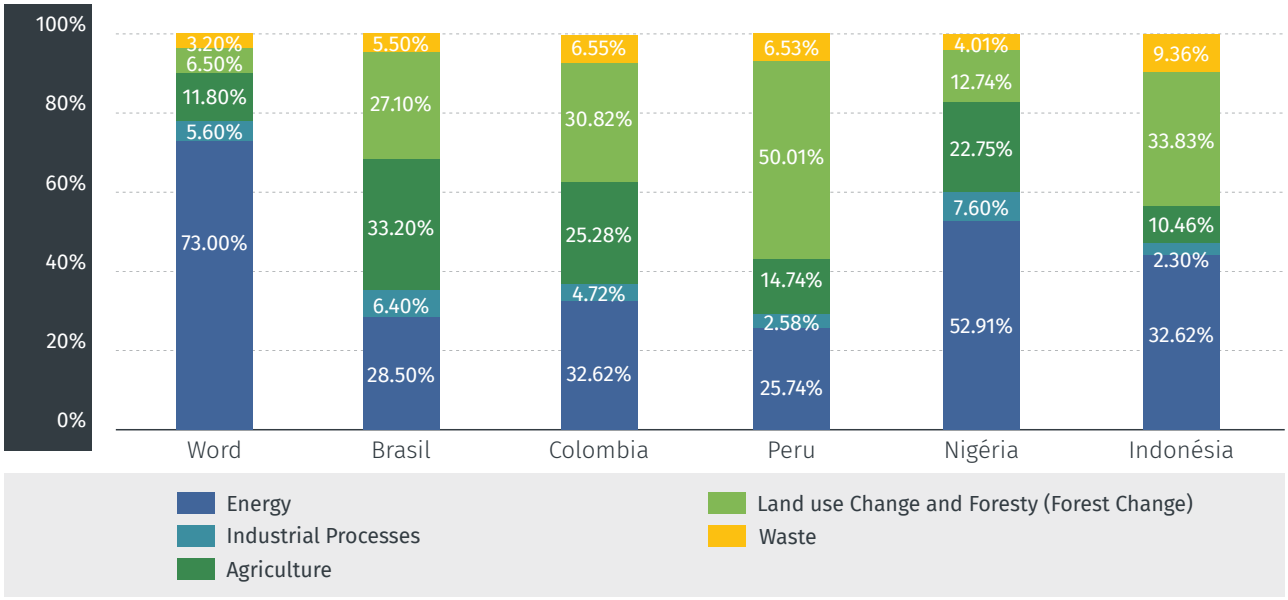


Figure 15 Composition of GHG Emissions of the World and Some Tropical Countries, 2016.

Source: Teixeira et al. (2023).

Projections by the OECD and FAO indicate that the increase in global consumption of food and inputs for livestock and aquaculture will lead to the largest conversion of forests to agriculture this decade, raising carbon emissions from agriculture by 7.6% and aggravating climate risks (OECD/FAO 2023).

The transition to a low-carbon and resilient economy requires large-scale actions that combine inclusive economic growth with forest conservation, especially in the tropics. Reductions in deforestation and forest degradation can mitigate global GHG emissions by between 0.4-5.8 GtCO2e per year, contributing 1.2% to 18% of the Paris Agreement's 1.5°C warming target, according to the IPCC (2022).

NBS have gained prominence in climate mitigation and adaptation strategies linked to land use and occupation. According to the definition of the International Union for Conservation of Nature (IUCN), NBS correspond to "actions for the protection, sustainable management and restoration of altered ecosystems, which are capable of addressing social challenges in an effective and adaptive manner, while simultaneously providing human well-being and benefits for biodiversity".[52]

In the list of alternatives, ecological forest restoration and productive rehabilitation (or restoration) (Table 1) are the most cost-effective way to address climate change in the short term (Brancalion et al. 2017), because: (i) they allow working with a wide diversity of forest products; (ii) they are labor-intensive in rural and urban areas, engaging local and traditional communities; and (iii) increase climate resilience through Ecosystem Services.

52 According to the definition of the International Union for Conservation of Nature (IUCN): https://iucn.org/our-work/nature-based-solutions

Table 1 Concept of Forest Restoration Types

KIND	CONCEPT	SAMPLE MODELS
Ecological restoration	The process and practice of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed through intentional human activity to contribute to or accelerate its recovery in relation to its health, integrity, and sustainability.	• Direct seeding; • Planting native/biodiverse seedlings; • Conducting natural regeneration.
Productive rehabilitation (or productive restoration)	Restoration and expansion of natural capital, with regard to interventions and investments to improve the sustainability of natural and human-managed ecosystems, as a contribution to the socioeconomic well-being of people through the provision of ecosystem goods and services.	• Agroforestry systems; • Forest integration systems; • Sustainable forest management; • Native forestry

Source: Adapted from information from Instituto Escolhas (2023).

In the context of the CIF, programs and activities (including NPC Brazil) are significantly aligned with the attributes of forest restoration as NBS to combat climate change, as expressed in the CIF Impact Statement. This alignment is also verified in the United Nations 2030 Agenda[53], in which forest restoration occupies a prominent position for enabling the achievement of several Sustainable Development Goals (SDGs), as presented in the Table 2, such as: the conservation of biodiversity and the provision of ecosystem services, respecting the rights of indigenous peoples and local communities, providing livelihoods and promoting sustainable rural development.

53 https://brasil.un.org/pt-br/sdgs

Picture from Mark Kuiper in Unsplash.

Table 2 Sustainable Development Goals and Forest Restoration

SUSTAINABLE DEVELOPMENT GOALS	CONTRIBUTION OF FOREST RESTORATION
SDG 1: END POVERTY IN ALL ITS FORMS EVERYWHERE	
1.4. By 2030, ensure that all men and women, particularly the poor and vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technologies, and financial services, including microfinance.	• Providing basic social services to residents of remote forest areas. • Securing tenure rights for local communities. • Empowering local communities to participate effectively in consultations and transparent decisions on forest management.
SDG 5: ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS	
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life.	• Providing gender-sensitive planning, procurement, allocation, implementation and monitoring processes, as well as ensuring the inclusion of women in capacity building and skills development.
5.a. Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.	• Providing gender-sensitive procurement processes and community consultations.
SDG 7: ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE, AND MODERN ENERGY FOR ALL	
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.	• Providing sustainable forest management and access to wood-based energy. • Using wood waste to generate energy.
SDG 8: PROMOTE SUSTAINED, INCLUSIVE, AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT, AND DECENT WORK FOR ALL	
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading, and innovation, including through a focus on high value-added and labor-intensive sectors.	• Strengthening economic development by adding value to forestry through vertical integration, integrating local companies into the heat chain of forest restoration products and services.
SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS	
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and integrate sustainability information into their reporting cycle.	• Adopting sustainable practices along forestry value chains and publishing sustainability reports.
SDG 13: TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS	
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	• Increasing resilience and adaptability to climate change through forest management, ecosystem restoration, reduced-impact logging techniques, and forestry practices (for example, selection and removal).

SUSTAINABLE DEVELOPMENT GOALS	CONTRIBUTION OF FOREST RESTORATION
SDG 15: PROTECT, RESTORE, AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS	
15.1 By 2020, ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains, and drylands, in line with obligations under international agreements.	• Increasing the value of standing forests and the opportunity cost of deforestation through sustainable forest management.
15.2. By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally.	• Incorporating sustainable forest management into vast tracts of forest by increasing the forest area with a management plan, including the proportion of forest areas certified under an independent forest certification scheme.
15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna, and address both the demand and supply of illegal wildlife products.	• Helping to fight trafficking in protected tree species, including controlling the supply of illegal wildlife products.

Source: adapted from FAO and EFI (2019).

As previously presented, the Climate Convention and the new Brazilian NDC also consider the importance of forest restoration (ecological and productive) as nature-based solutions relevant to the reduction of GHG emissions and to provide the responses expected from Brazil in the Biodiversity Agreement and the Desertification Agreement. At the subnational level, the figure below, extracted from the Native Vegetation Recovery Plan of the State of Pará - PRVN-Pará, illustrates the alignment of the IP of Brazil thesis, with the integrated management of all factors and from the restoration of landscapes and forests and as a natural-based solution.

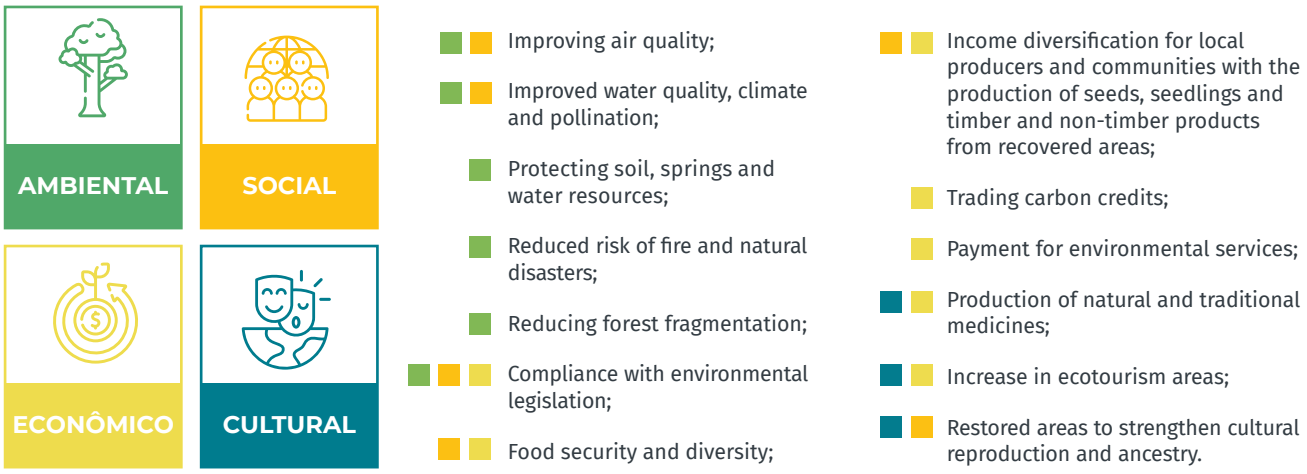


Figure 16 Environmental, social, economic and cultural benefits that the restoration of landscapes and forests provides.

3.2 BRAZIL'S EXPERIENCE IN NATURE-BASED SOLUTIONS

In Brazil, an estimated 35 million hectares are in severe degradation, pointing to the urgency of interventions to cease the sources of degradation and restore the ecological, social and economic functionality of these areas (Lopes and Chiavari 2024).

However, data from the Restoration and Reforestation Observatory[54] point out that advances in reforestation and natural regeneration in the country (Figure 17) are far below the climate goals and are also concentrated in the biomes of the states that offer a better infrastructure for the operation of the restoration production chain, as is the case of the Atlantic Forest and the Cerrado in the southeastern states (Figure 18).

REFORESTATION

8.76 million hectares

Planting of native and/or exotic forest species, which may or may not occur in consortium, generally for economic purposes.

ECOLOGICAL RESTORATION

153.14 thousand hectares

Planting of various species, or facilitating natural regeneration, as well as implementing soil and water management techniques, with the aim of recovering lost biodiversity and ecosystem services

SECONDARY VEGETATION

18.58 million hectares*

Resulting from the natural regeneration process without any type of human intervention after some type of clear-cutting, burning, or use for agriculture or pasture.

* Calculations based on Mapbiomas, considering only the secondary vegetation that developed after 2008, which was the base year of the Native Vegetation Protection Law.

Figure 17 Aggregate Data on Forest Restoration in Brazil in 2024.

Picture from Unsplash

54 Available in: https://observatoriodarestauracao.org.br./dashboard

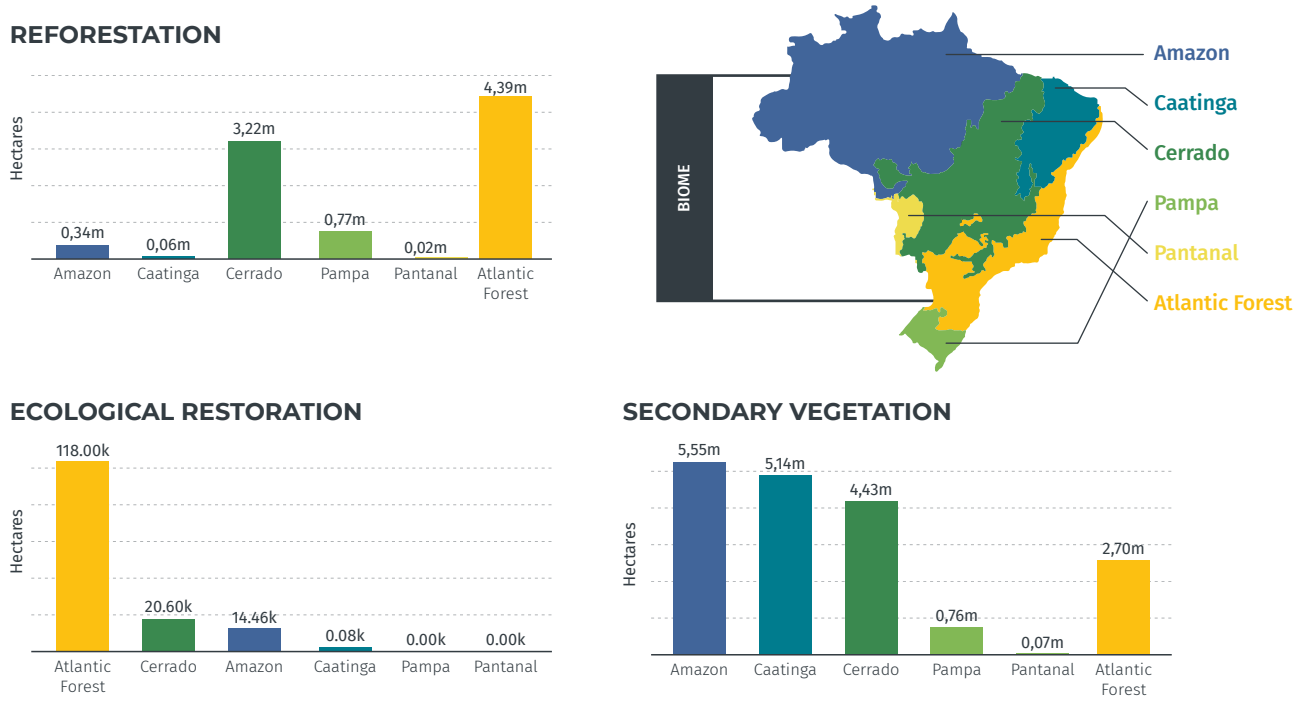


Figure 18 Aggregated Data, by Biome, on Forest Restoration in Brazil in 2024.

Source: https://observatoriodarestauracao.org.br/dashboard

On the other hand, forest restoration initiatives carried out allow the recognition of methods, techniques and technologies that are more appropriate for different areas and project objectives, including cost estimates. In science, the gaps related to the ecology of restoration are being filled by numerous studies and the dissemination of empirical information from restorers. However, there are still barriers to implementing these initiatives at the scale and speed necessary to achieve the goals set, and it is essential to recognize the costs involved in restoration actions and determine the degree of investment needed and how to direct it to obtain the best cost-effectiveness (Instituto Escolhas 2023).

3.3 INSTITUTIONAL FRAMEWORK AND SUPPORT CAPACITY FOR NPC BRAZIL'S NATURE-BASED SOLUTIONS

The transition to a low-carbon economy depends on expanding sectors that use technologies[55] environmentally efficient, such as NBS. However, the investments required for these solutions do not occur on the socially desired scale due to a series of mechanisms, known in the economic literature as market failures, which create a series of disincentives for private agents (Alternburg and Rodrik 2017). The solution requires an efficient institutional arrangement and an ensemble of public policies that encourage the leverage of investments in NBS. In the context of forest restoration, object of NPC Brazil's IP, the institutional arrangement should encourage investments in sustainable forest management and reforestation with native trees to expand the supply of forest raw material and capture carbon.

The public policies and the legal framework that will support the forest restoration activities provided for in this IP were described in the previous chapter, relating to the context of the country.

55 Set of methods, practices, or processes, including the entire collection of available engineering devices, to fulfill a purpose (Arthur 2009).

3.4 CHALLENGES IN ACCESS TO RESOURCES, SERVICES AND MARKETS THAT WOMEN AND MEN FACE IN THE CONTEXT OF NPC BRAZIL'S NATURE-BASED SOLUTIONS

From the point of view of revenue streams and costs, forest restoration has a long time horizon due to the time required for the trees to mature (Perman et al. 2011; D. M. C. Teixeira 2014). Implementation costs occur in the first few years, while revenues can take time, depending on the restoration model adopted. This has implications that affect investment performance compared to alternative land uses. The discount rate (interest or profitability) is one of them, influencing the impact of revenues on costs over time. The higher the rate, the lower the present value of revenues, especially for projects with lower financial capacity and reduced scale, which are more sensitive to variations in discount rates (Pedro Henrique Santin, Brancalion et al., 2017). This was one of the requirements for structuring the proposed financial arrangement, since other alternatives proved to be difficult to implement given the unprecedented involvement of private companies under NPC criteria.

It is worth highlighting the difficulty of mobilizing "patient capital" willing to wait for the long-term return, given the lack of history in credit analysis for forest restoration[56]. In the analysis of the Instituto Escolhas (2023) for restoration projects in the Amazon, the return For timber production systems, it occurs at 30 years, and can be anticipated with short-cycle species such as African mahogany (15 years) and teak (21 years). For agroforestry systems, the return It varies according to the model adopted, but usually occurs between the third and seventh year. Ecological restoration projects targeting carbon credits, the first public concessions in Brazil[57], have a payback time of 13 to 15 years, similar to long-term investments, such as some infrastructure works.

Another challenge is sensitivity to economies of scale. The viability of forestry projects depends on reducing unit costs as production increases (Pedro Henrique Santin, Brancalion et al., 2017). For example, forest restoration projects carried out in the Atlantic Forest (due to data availability) achieved a cost reduction of up to 57% in areas from 1 to 100 hectares (Strassburg et al. 2018). Smaller projects, on the other hand, have less capacity to achieve economies of scale and, therefore, need efficient supply chains to offer resources at competitive costs, as well as access to technical assistance and rural extension.

3.5 GENDER GAPS IN ACCESS TO RESOURCES, SERVICES, AND MARKETS

There is growing evidence that inequalities (gender, race and ethnicity, economic and social) increase the vulnerability of population groups to the impacts of climate change, exacerbating pre-existing situations of exclusion and social injustice. Less access to resources, services, technology, infrastructure, and greater dependence on natural resources to guarantee subsistence reduce the adaptation alternatives of the majority of the world's population.

Women are the majority of the world's population in poverty, both in monetary terms and in terms of available time[58], which makes them more exposed to the impacts of climate

56 https://valor.globo.com/empresas/esg/noticia/2024/02/05/recriar-ecossistemas-de-florestas-pode-ser-bom-negocio-mas-demanda-capital-paciente.ghtml

57 https://www.gov.br/florestal/pt-br/assuntos/concessoes-e-monitoramento/editais-em-consulta-publica/floresta-nacional-do-bom-futuro

58 According to the IBGE (2022), women dedicate 73.5% more hours per week to caring for people and household chores than men. The overload generated by unpaid reproductive work means that women have much less time available than men, increasing the social disadvantage for productive and paid work.

change[59]. And among women, black and indigenous women, from traditional peoples and communities, are even more vulnerable to such changes and environmental catastrophes[60].

In Brazil, in rural areas, women also face even greater barriers in accessing resources, goods and services. Such inequality, "based on the social and historical construction that women occupy a place in the secondary agricultural production process, characterized as "help" to the "work" of men, affects several social spheres" (Furtado 2022). On the other hand, because they are responsible for activities such as "the protection of water sources, maintenance of the community forest, soil conservation, food purchase and the management of food, education and family health", women are at the forefront of many efforts to ensure the material conditions and environmental quality of their communities.

An example of the barriers to access to services is that in rural areas only 37.4% of women have access to treated water, while in urban areas 93.7% are connected to the general distribution network. It is recalled that in areas with lower water abundance and less development in Brazil, women are the main responsible for the supply of domestic water and energy for cooking and heating, and are intensely affected by drought, rainfall, water and soil contamination, and other consequences of deforestation and changes in temperature and climate regimes (Olivera et al. 2021).

Of the more than five million rural establishments, only 19% are managed by women. Most of these establishments run by women (57%) are located in the Northeast. Of the total rural properties, 76.8% (3,897,408) are classified as family farming. When segregating rural establishments into family and non-family farming, we see that women are more concentrated in the first group, being 19.7% compared to 15.2%. According to color and race, of the family farming establishments run by women, 62% are black/brown, followed by 35% of white women and only 2% are indigenous (IBGE, 2020). It is noteworthy that the "Agroforestry Systems are forms of production and consumption that give rise to the relationship of women with the territories, valuing the recovery of the knowledge of traditional peoples" (Olivera et al. 2021).

As observed in the racial issue, the larger the establishment, the greater the control of men. The 947,000 women responsible for managing rural properties manage about 30 million hectares, which corresponds to only 8.5% of the total area occupied by rural establishments in the country. The establishments where women are have more restricted access to water sources and irrigation. It is also observed that of the rural producers associated with cooperatives, only 8.6% are women (IBGE/MAPA/EMBRAPA, 2020[61]).

Among the owners, 50% of the economic activities are related to livestock and other animal husbandry, and 43% to the production of crops, 32% of which are temporary and 11% permanent. The others are distributed between forest production (native forests and planted forests) corresponding to 4%, horticulture and floriculture (2.6%), and 0.4% aquaculture, fishing and production of certified seeds and seedlings. Among non-owners[62], 42% of economic activities are related to the production of temporary crops; 39% to livestock and other animal husbandry; and 7% to the production of permanent crops. (IBGE/MAPA/EMBRAPA, 2020).

59 It is estimated that by 2050, climate change will push an additional 158 million women and girls into poverty (16 million more than the total number of men and boys) and push an additional 236 million women into hunger. In crisis situations, such as those resulting from natural disasters, gender-based violence increases. "Feminist Climate Justice: A Framework for Action". Conceptual framework prepared for the Progress of the World's Women series, UN Women (2023) and Harnessing Climate Finance to Advance Women's Climate Leadership (CIF, 2023).

60 The inequalities founded by racism also reverberate in the environmental issue, and it is essential to recognize the phenomenon of environmental racism, a term created in the 80s in the United States as a way of denouncing that black communities were more exposed to the risks of hazardous waste.

61 https://www.embrapa.br/documents/10180/1645386/Mulheres+Rurais+-+Censo+Agro+2017/fc59f4c6-c94d-6b78-887d-5a64b1a70a7d

62 Producers without an area are considered non-owners; concessionaires or settlers awaiting definitive titling; Occupants; commandants; partners or lessees, according to the 2017 Agricultural Census.

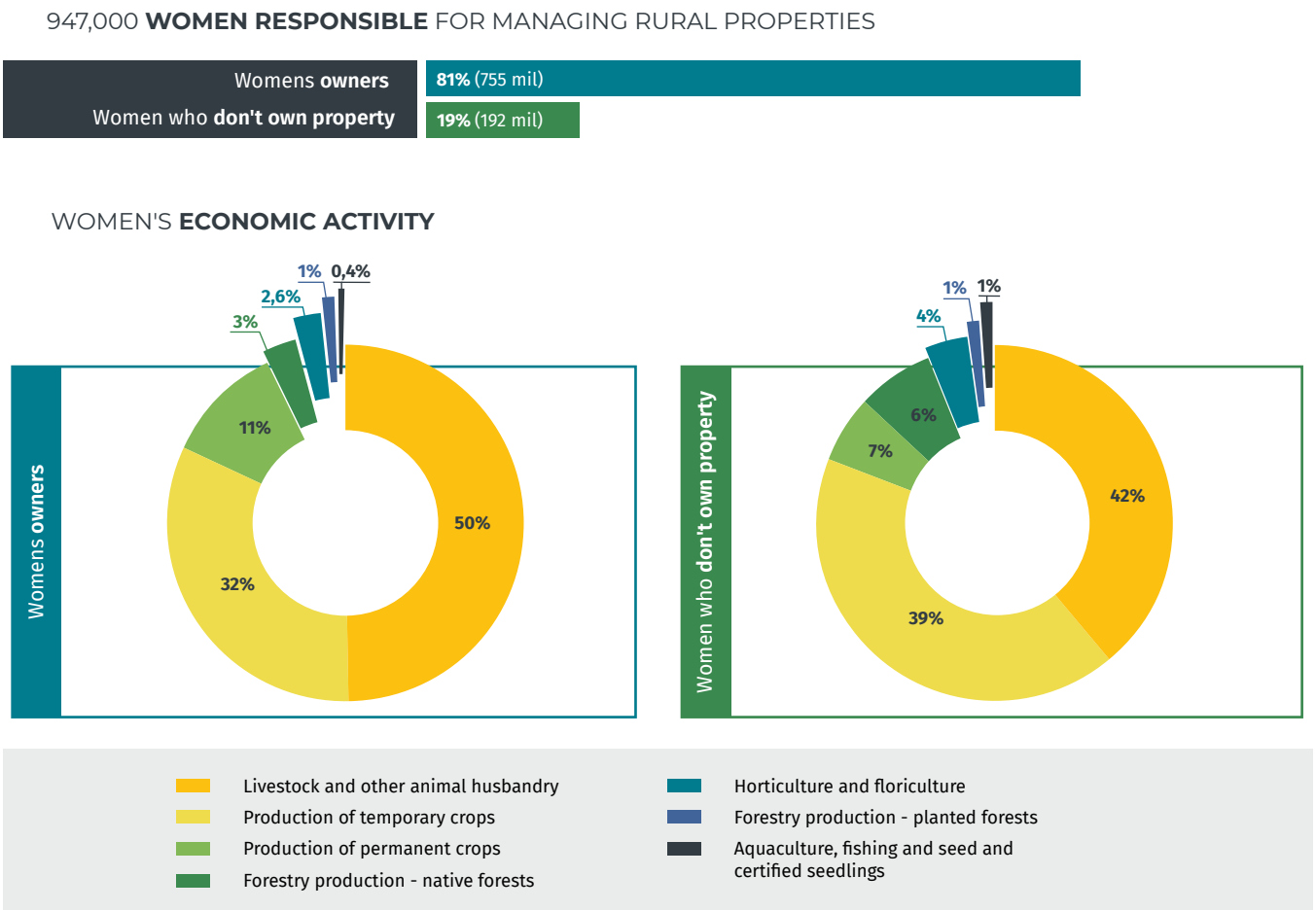


Figure 19 Economic activities and women's engagement. Source: IBGE/MAPA/EMBRAPA, Rural Women, Agricultural Census 2017, 2020.

Contrary to the general national trend, in which women show better levels of formal schooling, 75.2 percent of female farmers can read and write, compared to 77.4 percent of men.[63] In addition, only 12.2 percent of women in family farms have received some kind of technical assistance and rural extension (ATER). Data from the 2017 Agricultural Census also shows that farms run by women have less access to machinery, equipment, credit, and water.

As for access to credit, women have not been able to access credit operations to the same extent as men, although the number of rural properties managed by women increased since the previous census. Studies show that women have less experience in taking out credit, and therefore face greater difficulty in organizing the documentation and designing a production project—in addition to their fear of creating a debt that needs to be repaid to the financial agent/institution. On the other hand, it has been pointed out that "the opportunity to access credit has proved decisive in increasing the self-esteem of women workers, as they feel able to contribute effectively to their family's income, generating material or monetary gains as well as symbolic ones" (Spanevello et al. 2021).

The overall number of women employed in agricultural establishments in Brazil is approximately 4.3 million, while men account for more than 10.7 million people working in rural areas (IBGE 2020). According to this data, an average Brazilian agricultural establishment has 0.86 female and 2.11 male workers. Two factors must be considered that contribute to this scenario: on the one hand, the activities that rural women undertake are considered domestic and care work, unaccounted for and unpaid; and on the other, there is a greater exodus of young women from rural areas (Spanevello et al. 2021).

[63] According to the 2017 Rural Census, 28 percent of female family farmers who run establishments cannot read or write, 75 percent of whom (approximately) are Black.

In the forest restoration chain, women are 50 percent of the workforce in seedling and seed production,[64] and 61 percent of agroforestry systems are run by Black people (Graça et al. 2021).

In the private sector, according to the Gender Overview of the Forestry Sector (2023), produced by the Forestry Women's Network since 2019,[65] the area continues to be dominated by a male majority, with women accounting for less than 20 percent of jobs in the sector and facing numerous barriers to holding leadership positions. In terms of ethnicity and race, the majority are white women (50.8 percent), followed by Black and multiracial women (47.1 percent). Women with disabilities represent only 0.5 percent of the total. Women's participation in the forestry sector is also very diverse, with a greater presence in administrative jobs (47 percent); environment, quality and social certification activities (44 percent); occupational health and safety (41 percent); and nurseries (41 percent).

In Brazil, female participation in green jobs[66] is low and "follows the same trend as other sectors in which women have higher participation in the lower salary brackets, not being able to access better paid and higher hierarchical positions" (Olivera et al. 2021, p. 47). Thus, considering that the reduction of gender inequalities must form the basis of the concept of decent employment, it is essential that investments in green technologies consider the gender dimension so as not to perpetuate and aggravate segmentation in the labor market.

It must be recognized that women, especially in the agricultural, forestry, and water segments, have valuable knowledge about biodiversity and the use of natural resources. Thus, it is essential that their knowledge is incorporated into the framework of nature-based solutions so as to guarantee the quality and environmental effectiveness of activities linked to forest restoration.

Women's participation is also essential to ensure the distribution of environmental and social benefits in a fair and inclusive way. As evidence shows, women are responsible for 45 percent of food production in the country and reinvest around 90 percent of their profits in education and family welfare, generating collective social benefits through their work (Deere and Léon 2003).

Therefore, ensuring the participation of women and traditional peoples and communities in decision-making processes, as well as their access to resources and training, is essential to ensuring a just climate transition in Brazil.

3.6 PRIVATE SECTOR ENGAGEMENT AND RESOURCE MOBILIZATION TO SUPPORT NPC BRAZIL'S NATURE-BASED SOLUTIONS

The structural problems of the forest restoration chain presented reveal that the native forest segment in Brazil suffers from a significant lack of demand, largely due to the Brazilian tradition of environmental and forest policy prioritizing command and control instruments over economic ones (Nogueira e Pereira 1999) to achieve forest restoration goals. For this reason, the private agents with great capacity for forest restoration execution are companies that hold large environmental liabilities that must be restored by legal or market obligations, such as companies in the energy, mining, and export agribusiness sectors.

Large exporting companies in Brazilian agribusiness, such as JBS, Marfrig, and Minerva Foods, have shown a growing commitment to forest restoration and actions against deforestation in their supply chains. JBS, for example, launched

64 Oliveira, M. Women in the restoration of landscapes and forests. Article published on March 8, 2018, available at https://www.wribrasil.org.br/noticias/mulheres-na-restauracao-das-paisagens-e-florestas (accessed in October 2024).

65 This 2023 study worked with a stratification of the sectors in which the responding companies operate, categorized into the plantation sector (pine, eucalyptus, teak, and others), the native management sector, and the plantation and native management sector. Thirty-two companies took part in the study, contributing to the income of approximately 150,000 people, including their own employees and third parties. The data collected by area and position includes an analysis of around 83,000 of these companies' own employees. Yoshioka, M. H. (org.) Panorama de Gênero do Setor Florestal. 2023 Edition. Curitiba, PR: Rede Mulher Florestal, 2024.

66 "Green jobs are defined as those that contribute to conserving or restoring the quality of the environment, reducing to sustainable levels the environmental impacts caused by production activities of companies and economic sectors. They are seen as essential for tackling two challenges simultaneously: environmental degradation and social challenges, with decent paid employment being fundamental for social stability and cohesion" (Olivera et al. 2021, p. 44).

the "Green Offices" initiative in 2021, offering free consultancy and technical support to producers interested in regularizing their properties and adopting better practices. With 20 units in various states, including Mato Grosso, Pará, and Tocantins, this initiative corresponds to combating deforestation and supporting the reintegration of producers into the company's supply chain[67].

So far, the Green Offices have supported nearly 6,000 farms, producing about 2 million cattle heads per year, and promoted the restoration of 1,300 hectares of native forests. The company also offers free agronomic and business planning services through the "Fazenda Nota 10" program, helping farmers maximize the productivity and sustainability of their operations. The JBS Amazon Fund aims to foster and finance the sustainable development of the Amazon Biome, promoting the conservation and sustainable use of the forest, as well as improving the quality of life of local populations. In addition, the company has committed to eliminating illegal deforestation in all Brazilian biomes by the end of 2025, for both direct and indirect suppliers, contributing to a more sustainable and responsible supply chain, as highlighted in the JBS 2022 Sustainability Report[68].

According to the Marfrig 2023 Sustainability Report[69], the company announced the new cycle of the "Verde+" Program, with an investment of R$ 100 million in pasture recovery, forest restoration, regenerative agriculture, and genetic improvement of the herd during COP 28. In 2023, a partnership with the forest restoration company Re.green aims to recover 2,000 hectares on the border between the Amazon and Cerrado biomes, restoring biodiversity and capturing carbon. Overall, Marfrig plans to recover 100,000 hectares of degraded pastures and restore 6,000 hectares of native forests. The company is also part of the Biomas project, which aims to restore and protect 4 million hectares of native forests in Brazil, planting 2 billion native trees and preserving another 2 million hectares. This initiative aims to prevent the release of 900 million tons of carbon into the atmosphere over 20 years and protect more than 4,000 species of animals and plants.

Minerva Foods also plans to support native vegetation restoration initiatives in its supply chain. The company adopts rigorous monitoring and compliance practices to ensure that its activities align with global environmental goals and contribute to the preservation of natural resources[70].

In the energy sector, the highlight is Eletrobras, which supports Conservation Units, such as APPs, State Parks, Biological Reserves, and Ecological Stations, in biomes such as Cerrado, Atlantic Forest, Amazon, Caatinga, and Pampa. In 2023, the company and its partners maintained habitat protection and restoration projects in 16 areas, totaling 2.1 million hectares under preservation[71].

More recently, large-scale reforestation companies are occupying a niche in voluntary restoration to meet the market for environmental services payment schemes, with an emphasis on trading forest carbon credits of the ARR type. As widely reported, there is growing demand for reforestation carbon credits from big tech companies[72] (such as Google, Microsoft, and Meta) to offset their emissions from their data centers, which provide artificial intelligence, cloud computing, and other technologies. It is expected that these companies will contract up to 20 million t/CO2eq by 2030, in addition to what has already been contracted so far. This movement has the potential to boost reforestation initiatives and structure the proposal for a regulated carbon credit market in Brazil.

An example of this current context is the startup Mombak, which has significant contracts with

67 https://www.jbs.com.br/sustentabilidade/ras/relatorios/

68 https://www.jbs.com.br/storage/2023/10/JBS-2022-sumario-executivo_BR_PT-Updated-2.pdf

69 https://api.mziq.com/mzfilemanager/v2/d/b8180300-b881-4e6c-b970-12ad72a86ec8/39565168-c917-3926-f3a0-0acbbe0eab-8b?origin=2

70 https://minervafoods.com/wp-content/uploads/2024/05/relatorio-de-sustentabilidade-minerva-foods-2023_compressed.pdf

71 https://eletrobras.com/pt/Documents/Eletrobras_RA_2023.pdf?_gl=1*aa48js*_up*MQ..*_ga*MjY1Mzc0Nzk1LjE3MzE5NTU3N-jE.*_ga_9B5S3MLERK*MTczMTk1NTc2MC4xLjAuMTczMTk1NTc-2MC4wLjAuMA.*_ga_8Q1SCY5QFE*MTczMTk1NTc2MS4xLjAuMTczMT-k1NTc2MS4wLjAuMA..

72 https://valor.globo.com/brasil/g20-no-brasil/noticia/2024/10/11/big-techs-compram-creditos-de-carbono-de-reflorestamento-da-amazonia-e-do-cerrado.ghtml

these companies, such as the agreement for Google to buy 50,000 carbon credits by 2030 and Microsoft to acquire 1.5 million credits by 2032. Their business model is based on reforestation through the purchase of farms and partnerships with landowners, raising funds from investors to sell carbon credits and increase farm productivity. Following this trend is BTG Pactual Timberland Investment Group, which has also attracted the interest of Meta and Microsoft for carbon credits generated in the Cerrado, focusing on the restoration of degraded areas and the development of commercial forests. Microsoft also signed an agreement with the reforestation company Re.Green, committing to buy three million carbon credits over the next 15 years[73].

Systemica, a carbon credit developer with BTG Pactual as a minority partner, has been diversifying its portfolio of environmental assets for productive restoration projects, in addition to ecological ones. The planting of native species aims to restore devastated landscapes, being monetized by the sale of CO2 credits, valued by big tech companies. Productive restoration is done by planting commercial crops such as cocoa and açaí, where 80% of the revenue comes from agriculture and the rest from credit sales, ensuring the financial resilience of the model[74].

Similarly, there is Belterra Agroflorestas[75], which has already raised R$ 45 million and implemented agroforestry systems on two thousand hectares of small and medium-sized degraded rural properties in the Amazon and Atlantic Forest biomes. By 2025, the company already has signed contracts or advanced negotiations to recover another eight thousand hectares by early 2025, requiring R$ 250 million. These funds are expected to be provided by a large multinational commodities company and one of the aforementioned big tech companies.

Due to the increase in the prices of important agricultural commodities, such as cocoa and coffee, due to recent and successive crop failures caused by climate change, there has been a significant increase in demand for productive forest restoration. Major coffee brands in Brazil, such as 3corações and JDE, have announced price increases of over 40% by January 2025, reflecting the historic rise in grain prices on the global market. Similarly, cocoa futures contracts hit record highs in New York, surpassing US$ 12,000 per ton due to reduced production in Ivory Coast and Ghana. Investments in agroforestry systems and integration with the forest, which incorporate these high-value crops, have become increasingly attractive.

These models not only promote environmental conservation but also offer a viable economic solution for agricultural producers, encouraging the adoption of sustainable practices that contribute to the recovery of degraded areas and increased agricultural productivity. Specialists' recommendations suggest focusing on niche cocoa production, such as fine or organic cocoa, in addition to investing in technologies and improvements in management and handling. These investments, aimed at improvements in planting areas and expansion to new regions, seek to increase national competitiveness and attract investors, ensuring the sector's economic Sustainability.

In a diagnosis conducted by Instituto Escolhas (2023), various restoration models with an economic bias in the Northern Region based on agroforestry systems (SAF) and timber production systems (SPM) were evaluated to recognize the costs and potential revenues from the implementation of these systems, as well as analyze the feasibility of using these models for situations allowed by current legislation. It was considered that productive activities should occur in areas with low potential for natural regeneration, mainly associated with locations where land use has already been more intensively exploited, as they are always more suitable for agricultural production. These areas are usually located on land with the possibility of mechanization, which is why in the economic analysis of productive systems, costs were assessed considering initial operational activities carried out using machinery (tractors and implements). Irrigation for the establishment and initial maintenance of seedlings was also considered. For SPM, the revenue from product

73 https://investnews.com.br/financas/microsoft-compra-creditos-de-carbono-do-brasil-para-reflorestar/

74 https://capitalreset.uol.com.br/amazonia/reflorestamento/systemica-de-creditos-de-carbono-entra-no-negocio-de-agroflorestas/

75 https://capitalreset.uol.com.br/amazonia/desmatamento/o-modelo-da-belterra-para-dar-escala-as-agroflorestas/

commercialization was estimated considering the selling price of standing timber.

The results are presented in the Table 3 and demonstrate the feasibility of these systems with a discount rate of 10% p.a. and a time horizon of 30 years, similar to the restoration model under evaluation. However, the numbers need to be understood within the context in which these systems can technically be implemented satisfactorily.

Picture from projeto cafe gato mourisco in unsplash

Table 3 Results of the economic analyses, per hectare, of the agroforestry systems (AFS) and timber production systems (SPM) for the Northern Region.

PARAMETERS	SAF	GROWTH SURGERY	UNIT
DISCOUNT RATE	10,00%	10,00%	%p.a.
YEARS OF DESIGN	30	30	Years
NPL	R$ 53 174	R$ 13 709	R$ 2023
IRR	31,25%	15,25%	Percentage
INITIAL INVESTMENT (UP TO 3 YEARS)	R$28 231	R$ 22 109	R$ 2023
COSTS PER HECTARE PRESENT	R$ 56 898	R$ 23 596	R$ 2023
COSTS PER HECTARE	R$ 131 769	R$ 27 271	R$ 2023/ ha
AVERAGE COST PER HECTARE/YEAR	R$4 392	R$909	R$ 2023/ ha. year
REVENUES PER HECTARE PRESENT	R$ 110 072	R$ 37 305	R$ 2023
AVERAGE REVENUE PER HECTARE	R$379 802	R$ 321 035	R$ 2023/ ha
AVERAGE REVENUE PER HECTARE/YEAR	R$ 12 660	R$10 701	R$ 2023/ ha. year
AVERAGE ANNUAL BALANCE (R$/ HA. YEAR)	R$8 268	R$ 9 792	R$ 2023/ ha. year

Source: Instituto Escolhas (2023).

Thus, SAF-based projects are more appropriate for small properties, community forests, and family farming in general (Instituto Escolhas, 2023), requiring some adaptation for a larger scale of work. Additionally, they demand a greater number of operations, increasing the labor allocated to the activities. Finally, estimating the carbon credit potential of these systems is an even more complex activity, which depends on various variables, such as the composition of the species to be used, among other aspects. In the context of the present Investment Plan, these producers can be engaged through the resource-taking companies with the financial intermediary, depending on their respective business models.

3.7 BRAZIL'S OPTION FOR NATURE-BASED SOLUTIONS PROJECTS

Given the origins of Brazil's GHG emissions, the implementation of NBS projects as a central attitude to comply with the country's new NDC has no substitute option[76].

The focus on forest restoration projects such as NBS that incorporate the attributes required by Integrated Landscape Management is a challenge because it requires the allocation of maturing capital in the long term, with high risks and low returns compared to other capital allocation alternatives available in the markets.

But Brazil has a first set of private companies, with corporate guarantees large enough to borrow funds from the BNDES – as many have already done, in order to allow the country to seek a market solution, based on NBS economic activities, such as the consolidation of its value chain in forest restoration that generates returns on the capital invested by its shareholders.

It is also important to note that the planned financial returns rely on the evolution of the markets for trading credits for Payments for Ecosystem Services – especially GHG Reduction and Sequestration Services, commercially known as Carbon Credits, as well as credits for Payments for Ecosystem Services for the Preservation and Restoration of Biodiversity of Fauna and Flora. Both considered in Brazil's IP, as part of the expected economic returns.

4. DESCRIPTION OF THE INVESTMENT PLAN

The central thesis of NPC Brazil's Investment Plan is that the restoration of landscapes and forests, based on the engagement of local communities, gender equity and an Integrated Landscape Management guided by a vision of socio-environmental, economic and cultural management, has the potential to transform landscapes marked by high rates of deforestation, environmental degradation and social exclusion in territories with social, environmental and resilient sustainability, prepared to face climate crises.

Landscape and forest restoration consists of turning degraded areas and forests into productive and functional spaces, providing improvements in the socioeconomic conditions of the local population (WRI, 2019)[77]. There are several methods for landscape restoration and the choice of the most appropriate one must take into account the social, economic and environmental conditions of the areas to be restored and the benefits expected by the key stakeholders of the landscape (Calmon 2021), considering that these stakeholders are diverse and that, therefore, it is necessary to ensure the broad participation of women and young people so that different knowledge and needs are taken into account.

76 As explained, Brazil's Greenhouse Gas (GHG) emissions are prominent in fires and unsustainable land use. Despite the agricultural and agroforestry technologies in which Brazil is an international exponent, it is up to Ecosystem Services to assist in the restoration of the conditions for GHG sequestration from the atmosphere. Therefore, this has been the focus of Brazilian stocks, and also the focus of NPC Brazil's Investment Plan.

77 WRI Explains: how does landscape and forest restoration work? 2019. Available at https://www.wribrasil.org.br/noticias/wri-explica-como-funciona-restauracao-de-paisagens-e-florestas. Accessed on 04/15/2024 at 09:32 am.

In addition to the environmental benefits, structured forest restoration and management actions bring important social results where they are implemented. In a recent study on the potential for job creation in ecosystem restoration in Brazil (Pedro H. S. Brancalion et al. 2022), researchers show that, in the country, active forest restoration has the capacity to generate 0.42 jobs per hectare. Taking into account the Planaveg scenarios, of having between 20% and 50% of active restoration, with the planting of seedlings and seeds, it is possible to generate 1 million to 2.5 million jobs.

The study also highlights that "unlike long-term results, jobs are generated from the beginning of the restoration process, which ranges from seed collection and seedling production to planting, maintenance and monitoring, in a decentralized way in the territory and benefiting vulnerable populations". This study, corroborated by the publication of the SOBRE Restauração network, indicates that, currently, restoration work is concentrated in the Southeast Region (61%), with one third in the state of São Paulo. Likewise, most of the existing jobs involve all or part of the Atlantic Forest (85%), a pioneer in restoration activities in Brazil. These data highlight the need to develop the forest restoration chain in other regions and biomes of the country.

Table 4 presents the estimate of the amount of jobs generated for this Investment Plan, considering the different most common ecological forest restoration methods. Table 4 presents the estimate of jobs generated by the economic models of productive restoration for the same plan, considering the average obtained for the different models of agroforestry and timber production systems proposed in a publication by Instituto Escolhas[78].

Table 4 Direct Jobs Generated by Ecological Restoration Projects Implemented by Different Implementation Methods

JOBS GENERATED PER 100 HECTARES	DRIVING NATURAL REGENERATION	DRIVING + ENRICHMENT	DENSIFICATION + ENRICHMENT	PLANTING NATIVE SEEDLINGS IN A TOTAL AREA		TOTAL AREA SEED PLANTING	
	NOT MECHANIZED			NOT MECHANIZED	MECHANIZED	NOT MECHANIZED	MECHANIZED
Field workers (assistants and tractor drivers)	6,8	12,1	19,1	34,2	22,6	16,7	10,7
Workers employed in project coordination and management	0,8	1,4	2,2	4,0	2,4	2,0	1,3
Total jobs per 100 ha	7,6	13,5	21,3	38,2	25,0	18,7	12,0
Total jobs in 54,000 ha	4.104	7.290	11.502	20.628	13.500	10.098	6.480

Source: Instituto Escolhas.

78 ESCOLHAS INSTITUTE. Strategies for the Recovery of Native Vegetation on a Large Scale for Brazil. São Paulo: Instituto Escolhas and Biodendro Consultoria Florestal, 2023. Available at: <https://escolhas.org/wp-content/uploads/2023/09/Relatorio_RecuperacaoVegetal_Final.pdf>

Table 5 Estimation of the Average Direct Jobs Generated in Restoration Projects with Economic Bias Using Agroforestry Systems and Timber Production System

PRODUCTION SYSTEM	1ST YEAR	2ND YEAR	3RD YEAR	TOTAL UP TO THIRD YEAR
Agroforestry system every 100 hectares	21,5	9,5	6,5	37,5
Agroforestry system in 54 thousand ha	*11.610*	*5.130*	*3.510*	*20.250*
Timber production system every 100 hectares	14,8	3,8	0,9	19,5
Timber production system in 54 thousand ha	*7.992*	*2.052*	*486*	*10.530*

Source: adapted from Instituto Escolhas (2023).

It is important to emphasize that the effective result of job creation will depend on the restoration models (ecological and productive) to be adopted by the companies that will take these resources from the BNDES, as well as the level of technification that the implementation areas will allow. In addition, forest restoration is recognized by the specialized literature as a very labor-intensive activity, which will bring relevant impacts to local communities. The way in which this impact will be effective is also related to the type of company that will take these resources, the level of consolidated share capital in the areas of intervention, among other local factors.

Planaveg[79] (2025-2028), brings an important advance by proposing viable and effective restoration arrangements for large-scale implementation:

- Restoration with a focus on environmental regularization: the recovery of degraded or deforested areas that, by law, must be protected, such as Permanent Preservation Areas (APPs) and Legal Reserves (RL);
- Productive recovery associated with the forest economy: recovery of native vegetation in models for economic purposes, such as agroforestry, integrated crop-livestock-forest (ICLF) or native silviculture;
- Recovery of public areas: ecological restoration in public areas, such as Conservation Units or Indigenous Lands (TI);
- Compulsory recovery: restoration determined by acts of infraction, conduct adjustment terms (TACs) or determined in environmental licensing processes for large infrastructure works.

It is important that actions to be developed under Brazil's IP consider multivariate options for restoration models, especially landscape-level restoration, which are effective when they consider: (i) Carrying out active, assisted and passive restoration where it is most effective – leaving the most expensive approaches for specific and highly degraded sites, and relying on natural regeneration for large-scale new growth. Therefore, it will be important to add the analysis of the Secondary Vegetation Index (SVI) to the models to be applied and to propose public policies for the protection and safeguarding of these secondary vegetation areas; (ii) Minimize the loss of agricultural production by focusing on the least productive and most degraded land; (iii) To enhance the well-being and livelihoods of the population by increasing the availability of forest products, expanding the food supply, improving water security, and supporting the diverse cultural values attributed to landscapes; (iv) Maximize the benefits for biodiversity by increasing connectivity between ancient fragments and thus enabling the movement and flow of genes between populations; (v) Reduce the risk of wildfires by suppressing the growth of grasses that facilitate the spread

79 See https://www.gov.br/mma/pt-br/centrais-de-conteudo/publicacoes/biodiversidade-e-biomas/sumario-executivo-planaveg/

of fires and by creating areas that protect the edges of primary forests from ignition sources and the hottest, driest non-forest landscapes; and (vi) Reduce the pressure for wood in natural forests by meeting part of the demand for this resource by allowing larger areas to be designated for conservation or other sustainable uses, and for less intensive forest management in areas already designated for these purposes (e.g., forest concessions).

Finally, within the scope of this IP, the role of BNDES in assuming the mission of transforming the Arc of Deforestation into the Arc of Restoration, with social inclusion for income and job generation, innovation, technology and scale, is highlighted. In the first phase of the Arc, by 2030, the goal is to restore 6 million hectares. For this, it is estimated that an investment of R$ 51 million will be needed.

4.1 THE NPC BRAZIL IP TERRITORY: THE TOCANTINS-ARAGUAIA BASIN AND THE ARC OF DEFORESTATION REGION

The Tocantins-Araguaia Basin is a drainage area of 918,822 km2 (11% of Brazil), constituting one of the largest river systems in South America. It extends in a north-south direction, located entirely in the Brazilian territory and covers the states of Pará (30% of the region's area), Tocantins (30% and the state located entirely in the region), Goiás (21%), Mato Grosso (15%) and Maranhão (4%), in addition to the Federal District (0.1%), totaling 453 municipalities (Strategic Plan for Water Resources of the Tocantins and Araguaia River Basin (IBGE, 2021).

In the basin are two of the main Brazilian biomes: the Amazon and the Cerrado. In recent decades, activities such as large-scale agriculture, aquaculture with non-native fish, mining, and hydroelectric power have promoted major changes in land cover, hydrology, and environmental conditions, but have not had an impact on better social or economic indicators.

Despite the presence of several native peoples (the region is home to 25 different ethnic groups in 53 indigenous lands totaling an area of 47,031 km2 (5% of the total area), traditional and quilombolas who inhabited the region and subsisted on its riches, in some cases, for centuries, the occupation process took place without considering their needs for use, their knowledge and traditions about the territories in the region.

In the 1960s, with the opening of the Belém-Brasília highway, there was a great proliferation of municipalities along the road axis, in the north-south direction. Likewise, the construction of the Trans-Amazonian Highway and the application of public policies (Prodoeste, Polamazônia and Prodecer) contributed to the opening of areas in the Amazon and the Cerrado. In addition to highways, in the 1980s, large infrastructure projects - electrical and mining - were implemented.

New highways and large infrastructure and mining projects have led to the accelerated settlement and deforestation of the region over the decades. These fronts of occupation of the territory also allowed large agricultural projects to be installed, configuring the region as one of the main frontiers of agribusiness in the country. The evolution of deforested areas is illustrated in the Figure 20 and Figure 21.

Picture from Brazilian Forest Service Archive

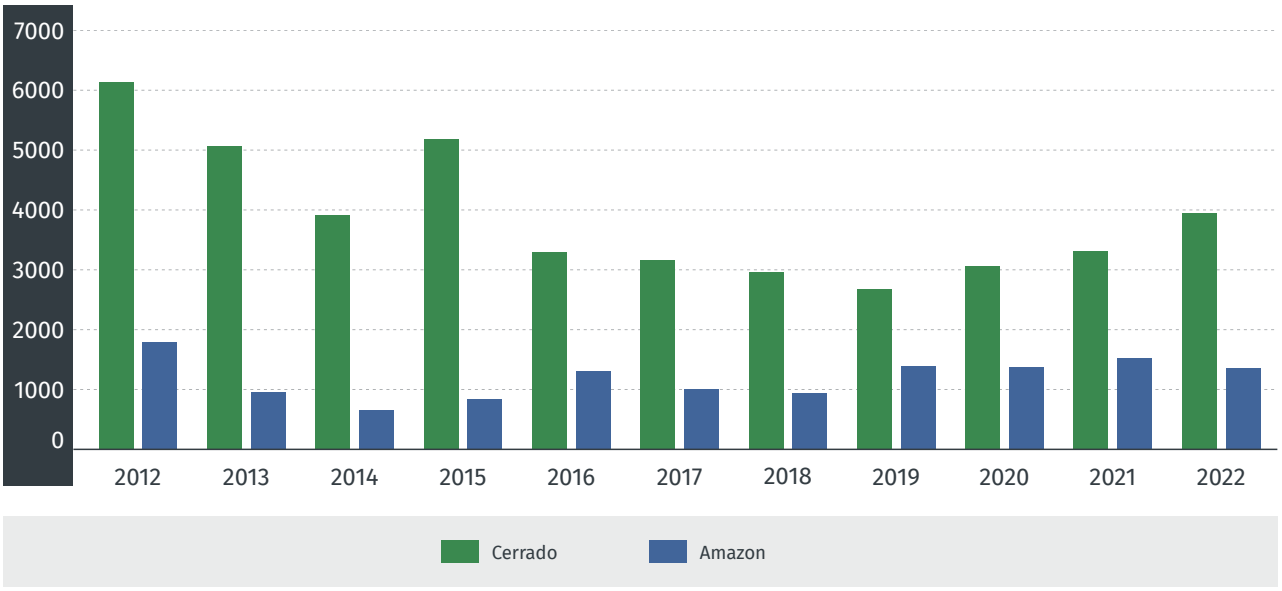


Figure 20 PRODES deforestation in the Tocantins-Araguaia Basin at km2.

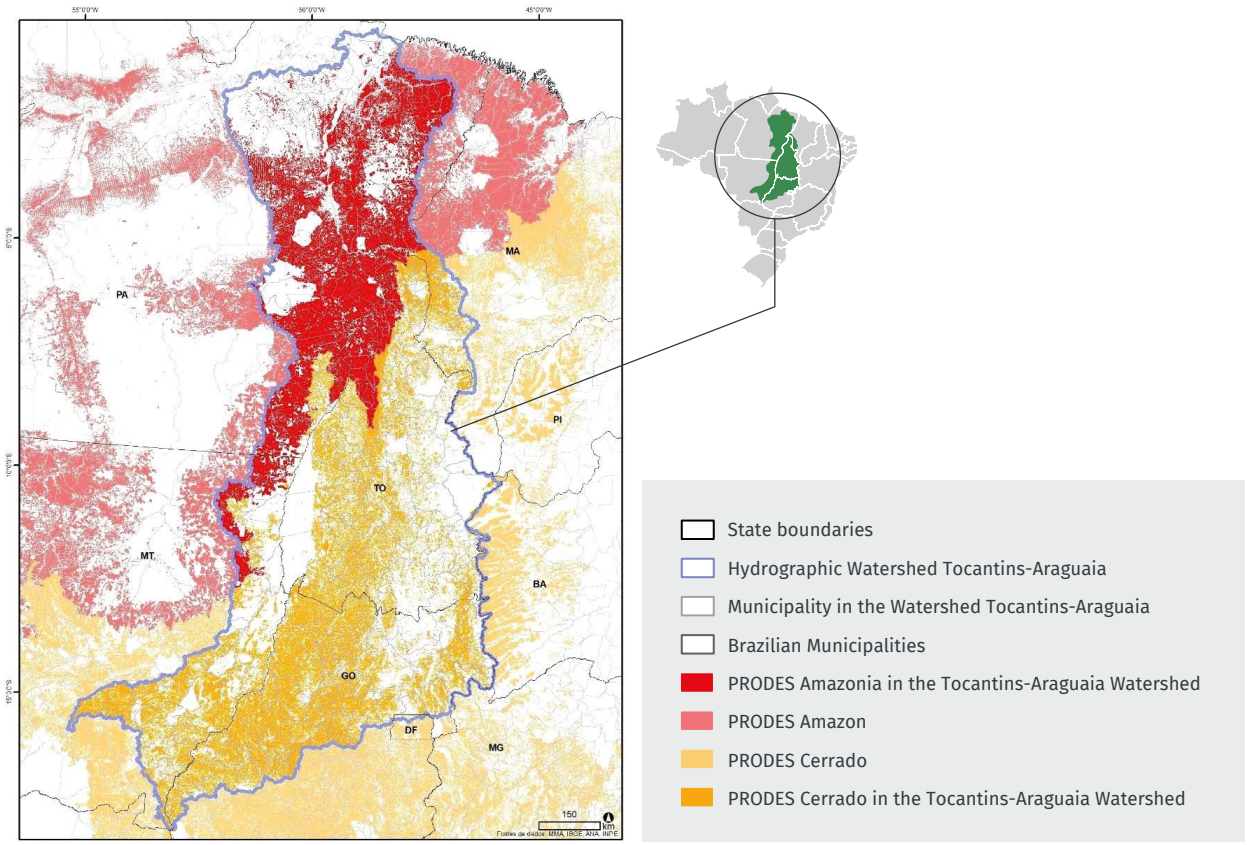


Figure 21 Deforested area in the Tocantins-Araguaia Basin (Prodes).

Such economic activities have generated great pressure on the soil and water resources in the region, impacting mainly on changes in water regimes, as studies with indigenous communities reveal. Figure 22 illustrates the various anthropogenic uses and occupation of the basin and its forest remnants in 2019.

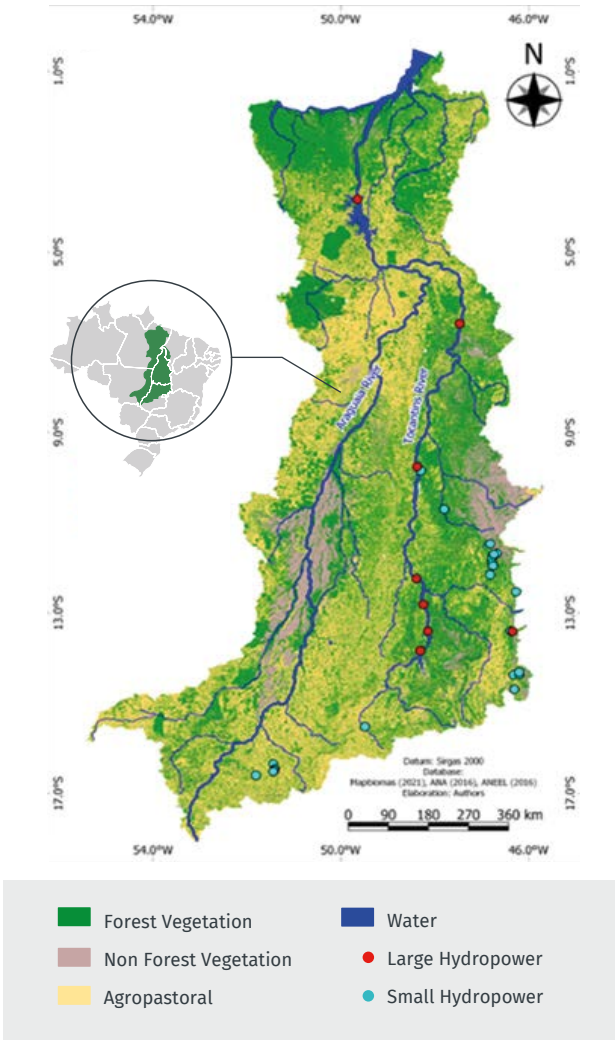


Figure 22 Land use and land cover map (LULC) of the Tocantins and Araguaia River basin, Brazil. The map shows the scenario in 2019, indicating the area covered by natural vegetation, water and agricultural activities (pastures and plantations) and the location of small (SHP) and large (HPP) hydroelectric plants.

Source: MapBiomas (2021) in Pelicice et al. (2021)

The Arc of Deforestation, a designation created to indicate the area of concentration of the highest deforestation rates, is a territory that goes from the west of Maranhão and south of Pará towards the west, passing through Mato Grosso, Rondônia and Acre (Oviedo, Lima, and Augusto 2019).

In recent decades, many studies have shown how the process of destruction of the Amazon through fires and deforestation, together with increasingly intense and frequent droughts, is affecting the forest's ability to recover and taking it to a point of no return. However, few investigations have devoted time to analyzing the different ways in which these events affect different parts of the forest. This is what a study published in the journal Nature did, using historical data from recent major floods to identify the degree of resilience of each biome.

It is precisely in the Arc of Deforestation, the region with the highest rates of destruction, that the results find areas that are more vulnerable to drought and with less capacity for regeneration – that is, it is where the forest can cease to exist more quickly, along with its capacity to regulate the climate (Chen et al. 2024)but Amazon carbon sinks of atmospheric CO2 are declining, as deforestation and climate-change-associated droughts1–4 threaten to push these forests past a tipping point towards collapse5–8. Forests exhibit complex drought responses, indicating both resilience (photosynthetic greening.

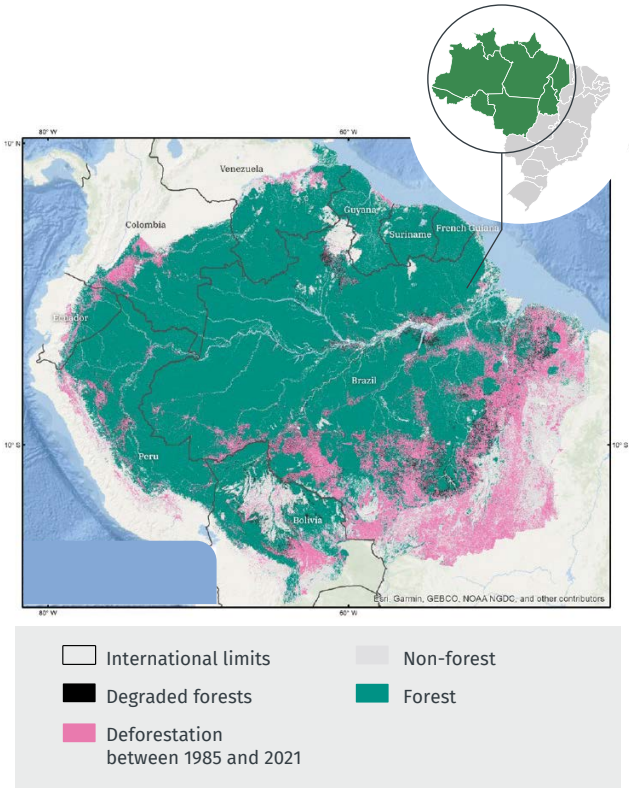


Figure 23 Map locating the region known as the Arc of Deforestation. Source: Barlow et al. (2023).

Domingues et al. (2020) describes, in a chronological and contextualized way, the occupation of the Midwest and North Regions (Amazon Region and Cerrado-Amazon transition region)

and indicates the main economic and social reasons that promoted disorderly deforestation in the region and social and environmental loss and degradation, a dynamic especially related to the Arc of Deforestation due to the pressure of agricultural frontiers.

Castro (2008) showed that, as early as 1990, 76% of the new deforestation was concentrated in the states of Pará, Mato Grosso and Rondônia, followed by Tocantins, forming the region that came to be known as the Arc of Deforestation. Recent study by MapBiomas[80] warns that from 1985 to 2022 there was an acceleration in the loss of native vegetation in this region and the consolidation of two new arcs of deforestation: AMACRO[81] (border between Amazonas, Rondônia and Acre), in the Amazon, and MATOPIBA (border between Maranhão, Tocantins, Piauí and Bahia), in the Cerrado.

Deforestation rarely brings benefits to the local population, generating poverty and social and agrarian conflicts, as shown by an analysis carried out by the organization Imazon, highlighting that "territories with the lowest scores in the Social Progress Index (SPI)[82] 2023 are among those that have cut down the forest the most in recent years" (Figure 24). The SPI for each municipality can be found at IPS Amazon.

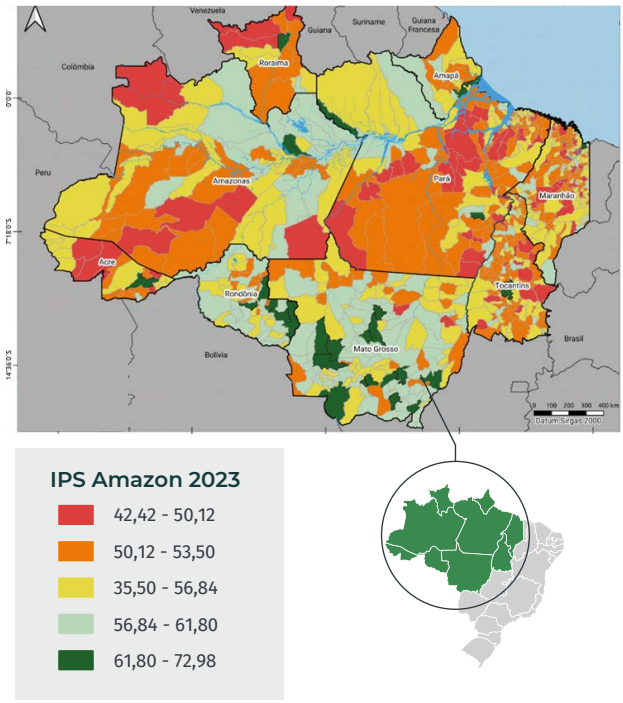


Figure 24 Map showing the performance of the municipalities of the Legal Amazon according to the scores in the IPS 2023. The territories were divided into 5 groups according to their scores, from the highest (dark green) to the lowest (red).

Source: Santos, et al., 2023. Imazon.

By defining the Arc of Deforestation region as the target territory of the NPC Brazil IP, the municipalities of the Tocantins-Araguaia Basin that are part of this region were segregated.

Figure 25 below presents the region defined by NPC Brazil's IP.

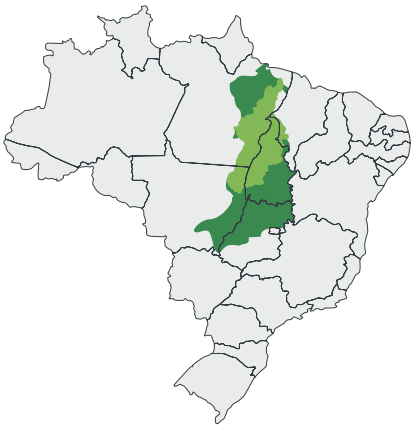


Figure 25 Location of the NPC territory in Brazil. In dark green, the Tocantins-Araguaia Basin and in light green, the municipalities of the Basin in the region known as the Arc of Deforestation..

80 https://brasil.mapbiomas.org/2023/08/31/perda-de-vegetacao-nativa-no-brasil-acelerou-na-ultima-decada/

81 AMACRO is an acronym for the initials of the Brazilian states AM (Amazonas), Acre (AC) and Rondônia (RO).

82 The Social Progress Index (SPI) is an index that holistically and robustly measures the social and environmental performance of nations, regardless of economic development. It was created in 2013 by the Social Progress Imperative with the support of several scholars and world experts in public policy. The SPI was conceived from the moment it was understood that development measures based only on economic variables are insufficient, since economic growth without social progress results in exclusion, social discontent, social conflicts and environmental degradation. The global index structure in 2018 integrated 51 social and environmental indicators in 12 components and three dimensions. The SPI is composed of exclusively social and environmental indicators from public data aggregated in three dimensions (Basic Human Needs, Foundations for Well-being and Opportunities) and 12 components. For this, public data available on the internet by government institutions or organized civil society are used. IPS Amazônia was originally published in 2014 under the leadership of Imazon. It was the first subnational initiative (scale of states and municipalities) carried out in the world. In the case of the Brazilian Amazon, the SPI is evaluated for each of its 772 municipalities. https://ipsamazonia.org.br/conhecaoips?tab=what

For this IP, an analysis was carried out, calculating forest losses due to deforestation in the Cerrado and Amazon Forest biomes in the focus territory (Figure 26 and Figure 27). The municipalities of the NPC Brazil IP Territory accumulate 191,632.77 hectares of deforested area.

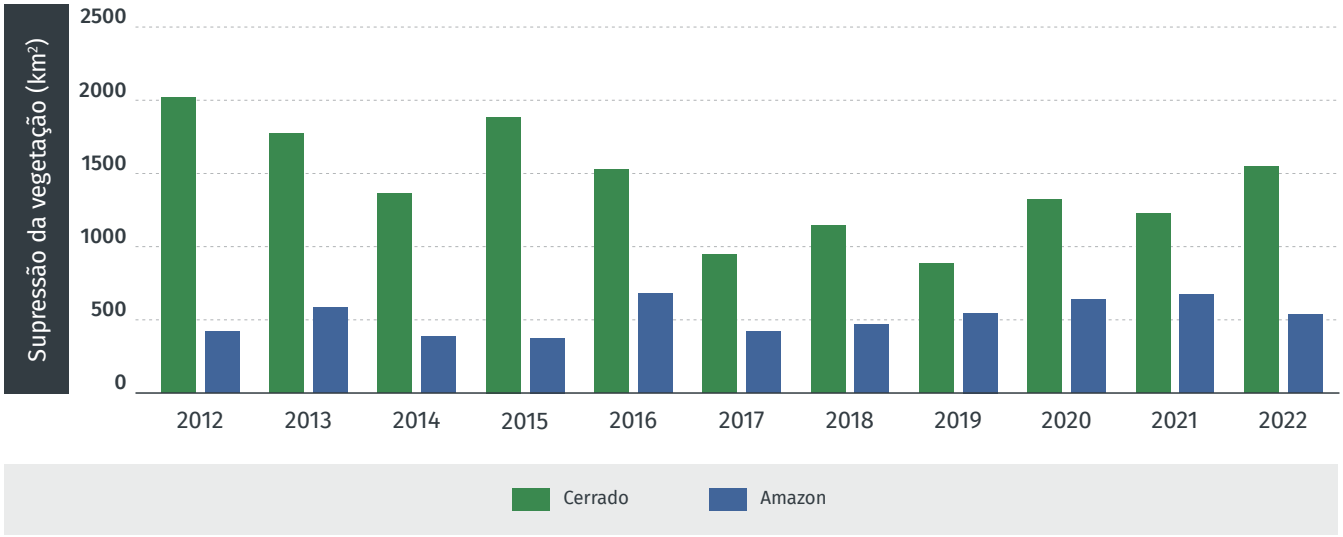


Figure 26 Suppression of Natural Vegetation in the Portion of the Arc of Deforestation, Located in the Interior of the Tocantins-Araguaia Basin at km2

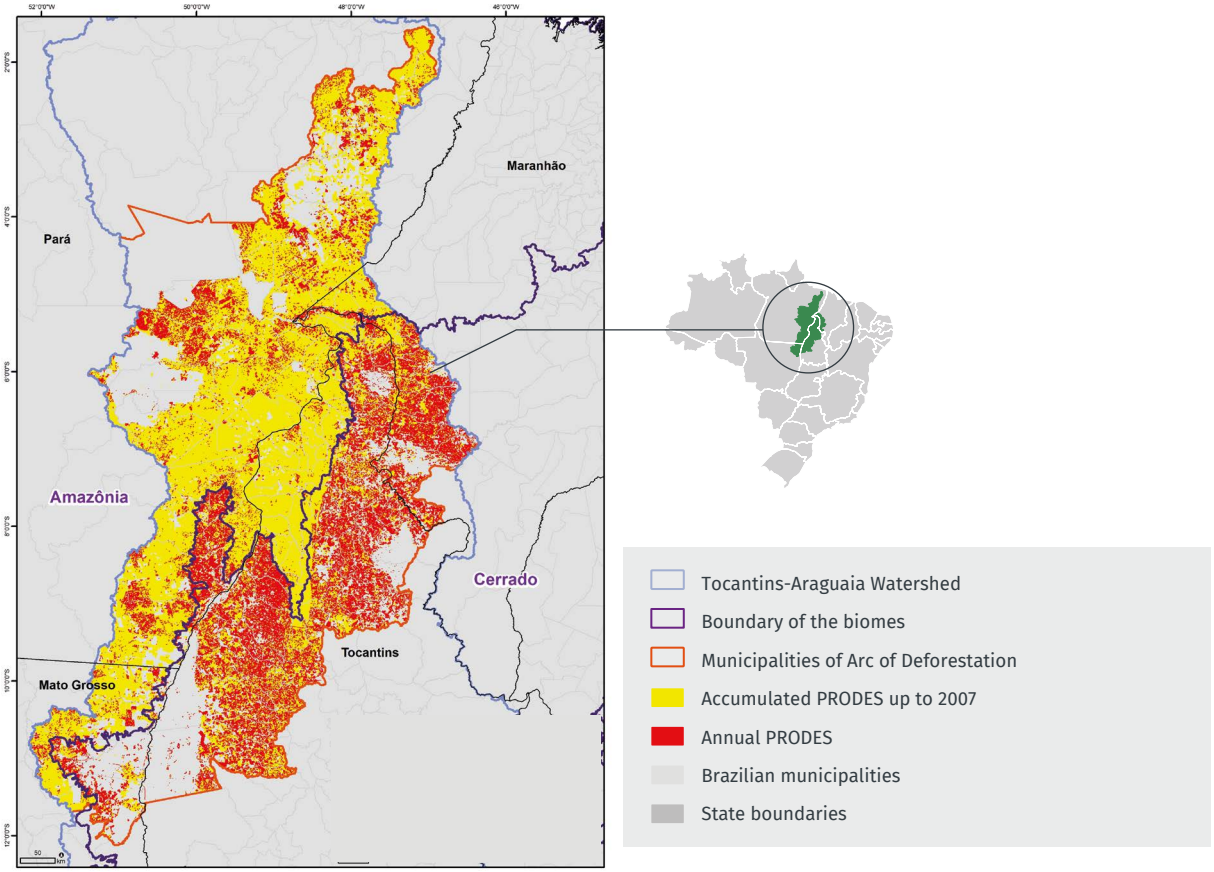


Figure 27 Accumulated deforestation until 2007 (yellow) and after 2007 (red), in the region of the NPC Brazil Investment Plan.

It is important to highlight, however, the diversity of protected areas included within the territory, forming significant protected territories (Figure 28).

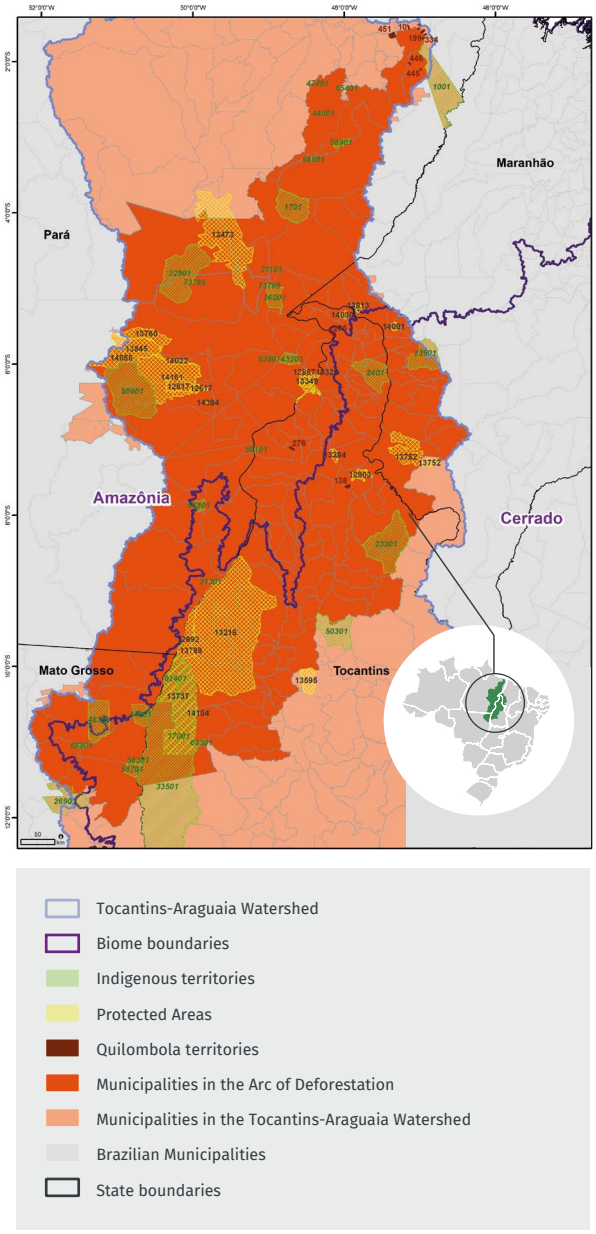


Figure 28 Protected Areas in the territory of NPC Brazil. There are ten quilombola territories; 35 indigenous lands; 23 conservation units.

4.2 FROM THE ARC OF DEFORESTATION TO THE ARC OF RESTORATION

Since the 1970s, the history of Amazonian development has been centered on deforestation. This can be reversed by pursuing a wide range of conservation and restoration goals that replace forest loss with "restoration arcs", ensuring a brighter future for the forests, rivers and people who depend on their ecosystem services (Barlow et al. 2023). This is the objective of the Restoration Arc Initiative that BNDES coordinates and implements.

The idea is to implement vegetation restoration fronts in large deforested and/or degraded areas (restoration, regeneration, productive forests, etc.). Rebuilding the forest will allow at the same time to capture carbon, contributing to emission reduction targets; preserving biodiversity and ecosystem services; generate employment and income associated with the restoration chains and build a barrier to contain the advance of deforestation. According to the BNDES statement, "the work would be divided into two phases: the first, which runs until 2030, involves the restoration of priority areas, about 6 million hectares. The second phase runs from 2030 to 2050, with another 18 million hectares restored"[83]

The proposal of this Investment Plan adds to the efforts made by the BNDES, the states and several organizations so that the Arc of Deforestation is, in the future, called the Arc of Restoration.

83 https://g20.gov.br/pt-br/noticias/do-arco-do-desmatamento-ao-arco-da-restauracao

4.3
NPC-BRAZIL'S THEORY OF CHANGE

Brazil has made an international commitment to goals to contain deforestation and restore tropical forest areas in its Nationally Defined Contributions under the Paris Agreement, and has been systematically chaining, including with the help of the CIF, concrete actions of great transformational impact, as demonstrated in this Investment Plan[84]. Figure 29 below illustrates the Theory of Change in NPC Brazil, which resulted from the multiple contributions of the Stakeholders involved since the preparation of this Investment Plan[85].

Picture from Brazilian Forest Service Archive

84 The aforementioned definition of the Theory of Change is a general and widely accepted description of this methodology. It is often used in various contexts, such as social entrepreneurship, public policies, and sustainable development. For a more detailed definition, you can consult sources such as the Legacy 1 Institute https://institutolegado.org/blog/teoria-da-mudanca-o-que-e-e-como-aplicar/, which explains the Theory of Change as an essential tool for managing social impact businesses, mapping the logical sequence of activities, resources, objectives, results, and expected impacts. Another source is PUCPR2, which describes the Theory of Change as a planning approach that brings together attributes of evaluating, measuring, and monitoring the impact of a project. For a deeper look at the origins, scope, and collective construction of the planning method by the Theory of Change, the original reference bibliography is the "*New Approaches to Evaluating Community Initiatives, Concepts, Methods, and Contexts. Roundtable on Comprehensive Community Initiative for Children and Families*" – Aspen Institute for Humanistic Studies, New York, NY (ISBN-0-89843-167-0). Tools such as the Theory of Change, IRIS/GIIRS platforms and business certification with the *B-Corporation* System have been adopted with high frequency by the Impact *Investing Funds* industry – as is the case of *Climate Investment Funds* itself, as part of the instruments for analyzing investments in Sustainable Finance, notably the *Social Return on Investments* (SROI), a methodology for evaluating investment projects conceived in 2009 by a consortium formed by the UK Government and *the Social Value International Foundation*.

85 Annex 1 of this Investment Plan contains information on the working meetings, Joint Mission, interviews and other initiatives that support the contributions contained in the Impact Matrix presented.

Figure 29 CIF-NPC Theory of Change

The impacts intended by NPC Brazil's IP are essentially "the restoration of native biome areas and the adoption of sustainable land uses, re-establishing the net removal of atmospheric carbon and other associated ecosystem services, including the protection of water resources and biodiversity" in the territory of the Arc of Restoration in the Tocantins-Araguaia River Basin in Brazil, and based on a thriving forest economy sector, local communities will be strengthened and become more resilient to climate change, contributing to a just transition with gender equality and social inclusion.

Brazil brings in its IP an innovative proposal to include private sector stakeholders as vehicles for promoting the desired impacts. It is expected that such an impact will have the necessary strength to deepen the induction of the forest restoration value chain in the country – which several other government initiatives already described in this Investment Plan have been consolidating.

With the entry of private companies capable of mobilizing capital on a large scale and generating the necessary value to cover the capital costs of the CIF-NPC among other sources of financing, it is believed that it is possible to perpetuate such efforts in one or more business models in which a nascent Brazilian forest restoration industry ensures the obtaining of capital and the scalability necessary to meet the restoration of degraded areas of a country of continental dimensions like Brazil.

4.4 GUIDELINES TO ENSURE A JUST TRANSITION WITH GENDER EQUITY IN FOREST RESTORATION PROJECTS

Considering that women and groups most vulnerable to the impacts of climate change should not only be considered beneficiaries of forest restoration projects, but should be active participants in the entire process, and that studies show that this integration improves the effectiveness and sustainability of climate adaptation and social cohesion actions (De Siqueira et al. 2021), guidelines are proposed for the elaboration of forest restoration projects to be developed within the scope of NPC Brazil.

In order to achieve a just climate transition[86], at the time of elaboration of forest restoration projects, a survey of data and information on the gaps and inequalities of gender, race and social inclusion in the intervention region should be carried out, in which it is possible to identify the situation of access and exclusion of women and of groups vulnerable to goods, resources and services, as well as to spaces of power and decision-making, the situation of multidimensional poverty (employability, associativism, income levels, distribution of care), with an intersectional analysis. Using methodologies that involve listening to and actively participating with women from local communities throughout the process is highly recommended[87].

Based on the concept of Climate Justice[88], the design of the chain of results in forest restoration projects should seek to respond to three key aspects, considering four strategic dimensions for the promotion of gender and race/ethnic equality, as illustrated in the table below[89]:

86 Just Transition "recognizes the vulnerability and interdependence of peoples and the planet and attaches importance to the care of both within a process of integral, territorially situated, and plural transformation, involving greater levels of equality." International Labour Organisation and European Commission, Directorate-General for International Partnerships. Valenzuela Ponce de León, E. Green Jobs, An Opportunity for Women in Latin America: Climate Change, Gender, and Just Transition. EUROCLIMA+ Programme, Brussels, 2023. p. 6

87 Guidelines for the elaboration of the diagnosis can be found in the following publication: IUCN (2018). Gender-responsive restoration guidelines: A close look at the gender issue in the Restoration Opportunities Assessment Methodology. Gland, Switzerland: IUCN.

88 The definition of Climate Justice proposed by the Intergovernmental Panel on Climate Change (IPCC) is considered, which involves "distributive justice that refers to the allocation of burdens and benefits between individuals, nations, and generations; procedural justice that refers to who decides and participates in decision-making; and recognition that involves basic respect and robust engagement and fair consideration of diverse cultures and perspectives." In Turquet L. et al., "Feminist Climate Justice: A Framework for Action." Conceptual framework prepared for the Progress of the World's Women series. New York: UN-Women. 2023. p. 12

89 Based on the approach proposed in the expert report for UN Women. Turquet L. et al., "Feminist Climate Justice: A Framework for Action." Conceptual framework prepared for the Progress of the World's Women series. New York: UN-Women. 2023. PAGE 47.

Table 6 Guidelines for the development of the gender results chain in forest restoration projects

GUIDING QUESTIONS FOR THE DESIGN OF THE RESULTS CHAIN	STRATEGIC DIMENSIONS FOR PROMOTING GENDER AND RACE/ETHNICITY EQUALITY	EXAMPLES OF ACTIVITIES TO ADDRESS IDENTIFIED GAPS	EXAMPLES OF RESULTS /INDICATORS
Representation: How will the project strengthen women's participation in climate decision-making and fully incorporate their voices and concerns?	Ensuring women's voice, agency and participation, including them on an equal footing in climate decision-making	Create partnerships and alliances with regional and national catering networks to increase the inclusion of women and vulnerable groups Ensure that traditional knowledge, especially that of indigenous women, is integrated. Qualify female, black, indigenous and disabled leaders - PwD with leadership skills development programs and mentoring programs Strengthen women's associations and self-organization in the restoration chain Establish gender-balanced community committees for project design and implementation.	Greater number of inclusive partnerships and alliances Greater number of women in decision-making spaces in the restoration chain Expanded women-specific networks or forums Percentage of women and marginalized groups in leadership positions within projects. Number of gender- and race-balanced decision-making bodies formed
Recognition: How will the project adequately recognize women's work and rights, supporting unpaid care and addressing gender-based violence and discrimination in the context of a changing climate?	Supporting unpaid care work by reducing women's burden on care in the context of climate change	Identify barriers arising from the scarcity of time and overload of women and implement measures that alleviate the burden Incorporate and value the experience and knowledge of women in the restoration chain Create incentives for the training of women in economic activities in the restoration chain	Support networks for women created or fostered Greater number of women with access to services such as water, transportation, electricity, irrigation Benefits policies aimed at supporting maternal and paternal parenting in companies in the catering chain Apprenticeship programs with a focus on women created
	Address gender-based violence and discrimination by preventing violence and facilitating access to services for survivors	Carry out awareness-raising actions on gender-based violence, including sexual harassment Design a plan to analyze the risks associated with the activities of the forest chain or the greater engagement of women	Number of materials disseminated or campaigns carried out Elaboration and implementation of specific protocols for cases of sexual harassment and gender-based violence Risk mitigation plan prepared and implemented Channels for receiving complaints created

GUIDING QUESTIONS FOR THE DESIGN OF THE RESULTS CHAIN	STRATEGIC DIMENSIONS FOR PROMOTING GENDER AND RACE/ETHNICITY EQUALITY	EXAMPLES OF ACTIVITIES TO ADDRESS IDENTIFIED GAPS	EXAMPLES OF RESULTS /INDICATORS
Redistribution: Does the project address women's unequal access to resources and economic opportunities through climate action?	Strengthen women's economic security by improving access to and control of natural and economic resources, including in green transitions	Prioritizing production chains with greater female participation Prioritize women-led enterprises and cooperatives in grant and loan disbursements Expanding women's access to digital technologies and services in the restoration chain Offer courses and training considering the demands and needs of women Provide technical training in sustainable agroforestry, ecological restoration, and related areas. Develop microcredit schemes tailored to women and vulnerable groups. Ensure access to financial education and entrepreneurial skills. Improving access to information on access to land and natural resources	Greater number of women inserted in the forest restoration chain Proportion of skilled jobs in the forest restoration chain l provided to women (percentage and total number); Number of women-led businesses created or supported. Greater number of women accessing digital technologies and services Greater number of women qualified to work in the economic activities of the restoration industry Increased income levels of women and vulnerable groups due to participation in the project. Number of loans or grants granted to women and vulnerable groups Number of training sessions held with specific participation targets for women. Percentage of women and individuals from vulnerable groups who complete technical certifications Number of women with better information about access to land and natural resources.

Source: NPC Brazil Investment Plan

Picture from Brazilian Forest Service Archive

It is important to clarify that the above framework was prepared considering the social and gender gaps identified within the scope of this IP, but it must be recognized that there are limitations regarding the breadth and scope of the activities that the private sector will commit to developing. However, it is important to remember that the country has a set of public policies on climate change that are committed to a just transition, as mentioned above, and that complement and strengthen the forest restoration projects that will be implemented.

It is noteworthy that it is essential to create gender-sensitive indicators in restoration projects and to obtain data disaggregated by sex, race, and ethnicity not only for monitoring results, but to advance the production of data and knowledge on women's participation in forest restoration.

4.5 PROJECT STRUCTURE OF THE NPC BRAZIL'S INVESTMENT PLAN

The project structure of the Brazil's Investment Plan consists in providing the concessional resources to the BNDES, which in turn will apply them into its credit lines related to forest restoration in the target territory. As it involves private agents borrowing resources to finance their respective business projects in the Brazilian restoration chain, the private sector will be responsible for structuring and budgeting restoration projects that will be aligned with the NPC Brazil IP.

Brazil's IP establishes the type of project to be considered (exclusively for forest restoration), the target territory of the NPC-funded Project initiatives (the Arc of Deforestation region in the Tocantins-Araguaia River Basin); and the requirement to use the CIF guidelines for the application, monitoring and evaluation of the results of Projects financed with NPC resources. These three guidelines will be replicated and monitored in the contractual instruments for granting BNDES loans, in the public notices, and also in all other contents and investment processes in the restoration projects to be financed by the private sector.

The private restoration projects will be planned to observe the methodology of the Theory of Change of the IP of Brazil, with the objectives of transformational change, application of Integrated Landscape Management (GIP) and actions that result in diversity, equity and social inclusion – with special emphasis on the gender issue.

5. FINANCING PLAN AND INSTRUMENTS

Brazil's IP presents an important element of innovation: the engagement of private companies to structure business models and Forest Restoration Projects, which produce a return on value to own and third-party capital, developing Forest Restoration Projects with a transformational impact on local communities.

As a country of continental dimensions, Brazil has made a great effort to foster a production chain formed by new private companies of different sizes, but at this nascent stage, led by large business groups that have offered corporate guarantees to BNDES loans. The proposal is to build a business model that makes forest restoration with native vegetation and sustainable forestry a business with attractive returns, making the impact of restoration scalable with large volumes of long-term capital, corporately guaranteed by the private sector, to promote forest restoration in large areas of Brazil.

The consolidation of this new production chain will have a strong impact on the supply of jobs and increase the income of small entrepreneurs who, making use of the knowledge of local communities, will be able to integrate the supply chain of the new nascent economic segment, fostered by BNDES – among others, with resources from the CIF-NPC.

This is not a project with a low territorial impact or a temporary effect, with high risks of continuing or becoming perennial. On the contrary, it is a unique undertaking in the world, which can generate a new model of capital mobilization for forest restoration in Brazil and abroad.

5.1 BNDES AS A BORROWER OF THE NPC AND LEVERAGE OF CREDITS TRANSFERRED

BNDES was created in 1952 and its main objective is to promote the country's economic and social development. Over time, BNDES has supported several projects and programs, such as the Amazon Fund, which operates donation resources in the order of R$4.2 billion for environmental policies and civil society actions, and the Climate Fund, which operates loans for large projects to combat climate change, in the order of R$10 billion. BNDES also offers lines of financing for micro, small and medium-sized companies, such as BNDES Automático – with a capacity to transfer credits and measure their application that few organizations in the world can do.

BNDES supports projects in sanitation, waste management, energy efficiency and biome conservation. In addition, environmental responsibility is present in the impact analysis of BNDES operations and also in an extensive portfolio of credit lines and programs that are continually updated.

BNDES is Brazil's main development agency, also operating in other Latin American countries, which may benefit from business models aimed at structuring the Forest Restoration value chain under development in the country. BNDES currently has at least three large resource funds with which it has been expanding its portfolio of credits for forest restoration actions: the Amazon Fund, the Climate Fund and FINEM Environment.

As previously mentioned, the Amazon Fund, administered by BNDES, was created in 2008 with the objective of raising donations for non-reimbursable investments in actions to prevent, monitor and combat deforestation, in addition to promoting the conservation and sustainable use of the Legal Amazon. The Fund also prioritizes sustainable forest management and the recovery of deforested areas.

The Climate Fund, administered by BNDES, was created to support projects aimed at reducing greenhouse gas emissions and adapting to climate change. It is one of the instruments of the National Policy on Climate Change and is linked to the MMA. Among the areas financed is support for the conservation and recovery of forests and water resources. The fund also has specific modalities for the acquisition of machinery and equipment that contribute to the reduction of emissions and climate adaptation. Recently, the Climate Fund was expanded with new areas of activity and is expected to raise up to US$ 2 billion to finance structural projects.

The FINEM Environment Fund, administered by BNDES, offers financing for projects that promote sustainability and eco-efficiency. The activities financed include the recovery and conservation of ecosystems, with financing for the restoration of degraded areas and the conservation of biodiversity:

BNDES' decades of experience in structuring and managing blended finance provides security for the proposal of the Brazil Investment Plan for the NPC to use the resources of USD 47 million in concessional loans from CIF, as part of a blended finance that will also be composed of co-financing resources of USD 100 million from the Climate Fund and another USD 100 million from the World Bank. The combined resources will be loaned to private companies in the forest restoration market in Brazil, through credit lines offered by BNDES.

The anchoring of NPC resources in Brazil for the infrastructure of credit operations to promote the forest restoration production chain is also in line with the achievement of Planaveg's goals, in particular, and of several national and subnational Plans, Programs and Public Policies in the country – determined to contain deforestation, restore the forest and promote social inclusion in the Amazon and Cerrado for the sustainable economic development of the prioritized territory. The choice of this financial arrangement aims to obtain a cost of transferring resources to the private sector that is competitive with other long-term financing options for the private sector in Brazil, increasing the availability of resources in amounts for the greatest possible impact in stimulating the forest restoration value chain in the country.

5.2 THE BUDGET ENVELOPE

The main contribution of NPC Brazil's IP is the offer of credit with which BNDES will induce

economic agents from the private sector of the nascent Brazilian forest restoration industry, to direct efforts towards forest restoration in areas that have been degraded, compromising compliance with the country's environmental legislation.

This is an effort already initiated by BNDES in recent years, which now finds in the CIF, through the NPC Brazil IP, another support required to further advance innovations that involve private agents in forest restoration, strengthening the capacity to ensure the water supply of the Tocantins-Araguaia Basin and others in the country, transforming the lives of local communities.

The Budget Envelope requested for the IP of Brazil is presented in the Table 7, where the concessional loan requested from the CIF is detailed, accompanied by an indication of the co-financing agreed with the World Bank and the BNDES for a leverage of 4 times the value of the concessional loan from the CIF-NPC.

For the requested Budget Envelope, BNDES will be the borrower of the CIF-NPC concessional loan – which, in addition to the Brazilian sovereign guarantee, reduces risks and the complexity of monitoring by the CIF, since the entire interface with the borrowers of the credit lines that will have the resources of the CIF-NPC concessional loan as funds will be conducted by the BNDES.

Therefore, as the resources will be transferred as credit lines already existing at the BNDES, the rendering of accounts by supporting documentation will also occur according to its rules and practices – which will be more detailed in the implementation of the NPC Brazil Program, at the time when the financed private companies submit their Executive Projects to obtain credits from the BNDES, contractually adjusting to the fulfillment of the monitoring and verification obligations already consolidated by the Brazilian development agency. To this end, the requested Budget Envelope will consist of the following items

5.3 ESTIMATED COSTS OF NPC BRAZIL'S INVESTMENT PLAN

The operating costs of the NPC, which, leveraged, reach US$ 247 million, may add up to USD 4.94 million of the total amounts mobilized. The uses of such resources will be highlighted for the preparation and implementation activities of the IP of Brazil by the funders and the Brazilian Focal Point (MMA - Ministry of Environment and Climate Change).

The implementation costs of each of the Projects that are submitted to BNDES financing for forest restoration in the Arc of Deforestation in the Tocantins-Araguaia Hydrographic Basin will be detailed in the financing requests of each private sector agent. Broadly, they can be divided into implementation, maintenance, harvesting, renovation and administration costs, as shown in the following table. It is important to emphasize that not all costs are present in all forest restoration models, depending on the final objective (ecological or productive restoration), the potential for natural regeneration, the techniques to be used, and the availability of inputs at competitive prices.

Table 7

PROJECT NAME	RESPONSIBLE MDB	MDB COFINANCE (USD MILLION)	BRAZIL CLIMATE FUND COFINANCE (USD MILLION)	CIF FUNDING (USD MILLION)				TOTAL (USD MILLION)
				PPG	GRANT	LOAN	MPIS	
Support for the Arc of Restoration	IBRD	100[a]	100	0	0	47[b]	0	247

a Loan with sovereign guarantee of Brazil with BNDES as borrower
b Sovereign guaranteed loan from Brazil with BNDES as borrower

Table 8 Costs Involved in Forest Restoration Projects

COST ITEM	DESCRIPTION
IMPLEMENTATION COSTS	
Elaboration of Technical Forest Restoration Project	Hiring of a specialized technical service to prepare the technical project for forest restoration. Includes costs for travel, accommodation, office work, and administrative expenses
Development of Forest Carbon Project	Expenses with the preparation of the project design document, payment of registration, maintenance and pipeline fees, with certifiers (when necessary), contracting of technical studies for diagnosis of the area, organization of workshops with stakeholders, mobilization of the project management team, logistics, audits and verification, trader fees for the sale of credits.
Lease of Plots, Roads and Firebreaks	Topography and staking operation, aiming to demarcate the places for planting seedlings and the areas for roads and firebreaks, as well as those legally protected
Construction of Roads and Firebreaks	Operation done with machines.
Construction of Fences	It can be the main item of implementation cost. It is recommended when it is necessary to prevent the project area from being accessed by people or large animals.
Construction of Improvements and Works of Art	In some sections of the land, it is necessary to build bridges, dams, culverts, sheds, etc.
Weeding and Mowing of Implementation	Operation of eradication of invasive plants, manually, mechanized or chemically.
Soil Preparation	It involves manual, semi-mechanized or mechanized operations of the plowing type, light or heavy harrowing, subsoiling and minimal tillage. Soil correction and fertilization are included.
Combating Forest Pests	It consists of the operations to eliminate and/or prevent the occurrence of the main forest pests that prevent the establishment of seedlings and regenerants.
Production of Forest Seedlings of Native Species	It includes the collection or acquisition of seeds, collection of cuttings, or obtaining seedlings ready for planting.
Planting and Replanting	Insertion of the seedlings in the properly prepared area. It includes inspection of the project area and replanting when necessary.
Seedling Irrigation	In certain regions or times, irrigation of the seedlings is necessary for the success of planting.
MAINTENANCE COSTS	
Maintenance of Roads and Firebreaks	Operation done with machines.
Weeding and Maintenance Mowing	Operation of eradication of invasive plants, manually, mechanized or chemically.

COST ITEM	DESCRIPTION
Conservation of Improvements and Works of Art	It corresponds to the expenses necessary to keep bridges, passages, dams, sheds, etc. functional.
Combating Forest Pests	Annual operation to control insects that cause damage to forests and their products.
Thinning and Pruning	For forests intended for multiple use, these operations are necessary to obtain wood with better quality.
Desprucas	In some forests under thinning, it is necessary to control the sprouting of the strains, which can be mechanical or chemical.
Replacement of fences	Replacement of fence parts.
HARVESTING COSTS	
Harvesting Activities	Related to the operations of felling, delimbing, tracing, extraction, stacking, loading, transporting and unloading of wood from the forest to the consumption center.
ADMINISTRATION COSTS	
Administration Activities	They vary greatly due to the scale of the project and the type of organization at the head of the restoration project. They refer to managerial, administrative, accounting, control and other general services, such as information technology and communication.

Source: prepared by the authors.

5.4 BORROWED CAPITAL COSTS

One of the biggest challenges to overcome in the innovative implementation of Brazil's IP is covering the costs of the capital used to finance it. The resources contributed by BNDES will be from the Climate Fund, but such definition will only occur at the stage of implementation of credit lines by the investor agents. The costs of borrowed capital determine the costs charged in BNDES credit lines for private sector borrowers operating in the forest restoration production chain in Brazil. Just as a first estimate of the level of financing, below are the conditions of two of the Funds managed by BNDES that may be considered in the blended finance to be offered in the IP of Brazil with resources mixed with those of the CIF-NPC:

Table 9 Estimated Financial Conditions for BNDES Credit Lines

FUNDER	MATURITY	FINANCIAL LACK	INTEREST RATE	NOTES
FINEM Environment	20 years		IPCA+6.43% + from 1.1% p.a.	A B
Native Forests Climate Fund	25 years	8 years	2,5% to 4,87%	

Source: NPC Brazil Investment Plan

Notes: a. Limited to 6 months after completion of project implementation. b. Considering the Long-Term Interest Rate (TLP) in force in Nov/24

It is important to highlight once again the challenge of structuring, financing and extracting the necessary remuneration from a forest restoration project with native vegetation for debt service payments and the opportunity cost of shareholders' equity and private sector agents.

6. ADDITIONAL DEVELOPMENT ACTIVITIES

NPC Brazil's IP is aligned, first of all, with additional development activities already underway by the MDBs co-investors of the CIF and with BNDES activities, seeking possible synergies with other activities of these stakeholders in the territory of the Arc of Restoration in the Tocantins-Araguaia Hydrographic Basin, as a priority, but also with their other initiatives in Brazil.

During the implementation of the IP, other projects of the MDB may contribute, directly or indirectly, to the promotion of forest restoration and the involvement of local communities, with attention to vulnerable groups and the promotion of gender equality.

6.1 WORLD BANK PROJECTS IN BRAZIL

The World Bank has a wide range of initiatives underway in Brazil, monitored through the Open Brazil (https://brasilaberto.worldbank.org/pt/) platform.

The current Partnership Strategy with Brazil is based on the principle that environmental and development objectives need not conflict if Brazil makes adequate use of existing technologies, such as the intensification of production systems, including among smallholder farmers.

Considering the area of operation of the Investment Plan, the IBRD is supporting the implementation of the following projects, which may contribute to the promotion of restoration, the involvement of local communities and regional sustainable development:

Table 10 Projects implemented by the World Bank in Brazil.

PROJECT	VALUE	EXECUTORS	PERIOD
Amazon Sustainable Landscapes Project	US$ 79,6 million (non-refundable, GEF)	Coordination of the MMA, with state partnerships in PA, AC, AM, RO, SFB, ICMBio and implementation through FUNBIO, CI-Brasil and FGV	2018- 2026
Sustainable Development in the State of Pará—Avança Pará	US$ 280 million (loan)	Pará State Government	2025-2029
Sustainable Landscapes of the Amazon—Xingu Project	US$ 8.56 million (non-refundable, GEF)	Coordinated by the MMA, in partnership with the government of Pará, SFB, and ICMBio, and implemented by FGV	2025-2029
Sustainable Development of Family Farming in Mato Grosso	US$ 100 million (loan)	Mato Grosso State Government	2024-2028
Climate Finance Project—Banco do Brasil	US$ 500 million (loan)	Banco do Brasil	2024-2029

Source: NPC Brazil Investment Plan

6.2 INTER-AMERICAN DEVELOPMENT BANK PROJECTS IN BRAZIL

In the case of the IDB, the additional activities under development with which they may collaborate in the country include:

- Pro-Amazônia (BNDES) – Repayable credit operation - US$ 900 million (US$ 750 million IDB/ US$ 150 million BNDES) - Execution in 2025
- Promote the sustainable development of the Amazon Region, strengthening productivity and job creation in micro, small and medium-sized enterprises (MSMEs), through the expansion of the supply of financing.
- Bioeconomy in the Amazon (BB) – Repayable credit operation - US$ 250 million (US$ 175 million IDB/ US$ 75 million GCF) - Execution in 2025
- Sustainable development in the Legal Amazon through the bioeconomy:
  1. Credit for investments in biobusiness (bioeconomy value chains)
  2. Credit for the development of sustainable infrastructure in the region.
- Pará State PES Program – Operation with non-reimbursable resources - US$ 4 million (PSA1 in execution - PSA2 execution in 2025
- Structuring of the State Program of Payments for Environmental Services of PA

However, in view of the location of the Restoration Arc in the Tocantins-Araguaia Hydrographic Basin, the IDB's initiative in the *Amazônia Sempre* Program deserves special mention, which has the following scope:

- A holistic umbrella program that aims to increase funding, strengthen the planning and execution of impact-generating projects.
- In 1 year, it quadrupled its budget, from US$ 1 billion to US$ 4.2 billion, and more than doubled the number of donors (from 4 to 9)
- It has 191 projects running or in the pipeline.
- Portfolio of operations aimed at sustainable development and climate action in:
  - **I.** bioeconomy,
  - **II.** combating deforestation,
  - **III.** Improvement of life
  - **IV.** Sustainable Cities
  - **V.** sustainable and low-carbon agriculture and livestock.

6.3 OTHER ADDITIONAL SUSTAINABLE DEVELOPMENT PROJECTS

In addition, several programs and projects developed by civil society and/or public-private arrangements were identified with the potential to become partners of private sector agents financed by BNDES's blended finance, including:

I. Sustainable Territories Platform: the initiative integrates the public and private sectors, and the third sector and aims to strengthen low-carbon socioeconomic development actions in Pará;

II. Pará Productive Restoration Initiative;

III. Restores the Amazon;

IV. Project for Environmental Regularization of Rural Properties in the Amazon and in Transition Areas for the Cerrado (Rural Regularization);

V. National Program of Productive Forests. Ministry of Agrarian Development and Family Agriculture (MDA);

VI. JBS Fund for the Amazon;

VII. JUNTOS Program;

VIII. *Nova Mata* Project;

IX. Eletrobrás Regional Funds;

X. Payment for Environmental Services Program of Pará;

XI. SOBRE - Technical-scientific collaboration network formed to promote restoration;

XII. Brazilian Waters in the Tocantins-Araguaia River Basin Programs;

XIII. Vida Cerrado Park; Conservation International; Perene Institute; Climate Policy Initiative; Cerrado Restoration Monitoring Platform - Araticum Network;

XIV. Redário: brings together 24 Networks and Groups of Seed Collectors, with about 1200 collectors, its goal is to provide the necessary support for the production of native seeds, boost the market and enable the best seeds for the recomposition of each ecosystem. Strong performance in the Cerrado-Amazon and Caatinga transition region;

XV. Alliance for Amazon Restoration: acts as a catalyst and amplifier of the restoration agenda in the Amazon, articulating multiple stakeholders for restoration in the Amazon as a strategy integrated with conservation and with shared socioeconomic benefits.

The engagement of private sector agents in the forest restoration chain in Brazil opens up a large number of possibilities for working together with multiple stakeholders from the third sector, government organizations and even other co-financiers brought by the financed private sector itself. The structuring of the financed Projects may even consider forms of association as a differential in the selection of credit concessions by the BNDES.

7. POTENTIAL FOR IMPLEMENTATION AND RISK ASSESSMENT

Brazil, through BNDES, has already been financing private companies in the restoration sector, which are still pre-operational, and invest in restoration for carbon credits and sustainable forestry with exotic species and native vegetation, generating demand for the restoration sector chain (seed collection, seedling nurseries).

The chain is characterized by being close to the restoration areas, boosting the generation of employment and income in the territory. In BNDES financing where we use the Climate Fund and FINEM, restoration companies buy seedlings from various nurseries in the project regions, including small cooperatives and associations, given that the nursery sector is made up of thousands of small companies.

Thus, the potential for implementing the NPC Brazil Plan has already materialized in BNDES actions that will now be amplified with the support of CIF-NPC resources – leveraged by the additional resources taken from the World Bank (the only MDB in the NPC Brazil Program) and by BNDES itself, which will allocate resources and other funds to give the NPC the maximum possible scale in Brazil.

The IP risk assessmen offers a view of its potential for implementation, and is inserted as one of the tools to support the Theory of Change. It is important to note, however, that the transfer of resources through BNDES credit lines already attributes to the NPC Brazil Program, a robust and already tested risk mitigation structure that has been applied by BNDES, as a financial institution, to other credits to support and foster the formation of the forest restoration production chain in Brazil.

Picture from Kawe Rodrigues in Unsplash

7.1 FINANCIAL RISKS

Brazil is a nation with international reserves in the order of USD 355 billion as of December 31, 2023[90], and 40 years have passed since the debt moratorium incurred by the country. The sovereign guarantees offered by the country represent for the CIF and the World Bank unique mitigating element for financial risks related to default in the IP of NPC Brazil.

On the other hand, at the subnational level, the loans offered by BNDES credit lines always have corporate and/or fiduciary guarantees, which also mitigate risks of default by the private sector, vis-à-vis the Bank that transfers the funds raised from the CIF-NPC.

There is, however, the risk of non-execution due to lack of interest of Brazilian private companies that operate in what is still an incipient forest restoration production chain in Brazil, in accessing the credit lines offered by BNDES – compromising the results and effectiveness of the Theory of Change presented for the NPC Brazil IP – generating costs for Brazil and BNDES, in view of the commitments contracted for the concessional loan of US$ 47 million from the CIF-NPC.

90 According to the concept of cash, a volume higher than that observed at the end of 2022 (USD 324.7 billion) according to the International Reserve Management Report of the Central Bank of Brazil (Volume 16, March 2024)

7.2 TECHNICAL-OPERATIONAL RISKS

In terms of implementation of the Projects by the private sector financed by the blended finance of BNDES, compliance with the ecological and productive restoration measures established in the new Brazilian NDC and the potential demand to be generated by the voluntary and regulated markets (when it starts operating), as well as the dwemand for the NPC Brazil IP in particular, will have an additional impact on the forest restoration production chain. Materials and skilled labor are usually allocated to other more profitable production chains, harming the dynamism of the native vegetation chain (Lopes and Chiavari 2024).

In this regard, among the main risks to be monitored and mitigated in the execution of the NPC Brazil IP, the lack of articulation between the links in the forest restoration production chain stands out (Figure 30), hindering the implementation of restoration projects throughout the country, especially in less documented biomes such as Caatinga, Pantanal and Pampa (Antoniazzi et al. 2016).

In turn, the structuring of the large-scale restoration chain faces other challenges, such as the inadequate regulatory framework for this activity (forest nurseries are subject to the same requirements as those that produce agricultural crops for food, in terms of the Renasem

requirement[91], for example), precarious definition of property rights, insufficient funding for investment on the necessary scale, lack of investments in research, development and technology, inadequate supply of technical assistance and logistics services adapted to Brazilian biomes.

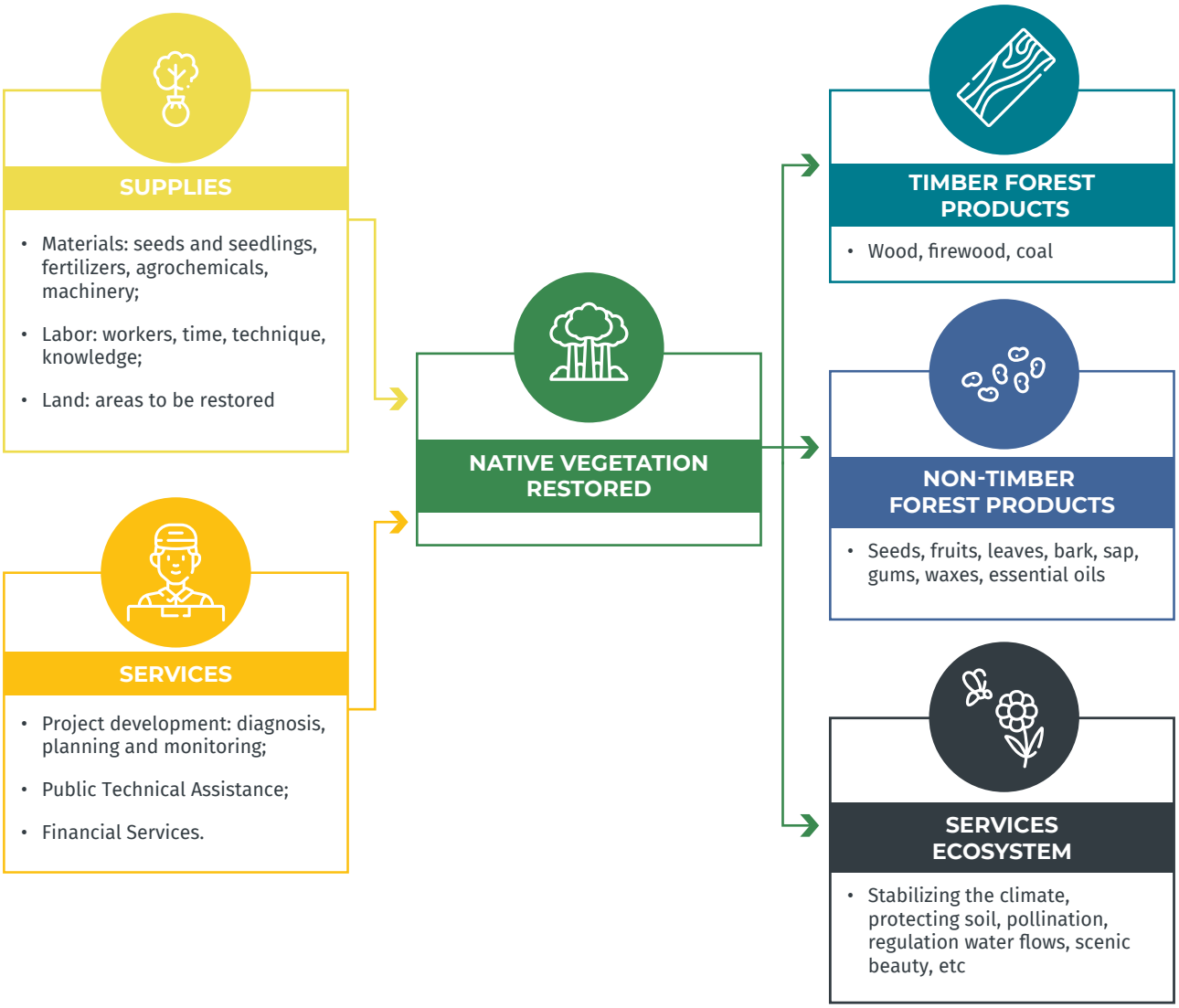


Figure 30 Simplified Model of the Forest Restoration Production Chain.

Source: Teixeira et al. (2022)

With regard specifically to the production of native forest seedlings, Table 11 presents data on the accredited nursery network of the Prosaf Project of Ideflor-Bio do Pará that is part of the region of the priority area of the Investment Plan, and it is possible to observe that the supply of seedlings is not only relatively small (around 197,438 seedlings/year), it is also far from its maximum capacity (682,001 seedlings/year), demonstrating the low dynamism of the chain.

91 National Registry of Seeds and Seedlings.

Table 11 Network of Accredited Nurseries of the Prosaf/Ideflor-Bio Project by Municipality of the Priority Area of the Investment Plan, 2020.

MUNICIPALITY	NUMBER OF NURSERIES	PRODUCTION CAPACITY (SEEDLINGS/ YEAR)	AVERAGE NUMBER OF SEEDLINGS (SEEDLINGS/ YEAR)	INSTALLED CAPACITY (%)
ABEL FIGUEIREDO	0	0	0	-
BOM JESUS DO TOCANTINS	1	14.000	10.000	71,43%
BREU BRANCO	0	0	0	-
CURIONÓPOLIS	1	28.500	39.000	136,84%
DOM ELISEU	2	42.500	4.500	10,59%
ELDORADO DO CARAJÁS	1	28.500	8.180	28,70%
GOIANÉSIA DO PARÁ	7	151.000	16.484	10,92%
ITUPIRANGA	1	19.000	12.220	64,32%
JACUNDÁ	0	0	0	-
MARABÁ	1	19.001	-	-
NOVA IPIXUNA	2	42.500	10.994	25,87%
NOVO REPARTIMENTO	1	28.500	30.000	105,26%
PACAJÁ	4	152.000	41.573	27,35%
PARAUAPEBAS	1	28.500	4.542	15,94%
RONDON DO PARÁ	2	42.500	4.305	10,13%
SÃO DOMINGOS DO ARAGUAIA	0	0	0	-
SÃO GERALDO DO ARAGUAIA	4	62.500	12.290	19,66%
SÃO JOÃO DO ARAGUAIA	2	23.000	3.350	14,57%
TUCURUÍ	0	0	0	-
TOTAL	30	682.001	197.438	28,95%

Source: https://ideflorbio.pa.gov.br/projeto-prosaf/

Despite the risks of implementation at the level of projects financed by BNDES to private sector agents, Brazil has environmental legislation and command and control mechanisms among the most improved in the world. When effectively practiced, as in recent years, they prove to be effective in reducing the advance of deforestation and other measures to contain environmental degradation. And in this case, institutional, political and regulatory risks are small, given the consolidation of Brazilian

legal frameworks and their consolidated jurisprudence in the country.

That said, between financial execution risks, difficulties in mitigating implementation risks by the incipient value chain of Brazilian forest restoration and the country's solid regulatory base, it is understood that the essential elements of the Risk Matrix presented are adequately mitigated and will be reinforced at the level of the financing contracts of the projects approved in the BNDES financing lines.

7.3 STRATEGY RISKS

If the strategy is the choice between one among the several possible paths, it is also the choice between the various implementation risk matrices that present themselves. There are always risks of a moral nature for individuals and organizations – which can only be mitigated with transparency, independent oversight, and metrics for selecting funders and project implementers, with verifiable attributes to be part of the chosen path.

7.4 COMPLIANCE AND LEGAL RISKS

The fewer the number of stakeholders involved and the decision-making bodies within a governance structure, the lower the risks of compliance failures. However, Nature-Based Solutions Projects – especially those associated with actions that seek to increase diversity, equity, and social inclusion, need to be scaled, so they end up requiring more extensive governance, requiring more attention to compliance.

7.5 REPUTATIONAL RISKS

The greater the number of stakeholders involved in a Project of any nature, the greater the reputational risks incurred – as much as the risks of governance failures increase, as already pointed out. However, to achieve scale and capture more synergies for the results and effectiveness of social impact, incurring such risks is essential.

The risk management approach adopted at the macro level in this Investment Plan is deepened and diversified into risk management matrices, associated in the future with loans granted by the World Bank and the use of Climate Fund resources by BNDES – which also requires borrowers of their loans to assess and monitor the risks of projects selected for their credit lines.

7.6 SUPPLEMENTARY CONSIDERATIONS ON THE RISKS OF THE INVESTMENT PLAN

Given that the concept of the investment plan involves a comprehensive forest restoration program, in which concessional resources will be made available to a financial intermediary to expand its credit offer under appropriate conditions for the forestry activity, several social, environmental, cyclical, technical and political elements that determine the risks of the activity can only be identified and evaluated at the project level. This is due to the fact that project risks are closely linked to local factors, such as soil and climatic conditions, level of social capital, quality of local infrastructure, land organization, and the occurrence of social conflicts, in addition to the market that is intended to be reached, such as the carbon credit market, payment schemes for environmental services, timber and non-timber forest products, tourism, among others.

Therefore, the detailed assessment of the risks of forest restoration will be carried out at the time of development of each forest restoration project by the respective borrowing company with the financial intermediary. The specifics of the scope of this document will follow the regulation of the credit line and the market requirements to which forest restoration will be directed.

8. MONITORING AND EVALUATION OF NPC BRAZIL

According to the Theory of Change (section 4.3), the NPC Brazil Investment Plan (IP) aims to achieve significant environmental and social impacts, including the restoration of native biomes, sustainable land use adoption, and net atmospheric carbon removal in the Arc of Restoration in the Tocantins-Araguaia River Basin. This chapter outlines the monitoring and evaluation framework supporting these goals. Key scales include the overall Investment Plan, BNDES-funded restoration projects with CIF/NPC and IBRD resources, and relevant public policies in the designated territory. Leveraging Brazil's climate initiatives, this framework ensures the proper tracking of NPC Brazil Program's progress and impacts. By integrating NPC IRF indicators, the program offers a comprehensive platform for assessing CIF resource impacts, providing the needed insights into its effectiveness over time.

8.1 MONITORING AND EVALUATION AT THE INVESTMENT PLAN SCALE

First, on the scale of Brazil's Investment Plan, the CIF guidelines recommend the use of Integrated Results Framework (Table 12). This has the function of outlining the NPC's results chain – in terms of products, effectiveness and impacts of the NPC itself, up to the macro level of the CIF. The IRF is based on the scope of eligible investment activities in the NPC funding window, in its overall design, through to Theory of Change planning.

The IRF seeks to structure and consolidate results and effectiveness that the NPC can achieve in all areas of CIF activity through a holistic, multilevel and multidimensional approach. That is, the IRF is a mechanism for broadly assessing assumptions and products of the entire IP, and not a mechanism for rendering accounts for documentation proving the allocation of resources, for example, from a credit line for an impact investment.

8.2 MONITORING AND EVALUATION BY CIF-NPC INDICATORS

As Brazil already has a robust indicator monitoring structure for measuring the results of multiple government programs and BNDES development financing – many of them with the same type of information or similar focus on the results sought by the NPC-IRF indicators – it already commits in advance to Monitoring and Verification goals for the following set of indicators:

Table 12 Integrated Results Framework

NATURE, PEOPLE, AND CLIMATE INVESTMENTS PROGRAM INTEGRATED RESULTS FRAMEWORK
NPC IMPACT **Improved use and management of land and other natural resources for low-carbon and climate-resilient livelihoods and businesses**
NPC Program Theory of Change: Investments based on an integrated system-wide approach can reconcile competing uses of land and other natural resources to unlock the potential of nature for climate action. This would lead to improved health of land and other ecosystems, reduced greenhouse gas emissions, and enhanced sustainability and climate resilience of livelihoods and businesses, thereby mobilizing additional public and private funding.
Brazil IP Theory of Change: Brazil's IP will support the transformation of a territory with high rates of deforestation, environmental degradation and social exclusion, generating resilient regions adapted to the effects of the climate crisis, and contributing to the mitigation of the impacts of climate change, with a global impact.

RESULT STATEMENT	MONITORING APPROACH					EVALUATION AND LEARNING APPROACH
	INDICATORS	BASE-LINE	MEANS OF VERIFICATION	TARGET (DATE)	NOTES	KEY AREAS
BRAZIL IP-LEVEL IMPACTS						
Improved use and management of land and other natural resources for low-carbon and climate-resilient livelihoods and businesses	Area identified as secondary vegetation in the Amazon and Cerrado Biomes, mapped by the TerraClass system.	TBD. Data Available at TerraClass.	TerraClass system. TerraClass elaborates systemic maps of use and coverage of deforested land in the Amazon and Cerrado biomes.	To be defined during project preparation	Program-level impacts focus on alignment with Brazil NDC. The indicator will also compare selected territory rates compared to other regions (%) The composition of the target will be given by an estimate by the areas of the funded projects – to be obtained in the implementation phase of the NPC	Evaluation and learning activities will seek to measure how well the NPC program has addressed key barriers to effective climate-responsive land use planning and management. Results measured for this indicator in the selected territory, compared to other regions, provide important data on the impact of the engagement of private sector for restoration, and useful lessons for the Brazilian NDC.
BRAZIL IP-LEVEL OUTCOMES						
A. Improved management of natural resources	**NPC CORE 1 (= CIF 1). Mitigation:** GHG emissions reduced or avoided or enhancement of carbon stocks (mt CO_2 eq) – direct/ indirect	0	Project results data by BNDES / funding recipient	7.75 mt CO_2 eq/year	Mid-term and lifetime estimates by projects This indicator feeds into **CIF Impact 1 (Mitigation)** and could be reported as direct vs. indirect reductions (per MDB-approved methodologies) with evidence provided at mid-term and completion.	These impact areas will be measured through CIF-driven evaluation and learning activities. These indicators are correlated and are already required in credit lines of BNDES development becoming contractual obligations of the companies taking the resources in the Brazilian forest restoration. Analyzing the achievement of these targets could lead to flexibility to adjust BNDES contractual requirements, learning from practice and course correcting to improve the effectiveness of the loans.
	NPC CORE 2. Land Area: Area of land or other physical environments covered by climate-responsive natural resource management practices (ha) – *mitigation/ adaptation*	0	Project results data by BNDES / funding recipient	54,000 ha of forest restoration	Annual monitoring. This indicator measures the total land area under restoration process as result of the project. **Disaggregation:** Mitigation vs. adaptation During project preparation, the details about disaggregated targets will be defined.	
B. Increased adoption of sustainable supply chains	**NPC CORE 3. Sustainable Supply Chains:** Number of firms, enterprises, associations, or community groups that have adopted a sustainable supply or value chain approach (#)	*NA*	*NA*	*NA*	NPC Core 3 indicator is not relevant to the IP, because all sub-projects will focus on restoration, rather than promoting the sustainability of supply chains.	*NA*
C. Strengthened enabling environment for sustainable uses of land and other natural resources	**NPC CORE 4. Policies:** Number of policies, regulations, codes, or standards related to climate-responsive land or natural resource management that have been amended or adopted (#)	*NA*	*NA*	*NA*	NPC Core 4 indicator is not relevant to the IP, as the project will provide credit lines to private companies in the forest restoration sector, rather than amending or adopting public policies and regulations.	*NA*

RESULT STATEMENT	MONITORING APPROACH					EVALUATION AND LEARNING APPROACH
	INDICATORS	BASE-LINE	MEANS OF VERIFICATION	TARGET (DATE)	NOTES	KEY AREAS
E. Mobilized public and private capital	**NPC CORE 5 (= CIF 4). Co-Finance:** Volume of co-finance leveraged (USD) – *mitigation/ adaptation*	0	Project financial data	200 million USD	As part of a blended finance Brazil IP will be composed of co-financing resources of USD 100 million from the Climate Fund and another USD 100 million from the World Bank. **Disaggregation:** Source of co-financing (MDB, Climate Fund, Private Sector, and Other); mitigation vs. adaptation. During project preparation, the details about disaggregated targets will be defined.	As CIF-NPC resources are intended to have a catalytic effect on climate and nature finance in Brazil, various evaluation and learning approaches will be used to better understand CIF's contribution to mobilizing public and private resources for ecosystem protection, restoration and more sustainable and diverse livelihood opportunities.
F. Rural communities and Indigenous Peoples' sources of livelihoods improved	**NPC CORE 6. Livelihoods:** Number of people receiving livelihood benefits	0	Project results data by MDB / BNDES / funding recipient	21,000	The target is an estimate based on the number of jobs created and it will be revisited during the implementation phase to include other type of beneficiaries. **Disaggregation:** By type of benefit; by gender. During project preparation, the details about disaggregated targets will be defined.	Evaluation and learning activities might seek to understand how well the program has addressed just transition aspects of livelihoods related to distributional impacts or social inclusion. Project can also provide useful information on achievements and barriers of partnering with landowners and local communities. The quality and distribution of jobs could be analyzed through both just transition, gender-responsive approaches, and the types of jobs created.
	NPC CORE 7. Jobs: Number of jobs created – direct and indirect	0	Project results data by MDB / BNDES / funding recipient	21,000 direct jobs women/ men	Direct jobs created should be reported by projects. While there might be some overlap with NPC CORE 6, this indicator measures the number of jobs rather than the number of beneficiaries. **Disaggregation:** By gender. During project preparation, the details about disaggregated targets will be defined.	
G. Business case for private sector investments demonstrated	**NPC CORE 8. Private Sector Investments:** Number (#) and value ($) of CIF-supported private sector investments in sustainable land natural resource management – *mitigation/ adaptation*	0	Project financial data by BNDES / funding recipient	Number of investments to be defined, 247 million USD	This indicator measures the value of project-supported private sector investments in restoration activities. **Disaggregation:** Mitigation vs. adaptation During project preparation, the details about disaggregated targets will be defined.	Evaluation and learning from the project role of unlocking private sector investments in forest restoration projects could help to consolidate the nascent Brazilian forest restoration sector. Activities may build on the tracking of private sector initiatives to generate lessons for future investments.
H. Fostered innovation	**NPC CORE 9 (= CCV 1). Innovation:** Number of innovative businesses, entrepreneurs, technologies, and other ventures demonstrating a strengthened climate-responsive business model	0	Project results data by BNDES / funding recipient	Number of investments TBD	This indicator measures the extent to which private sector agents involved in forest restoration have strengthened their overall business development. It is expected that the investments will overlap with **NPC CORE 8.**	

RESULT STATEMENT	MONITORING APPROACH					EVALUATION AND LEARNING APPROACH
	INDICATORS	BASE-LINE	MEANS OF VERIFICATION	TARGET (DATE)	NOTES	KEY AREAS
BRAZIL IP-LEVEL CO-BENEFITS						
Social and Economic Development Co-Benefits	**CO-BENEFIT 1. Green Growth:** Economic growth of targeted sectors or industries within the landscape or ecosystem	TBD (nonzero)	Sub-national statistics, project estimates	TBD	The composition of the target will be given by an estimate by the areas of the funded projects – to be obtained in the implementation phase of the NPC.	During project implementation, evaluation and learning related to green growth will consider the type of Brazilian private agents that will be interested in accessing BNDES loans and the relevant local characteristics.

Source: NPC Integrated Results Framework Guideline X BNDES Frameworks

These indicators have adequate correlation and are already required in credit lines of BNDES development – therefore, they will be no different in the lines of transfer of CIF_NPC resources, becoming contractual obligations of the companies taking the resources in the Brazilian forest restoration production chain.

As for transformational change, Brazil agrees that the Adaptive Sustainability dimension is essential to ensure that the changes implemented in response to the climate crisis are lasting and able to adjust to new circumstances and needs over time. This dimension involves the flexibility to experiment and adjust strategies as needed, learning from practice and course correcting to improve the effectiveness of climate actions.

Resilience is another crucial aspect, ensuring that changes are robust enough to withstand internal and external pressures, such as economic shocks or natural disasters, and that they can recover when needed. Adaptive Sustainability recognizes that both people and systems need to be responsive to changing circumstances and needs that evolve.

This approach is important to maintain the relevance of climate actions, promoting innovation and ensuring long-term sustainability. Adaptive and resilient change is more likely to be sustainable, ensuring that the benefits of climate action are maintained and amplified over time. It is the innovative bet of the Brazilian Investment Plan by striving to involve private sector agents in the forest restoration value chain to work together with local communities, maintaining continuous and replicable long-term results as part of their business models.

8.3 MONITORING AND EVALUATION AT THE SCALE OF PROJECTS FINANCED BY BNDES

It is necessary to recognize some innovative characteristics of the Brazilian Investment Plan, where BNDES, as a borrower and financial institution that transfers the funds raised from the CIF, has its own frameworks for allocation and measurement of the results of its credit lines, and banking rules and market limitations in the relationship with its customers that need to be considered when agreeing on the Monitoring and Evaluation of NPC Brazil's IP.

In the proposed financial arrangement, the resources entered into the BNDES will be lent in Brazil as resources of the Brazilian institution. In this case, the internal rules of credit concessions will apply, and the BNDES will be responsible for accepting the contractual issues negotiated for each project with the CIF-NPC for the best compliance with the monitoring and evaluation obligations in common agreement with the World Bank for the institution's obligations with the CIF.

The proposal of the Brazil Investment Plan would therefore be the adoption of a set of simpler

indicators, capable of meeting the objectives of the NPC IRF to increase the interest of Brazilian private agents in increasing engagement in the Brazilian forest restoration value chain.

8.4 MONITORING AND EVALUATION AT THE COUNTRY LEVEL

All Plans and Programs derived from Brazilian public policies have structures for measuring results that, in many points, calculate similar and adaptable indicators to meet the IRF.

The Brazilian Government is committed to the indicator: the area identified as secondary vegetation in the Amazon and Cerrado Biomes, in hectares, extracted from the TerraClass system.

Without compromising the objectives of the IRF, the adaptation of a set of indicators to others already available in Brazil's Plans and Programs will reduce the costs of Monitoring and Evaluation of the IP NPC Brazil – in addition to offering long statistical series for better measurement.

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ANNEXES

Annex 1
Process for preparing the NPC Brazil Investment Plan

Annex 2
Grant Mechanism Dedicated to Indigenous Peoples and Traditional Peoples and Communities (DGM)

Annex 3
Diagnosis of the Territory of the NPC Brazil Investment Plan

Annex 4
Independent Quality Reviews

Annex 5
Concept Brief NPC Brazil Investiment Plan

ANNEX 1

INVESTMENT PLAN DEVELOPMENT PROCESS

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Picture from Nareeta Martin in Unsplash

On August 11, 2022, Brazil submitted an Expression of Interest to the Nature, People, and Climate (NPC) Program of the Climate Investment Funds (CIF). Brazil's Expression of Interest was prepared jointly by the Ministry of Environment (MMA), the Ministry of Science, Technology and Innovation (MCTI), the Ministry of Agriculture, Livestock and Food Supply (MAPA), and the Ministry of Economy (ME). Brazil's Expression of Interest was organized into three pillars: Pillar I: Conservation and Recovery of Degraded Ecosystems—Focus on activities to conserve native vegetation cover and recover degraded areas; Pillar II: Bioeconomy and Sustainable Value Chains—Supporting local economies, with special attention to women, traditional communities, and minorities, while protecting the environment; and Pillar III: Low Carbon Agricultural Production—Incentive for low carbon agriculture to reduce deforestation, mitigate emissions, and increase climate resilience in agricultural production.

On December 9, 2022, in response to the Expression of Interest, the CIF invited Brazil to participate in the Nature, People, and Climate (NPC) Investment Program, with the support of multilateral development banks IBRD and IDB.

From September 4 to 6, 2023, we conducted a scoping mission with the following objectives:

I. Proposing activities for potential support through the NPC Investment Plan (IP) for Brazil—basis and reference for defining the IP's line of action;

II. Identifying government institutions or agencies with potential interest in relevant NPC program areas and related functions; and

III. Collecting inputs for developing the Terms of Reference for the Preparation of the NPC-Brazil Investment Plan. About 30 people participated in the scoping mission, representing multilateral development banks (MDBs) (The World Bank, International Finance Corporation (IFC), and Inter-American Development Bank (IDB)) and Brazilian ministries (Ministry of Environment and Climate Change (MMA), Ministry of Agriculture and Livestock (MAPA), Ministry of Science, Technology, and Innovation (MCTI), Ministry of Agrarian Development and Family Farming (MDA), Ministry of Finance (MF), Ministry of Racial Equality (MIR), and Ministry of Indigenous Peoples (MPI)), as well as the National Institute for Colonization and Agrarian Reform (INCRA) and the German Agency for Technical Cooperation (GIZ).

Based on the pillars presented in the Expression of Interest, priority geographic areas to be considered for the Investment Plan were identified. Three contiguous areas in Brazil were prioritized: the MATOPIBA region (formed by the state of Tocantins and parts of the states of Maranhão, Piauí, and Bahia), the Tocantins-Araguaia River Basin in the Cerrado-Amazon transition region, and the Caatinga biome. The Scoping Mission also identified forest restoration as a priority theme for the Investment Plan. These priority regions are shown in the map below:

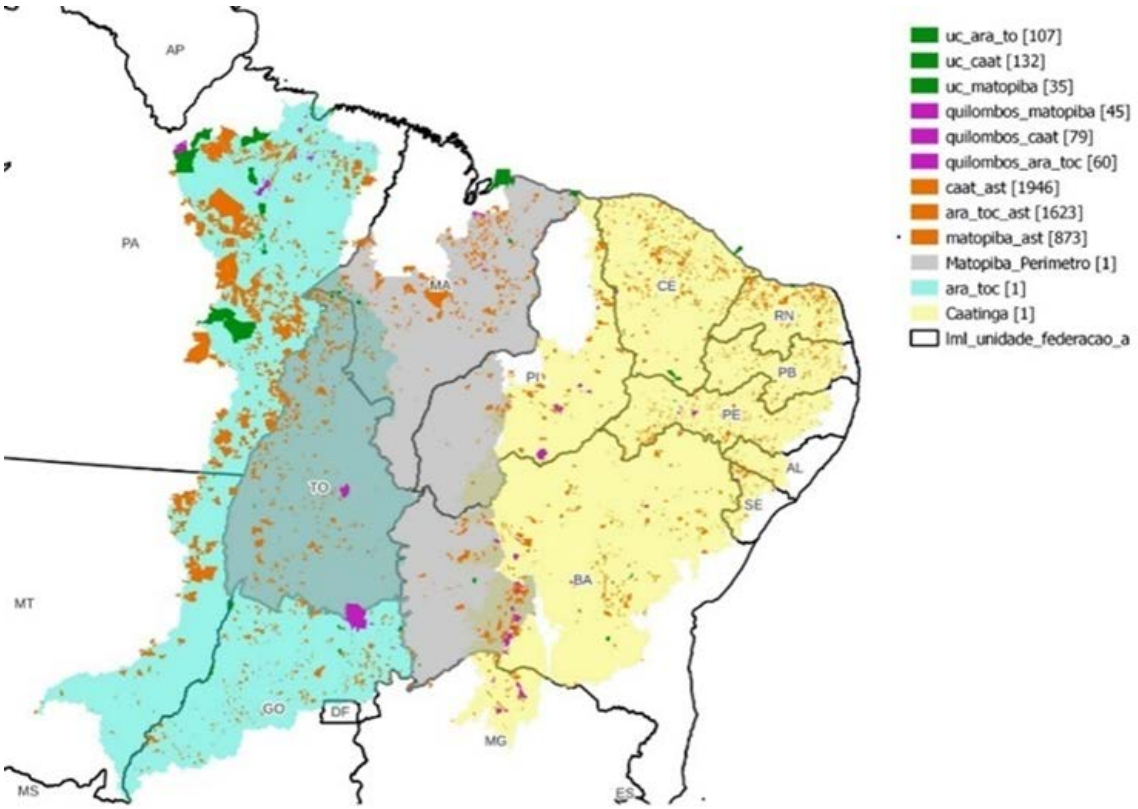


Figure 1 Areas defined by the scoping mission as priority territories for the development of the NPC Investment Plan for Brazil.

The Brazilian Forest Service (SFB), an organization linked to the Ministry of Environment and Climate Change (MMA), was identified as the Technical Focal Point for the development of the NPC Investment Plan for Brazil. A Monitoring Management Group (GGA) was also created to support and oversee the work. The GGA is composed of representatives of the multilateral development banks, the Ministry of Environment and Climate Change, the Brazilian Forest Service, and the Ministry of Finance, which coordinates the whole process. The activities required for the development of the Investment Plan are operationalized by the World Bank, including the hiring of consultants for the development of the Diagnostic and Investment Plan.

With the aim of supporting the Monitoring Management Group in defining the geographic area and focus of the NPC Investment Plan for Brazil, was submitted, in April 2024, a report containing the multicriteria analysis matrix crossing information on NPC criteria and indicators with the three previously proposed geographic areas (Caatinga, Tocantins-Araguaia River Basin, and MATOPIBA). The analysis also aimed to inform the decision on which of the three indicated pillars should be the focus. As part of this process, interviews were conducted with around 30 people from government institutions and civil society organizations (socioenvironmental non-governmental organizations, private companies, and financial institutions and capital market/funds). These interviews with stakeholders aimed to obtain information on: the choice of territory that might generate the greatest impact; the one that might restore or preserve more social and environmental elements; and the one that would deliver the most international climate benefits, including in relation to water supply and the restoration of areas that have already been deforested—and not just stopping deforestation.

After analyzing all information available and the stakeholder interviews, the Monitoring Management Group agreed that the NPC Investment Plan for Brazil should focus on restoring vegetation in the Tocantins-Araguaia River Basin.

Based on the definition of the theme (restoration of degraded ecosystems) and the area

of interest (Tocantins-Araguaia River Basin), a diagnostic was produced and a set of criteria was selected to serve as a filter to identify, within the area of interest, the specific territory to be considered for the formulation of the Target Project of the NPC-Brazil Investment Plan. This prioritization considered that:

I. The Tocantins-Araguaia River Basin covers 967 km2, that is, 11 percent of the Brazilian territory.

II. The Tocantins-Araguaia River Basin includes 453 municipalities in the states of Goiás, Mato Grosso, Tocantins, Maranhão, Pará, and the Federal District.

III. The Tocantins-Araguaia River Basin includes the Cerrado and the Amazon biomes.

IV. NPC-Brazil Program funds will increase the chances of a successful outcome will generate more impact if focused on a specific region and/or municipality.

V. The project must be scaled based on the development of a replicable model: two criteria that aimed to prioritize the selection of key municipalities for the preparation of the diagnostic and subsequent development of the Investment Plan were identified. They are:

a. Calculation of deforested areas in the municipalities within the Tocantins-Araguaia River Basin:

The calculations were based on spatial analyses with georeferenced vector data, using free geoprocessing software (Quantum GIS); they were subsequently organized in Microsoft Excel spreadsheets. The data sources used were: PRODES,[1] secondary vegetation,[2] basin boundary,[3] and municipal boundaries.[4]

The analyses enabled us to calculate the percentage of the PRODES deforestation area within the boundary of each municipality (considering their total territorial areas), and the deforestation in each municipality within the Tocantins-Araguaia River Basin (considering their territorial areas). For the Amazon and Cerrado biomes, the deforestation areas in each biome over time are considered, with year zero being what PRODES considers the "year of accumulated deforestation" (2007 for the Amazon, 2000 for the others), in each municipality in their total territorial areas, and in the areas within the Tocantins-Araguaia River Basin.

b. Public policies, national, state, and municipal plans to control and combat deforestation, and programs related to restoration—whether existing or in the process of being developed—were also analyzed and considered as a basis for selecting the territory to be worked on.

One of the policies used to propose priority municipalities was the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires in the Amazon.5 The municipalities included in the program that are part of the Tocantins-Araguaia River Basin were segregated.

During this stage, five interviews focusing on gender and social inclusion were also

1 PRODES: vector files on the increase in annual deforestation in Brazilian biomes (http://terrabrasilis.dpi.inpe.br/downloads/).

2 Secondary vegetation: areas recovered from deforestation mapped by PRODES (https://www.terraclass.gov.br/geoportal-aml/).

3 Basin boundary: vector file on the boundary of the Tocantins-Araguaia River Basin (https://www.ibge.gov.br/geociencias/downloads-geociencias.html?caminho=informacoes_ambientais/estudos_ambientais/bacias_e_divisoes_hidrograficas_do_brasil/2021/Bacias_Hidrograficas_do_Brasil_BHB250/vetores/).

4 Municipal boundaries: vector files on municipal boundaries according to IBGE 2020 (https://www.ibge.gov.br/geociencias/downloads-geociencias.html).

5 Ministerial Decree GM/MMA No. 1030 of April 3, 2024 on the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires and the Union with Municipalities Commission.

conducted with government and civil society stakeholders working on the theme of restoration and climate change, enabling new approaches and perspectives to be included in the analysis and proposed IP.

As part of the preparation of the Investment Plan, a technical seminar was held on May 28, 2024 in Belém, in the state of Pará. The World Bank consulting team and people/organizations from different sectors—public, private, and civil society—participated in the seminar with the aim of contributing to the improvement of the diagnostic proposed for the NPC-Brazil Program. In total, 40 people attended the NPC-Brazil Technical Seminar: 34 in person, and six remotely (morning presentations only). The main goals of the technical seminar were:

I. Present and discuss the Theory of Change and the Tocantins-Araguaia Diagnostics for key social actors;

II. Obtain inputs to advance the preparation of the Investment Plan; and

III. Validate the Diagnostic and expand the consultation on information and data that are relevant to the current stage of the NPC-Brazil Project.

In addition to the previously agreed territory of the Tocantins-Araguaia River Basin—which includes municipalities in the Cerrado and Amazon biomes—the region known as Arc of Deforestation was also considered as part of the final target territory for future actions under the NPC-Brazil Program. The so-called Arc of Deforestation is the region with the highest rates of deforestation in the Amazon. It is an area that runs westward from western Maranhão and southern Pará, passing through Mato Grosso, Rondônia, and Acre. It currently includes 256 municipalities that account for approximately 75 percent of all deforestation in the Amazon. Of the 256 municipalities, 154 are located in the Tocantins-Araguaia River Basin.

The aim is for the environmental restoration actions to be implemented by the NPC-Brazil Program to complement those that want to transform the Arc of Deforestation into an Arc of Restoration.

Details regarding the territory are in the Program Description of this Investment Plan as a contribution from CIF NPC to the transition from the Deforestation Arc to the Restoration Arc in the Tocantins Araguaia Basin.

On September 25 and 26, 2024, the Joint Mission was held in Brasília (in person and virtually), with the objective of assisting the Brazilian Government in designing the Investment Plan of the NPC Brazil Program, aiming to strengthen the country's proposal. In addition, the Joint Mission specifically: (I) reviewed and discussed the proposed Investment Plan, which was prepared based on the territorial and thematic priorities defined during the scoping and consultation mission, the country context and Nature-Based Solutions, and identifying existing technical, economic, socio-environmental and institutional information and including the private sector, stakeholder engagement and gender issues; (II) collected contributions on the proposed Investment Plan, comments and considerations from representatives of local communities, non-governmental and civil society organizations, the private sector and other potential partners; (III) analyzed the financing modalities and institutional arrangements that support the Government's development strategies; and (IV) promoted dialogue with relevant bilateral and multilateral development partners to support the Investment Plan and discussions on potential leverage for actions proposed by the Government of Brazil under the Investment Plan.

The Joint Mission included representatives from the Climate Investment Funds/Nature, People and Climate (CIF/NPC); the Ministry of Finance, the Ministry of Environment and Climate Change, the Brazilian Forest Service (SFB), the National Bank for Economic and Social Development (BNDES), other institutions of the Federal Government; the Multilateral Development Banks (World Bank and Inter-American Development Bank - IDB), the states of Tocantins, Pará, Mato Grosso and Maranhão; cooperation institutions; representatives of civil society; and the private sector.

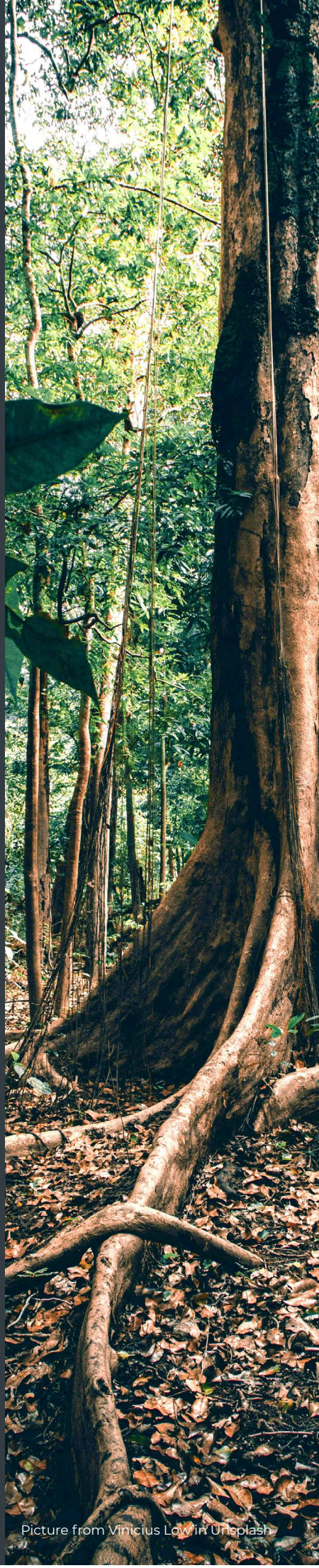
Finally, closing the cycles of consultations and meetings to discuss and improve the proposal for the NPC Investment Plan for Brazil, the Ministry of Finance, through the General Coordination of Sustainable Finance, promoted the

online Public Consultation of the Investment Plan during the period from December 3 to 20, 2024. The link to the consultation was disclosed to participants in the meetings and missions to prepare the Investment Plan. Two statements were recorded during the Public Consultation process.

ENGAGEMENT AND CONSULTATION PROCESSES IN IP PREPARATION	OBJECTIVE	PARTICIPATING ORGANIZATIONS/ INDIVIDUALS
Scoping Mission – September 2023	a) Proposal of activities for potential support through the Investment Plan of NPC Brazil – which will serve as a basis and reference for the definition of the IP's line of action; b) Identification of government institutions or agencies with potential interest in the relevant program areas of the NPC and related functions; c) Collection of inputs for the preparation of the Term of Reference for the Preparation of the NPC Brazil Investment Plan.	Ministry of the Environment; Ministry of Agriculture and Livestock; Ministry of Science, Technology and Innovation; Ministry of Agrarian Development; Ministry of Finance; Ministry of Racial Equality; Ministry of Indigenous Peoples; National Institute of Colonization and Agrarian Reform; World Bank; IFC; Inter-American Development Bank; GIZ German cooperation.
Preliminary Diagnosis – April 2024	Support the Monitoring Group in defining the geographical area and the focus theme of the NPC Brazil Investment Plan. The interviews with the stakeholders sought information related to: the territorial option that causes the greatest impact; the one that restores or preserves the most social and environmental elements; and also, the one that delivers the most international climate benefits, including in relation to water supply and recomposition of already deforested areas and not just to curb deforestation.	Interviews were conducted with about 30 people, representatives of government institutions and civil society organizations (socio-environmental non-governmental organizations, companies and financial institutions, and capital markets/funds). Five interviews focused on gender and social inclusion were also conducted with government and civil society actors working on the topic of restoration and climate change, allowing new approaches and perspectives to be included in the analysis and proposal of the IP.
Technical Seminar – May 2024	Contribute to the improvement of the diagnosis proposed for the NPC Brazil Program, aiming to: (I) Presentation and discussion of the Theory of Change and Diagnosis of the Tocantins Araguaia Basin region for key social actors; (II) Obtaining inputs to advance in the preparation of the Investment Plan; and (III) Validation of the diagnosis and expansion of the consultation of information and data relevant to the NPC-Brazil.	40 people participated in the NPC Brazil Technical Seminar, 34 in person and 6 followed the morning program (presentations), remotely.
Joint Mission – September 2024	Assist the Brazilian Government in the design of the Investment Plan of the NPC Brazil Program, aiming to strengthen the country's proposal.	Representatives of the Climate Investment Funds/Nature, People and Climate (CIF/NPC); the Ministry of Finance, the Ministry of Environment and Climate Change, the Brazilian Forest Service (SFB), the National Bank for Economic and Social Development (BNDES), other institutions of the Federal Government; the Multilateral Development Banks (World Bank and Inter-American Development Bank - IDB), from the states of Tocantins, Pará, Mato Grosso and Maranhão; cooperation institutions; representatives of civil society; and the private sector.
Online Public Consultation – December 2024	Disseminate the proposal for an Investment Plan to discuss and improve the NPC proposal for Brazil.	The consultation was open online from December 3 to 20, 2024 and registered two manifestations.

ANNEX 2

DEDICATED DONATION MECHANISM FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES (DGM/NPC)



Picture from Vinicius Low in Unsplash

The Nature, Peoples, and Climate Investment (NPC) Program will seek to establish a dedicated financing window for local communities and indigenous peoples. This dedicated window will build on the CIF's Dedicated Giving Mechanism (DGM), an effective model for increasing the engagement of Indigenous Peoples and Local Communities in sustainable forest management and climate policies and actions.

The CIF's experience has shown that Indigenous Peoples and Local Communities supported by DGM – including in Brazil – have strengthened their capacities, shared their knowledge with each other, and developed valuable expertise in sustainable forest management, all of which have amplified the crucial role they already play in global efforts to reduce deforestation and curb climate change. It also demonstrated that DGM is leading to broader and potentially more transformative effects than initially anticipated, with benefits for both Indigenous Peoples and Local Communities, as well as the broader community involved in DGM and REDD+.

The NPC Program will strive to ensure that Indigenous Peoples and Local Communities in all participating countries have direct access to funds to implement a DGM. Based on the lessons learned and the demand of Indigenous Peoples and Local Communities, this new phase of the DGM will expand its objective to not only focus on forest issues and REDD+, but also promote the multisectoral approach needed to achieve climate and sustainability goals. It will also explore opportunities to foster partnerships with other initiatives working to provide direct access to climate finance for Indigenous Peoples and Local Communities.

DGM/NPC IMPLEMENTATION CONTEXT

Brazil has an enormous diversity of indigenous, quilombola and traditional peoples, considered "culturally differentiated groups that recognize themselves as such, that have their own forms of social organization, that occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition" (Decree No. 6,040/2007), which should be covered by the Mechanism in question.

The following are nationally recognized as traditional peoples or communities: indigenous peoples[1] and quilombola communities[2], which are recognized in the Constitution of the Republic, and 26 other traditional peoples[3]. These social groups are nationally recognized for their important role in the conservation of biodiversity, through production systems based on socio-bioeconomy, present in all biomes of the country. Their existence is marked by slow processes of demarcation and titling of their lands, land insecurity and situations of violence and violation of rights.

The DGM/NPC will be implemented in a context marked by a regulatory framework in which the rights of indigenous and traditional peoples and the institutional attributions of various government agencies in relation to their protection are clearly defined and in which the participation of indigenous and traditional peoples in decision-making moments on public and private interventions and projects that may interfere with their lives are largely guaranteed. This regulatory framework – which will guide how the DGM/NPC will be implemented in Brazil – is addressed in subsequent sections.

1 About 272 indigenous ethnic groups inhabit the national territory and account for 1,693,535 people (0.83% of the total inhabitants of the country), mostly (75.71% of the total) concentrated in the North and Northeast regions, but only a minority (36.78% of the total) living within the Indigenous Lands is 622,844 people.

2 The quilombola population is 1.32 million people (0.65% of the total inhabitants of the country), concentrated in the Northeast Region (68.19% of the total) and with only 12.67% living in the 494 Quilombola Territories officially delimited in the country

3 The *andirobeiros* and the ever-living flower pickers; the *catingueiros*, the *caiçaras*, the *mangaba* pickers and the *cipozeiros*; the gypsy peoples and the communities of *fundo and fecho de pasto*; the extractivists and the coastal and marine extractivists; the *faxinalenses*, the *geraizeiros*, the *morroquianos* and the *pantaneiros*; and the islanders and artisanal fishermen, the Pomeranian people; the healers and the *raizeiros*; the peoples and communities of *terreiro*/peoples and communities of African origin; the babassu coconut breakers and the Araguaia *retireiros*; the riverside dwellers, the *vazanteiros*, the *veredeiros* and the *caboclos* (Decrees No. 8,750/2016 and No. 11,481/2023).

INDIGENOUS PEOPLES AND COMMUNITIES

The Federal Constitution of 1988, the ratification of international treaties and conventions (especially Convention 169 of the International Labor Organization – ILO) and infra-constitutional normative acts enshrine the rights of indigenous peoples and delegate authority to the federal government. The Brazilian State adopts self-identification as the only criterion for recognizing the belonging of a social group to an Indigenous People, provided that not only an individual identifies himself as a member of a community, but that this community also recognizes this individual as such. It defines the right of usufruct to the lands traditionally occupied by indigenous peoples and their natural resources, which are inalienable and non-transferable and part of the patrimony of the Union and provides that "the removal of indigenous groups from their lands is prohibited, except ***ad referendum*** of the National Congress, in the event of a catastrophe or epidemic that represents a risk to their population, or in the interest of the country's sovereignty, guaranteed, in any case, the immediate return as soon as the risk ceases." It provides for the protection and promotion of their ways of life, social organization and cultures. It establishes the obligation of consultation and free, prior and informed consent of indigenous peoples in relation to initiatives that interfere with them and ensures their participation in arenas of deliberation on public policies, programs and projects that interfere with their lives, lands and rights.[4] It assigns to the Ministry of Indigenous Peoples the responsibility for indigenous policy in its broad sense and gives the National Foundation of Indigenous Peoples (Funai) the responsibility for the protection and promotion of indigenous peoples. It does not allow interventions in Indigenous Lands without the authorization of the indigenist agency, which must also act as an intervening body in the environmental licensing process of projects that may directly or indirectly affect indigenous lands and communities.

In this last aspect, Funai's participation is regulated by Funai's Normative Instructions 01/2012 and 02/2015), which establish, among other provisions, that when asked to manifest itself by the environmental licensing agency in the period prior to the issuance of the installation license, Funai must: (i) promote the effective participation of indigenous peoples in the collection of data and in the discussion of issues related to the licensing of projects that potentially cause impacts on their respective communities; (ii) only authorize the entry of the environmental assessment teams of the entrepreneurs into the affected indigenous lands after considering the absence of conflicts with the indigenous communities involved and the manifestation of the affected indigenous peoples – and, in case of a contrary manifestation by them, evaluate the reasons presented for the refusal of entry; (iii) suspend the authorization to enter indigenous land if there is a duly justified request from the indigenous community, if the performance of the activities generates conflicts in the indigenous land that compromises the safety of the indigenous community or the members of the team, or in the occurrence of situations potentially harmful to the health of both or serious conflicts involving indigenous and non-indigenous people that are not related to the activities resulting from the project; (iv) analyze and monitor the implementation of the programs provided for in the Basic Environmental Project (PBA) that defines the set of plans, programs, projects and environmental control measures, verifying the adequacy and relevance of the content of the document, the cause and effect relationship between the impacts pointed out in the study and the proposed measures and the socio-environmental sustainability of the proposed measures; (v) Present the PBA to the affected indigenous communities, in accessible language or with translation into mother tongues, before the preparation of the final technical opinion; (vi) not approve

4 In Brazil, meaningful consultation with Indigenous Peoples, involving their representative organizations, allowing sufficient time for decision-making processes and ensuring effective participation in the design of project activities and mitigation measures that could affect them positively or negatively is a requirement of the Federal Constitution (Art. 231, the ratification by the country of ILO Convention 169, infra-constitutional legislation on indigenous policy and environmental licensing. In the case of projects requiring licensing, it is required to prepare – in consultation with the affected Indigenous Peoples – a Basic Indigenous Environmental Plan, based on the conclusions drawn from the Indigenous Component of the Environmental Impact Study and consultations with the affected groups.

programs provided for in the PBA or equivalent document that cause environmental degradation; and, if there is access, at any time during the environmental licensing process, to associated traditional knowledge, (vii) request a specific report from the entrepreneur on the components of biodiversity, traditional knowledge and practices, and intangible knowledge of indigenous peoples, for the purpose of registration with the Genetic Heritage Management Council (CGEN/MMA).

It is also worth highlighting three other aspects:

- Obtaining the Free, Prior and Informed Consent (FPIC) of indigenous peoples in relation to projects that may affect them is provided for in ILO Convention 169 and in the Biodiversity Law (when there is access to Traditional Knowledge Associated with Genetic Heritage that has an identifiable origin). The Brazilian Biodiversity Law regulates the sharing of benefits to indigenous peoples for the use of genetic resources located on their lands and their traditional knowledge, the legislation does not yet cover, regulate or establish parameters that have to be followed in the commercial use of other cultural, ceremonial and spiritual goods.
- Established by Decree No. 7,747/2012, the National Policy for Territorial and Environmental Management of Indigenous Lands (PNGATI, in portuguese) aims to promote and guarantee the protection, recovery, conservation, and sustainable use of the natural resources of indigenous lands and territories, ensuring the integrity of indigenous heritage and the improvement of the quality of life of these communities.
- Funai has an exclusive structure to deal with isolated Indians and those of recent contact. The General Coordination of Isolated and Recently Contacted Indians (GIIRC) is responsible for ensuring that these groups have the freedom to continue with their own way of life without the need to be contacted by agents of national society. When it is discovered that there are (or may be) isolated indigenous peoples in an area, any economic or social project that is being carried out in that area has the responsibility to inform the GIIRC, so that it can take the necessary protection measures. Funai can also exercise punitive power in the fulfillment of its duty to control entry into these Indigenous Lands and to protect these groups against diseases and land invasions.

TRADITIONAL PEOPLES AND COMMUNITIES

In Brazil, traditional peoples and communities also have a set of rights widely recognized and protected by the robust regulatory framework, which aims to protect their cultures, ways of life, and territories.

The Federal Constitution of 1988 and several specific legislations guarantee quilombola communities in Brazil rights that aim to protect and promote the cultural identity, territories and ways of life of these communities. Article 68 of the Transitional Constitutional Provisions Act (ADCT) recognizes the right of quilombola communities to definitive ownership of the lands they occupy, and the State must issue property titles. Article 215 guarantees the right to the preservation of cultural manifestations of quilombola communities and the National Culture Policy promotes the appreciation and preservation of traditional cultures, including quilombolas.

At the infra-constitutional level, Decree No. 4,887/2003 regulates the procedure for identification, recognition, delimitation, demarcation and titling of lands occupied by remnants of quilombo communities. The Law of Guidelines and Bases of National Education (LDB) ensures the inclusion of content that values Afro-Brazilian and quilombola history and culture in the school curriculum and guarantees access to quality education, respecting the cultural specificities of quilombola communities. The National Policy for the Integral Health of the Black Population includes specific actions to promote the health of quilombola communities, respecting their traditional health practices. Recently, through Decree 11,786/2023, the Federal Government instituted the National Policy for Quilombola Territorial and Environmental Management (PNGTAQ) with the

general objectives of supporting and promoting the territorial and environmental management practices developed by quilombola communities; to foster the conservation and sustainable use of socio-biodiversity; to protect the tangible and intangible cultural heritage of quilombola communities; strengthen their territorial and environmental rights; favor the implementation of public policies in an integrated manner; and to promote socio-environmental development, improvement of quality of life, well-being, peace and climate justice, with the necessary conditions for the physical and cultural reproduction of current and future generations of quilombola communities.

Decree No. 6,040/2007 deserves to be highlighted for having instituted the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT) and, with it, expanded to a wide range of traditional peoples and communities the State's obligations with sustainable development, with the recognition and strengthening of their territorial, social, environmental, economic and cultural rights. with the valorization of their traditional knowledge and practices, and with full respect for their human rights, dignity, aspirations, identity, culture and livelihoods based on natural resources. The main points of the PNPCT refer to: (i) the social and governmental recognition of traditional peoples and communities; (ii) the protection of the rights to social and cultural diversity of these communities; (iii) the recognition and strengthening of territorial, social, environmental, economic and cultural rights of traditional peoples and communities; (iv) the improvement of these communities' access to public policies and services; (v) the promotion of sustainable development, respecting and valuing traditional knowledge and practices; (vi) the guarantee of participation and representation of these communities in decision-making processes on public policies that directly affect them; (vii) the promotion of food and nutrition security, health and education of these communities; (viii) the resolution of conflicts generated by the creation of Conservation Units or large infrastructure projects that affect the traditional territories and ways of life of these communities; and (ix) the guarantee of productive inclusion through the promotion of sustainable and culturally appropriate production technologies. This Policy established the National Council of Traditional Peoples and Communities (CNPCT) as a consultative body that aims to promote the articulation between the government and traditional communities, ensuring the participation of these communities in the formulation of public policies.

Finally, it is worth noting that the environmental licensing process includes specific requirements to ensure the protection of the rights and interests of traditional peoples and communities. These requirements aim to ensure that the environmental impacts of enterprises and activities are properly assessed and mitigated, respecting the cultural and territorial particularities of these communities. Therefore, the environmental licensing process must take into account environmental zoning and the existence of traditional territories, ensuring the protection of these areas against activities that may cause environmental degradation. It should also promote Prior, Free and Informed Consultation on projects that may affect the territories and ways of life of traditional peoples and communities. Environmental impact studies include the identification and evaluation of the environmental, social and cultural impacts of the projects on traditional peoples and communities and the proposition of specific mitigating measures to minimize negative impacts and maximize benefits for these communities. In the creation of conservation units and other protected areas, the territorial rights of traditional communities must be respected and their participation in the management councils of conservation units and other territorial management instruments, as well as in the monitoring and inspection of licensed enterprises, ensuring that mitigating measures are effectively implemented.

THE EXPERIENCE OF THE DGM BRAZIL PROJECT (DEDICATED GRANT MECHANISM) PHASE 1 AND PHASE 2

Between 2012 and 2024, Brazil implemented the Forestry Program Investment Plan (FIP Brazil), which sought to promote sustainable land use and improve the management of native vegetation in the Cerrado, **the second largest biome in Brazil and South America, contributing to reducing pressure on remaining native vegetation, reducing GHG emissions, and increasing**

CO2 capture, and which included actions aimed at improving the Life of Indigenous, Quilombola and Traditional Peoples and Communities (PCI-QTs) in the Cerrado region and its engagement with the FIP, REDD+ and other similar programs focusing on climate change at the local, national and global levels funded through the FIP DGM Brazil Project Phase 1 (2015-2022) and Phase 2 (2022-2024) – DGM Brazil.

Between 2015 and 2024, DGM Brazil supported the Cerrado biome PCIQTs in developing community-based activities to promote sustainable forest and land use management systems, more resilient livelihoods, ethno development, and climate change adaptation by providing grants to community-based organizations and networks of community-based organizations under three grant windows: (I) Natural Resource Management Subprojects, (II) Immediate Threat Response Subprojects, and (III) Market-Oriented Productive Subprojects. It also funded capacity-building and institution-building activities for these organizations, which contributed to increasing their managerial and technical capacities, expanding their access to sources of financing for forest/land use and sustainable management of natural resources, and encouraging their participation in decision-making processes related to FIP, REDD+, and climate change. Finally, it included support for the management, monitoring and evaluation of the Project.

RESULTS, CHALLENGES AND LESSONS OF DGM BRAZIL

DGM Brazil was an ambitious and innovative effort to address the consequences of rapid land-use change in the Cerrado Biome, which made relevant contributions to: (I) strengthen the connections between PCIQTs; (II) increase the institutional capacity of their representative organizations; (III) expand its understanding of climate change and REDD+; (IV) promote the sustainable management of natural resources and livelihoods within their territories; and (B) recover from the adverse impacts of the pandemic. In the end, the beneficiaries of the project were empowered to protect natural resources in an area of more than 6 million (60000km2) hectares. The main results include the support given to the participation of 34 representatives of Indigenous Peoples and Traditional Communities in conservation and other processes related to REDD+ at the regional, national and global levels, 188 organizations representing REDD+ were trained; 34,780 beneficiaries of community subprojects, all satisfied with the technical assistance provided by the project; the recovery of 73 springs and 707 hectares of indigenous and traditional lands through sustainable landscape management practices (only during Phase 1 of DGM Brazil - P143492 BR DGM for PCIQTs (Brazil). In its Phase 1, the Project also supported the participation of representatives of the PCIQTs in 38 national and international knowledge-sharing events and the participation of five young representatives of the PCIQTs in a master's program offered by the University of Brasilia. The results of the 24 community subprojects supported during Phase 2 are still being measured, as their closing date is November 30, 2024.

Women were extensively involved in all consultations and represented in the National Coordinating Committee (NSC), which was coordinated by women. Specific capacity-building activities were conducted with the aim of enhancing women's skills, engagement, and leadership. The subproject selection criteria indicated that subprojects should involve women in the design of the project and include them as implementers. DGM Brazil's ultimate goal is for 30% of beneficiaries to be women, and progress reports show that this goal has already been exceeded. Thirteen of the 64 selected subprojects were led by women or women's representative organizations. Women accounted for 32% of all beneficiaries of the subprojects supported during Phase 1 and expressed their desire for DGM to continue to fund their activities and help expand their market access. Women's participation was even more prioritized in Phase 2 of DGM Brazil.

In summary, DGM Brazil made relevant contributions to: (I) strengthen the links between the PCIQTs; (II) to improve the institutional capacity of its representative organizations; (III) expand understanding of climate change and REDD+;

(IV) promote the sustainable management of natural resources and livelihoods within their territories; and also (V) support recovery from the adverse impacts of COVID-19. In the end, the beneficiaries of the project were trained to protect natural resources in an area of more than 6 million hectares.

Stakeholder engagement was a key pillar of DGM Brazil's Phases 1 and 2. Since the preparation of Phase 1 of DGM Brazil, community organizations representing the PCIQTs and traditional leaders have been consulted on all issues related to the project. The consultation process for the preparation of the Brazil DGM Phase 1 Project implemented in the Cerrado biome as part of the Forest Investment Program (FIP) supported by the Climate Investment Fund (CIF), involved the detailed mapping of stakeholders, including indigenous communities, quilombolas, civil society organizations, government institutions and other relevant groups, the holding of regional public consultations in which these groups had the opportunity to express their opinions on the objectives and scope of the project and an integrative seminar. For Phase 2, virtual consultations were carried out through online platforms, allowing the participation of a wider audience and the collection of contributions in a systematic way. Throughout its implementation, Phases 1 and 2 of DGM Brazil have developed and implemented a robust communication and stakeholder engagement strategy, relying on networks of PCIQTs and their members on the National Steering Committee. The engagement strategy also benefited from networks of mid-level community organizations found in the Cerrado Biome and the use of social media. The participation of the PCIQTs in the National Steering Committee was a key element in ensuring support and acceptance of the Project's activities by its beneficiaries. But above all, the opportunity for full stakeholder participation from the outset in the design of the Project was presumably the main factor for success, as beneficiaries and other stakeholders were not invited to participate after the Project had already been conceived, but played a leading role in its design and deliberated on the selection of the National Executing Agency.

DGM-Brazil marked an innovative approach that involved PCIQTs in Cerrado governance processes for the first time; built a network among communities for collective action; directly strengthened women's empowerment and social inclusion within communities; and provided demand-driven local resources for community-led natural resource management and related socio-economic needs.

The demonstrated success of the DGM model in Brazil led to its scale-up in a second phase of implementation and the mobilization of additional resources for PCIQTs in its 2nd phase.

The new DGM/NPC should consider these challenges and draw important lessons on: (I) how to achieve an adequate level of fiduciary management with an adequate level of delivery, adopting procurement-related measures to make small transactions less time-consuming and more flexible, without compromising the appropriate level of fiduciary responsibility and avoiding the delays caused by the dispersed and remote location of project **activities; (II) the key role as focal points for interaction with beneficiary communities to be played by the members of the National Steering Committee; (III) the need to involve regional networks of representative organizations to make the bidirectional flow of information efficient;** (IV) the need to adopt an adaptive management approach to overcome these unexpected challenges and take advantage of unforeseen opportunities.

CONSULTATION WITH INDIGENOUS, QUILOMBOLA, AND TRADITIONAL PEOPLES AND COMMUNITIES FOR DGM/NPC PREPARATION

The first moments of information about the DGM/NPC – focusing on the general principles of the Investment Plan – included: (I) the workshop in Belém, Pará, on May 24, 2024, with the participation of representatives of the Ministry of Indigenous Peoples, Ministry of Women, National Council of Extractive Populations, Federation of Rural Workers and Family Farmers of Pará; Federation of Indigenous Peoples of Pará; Solidaridad Foundation, Alliance for the Restoration of the Amazon and the Forest Women's Network; (II) the scoping mission with the participation of the

Ministry of Indigenous Peoples, the Ministry of Racial Equality and the Ministry of Justice; and (III) the joint mission to prepare the IP. In October 2024, during the closing event of FIP Brazil, DGM/FIP beneficiaries expressed their concern about the discontinuation of support for PCIQTs in the Cerrado and demonstrated their interest in participating in DGM/NPC.

Echoing the lessons learned from the preparation and implementation of the DGM Brazil Project, the preparation of the DGM/NPC should be based on the engagement, consultation and participation of the PCIQTs and their representative organizations. The process of dialogue and consultation with primary stakeholders will be deepened during the preparation of DGM Brazil. The participation arrangements and consultation process will be coordinated by the Ministry of Indigenous Peoples, FUNAI, the Palmares Foundation, the Ministry of Racial Equality and the MMA with the support of the Multilateral Development Banks.

An initial mapping identifies the importance of participation in this dialogue of the following from stakeholders directly interested in the DGM/NPC:

I. Government Agencies:

- Ministry of Indigenous Peoples – MPI
  - Secretariat of Environmental and Indigenous Territorial Rights
  - Secretariat of Environmental and Indigenous Territorial Management
  - Secretariat for Articulation and Promotion of Indigenous Rights
- National Foundation of Indigenous Peoples – Funai
- Ministry of Racial Equality - MIR
  - Secretariat of Policies for Quilombolas, Traditional Peoples and Communities of African Origin, Peoples of Terreiros and Gypsies
- Palmares Cultural Foundation
- Ministry of Environment and Climate Change
  - National Secretariat for Traditional Peoples and Communities and Sustainable Rural Development
- Ministry of Agrarian Development and Family Farming
  - Secretariat of Quilombola and Traditional Territories and Production Systems
- National Institute of Colonization and Agrarian Reform
- State Secretariat for Indigenous Peoples – Government of Pará
- Secretariat of Native and Traditional Peoples of Tocantins
- Assistant Secretary for the Rights of Indigenous Peoples of Maranhão

II. Entities Representing Indigenous, Quilombola and Traditional Peoples and Communities

- National Council of Traditional Peoples and Communities (CNPCT)
- Articulation of Indigenous Peoples of Brazil (APIB)
- Coordination of Indigenous Organizations of the Brazilian Amazon (COIAB)
- Federation of Indigenous Peoples of Pará (FEPIPA)
- Association of Indigenous Peoples of Tocantins
- National Coordination for the Articulation of Quilombola Communities (CONAQ)
- National Council of Extractive Populations (CNS)
- Mobilization of Indigenous Peoples of the Cerrado (MOPIC)
- Interstate Movement of Babassu Coconut Breakers (MIQCB) of Maranhão, Pará, Piauí and Tocantins
- Cerrado Network

This list will be reviewed and expanded during the planning meetings of the stakeholder consultation process, which will include efforts to ensure the participation of entities representing the communities located in the area prioritized by the NPC Brazil Investment Plan and the representation of women's and youth groups.

ANNEX 3

PRELIMINARY REPORT ON THE DIAGNOSTIC OF THE AREA OF INTEREST OF THE CIF NPC BRAZIL PROGRAM

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PRESENTATION

The Terms of Reference underpinning the Preparation of the Investment Plan of the Investment Program: Nature, People, and Climate (NPC) for Brazil (NPC-Brazil) aimed to steer the drafting of a Preliminary Diagnostic of the Area of Interest (Output 3), to be submitted to the meeting on the Analysis and Conclusion of the Diagnostic (Output 4). Once the final Diagnostic report (Output 5) has been reviewed, a document describing the NPC-Brazil Investment Plan (Output 6) will be prepared. All the processes involving the validation of the documents depend on the collaboration of the MDBs and other members of the Technical Group. This is particularly important as regards the final document of the Investment Plan.

It is necessary to highlight at this point the type of multiple interactions envisaged with the members of the Technical Group and Focal Point, based on the preliminary data and proposals prepared by the Consultancy in support of the decision. It is not, however, within the remit of the Consultancy to decide which steps need to be taken in the processes leading up to the Investment Plan, but to continuously provide the Technical Group and MDBs with the information they need in order to enable the Consultancy to guide the subsequent stages of the work.

In accordance with the schedule approved in the Work Plan (Output 1), the Consultancy presented the Preliminary Diagnostic of the Priority Areas of Interest to NPC-Brazil (see annex I). This resulted in the Technical Group's decision to select the *Tocantins Araguaia Hydrographic Basin* as the region in which a Program for the Conservation and Recovery of Degraded Ecosystems would be feasible. Pillar 1 of the NPC Brazil Expression of Interest (annex 2 of this document) describes the area of activity, objectives, proposed approach, and strategic alignment, which are all within the scope of this Diagnostic.

This document proposes a Theory of Change using the guideline formulated by CIF NPC to emphasize the challenges identified in the Tocantins-Araguaia Basin Area of Interest, and to plan how to address such challenges with policies and interventions supported with

funding from the NPC-Brazil Investment Plan. Since this is a proposal that the Technical Group has pursued for a Forest Restoration Project in the Tocantins-Araguaia Basin, some of the items proposed in the CIF Theory of Change are not fully applicable or need to be adjusted – without prejudice to the use of the Nature, Community, and People Program Indicators as one of the proposed implementation metrics.

As a result of this planning effort based on the proposed Theory of Change, the Consultancy selected a set of criteria that served as a filter to identify, within the Area of Interest, the territory to be considered for preparing the Target Project of the NPC-Brazil Investment Plan. It is clear that the estimated US$47 million, when applied to a Forest Restoration with Socio-Environmental Rehabilitation program, calls for special attention to be focused on the allocation of such funds to produce an impact measurable by the CIF NPC Indicators.

However, although the Consultancy has used elements of the CIF NPC Theory of Change to formulate this Preliminary Diagnostic, many of these cannot yet be adequately applied here, given that the ToC elements require a set of definitions that will emerge from (i) discussion on the content of this document; (ii) the activities planned in Item 3 (Proposal for the Public Consultation Mechanism or Diagnostic Analysis Mission); and (iii) from other data yet to be collected in further interviews that have not yet been scheduled due to the absence of important stakeholders such as representatives of entities from the State of Pará (e.g., the Ministry of Women).

In light of the above, it is worth noting that the Consultancy used the formulation of the Theory of Change as a key to planning the activities to be financed by NPC-Brazil, and that planning implementation can already be observed in certain items formulated in this Preliminary Diagnostic.

This document will serve as a basis for the production of advisory material for the Public Consultation Mechanism or the Diagnostic Analysis Mission (Output 4) to be agreed between the Government's Focal Point, other members of the Technical Group, and the MDBs. It will subsequently be used in the preparation of the Final Diagnostic (Output 5) and the Investment Plan itself (Output 6).

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TABLE OF CONTENTS

1. INTRODUCTION

The text of this Preliminary Diagnostic submitted for discussion and decisions by the Technical Group was divided into two parts. The first presents the proposal of the Theory of Change as a planning methodology for NPC-Brazil, providing data, suggestions, and other elements to support the Technical Group's decisions on the next steps to be implemented by the Consultancy and as part of the planning to be included in the Investment Plan. The second part of the Preliminary Diagnostic points to the need for a decision to be taken on a Public Consultation mechanism or Diagnostic Analysis Mission.

It is obviously important to emphasize that all the elements stipulated as the minimum scope of Output 3 of the Terms of Reference for the Preparation of the Investment Plan of the Investment Program: Nature, People, and Climate (NPC) for Brazil (NPC-Brazil) were addressed here in different parts of the text. However, since this is a preliminary product, other issues were also highlighted for consideration and decisions by the Technical Group.

It is expected that after the definition of the NPC-Brazil Region in the transition area between the Cerrado Biome and the Amazon Biome - specifically in the Tocantins-Araguaia Hydrographic Basin, focused on a project that could be classified as a Nature-based Solution such as Forest Restoration with Environmental Recomposition as described in annex 1 of the Consultancy's Output 2 (Preliminary Diagnostic of Areas of Interest), there are sufficient data here on the target municipalities in Tocantins-Araguaia addressing gender issues, financing opportunities and types of restoration projects that could be used to inform the next decisions of the Technical Group and representatives of the MDBs.

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Picture from Brazilian Forest Service Archive

2. THEORY OF CHANGE

Theory of Change is a planning methodology used—generally but not exclusively—by social entrepreneurs and nongovernmental organizations to describe the expected impact of an intervention or a project program in a given community or territory. This methodology works with the prospect of longer-term outcomes developed from measurements of intermediate deliverables over short and medium time horizons.

The Theory of Change is a collective construction that originated in the 1950s. However, it was the Aspen Institute[1] and its Roundtable on Community Change[2] (which can be found on LinkedIn) that contributed most to methodological improvements, especially from the 1990s onwards, with the foundations of the method being compiled in the book "New Approaches to Evaluating Comprehensive Community Initiatives"[3] published in 1995.

In May 2022 in its report "Theory of Change for the Climate Investment Funds,"[4] the Climate Investment Funds (CIF) proposed a model to guide the application of the methodology in initiatives financed by CIF funds. This model is summarized in figure 1 below: CIF Nature Solutions Program Theory of Change, which was extracted from page 5 of the cited publication.

1 https://www.aspeninstitute.org/

2 https://www.linkedin.com/company/aspen - institute - roundtable - on - community - change/about/

3 Conell, JP, Kubisch, AC, Schorr, LB, Weiss, CH – "New Approaches to Evaluating Comprehensive Community Initiatives," Aspen Institute: Washington DC, 1995

4 CTF, J., & Committee, SCFTF (2022). Theory of Change for the Climate Investment Funds, 20.

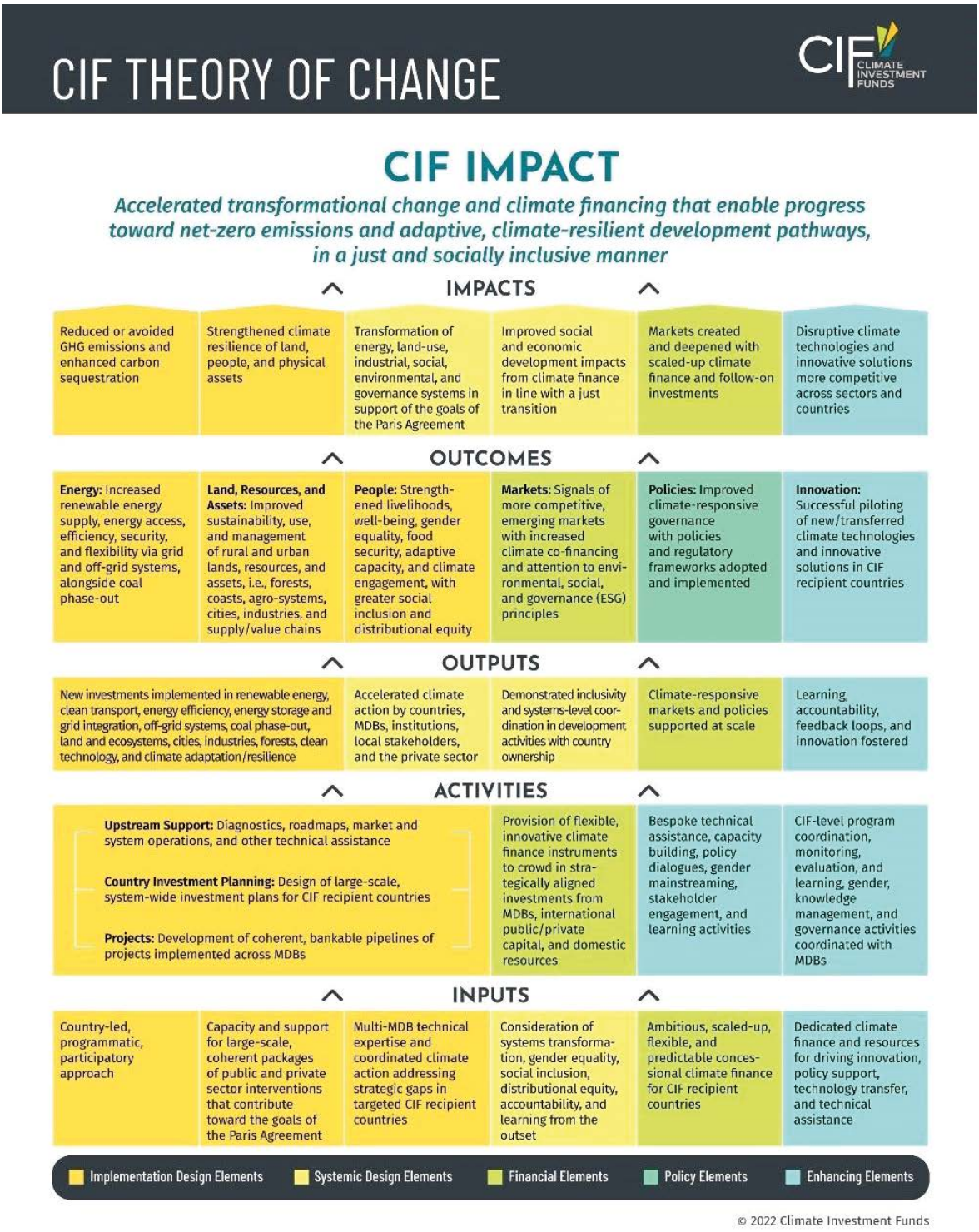

Figure 1 CIF Nature Solutions Program Theory of Change

The figure above shows how the Theory of Change is applied by the CIF NPC. It was used as a basis for the proposal of the NPC-Brazil Theory of Change presented by the Consultancy in this document.

Other reference sources for carrying out this work also included material from the Ten-Step Theory of Change Guide by New Philanthropy Capital, published in late 2019, which represents a synthesis of the 10 years that the institution spent learning how to apply methodology. Also useful is the Manual for Planning and Evaluation of Social Projects in Social Organizations by Professor Maria Cecília Prates Rodrigues, a researcher at the Brazilian Institute of Economics of the Getúlio Vargas Foundation.

2.1 PROPOSAL OF THE THEORY OF CHANGE FOR THE NPC-BRAZIL

The Theory of Change proposed here for NPC-Brazil considers the expected logistical aspects of the development of the Project funded with US$47 million from the Climate Investment Funds, explains how the results are expected to be achieved and how these results will be measured and describes the changes in a hierarchical chain of objectives in light of the causal hypothesis assumed for the NPC-Brazil Investment Plan.

After a decade of refinements in applying the Theory of Change, the theoretical basis that steers CIF's credit approvals and other contributions to climate change mitigation has evolved in its mission to accelerate transformational change and climate finance that enable progress toward net-zero emissions by building climate-resilient and adaptive development pathways in a just and socially inclusive manner.

Based on the development challenges highlighted above, the CIF business model responds to the urgent need for the following:

a. An increase in the scale and integration of climate investments in beneficiary countries;

b. Innovative financial instruments and concessional terms to enable the bankability of climate investments in new and/or risky areas;

c. Investments that promote inclusion, transformational change, gender equality, and a just transition at the systems level; and,

d. Strategic engagement, technical assistance, policy support, learning, and accountability within and among CIF beneficiary countries and local stakeholder groups.

As previously highlighted, the Theory of Change is the result of a collective constructive process over the last few decades. Thus, its scope and form of application, notwithstanding its common defining core, undergo variations and customizations, such as those cited in the two reference sources mentioned above.

The Consultancy, in line with the guidelines of the scope(s) of the Terms of Reference prepared by the Technical Group, maintains the itemization of the 5 (five) parts proposed in the document "Theory of Change for the Climate Investment Funds" (see figure I above). The Consultancy also advised that a number of changes and additions to reflect Brazilian circumstances were necessary, thus obliging the Consultancy to use the aforementioned other models of implementation of the Theory of Change.

Certain other adjustments to the items selected to comprise the NPC-Brazil Theory of Change may also arise throughout the discussion of this document. Adjustments may also emerge from the implementation of the Public Consultation Mechanism or Diagnostic Analysis Mission in such a way that the planning based on the NPC-Brazil Theory of Change will only appear complete when the Investment Plan (Output 6) is being finalized.

This Preliminary Diagnostic henceforth uses itemization and the application of the first techniques containing elements of the Climate Investment Funds Theory of Change as presented below (where it was already possible to prepare part of the ongoing planning).

2.2 THE CAUSAL THESIS OF THE THEORY OF CHANGE

The thesis proposed as a starting point for the planning process for the allocation of resources to be raised from the Climate Investment Funds in the NPC-Brazil Project can be outlined as follows:

2.2.1 THESIS PROPOSAL

The NPC Brazil Program is based on conclusions that the restoration of landscapes and forests, with community input, gender equity, and based on Integrated Land Management (ILM)[5] — a methodology recognized in BNDES[6] differentiated credit lines—and with the far-sighted prospect of improved socio environmental, economic, and cultural management of landscapes, will boost the transformation of a territory with high levels of environmental degradation and social exclusion into a territory with social and environmental sustainability and a population showing resilience in the event of climate crises.

2.2.1.1 CRITERIA FOR SELECTING THE LOCATION FOR APPLICATION OF THE THESIS

Based on the initial assessments approved by the Technical Group based on the Preliminary Diagnostic included in annex 1, and considering that (i) the *Tocantins Araguaia Basin* is a region with 967 km2 amounting to 11 percent of the Brazilian territory; (ii) it contains 453 municipalities in the states of Goiás, Mato Grosso, Tocantins, Maranhão, Pará and the Federal District; (iii) it has the Cerrado and Amazon Rainforest biomes; (iv) the resources for the NPC- Brazil Program will have a greater chance of success and impact if focused on a region and/or municipality; and (v) the project must be scaled up based on the development of a replicable model. The Group of Consultants identified 2 (two) criteria aimed at prioritizing the selection of key municipalities for preparing the diagnostic and addressing the subsequent development of the Investment Plan. They are:

I. Calculation of deforested areas in the municipalities that make up the Tocantins-Araguaia Hydrographic Basin (annex 3):

   a. The calculations were based on spatial analyses, with georeferenced vector data, in open-source geoprocessing software (Quantum GIS), and later organized in Microsoft Excel spreadsheets (according to the methodology report prepared by technicians Leticia Palazzi Perez & Cassiano Gustavo Messias, INPE, 2024). The data sources used were PRODES,7 Secondary Vegetation,8 Basin Limit,9 and Municipal Limits.10

   b. Through the analyses (annexes 3 and 4), the percentage of the PRODES deforestation area within the limits of each municipality within its total territorial area and deforestation in each municipality in their territorial areas within the Tocantins-Araguaia Basin, were calculated. For the Amazon, Cerrado, and Caatinga biomes, the deforestation areas of each biome over time are counted, with year zero being what PRODES considers to be the "year of accumulated deforestation" (2007 for the Amazon, 2000 for the others), in each municipality in their total territorial areas, and in the areas within the Tocantins-Araguaia Basin.

   c. Annex 3 contains information for the "Amazon basin," "Cerrado basin," and "Amazon NF basin," indicating the areas of deforestation in each biome over time, with year zero being what PRODES considers the "year of accumulated

5 Inguelore Scheunemann and Luiz Oosterbeek (orgs.), Integrated Territorial Management: Economy, society, environment, and culture 2012.

6 In Brazil, the Belo Monte Hydroelectric Plant benefited from such a differentiated credit line where socio-environmental and territorial issues needed to be proven as part of the results, just as the Port of Açu and other projects in Brazil have already implemented Integrated Territorial Management Programs (GIT).

7 PRODES: vector files of the annual deforestation increase in Brazilian biomes (http://terrabrasilis.dpi.inpe.br/downloads/).

8 Secondary Vegetation: areas recovered from deforestation mapped by PRODES (https://www.terraclass.gov.br/geoportal-aml/)

9 Basin boundary: Vector file of the Tocantins-Araguaia river basin boundary (https://www.ibge.gov.br/geociencias/downloads-geociencias.html?path=environmental_information/environmental_studies/basins_and_hydrographic_divisions_of_brazil/2021/Hydrographic_Basins_of_Brazil_BHB250/vectors/).

10 Municipal boundaries: vector files of IBGE 2020 municipal boundaries (https://www.ibge.gov.br/geociencias/downloads-geociencias.html).

deforestation" (2007 for the Amazon, 2000 for the others), in each municipality in their territorial areas within the Tocantins-Araguaia basin.

d. As an additional argument regarding the state of environmental degradation, the analysis of secondary vegetation (SV) in the municipalities in their total territorial areas and SV in each municipality in their territorial areas within the Tocantins-Araguaia basin was considered. Secondary Vegetation (SV) is considered an important parameter for analyzing the restoration potential in the territory examined. It allows a landscape analysis that may indicate the potential for connectivity and natural regeneration in various stages of development. For Secondary Vegetation), the data in annex 3 date from 2022, with no year-on-year separation. Finally, the proportion of SV in relation to deforestation in each municipality, **in their total territorial areas** and in their **territorial areas within the Tocantins-Araguaia basin**, was calculated in the "General Data" spreadsheet, VS_PRODES and VS_PRODESbacia fields (annex 3).

II. The **existence of public policies, and national, state, and municipal plans to control and combat deforestation**, as well as programs related to restoration (whether existing or in the process of being developed), were also analyzed and considered as a basis for selecting the territory to be studied.

a. From the recently launched State Program "Union with Municipalities for the Reduction of Deforestation and Forest Fires in the Amazon,"[11] which is supported by legal actions related to the prevention, monitoring, control, and reduction of deforestation and forest degradation in the Amazon Biome12 in its Art. 2 defines the need for the Ministry of Environment and Climate Change to publish a list of municipalities located in the Amazon Biome, which are considered priorities for actions to prevent, monitor, control and reduce deforestation and forest degradation. The list of priority municipalities was recently updated.13

b. The 70 municipalities that account for 78.1 percent of deforestation in the Amazon in the period 2021/2022 are considered a priority for the development of actions to prevent, control, and reduce deforestation and forest degradation.

c. The first deadline for municipalities to join the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires was April 30, 2024 (§1º, Art. 2, Ordinance GM/MMA No. 1,030, of April 3, 2024). Fifty-three municipalities joined the Program, accounting for 59.1 percent of deforestation in the Amazon in the period 2021/2022. The municipalities that joined the Program may be prioritized in the Federal Government's related actions:

I. To support environmental and land regularization;

II. Analysis of the request for release from the Brazilian Institute of the Environment and Renewable Natural Resources (Ibama) and the Chico Mendes Institute for Biodiversity Conservation (Chico Mendes Institute), in compliance with specific legislation;

III. **To promote the recovery of native vegetation**; and other incentives provided for in federal environmental legislation.

11 GM/MMA Ordinance No. 1,030, of April 3, 2024. Provides for the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires and creates the Union with Municipalities Commission.

12 Decree No. 11,687, of September 5, 2023. Provides for actions related to the prevention, monitoring, control, and reduction of deforestation and forest degradation in the Amazon Biome.

13 GM/MMA Ordinance No. 834 of November 9, 2023.

IV. The Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM): 5th phase (2023 to 2027) defines important goals and indicators for combating deforestation and recovering native vegetation.

d. Based on the selection and reference data, priority municipalities—especially those that have already joined the "Union with Municipalities Program for the Reduction of Deforestation and Forest Fires in the Amazon"—included within the Tocantins Araguaia Basin are addressed in annex 3. There are 16 municipalities, 15 from Pará and one from Mato Grosso.[14] Of these, 12 have already joined the Program.

I. To select the territory (municipalities) that will be the focus of the development of the diagnostic and Investment Plan of NPC-Brazil, the data provided in annex 3 were used, with the segregation parameters being the percentage of deforestation in the basin (above 50 percent) and the percentage of the municipality's territory in the basin (above 99 percent).

II. Finally, from the list of 453 municipalities in the states that make up the Basin, four municipalities were chosen: Itupiranga, Marabá, Novo Repartimento, and Rondon do Pará, all of them located in the southeast of the state of Pará. The four municipalities were also selected because they form a connected regional block of municipalities. For this reason, Itupiranga, a priority municipality that has not yet joined the Union with Municipalities Program, is included in the selection parameters and was selected.

14 Priority Municipalities for the Union with Municipalities Program. Pará: Anapu, Cumaru do Norte, Dom Eliseu, Itupiranga, Marabá, Moju, Novo Repartimento, Pacajá, Paragominas, Portel, Rondon do Pará, Santana do Araguaia, São Félix do Xingu, Senador José Porfírio, Ulianópolis, and Mato Grosso: Bom Jesus do Araguaia.

2.2.1.2 THE TOCANTINS ARAGUAIA BASIN: DIAGNOSTIC SYNTHESIS

The Tocantins-Araguaia Basin is characterized by a drainage area of 918,822 km2 (11 percent of the country), constituting one of the largest river systems in South America. It extends in a north-south direction, located entirely in Brazilian territory, and covers the states of Pará (30 percent of the region's area), Tocantins (30 percent and the state located entirely in the region), Goiás (21 percent), Mato Grosso (15 percent), and Maranhão (4 percent), in addition to the Federal District (0.1 percent), totaling 453 municipalities (*Strategic Water Resources Plan for the Tocantins and Araguaia River Basin* (IBGE, 2021)).

The basin occupies two of the main Brazilian biomes: the Amazon and the Cerrado. In recent decades, activities such as large-scale agriculture, aquaculture with non-native fish, mining, and hydroelectric power have led to major changes in land cover, hydrology, and environmental conditions, without any of these changes improving social or economic indicators.

According to the Strategic Water Resources Plan for the Tocantins and Araguaia River Basin, the region was considered a vast emptiness until the 1950s, with most of the cities located in the extreme south and north, especially along the navigable stretches of the Tocantins and Araguaia Rivers. Despite the presence of several Indigenous, traditional, and Quilombola peoples who inhabited the region, in some cases for centuries, the occupation process took place without considering their needs and their traditions and knowledge about the territories in the region. In the 1960s, with the opening of the Belém-Brasília highway, there was a substantial proliferation of municipalities along the road axis, in the north-south direction. Likewise, the construction of the Trans-Amazonian highway and the implementation of public policies for the occupation of the Amazon and Cerrado regions (Prodoeste, Polamazônia, and Prodecer) contributed to the opening of areas in the Amazon and Cerrado. In addition to highways, in the 1980s, large infrastructure projects (electricity and mining) were implemented.

New highways and major infrastructure and mining projects have led to the rapid settlement

and deforestation of the region over the decades, both in the Cerrado biome and in the Amazon region. These land occupation frontiers have also enabled large agricultural projects to be established, making the region one of the main agribusiness centers in the country. Such economic activities have generated great pressure on the soil and water resources in the region —mainly impacting changes in water regimes, as revealed by studies conducted with Indigenous communities.[15] Figure 2 below illustrates the various human uses and occupations of the basin and its remaining forests in 2019.

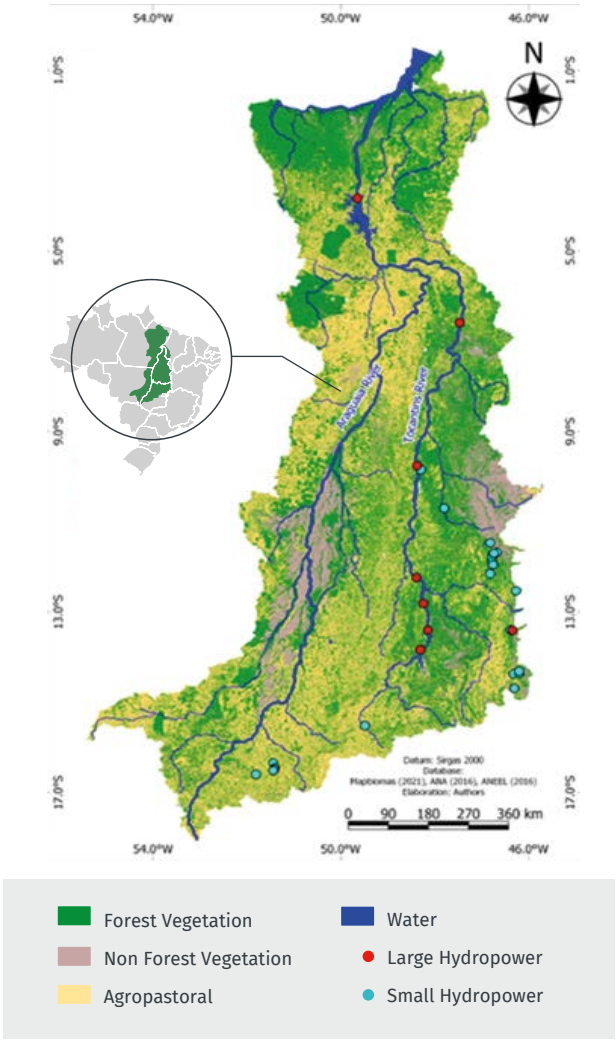

Figure 2 Land use and land cover (LULC) map of the Tocantins Araguaia River basin, Brazil. The map shows the scenario in 2019, indicating the area covered by natural vegetation, water, and agricultural activities (pastures and plantations) and the location of small (PCH) and large (UHE) hydroelectric dams. Source: MapBiomas (2021) in Pelicice et al, 2021.

The implementation of settlement projects began in southeastern Pará. Owing to the speed and intensity of this process, the region now has a large number of settlement projects, but between 1996 and 1999, the pace picked up, and more than 200 settlements[16] were established shortly after the Eldorado dos Carajás massacre, which resulted in the death of 21 rural worker land claimants. In the 2000s, however, this number fell abruptly,[17] but by 2023, newcomers began to occupy five municipalities in the Southeast of Pará when INCRA handed out 247 land title documents.[18]

However, according to the article "*Settlement projects in southeastern Pará as a cycle of occupation*," Incra's action has been much more about regularizing the de facto aspects of the invasions. The continuous flow of migrants makes it virtually impossible to have a planned action of occupation, obeying environmental criteria, agricultural zoning, and employing appropriate technological practices" (2002, pg.03).[19]

For this diagnostic, an analysis was carried out to calculate forest losses due to deforestation and the area covered by secondary vegetation in the municipalities that make up the Tocantins-Araguaia river basin (annex 4). The main results are shown in figures 3 and 4.

15 Climate Change and Indigenous Perceptions. Org. Lima, A., Fanzeres, A., Alcântara, L. Operação Amazônia Nativa (OPAN), 2nd Edition, Mato Grosso, Brazil, 2018.

16 https://agenciagov.ebc.com.br/noticias/202311/entregues-247-titulos-de-terra-em-assentamentosemblematicos-do-sudeste-paraense

17 Homma, AKO, CARVALHO, RDA, Sampaio, SMN, da Silva, BNR, & Silva, LGT (2002). Settlement projects in southeastern Pará as a cycle of occupation. In: BRAZILIAN CONGRESS OF RURAL ECONOMICS AND SOCIOLOGY, 40th, 2002, Passo Fundo. [Proceedings]. Passo Fundo: SOBER, 2002.

18 https://agenciagov.ebc.com.br/noticias/202311/entregues-247-titles-de-terra-em-assentamentosemblematicos-do-sudeste-paraense

19 Homma, AKO, CARVALHO, RDA, Sampaio, SMN, da Silva, BNR, & Silva, LGT (2002). Settlement projects in southeastern Pará as a cycle of occupation. In: BRAZILIAN CONGRESS OF RURAL ECONOMICS AND SOCIOLOGY, 40th. 2002, Passo Fundo. [Proceedings]. Passo Fundo: SOBER, 2002.

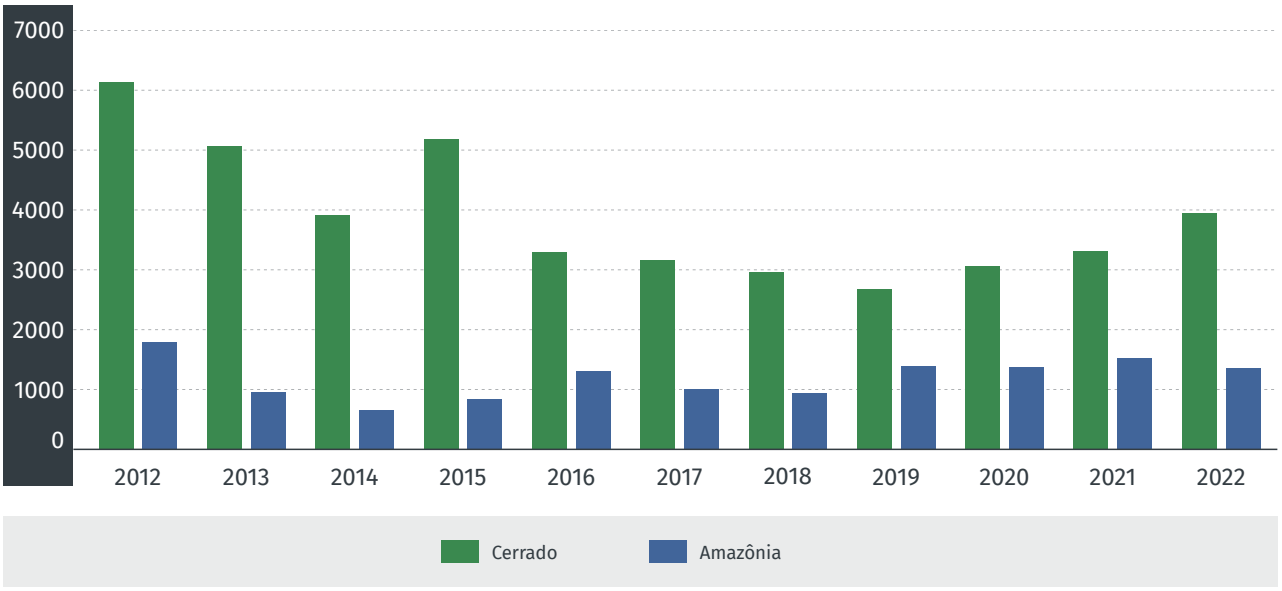

Figure 3 Deforested area in the Tocantins Araguaia Basin (PRODES).

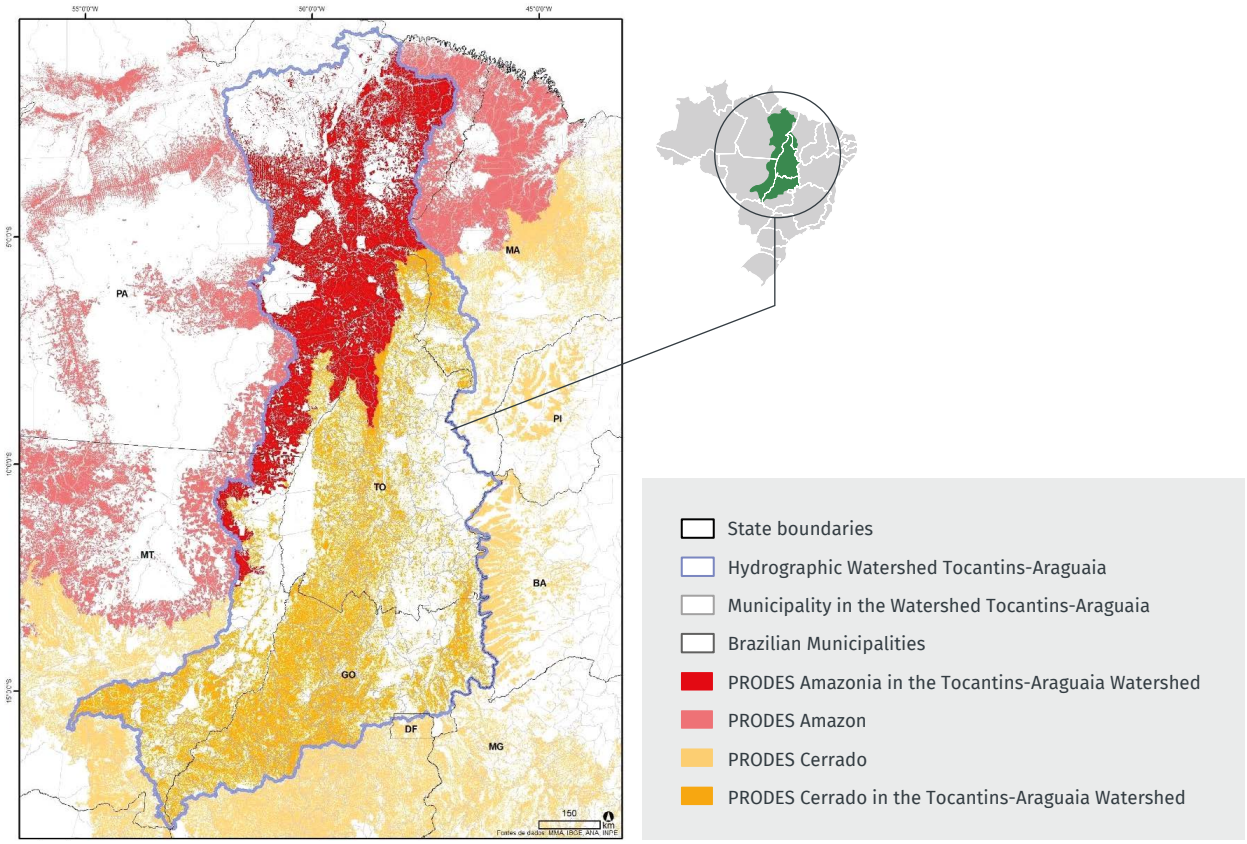

Figure 4 Deforested area in the Tocantins Araguaia Basin (PRODES).

2.2.1.3 THE TERRITORY PROPOSED AS THE FOCUS OF THE CIF NPC-BRAZIL PROGRAM: DIAGNOSTIC SYNTHESIS OF THE SELECTED AND PRIORITIZED KEY MUNICIPALITIES

For political and administrative purposes, the state of Pará was divided into six mesoregions (figure 5), of which the Southeast mesoregion is our object of study. Comprising 39 municipalities, it has an

area of around 297,629 km². The municipality of Marabá has the largest population in the mesoregion. According to the IBGE (2021) Census, Marabá has a population of 287,664.

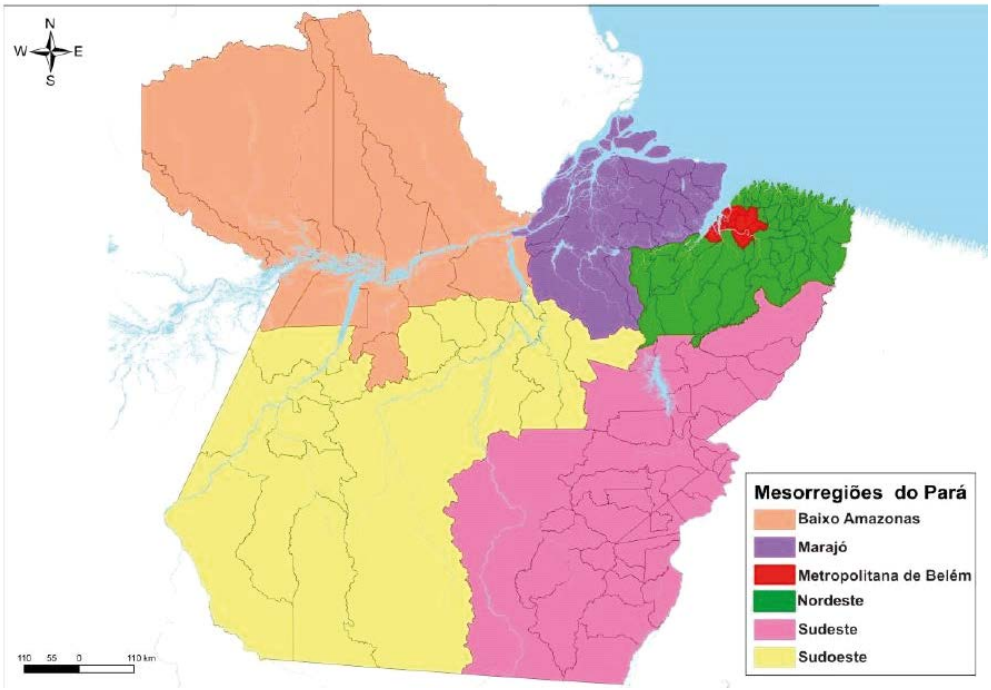

Figure 5 Mesoregions of the State of Pará

Most municipalities were established in the 1980s and 1990s as a result of freedom movements led predominantly by social activists and groups that settled in the region during the expansion of the agricultural frontier that began to typify large areas of the Amazon from the mid-1950s onwards.

The settlement of the mesoregion is associated with the rubber exploration cycles in the second half of the 19th century and the gold exploration cycle in Serra Pelada in the 1980s. The discovery of gold in the early 1980s and the official policy of releasing areas for mining caused an explosion in the migratory cycle, with the population increasing to 20,000 in less than two months. These events were the main reasons for the arrival of large numbers of workers from the Northeast and Central-West regions, and other areas, including southern Brazil.

The construction of the Belém-Brasília highway in the 1960s and the Trans-Amazonian highway in the 1970s further boosted the movement of thousands of immigrants to this region, in search of work, and hoping to find a better future in the Amazon Forest.

Within the region, the same study states that six municipalities in the region were particularly affected by the hordes of immigrant settlers, including Novo Repartimento, Marabá, and Itupiranga. The municipality of Rondon do Pará has the smallest average area (2.83 hectares) of settled colonists, following the implementation of the *Casulo Project*, which consists of an "INCRA decentralized settlement modality, carried out in partnership with the municipalities devoted to agricultural development" (idem, ibidem).

The mesoregion has attracted attention due to its significant socio economic dynamism and major socio productive transformation. No other region in the state has undergone as many environmental, social, economic, and political changes as Southeast Pará in the last three decades. The main causal factors were government policies implemented by various federal and state agencies; the development of natural resources by large capital enterprises; the discovery and exploitation of mineral resources; the opening of highways; the reappropriation of land by farmers and peasants; excessive deforestation; the arrival of the logging industry; and the expansion of agriculture. On the agrarian economy side, large agricultural projects financed by

the Superintendence for the Development of the Amazon (SUDAM) were developed from the 1970s onwards which, together with small farmer expansion, gradually formed a "rural mosaic" attracting local commercial concerns and practitioners of traditional extractivist activities. However, livestock farming was the main driver of growth (Santos, IPEA, 2017). Santos also asserts that "At the production level, the recent trend toward increased mineral extraction is the main driver of dynamism (and the biggest contributor to mesoregional GDP), followed by the shift toward greater diversification of local agriculture."

Regarding the economic infrastructure of southeastern Pará, the following are important: it is one of the areas with the best road system in the state and in the entire Amazon region. All the important cities in the mesoregion are interconnected by roads, including to the state of Pará capital (Belém) and to the rest of the country; the existence of a multimodal transport network of waterways, highways, railways, and airports; the expansion of the electrical energy system, notable with the construction of the Tucuruí Hydroelectric Plant.

The regional block of municipalities selected for the NPC-Brazil Program includes important municipalities in this mesoregion: Itupiranga, Marabá, Novo Repartimento, and Rondon do Pará. Figure 6 below illustrates the location of the municipalities in relation to the Tocantins Araguaia Basin.

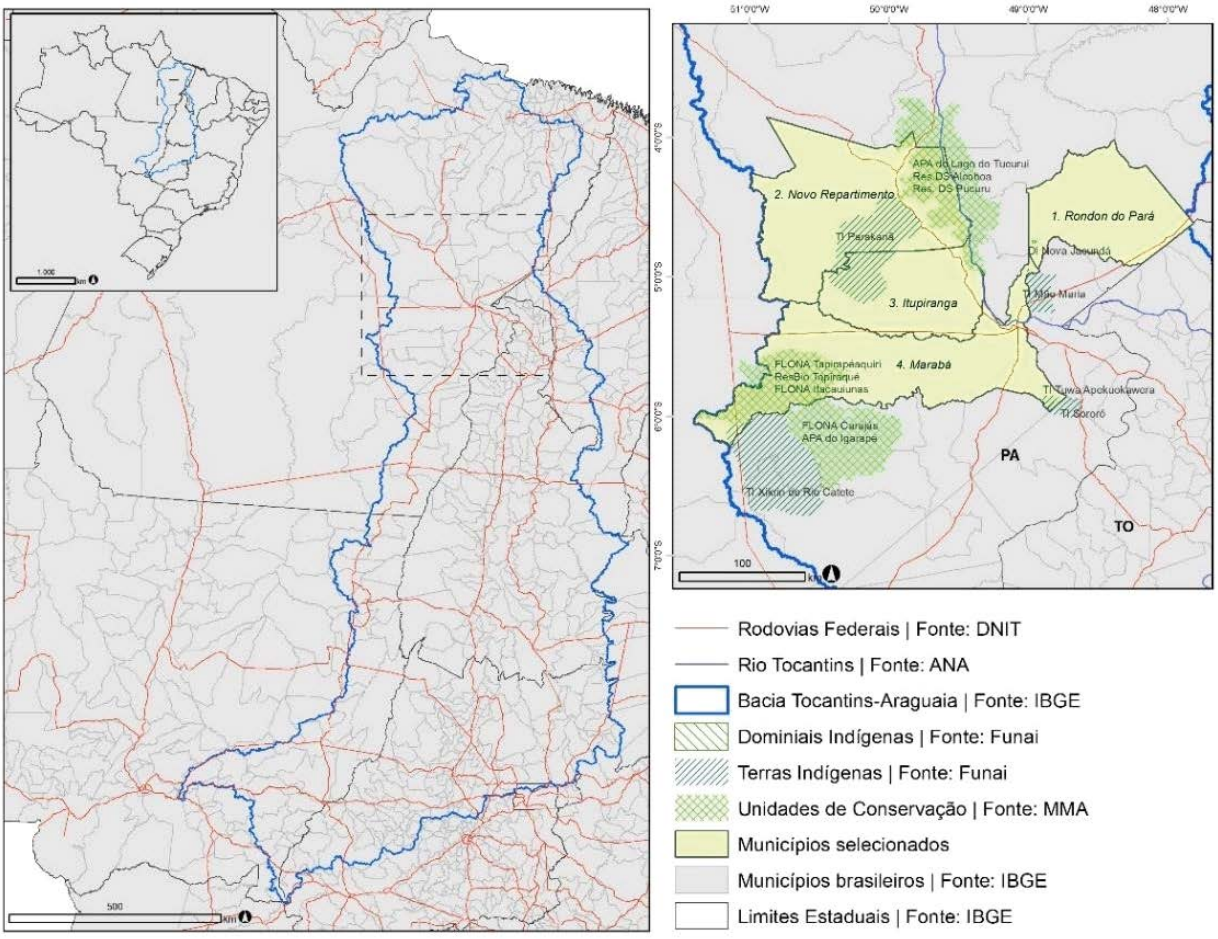

Figure 6 Location of the municipalities of the NPC-Brazil Program in southeastern Pará.

The four municipalities occupy an area of 46,653.28 km2, all located in the Amazon biome. From 2007 to 2022, these four municipalities deforested approximately 28,451.73 km2 – 61 percent of the block's territory (annex 3).

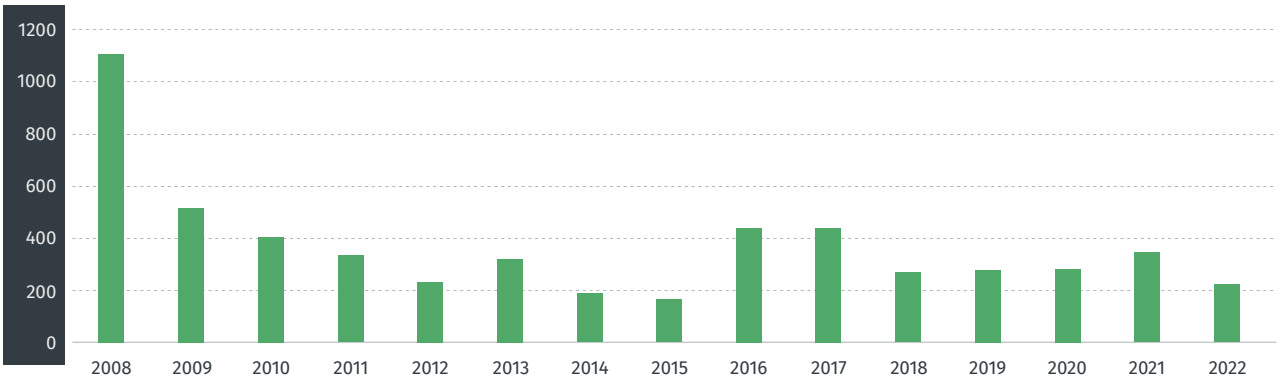

Figure 7 PRODES Amazônia nos 4 municípios prioritários.

The municipalities of the NPC-Brazil Block have low secondary vegetation (SV) indices (4,912.60 km2), representing only 10 percent of the area of the four municipalities and indicating a low rate of potential for the natural regeneration of native vegetation.

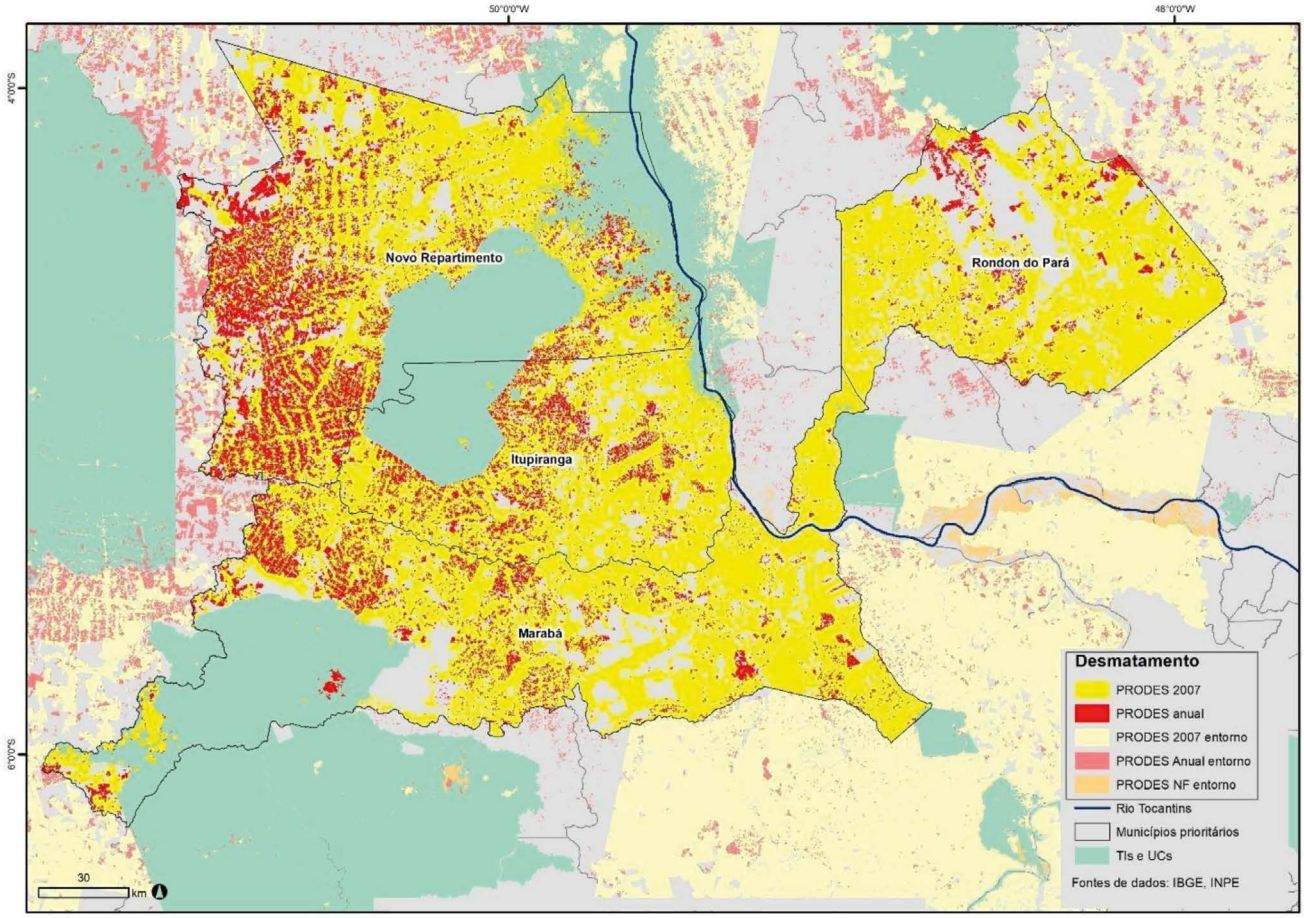

Figure 8 NPC-Brazil Program territory and deforestation (2007-2022).

Source: L.P. Perez and C.G. Messias, 2024

Table 1 below shows the main comparative parameters between the municipalities in the NPC- Brazil block of municipalities.

Table 1

ITEMS	CRITERIA	MUNICIPALITIES			
		ITUPIRANGA	MARABÁ	NOVO REPARTIMENTO	RONDON DO PARÁ
1	Percentage within the Basin[20]	100.00%	99.85%	99.85%	99.81%
2	Territorial area in km²	7,880,109	15,128,058	15,398,723	8,246,394
3	Territorial area in Pará	0.6%	1.2%	1.2%	0.7%
4	Region of PA Integration	Tucurui Lake	Carajás	Tucurui Lake	Rio Capim
5	Deforested area total (2007- 2022)	5,057.20 km2	8,960.05 km2	8,718.68 km2	5,729.15 km2
6	Potential for integrated management of landscape analysis territory	Territorial potential:[21] Sport Fishing Tournament Itupiranga (TOPEI) Agricultural Fair from the Cruzeiro do Sul District Praia do Macaco (Tocantins River) Cattle breeding Pioneers Museum National Onion Festival Cattle breeding, dairy activities, fishing, wood processing.	Territorial potential:[22] National Forest of Tapir ape-Aquiri, Praia do Tucunaré, Itacaiuna Natural Forest Beaches and rivers Itacaiúnas, Tocantins, Aquiri, Praia do Meio , Tucunaré Beach, Praia do Geladinho, Marabá Zoobotanical Garden History & Heritage: Francisco Coelho Museum Museum of the Municipality of Marabá Cattle breeding for slaughter and export; mineral extraction	Territorial potential:[23] Tucurui Lake. Paranatinga Indigenous Village Agricultural Exhibition of Novo Repartimento (EXPOANR) Cattle breeding	Territorial potential:[24] Agricultural Fair of Rondon do Pará –EXPORONDON Balneário dos Garimpos Trilha do Arrepio Veloscross Cultivation of timber species, except eucalyptus, black wattle, pine and teak Manufacture of laminated wood and plywood, MDF and chipboard sheets

20 See Annex 2 of this report. Deforestation data, secondary vegetation Tocantins Araguaia Basin.

21 Vocational economic profiles of municipalities in Pará. Itupiranga. 2023 Amazon Foundation for Support of Studies and Research of Pará - FAPESPA.

22 Vocational economic profiles of municipalities in Pará. Marabá. 2023 Amazon Foundation for Support of Studies and Research of Pará - FAPESPA.

23 Vocational economic profiles of municipalities in Pará. Novo Repartimento. 2023 Amazon Foundation for Support of Studies and Research of Pará - FAPESPA.

24 Vocational economic profiles of municipalities in Pará. Rondon do Pará. 2023 Amazon Foundation for Support of Studies and Research of Pará - FAPESPA.

ITEMS	CRITERIA	MUNICIPALITIES			
		ITUPIRANGA	MARABÁ	NOVO REPARTIMENTO	RONDON DO PARÁ
7	Estimated GHG emissions: from use of forest land:[25]	6.6 MtCO2e 133.7% Land use change 6.9% Forest residues 1.4% Organic carbon in soil 0.0% Removal due to land use change -14.7% Removal in protected areas -27.3% Removal by secondary vegetation	9.2 MtCO2e 164.1% Land use change 8.4% Forest residues 1.8% Organic carbon in soil 0.0% Removal due to land use change -30.4% Removal in protected areas -43.9% Removal by secondary vegetation	3.9 MtCO2e 117.5% Land use changes 6.1% Forest residues 1.2% Soil organic carbon 0.0% Removal by land use change -9.7% Removal in protected areas -15.0% Removal by secondary vegetation	4.8 MtCO2e 123.0% Land use changes 6.2% Forest residues 1.6% Soil organic carbon 0.0% Removal in areas protected 0.0% Removal by land use change -30.7% Removal by secondary vegetation
8	Estimation of greenhouse gas removals (SEEG, 2022) [26]	1.4 MtCO2e	1.3 MtCO2e	0.7 MtCO2e	0.9 MtCO2e

25 Greenhouse Gas Emissions and Removals Estimation System (SEEG). https://seeg.eco.br/

26 Greenhouse Gas Emissions and Removals Estimation System (SEEG). https://seeg.eco.br/

ITEMS	CRITERIA	MUNICIPALITIES			
		ITUPIRANGA	MARABÁ	NOVO REPARTIMENTO	RONDON DO PARÁ
9	Barometer of sustainability[27]	Municipality of Itupiranga presents a "potentially unsustainable" level[28]	Municipality of Marabá has an "intermediate sustainability" level.[29]	Municipality of Novo Repartimento presents a "potentially unsustainable" level[30]	Municipality of Rondon do Pará has an "intermediate sustainability" level.[31]

27 The Sustainability Barometer (SB) is a statistically based instrument developed by the World Conservation Union (IUCN) and the International Development Research Center (IDRC) to monitor territorial progress toward sustainability (PRESCOTT-ALLEN, 2001). The SB can be constructed for different territorial units, such as neighborhoods, biomes, or continents, enabling comparison between different locations on the same geographic scale and over a given time horizon. This sustainability measurement tool has been published by the Amazon Foundation for the Support of Studies and Research (FAPESPA) since 2015. The study serves as an instrument to support public policy planning and local decision-making. Source: FAPESPA, (2023). Prepared by: FAPESPA/Directorate of Research and Environmental Studies, 2023.

28 Itupiranga is at the potentially unsustainable level for human well-being (HWB). Of the available indicators, 20 percent are at the sustainable or potentially sustainable level; 15 percent are at the intermediate level; and 65 percent are at the unsustainable or potentially unsustainable level. The municipality is located at the potentially unsustainable level in terms of Wealth, Community, and Equity; and at the intermediate level for the themes Health and Population and Knowledge and Culture. No HWB theme is at the sustainable or potentially sustainable level. Itupiranga is at the intermediate level for ecosystem well-being (EWB). Of the available indicators, 33.33 percent are at the sustainable or potentially sustainable level, 50 percent are at the intermediate level, and 16.67 percent are at the potentially unsustainable or unsustainable level. The municipality is at the sustainable level for the Earth topic; at the intermediate level for Air and Use of Natural Resources; and at the potentially unsustainable level for Water. Knowledge about local biodiversity is essential for constructing indicators to monitor targets and developing conservation and preservation strategies for municipal fauna and flora.

29 Marabá is at the intermediate level for human well-being (HWB). Of the available indicators, 30 percent are at the sustainable or potentially sustainable level; 25 percent are at the intermediate level; and 45 percent are at the unsustainable or potentially unsustainable level. The municipality is located at the potentially unsustainable level for the themes Health and Population and Equity; and at the intermediate level for the themes Wealth, Knowledge, and Culture and Community. No HWB theme is at the sustainable or potentially sustainable level. Marabá is at the intermediate level for ecosystem well-being (EWB). Of the available indicators, 66.66 percent are at the sustainable or potentially sustainable level, 16.67 percent are at the intermediate level, and 16.67 percent are at the potentially unsustainable or unsustainable level. The themes Land and Air are at the potentially sustainable level; and the themes Water and Use of Natural Resources are at the intermediate level. Knowledge about local biodiversity is essential for developing indicators to monitor targets and developing conservation and preservation strategies for municipal fauna and flora. As is the case with HWB, EWB has themes with only one indicator. An effort by the government to collect data is necessary to develop indicators at the local level.

30 Novo Repartimento is at the potentially unsustainable level for human well-being (HWB). Of the available indicators, 15 percent are at the sustainable or potentially sustainable level; 20 percent are at the intermediate level; and 65 percent are at the unsustainable or potentially unsustainable level. The municipality is at the potentially unsustainable level for the themes Health and Population, Wealth and Equity; and at the intermediate level for Knowledge and Culture and Community. No HWB theme is at the sustainable or potentially sustainable level. Novo Repartimento is at the intermediate level for ecosystem well-being (EWB). Of the available indicators, 16.67 percent are at the sustainable or potentially sustainable level, 33.33 percent are at the intermediate level, and 50.00 percent are at the potentially unsustainable or unsustainable level. The themes Land, Air, and Use of Natural Resources are at the intermediate level; and Water is at the potentially unsustainable level. Knowledge about local biodiversity is essential for constructing indicators to monitor targets and developing conservation and preservation strategies for municipal fauna and flora.

31 Rondon do Pará is at the potentially sustainable level for human well-being (HWB). Of the available indicators, 20 percent are at the sustainable or potentially sustainable level, 30 percent are at the intermediate level, and 50 percent are at the unsustainable or potentially unsustainable level. The municipality is at the unsustainable or potentially unsustainable level in the areas of Wealth, Community, and Equity"; and Health and Population and Knowledge and Culture. No HWB theme is at the sustainable or potentially sustainable level.
Rondon do Pará is at the potentially sustainable level for ecosystem well-being (EWB). Of the available indicators, 50 percent are at the sustainable or potentially sustainable level, 33.33 percent are at an intermediate level, and 16.67 percent are at the potentially unsustainable or unsustainable level. Land and Use of Natural Resources are at the sustainable or potentially sustainable level; Air is at an intermediate level; and Water is at the potentially unsustainable level. Knowledge about local biodiversity is essential for constructing indicators to monitor targets and developing conservation and preservation strategies for municipal fauna and flora.

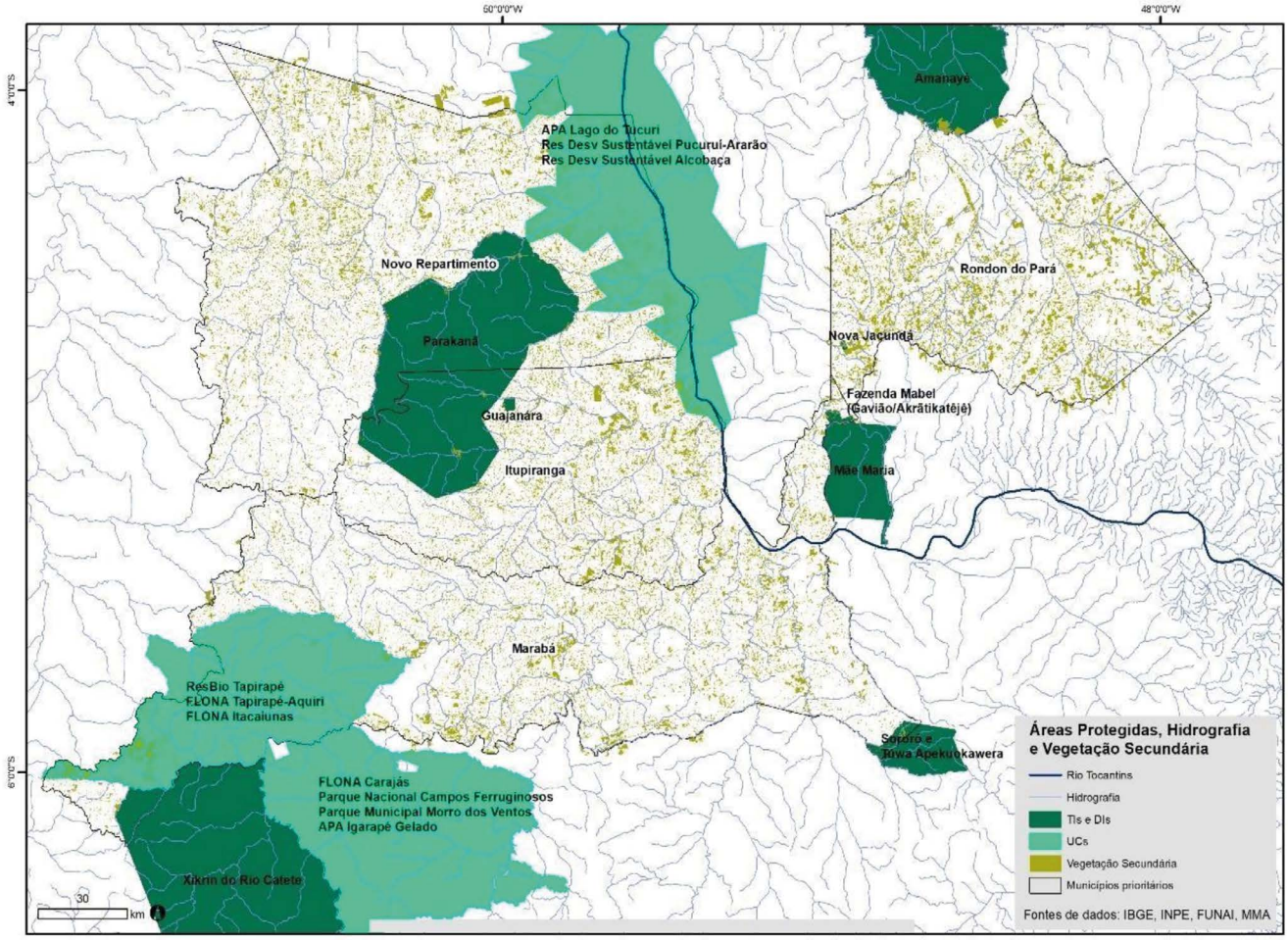

Figure 9 Protected Areas in the NPC-Brazil Territory. Source: L.P. Perez and C.G. Messias, 2024.

Below is a summary of data related to the four main municipalities selected.

I. ITUPIRANGA

The municipality of Itupiranga belongs to the Pará Integration Region of Lake Tucuruí. It is located 45 km from the city of Marabá, on the left bank of the lake resulting from the construction of the Tucuruí hydroelectric plant. It has a territorial extension of 7,880 km², which corresponds to 0.6 percent of the total area of the Pará territory. It has a population density of 6.8 inhabitants per km2. IBGE 2022 estimated a population of 49,754, representing 0.6 percent of the state population. 47.64 percent of the municipality's population is female.

The municipality is traversed by the BR-230 (Trans-Amazonian) highway from southeast to northwest, connecting it to the municipalities of Marabá and Novo Repartimento. It is also the main access route to the District of Cajazeiras.

Another major road is the PA 9 (or PA Cruzeiro), which connects to the extreme southwest of the municipality, providing access to the towns of São Pedro, Panelinha, and Cruzeiro do Sul (Quatro Bocas). The municipal HQ hosts the Itupiranga River Port, which accommodates small vessels mainly using the Tocantins River.

According to the 2022 Sustainability Barometer,[32] 44.81 percent of the population was in the extreme poverty bracket. In 2023, the municipality had 14,477 families registered in the Single Registry for Social Programs and 8,774 in the Bolsa Família (SAGI/MDS/Fapespa), in addition to 5,127 Social Security beneficiaries (2022, SINTESE/DATAPREV/Fapespa) of which 92.74 percent were rural workers. Another significant fact is the low number of workers with formal employment

32 Sustainability Barometer of the Municipality of Itupiranga 2022 - Dipea. Amazon Foundation for Support of Studies and Research - FAPESPA.

status —2,583 (2021, MTE-RAIS); 45.48 percent of people in work are women.

According to the 2021 IBGE,[33] the GDP per capita was R$ 15,755.46. The percentage of external revenue in 2015 was 95.4 percent. In 2021, the average monthly salary was equivalent to two minimum wages. The proportion of employed people in relation to the total population was 5.19 percent. Considering households with a monthly income of up to half the minimum wage per person, 51.1 percent of the population was in this situation. In Itupiranga, 8.8 percent of households had adequate sanitation, 18.3 percent of urban households were on public roads with trees, and 2.6 percent of urban households were on public roads with adequate urbanization (presence of drains, sidewalks, paving, and curbs).

Administratively, and within the scope of this work, Itupiranga has the Municipal Secretariat of Infrastructure and Territorial Planning; the Municipal Secretariat of Infrastructure and Territorial Planning; the Municipal Secretariat of Economic Development. Economic activities, including agriculture and livestock, are under the jurisdiction of the Secretariat of Economic Development.[34]

In the last Agricultural Census of 2017 (IBGE), a total of 3,235 agricultural establishments were identified, of which only 468, that is, 14.46 percent, were owned by women.

According to the municipality's Master Plan, in the territory of Itupiranga[35] there are:

a. The Parakana Indigenous Land[36] with 352,657 hectares, of which 1139,347.11 are in the municipality (occupying a total of 7.6 percent of the territory), also distributed between the municipality of Novo Repartimento and with a population of 1,331 inhabitants (IBGE) belonging to the Parakanã people;

b. The Tucuruí Lake Environmental Protection Area, created by Law No. 6,451, of 04/08/2002, has 568,667 hectares, encompassing part of the territory of seven municipalities, of which 17,468.52[37] are in the territorial area of Itupirangã;

c. Several Incra settlements (40 percent of the municipal territory);

d. The Tauarí archeological site;

e. The Pedro da Mata Ecological Reserve, with 3,000 hectares, which, according to local city hall technicians, was never actually implemented and was invaded by several families.

The municipal economy is based on the primary sector: timber extraction and fishing. Together, agriculture and extraction are responsible for 89.1 percent of the municipal GDP. Industry, represented by a few sawmills located in the urban area, has a small share of only 2.7 percent. Commerce is incipient and represents little in terms of both local labor employment and GDP composition. Itupiranga is responsible for the second largest GDP of the municipalities in the Tucuruí region, with a 7.6 percent share. Furthermore, according to Pena et al., 2014, the planted forest sector significantly drives the economy of a city.

Itupiranga is among the municipalities that deforest the most in the entire Amazon region. According to the Legal Amazon Deforestation Monitoring Project (PRODES), the official system for measuring deforestation in Brazil, from the National Institute for Space Research (INPE), Itupiranga deforested 5,057.20 km² between 2007 and 2022 (annex 3).

II. MARABÁ

The municipality of Marabá belongs to the Pará Integration Region of Carajás. It is a hub municipality in the southeast region of the state. The municipality of Marabá has been marked by

33 cidades.ibge.gov.br/brasil/pa/itupiranga

34 Municipal Secretariat of Economic Development - Municipal Prefecture of Itupiranga | Management 2021-2024.

35 Pena, et. al. 2014. Observatory of the Latin American

36 All information about Indigenous Lands (Tis) sourced from: https://terrasindigenas.org.br/

37 https://uc.socioambiental.org/pt-br/arp/2946

intense migratory flows since its formation with the establishment of the Burgo do Itacaiúnas, when migrants from nearby regions moved to the middle Tocantins in search of new lands and natural resources. These intense flows have led to changes in the way of life at different times, causing the transformation of the urban space of Marabá. With the numerous economic cycles already experienced, the municipality of Marabá stands out as an economic center in the scenario at the state and regional level (Carajás), as well as at the national level, for being one of the most promising cities, standing out for its intense economic and urban development in the national territory, in addition to showing great gains in economic centrality in the state.

Among the various cycles that have already existed, the Rubber Cycle stands out. With the decline in rubber exploration motivated by the lack of interest due to latex production in Malaysia and in some Asian countries that were being sold to the market at lower prices, the Brazil Nut Cycle rose. The exploration of Brazil Nuts was one of the most important economic drivers and the predominant extractive activity in Marabá, until the mid-1980s, stimulating the growth of the city.

Due to its location, Marabá experienced the Gold Cycle during the heyday of Serra Pelada. This was also followed by the Mineral Cycle due to the discovery of iron ore deposits in Serra dos Carajás, previously belonging to the municipality of Marabá and now emancipated, concerning the municipality of Parauapebas.

Given all these scenarios and a change in the current economy, many investments were applied in the municipality and as a result of this circumstance, the population in Marabá ballooned, resulting in high territorial and population growth rates being the main problem.[38]

Located on the banks of the Tocantins River, it has a territorial extension of 15,128 km², which corresponds to 1.2 percent of the total area of the Pará territory. The city is located at the meeting point of three vital highways - BR-222, which provides access to Belém-Brasília; BR-230 (Trans-Amazonian) and PA-150, which connects to the capital Belém.

The municipality has a population density of 19.02 inhabitants per km2. According to IBGE estimates for 2022, it had a population of 266,533 inhabitants, which represented 3.3 percent of the state population. Of the total population, 50.18 percent are women. Administratively, and within the scope of this work, Marabá has[39] the Municipal Secretariat of Agriculture, Secretariat of Mining, Industry, Commerce, Science, and Technology, Secretariat of Tourism, Secretariat of Social Assistance, Protection, and Community Affairs; Municipal Secretariat of Environment, Secretariat of Culture,

Twenty-nine percent of Marabá's territory is protected by conservation units. The Tapirapé-Aquiri National Forest, created in 1989 by decree 97,720 with a set of Conservation Units in the Serra dos Carajás region, has an area of 1,900,000 hectares, of which 169,386.76 are in Marabá. To the west is the Itacaiúnas National Forest, which has 41.76 percent of its area overlapping with the Tapirapé-Aquiriri National Forest. Created in 1998 by decree 2,480, it has a total area of 141,400.00 hectares, 100 percent of which is in the municipality. The Tapirapé Biological Reserve has an area of 103,000 hectares. Created in 1989 by decree 97,719, 87 percent of its area – corresponding to 96,670.53 hectares – is in the municipality of Marabá.

The municipality is also home to three Indigenous Lands (TI), totaling 21,228.43 hectares of non-continuous area of the municipal territory.[40] The Tuwa Apekuokawera Indigenous Land of the Aikewara people has 404 inhabitants (GT Funai), an area of 12,000 hectares, of which 6,061.30 are located in Marabá. The Sororó Indigenous Land of the same people has 594 inhabitants and an area of 26,000 hectares, of which 668.55 are in the municipality. The Xikrin do Cateté TI has 1,737 inhabitants from five peoples (Guarani, Guarani Mbya, Isolated groups in the Xikrin do Cateté TI,

38 Heriberto Wagner Amanjás Pena & Sarah Magna Miranda Lemos, 2014.

39 Municipal Secretariat of Agriculture, Secretariat of Mining, Industry, Commerce, Science and Technology, Secretariat of Tourism, Secretariat of Social Assistance, Protection and Community Affairs (maraba.pa.gov.br)

40 All information about the TIs sourced from: https://terrasindigenas.org.br/

Mebengôkre Kayapó, and Xikrin Mebengôkre), with an area of 439,000 hectares, of which 14,498.58 are located in Marabá. There is also Mãe Maria TI, which is not in the municipal territory but borders its boundaries.

According to the 2022 Sustainability Barometer,[41] 14.39 percent of the population was in the extreme poverty range. In 2023, the municipality had 60,828 families registered in the Single Registry for Social Programs and 29,975 in Bolsa Família (SAGI/MDS/Fapespa), in addition to 22,757 Social Security beneficiaries (2022, SINTESE/DATAPREV/Fapespa), 63.23 percent of whom were rural workers. Another significant figure is the number of workers with formal employment status —55,026, 37.28 percent of whom were women (2021, MTE-RAIS).

In the last Agricultural Census of 2017 (IBGE), a total of 3,906 agricultural establishments were identified, of which only 786 (20.12 percent) were owned by women. In 2021 (IBGE), the GDP per capita was R$47,010.21. The percentage of external revenue in 2015 was 70.5 percent. In 2021, the average monthly salary was the equivalent of 2.6 minimum wages. 41.3 percent of the population lived in households with a monthly income of up to half the minimum wage per person. The proportion of employed people in relation to the total population was 20.51 percent. 31.8 percent of households had adequate sanitation, 10.8 percent of urban dwellings were built on tree-lined public roads, and 11 percent of urban households were located on urbanized public roads, e.g., with drainage, sidewalks, paving, curbs, etc.).

Marabá is among the municipalities that deforest the most in the entire Amazon region. According to the Legal Amazon Deforestation Monitoring Project (PRODES), the official system for measuring deforestation in Brazil - the National Institute for Space Research (INPE) - Marabá deforested 8,960.05 km² between 2007 and 2022 (annex 3).

III. NOVO REPARTIMENTO

The extensive urbanization process in the Amazon led to the emergence of new cities, most of them small. Many were previously villages which, with urban growth, evolved into the type of cities that today predominate in the region. This is the case of the municipality of Novo Repartimento, in the state of Pará. The construction of the Tucuruí Hydroelectric Power Plant, in the south of the state (eastern Brazilian Amazon), flooded forest areas on the banks of the Tocantins River in 1984–1985, including part of the Parakanã Indigenous Land (currently occupying 213,310.84 hectares of the municipal territory) and some population centers. 222,072.64 hectares of the Tucuruí Lake APA (Environmental Protection Area) are within the municipality. Most of the population of Novo Repartimento is dedicated to extractive activities. With subdivisions built on the banks of the reservoir, Novo Repartimento is now the municipality with the fourth most settlements within its area, after Marabá (78 settlements), Itupiranga (36 settlements), and Conceição do Araguaia (35 settlements).

The municipality of Novo Repartimento, located 511 km from Belém, belongs to the Pará Integration Region of Lake Tucuruí. Its territory (15,399 km²) accounts for 1.2 percent of the total area of the Pará state. According to IBGE 2022 estimates, the municipality's population stood at 60,732 inhabitants (5.1 per km2), representing 0.9 percent of the state population. Of the total population, 48.44 percent are female.

The 2022 Sustainability Barometer[42] indicated that 26.21 percent of the population was living in extreme poverty. In 2023, the municipality had 17,356 families registered in the Single Registry for Social Programs (Cadastro Único) and 10,905 in the Bolsa Família program (SAGI/MDS/Fapespa), in addition to 7,016 Social Security beneficiaries (2022, SINTESE/DATAPREV/Fapespa), 92.30 percent of whom were rural workers. Another significant figure is the number of workers with formal employment status—4,423 (2021, MTE-RAIS), with women representing 50.93 percent

41 Sustainability Barometer of the Municipality of Marabá 2022 - Dipea. Amazon Foundation for Support of Studies and Research - FAPESPA.

42 Sustainability Barometer of the Municipality of Novo Repartimento 2022 - Dipea. Amazon Foundation for Support of Studies and Research - FAPESPA.

of the total (proportionally larger than Novo Repartimento's female population.

In 2021, IBGE estimated GDP per capita at R$14,231.91, with the average monthly wage equivalent to two minimum wages. 49.2 percent of the population lived in households with a monthly income of up to half the minimum wage per person. The proportion of employed people in relation to the total population was 6.56 percent. 14.7 percent of households possess adequate sewage, 6.9 percent of urban dwellings are located on tree-lined public roads, while 6 percent of urban households were located on "urbanized" public roads (e.g., with drainage, sidewalks, paving, curbs, etc.). Novo Repartimento has the following administrative structure[43]: the Municipal Secretariat of Agriculture, the Municipal Secretariat of Culture and Tourism, the Municipal Secretariat of Fisheries, and the Secretariat of the Environment.[44]

Most of the municipality's population lives in rural areas and works directly or indirectly in activities linked to agriculture. Livestock farming is practiced by medium and large producers and has limited economic weight, while extractivist activities consist mainly of harvesting timber.

The last Agricultural Census of 2017 (IBGE) identified a total of 4,013 agricultural establishments, of which only 564 (14.07 percent) were owned by women.

The analysis of changes in land cover found that agriculture constitutes the main component of the landscape of Novo Repartimento, with the proportion of the area earmarked for agriculture much lower than that designated for pasture. In this area, the predominant land use focused on converting forests into pastures. The analysis confirms the predominance of pastures as well as areas designated for agriculture (mainly temporary crops). The amount of pastureland in the municipality of Novo Repartimento reflects the development of cattle breeding along the agricultural frontier and the municipality currently has the third largest herd in the state of Pará, after São Felix do Xingu and Marabá (Monique Farias, 2021).

Given this model of land occupation, Novo Repartimento is among the municipalities that deforest the most in the entire Amazon region. According to the Legal Amazon Deforestation Monitoring Project (PRODES), the official system of the National Institute for Space Research (INPE) for measuring deforestation in Brazil, Novo Repartimento deforested 8,718.68 km² between 2007 and 2022 (annex 3).

IV. RONDON DO PARÁ

The municipality of Rondon do Pará belongs to the Pará Integration Region of the Capim River. It is located along the BR-222 and borders the state of Maranhão. Its economy is based mainly on agriculture, livestock raising, commerce, and services. Its land area of 8,246 km. is 0.7 percent of the total size of the Pará. The indigenous territory of the Nova Jacundá Indigenous Domain of the Guarani and Guarani Mbya peoples occupies 414.10 hectares of the municipality's area and has 110 inhabitants (IBGE).[45]

According to IBGE estimates for 2022, it had a population of 53,143 inhabitants (density of 6.5 inhabitants per km2), representing 0.6 percent of the state population. Of the total population, 48.52 percent are female.

According to the 2022 Sustainability Barometer[46], 22.52 percent of the population was in the extreme poverty range. In 2023, the municipality had 17,356 families registered in the Single Registry for Social Programs and 5,251 in Bolsa Família (SAGI/MDS/Fapespa). Of the 4,843 Social Security beneficiaries (2022, SINTESE/DATAPREV/Fapespa), 77.04 percent were rural workers. Another significant fact is the low number of workers with formal employment relationships - only 3,592 workers had formal employment status (2021, MTE-RAIS), with women representing only 37.64 percent of this total.

43 PM Novo Repartimento

44 Environment | PM Novo Repartimento

45 https://terrasindigenas.org.br/

46 Sustainability Barometer of the Municipality of Rondon do Pará 2022 - Dipea. Amazon Foundation for Support of Studies and Research – FAPESPA.

In the last Agricultural Census of 2017 (IBGE), a total of 1,400 agricultural establishments were identified, of which only 164 (11.71 percent) were owned by women.

According to IBGE, the GDP per capita in 2021 was R$ 13,787.05. The percentage of external revenue in 2015 was 82.9 percent. The average monthly salary was equivalent to 2.5 minimum wages. The proportion of employed people in relation to the total population was 6.4 percent; 46.7 percent of the population lived in households with a monthly income of up to half the minimum wage per person. Only 3.3 percent of households possess adequate sewage facilities, 24.7 percent of urban dwellings are located on public roads with trees, while 8 percent of urban households were located on "urbanized" public roads, e.g., with drainage, sidewalks, paving, curbs, etc.).

Rondon do Pará has the following administrative structure[47]: the Municipal Secretariat of Agriculture and Livestock, the Municipal Secretariat of Culture, and the Municipal Secretariat of Science, Technology, and Environment.

Rondon do Pará is among the municipalities that deforest the most in the entire Amazon region According to the Legal Amazon Deforestation Monitoring Project (PRODES), the official system of the National Institute for Space Research (INPE) for measuring deforestation in Brazil, Rondon do Pará deforested 5,729.15 km² between 2007 and 2022 (annex 3).

2.2.1.4 PUBLIC POLICIES, NATIONAL, STATE, AND MUNICIPAL PLANS AND REGULATORY STANDARDS, AND PROGRAMS RELATED TO RESTORATION OF THE TERRITORY PROPOSED AS THE FOCUS OF THE CIF NPC-BRAZIL PROGRAM

Below is a set of Policies, Plans, Legislations, and Programs that provides political, legal, and operational sustainability for the implementation of the NPC-Brazil Program in the Territory of the Southeast Pará Block of Municipalities.

I. FEDERAL PUBLIC POLICIES

- National Legislation on Climate Change - Law No. 12,187 of December 29, 2009.
- The Brazilian NDC, updated in 2023, establishes that Brazil must reduce its emissions by 48 percent by 2025 and 53 percent by 2030, compared to 2005 emissions. In addition, it reiterates its commitment to achieving net neutral emissions by 2050. In other words, everything the country emits must be offset with carbon capture sources, such as planting forests, restoring biomes, or other technologies.[48]
- Convention on Biological Diversity (CBD).
- National Strategy and Action Plan for Biodiversity (EPANB).
- Kunming-Montreal Global Biodiversity Framework (GBF)
- PROVEG – National Policy for the Recovery of Native Vegetation, PLANAVEG – National Plan for the Recovery of Native Vegetation.
- Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) - 5th Phase (2023 to 2027).
- National Policy on Payment for Environmental Services - Law No. 14,119 of January 13, 2021.
- Sectoral plan for adaptation to climate change and low carbon emissions in agriculture 2020–2030[49]
- National Water Security Plan[50]

47 Prefecture of Rondon do Pará | Management 2021 - 2024 (rondondopara.pa.gov.br)

48 https://www.gov.br/planalto/pt-br/assuntos/cop28/ndc-do-brasil/

49 Sectoral plan for adaptation to climate change and low carbon emissions in agriculture 2020-2030 — Ministry of Agriculture and Livestock (www.gov.br)

50 PNSH (ana.gov.br)

- National Plan for Adaptation to Climate Change (PNA), 2016[51]
- Union with Municipalities Program for the Reduction of Deforestation and Fires
- Forestry[52]
- Climate Fund – BNDES[53]
- Finally, we highlight that the premises proposed by the NPC-Brazil Program are aligned with Axis 3: Bioeconomy and agrifood systems,[54] especially in actions related to the Arc of Restoration, Export of non-timber forest products, and Payment for Environmental Services.
- Restaura Amazônia BNDES - Amazon Fund - Restoration Arcs - This is an initiative by BNDES and the Ministry of Environment and Climate. Resources from the Climate Fund, in the amount of R$550 million, will make restoration in private areas viable using financing operations with reduced interest rates. The initiative plans to recover a quarter of the deforested forest areas along the Deforestation Arc within 30 years. Restaura Amazônia was the first step toward the Restoration Arc and is aimed at non-reimbursable financing of ecological restoration activities with native species and/or agroforestry systems (AFSSs). The deadline for submitting proposals ended on March 4, 2024 to select managers for the regions served. Pará is one of them. After BNDES hirings, the resources from the Amazon Fund will be transferred to the selected Managing Partners, who will be responsible for conducting, with BNDES, the entire process of preparing and launching formal notices for the selection of restoration projects in specific territorial areas in the macro-regions; make contractual arrangements for the selected ecological restoration projects; and carry out physical and financial monitoring of the projects.

The Climate Policy Initiative, in a recent study (Lopes & Chiavari, 2024), carried out a broad survey classifying policies related to restoration and mapping, on a timeline (1981 to 2023), of the key policies related to conservation, environmental accountability, environmental compensation, voluntary restoration, restoration modalities, incentives, and financing.

II. PUBLIC POLICIES OF THE STATE OF PARÁ

- In recent years, the state of Pará created the political and legal framework for the Native Vegetation Recovery Plan (PRVN), which presents the measures necessary for the State to achieve its restoration and reforestation goals in a more targeted way.
- Amazonia Now State Plan (PEAA - Decree 941 of 2020) is the main platform for action to establish a social and economic development model aimed at the enhancement of environmental assets in Pará. It has seven lines of action, of which four are singularly important, involving improved inspection and licensing activities ("Command and Control") to combat environmental crimes and ensure environmental regulation of economic activities; territorial planning through the Regulariza Pará (Regularize Pará) Program, intended to expedite land, environmental, and health regularization actions; socio economic development with low greenhouse gas (GHG) emissions through the Sustainable Territories Program, which seeks to encourage technical assistance and generation of credit for sustainable rural production; and, finally, long-range environmental financing, advocated by the Fundo da Amazônia Oriental (Eastern Amazon Fund), to raise resources to induce state, civil society, and business sector actions.
- Regulariza Pará Program (Decree 2,745 of 2022).
- Integrated Action Program for Sustainable Territories (Decree 2,744 of 2022)

51 National Adaptation Plan — Ministry of Environment and Climate Change (www.gov.br)

52 Government formalizes program to strengthen municipalities in the fight against deforestation - Secretariat of Social Communication (www.gov.br)

53 Climate Fund (bndes.gov.br)

54 Bioeconomy — Ministry of Finance (www.gov.br)

- Eastern Amazon Fund - (FAO) is legally a private fund with public governance that promotes the participation of different sectors of society in relevant projects. The Fund's current funding sources include donations and legal commitments through the following entities: ICS - Climate and Society Institute; Gordon and Betty Moore Foundation; and the Federal Public Ministry (MPF). The State Secretariat for Environment and Sustainability (SEMAS) is responsible for tactical and strategic decisions on project preparation, and the oversight, monitoring, maintenance, and enhancement of the quality of FAO technical projects over the long term. The Brazilian Biodiversity Fund (FUNBIO) is the Operational and Financial Manager of the fund.

- Pará State Bioeconomy Plan. SEMAS Ordinance No. 002/2022.

- Empodera Pará (2019) is a line of credit from the Banco do Estado do Pará (Pará State Bank) aimed at women entrepreneurs who live and work in socially vulnerable areas;

- Cooperation agreement with CredCidadão to provide, through the CredCidadão Microcredit program, up to R$10,000 for women entrepreneurs associated with institutions such as the Belém Artisanal Açaí Sellers (Avabel) and the Association of Wives and Family Members of Public Servants of Pará;

- *Comenda Mulher Cientista do Pará* is run by the State Secretariat of Science, Technology, and Professional and Technological Education (SECTET) to honor authors of innovative research and initiatives in Pará.

III. APPLICABLE LEGISLATION

- Law No. 12,187 of December 29, 2009. Institutes the National Policy on Climate Change – PNMC

- Law No. 12,651/2012 - Brazilian Forest Code.

- Decree No. 7,830 of October 17, 2012, which provides for the CAR and creates the Rural Environmental Registry System (SICAR).

- MMA Normative Instruction No. 3 of December 18, 2014, which establishes rules on SICAR's security policy.

- MMA Normative Instruction No. 2 of May 5, 2014, and Ordinance Chart No. 121 of May 12, 2021, defined procedures for the integration, execution, and compatibility of SICAR and the analysis of CAR data by state entities.

- Normative Instruction No. 08 of October 28, 2015. DOE No. 33,003 of November 3, 2015 sets forth administrative procedures for authorizing cleaning and clearing in areas of secondary vegetation in the initial stages of regeneration, located outside the Legal Reserve (LR) and the Permanent Preservation Area (PPA) of rural properties in the state of Pará, and provides other measures.

- Decree No. 1,379 of September 3, 2015, creates the Environmental Regularization Program for Rural Properties in the state of Pará - PRA/PA.

- Decree No. 1,570 of June 29, 2016, institutes the Sustainable Development Program of the State of Pará – Pará 2030.

- Law No. 9,048 of April 29, 2020. Institutes the State Policy on Climate Change of Pará, defining principles, guidelines, objectives, and necessary instruments.

- Decree No. 941 of August 3, 2020. Institutes the Amazon Now State Plan (PEAA), creates the Scientific Committee for the Plan and the Permanent Center for Monitoring the Plan, and contains other provisions.

- Annex II describes technical details on the structure, general objective, goals, and description of the PEAA operational matrix.

- Law No. 14,119, of January 13, 2021. Institutes the National Policy on Payment for Environmental Services.

- Law No. 14,119 of January 13, 2021. Institutes the National Policy on Payment for Environmental Services; and amends Laws No 8,212 of July 24, 1991, 8,629 of February 25, 1993,

and 6,015 of December 31, 1973, in order to align them with the new policy.

- Decree No. 2,745 of November 9, 2022. Provides for the *Regulariza Pará Program*.
- Decree No. 2,744 of November 9, 2022. Provides for the Integrated Action Program for Sustainable Territories (PTS), amends Decree No. 941 of August 3, 2020, and repeals State Decree No. 344 of October 10, 2019.
- Law No. 9,575 of May 11, 2022. Provides for the environmental administrative process for investigating conduct and activities harmful to the environment. It also provides for applicable sanctions and environmental conciliation, within the scope of the Public Administration of the state of Pará.
- Decree No. 11,059/2022: Regulates the Program for the Structural Reduction of Energy Generation Costs in the Legal Amazon and the Navigability of the Madeira and Tocantins Rivers - Pró-Amazônia Legal, under the terms of Law No. 14,182 of July 12, 2021, and establishes the Pró-Amazônia Legal Management Committee.
- Decree No. 11,015 of March 29, 2022. Institutes the National Plan for Environmental Regularization of Rural Properties and its Management Committee.
- MAPA Ordinance No. 546 of December 29, 2022. Establishes the National Plan for Environmental Regularization of Rural Properties (*RegularizAgro*), for the period 2022 to 2027.
- Decree No. 11,687 of September 5, 2023. Provides for actions related to the prevention, monitoring, control, and reduction of deforestation and forest degradation in the Amazon Biome.
- Ordinance GM/MMA No. 833 of November 9, 2023. Provides for the requirements for publishing the list of municipalities in the Amazon biome that are a priority for actions to prevent, control, and reduce deforestation and forest degradation, and the list of municipalities with deforestation monitored and under control.
- GM/MMA Ordinance No. 834 of November 9, 2023. Provides for the publication of the list of municipalities located in the Amazon Biome considered a priority for actions to prevent, control and reduce deforestation and forest degradation, and the list of municipalities with monitored and controlled deforestation.
- Decree No. 11,550 of June 5, 2023. Provides for the Interministerial Committee on Climate Change.
- Decree No. 11,635 of August 16, 2023. Amends Decree No. 7,572 of September 28, 2011, which regulates the provisions of Law No. 12,512 of October 14, 2011, which address the Environmental Conservation Support Program - Bolsa Verde Program.
- GM/MMA Ordinance No. 1,030 of April 3, 2024. Provides for the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires and creates the Union with Municipalities Commission (Comissão União com Municípios).

Furthermore, the Pará State Native Vegetation Recovery Plan (PRVN) describes Public Policies that are highly relevant to the recovery of native vegetation in the state of Pará.[55]

IV. PROGRAMS AND PROJECTS (CIVIL SOCIETY AND/OR PUBLIC/ PRIVATE ARRANGEMENTS)

- Sustainable Territories Platform: The initiative integrates the public and private sectors, and the Third Sector, and aims to strengthen low-carbon socioeconomic development actions in Pará.
- Sustainable Territories (Pará): The Sustainable Territories Integrated Action Policy aims to offer alternatives for the economic transition of areas under pressure from deforestation, prioritizing producers who have joined the Program by offering rural credit and environmental, zoophytosanitary, and

55 PRVN - PA | Plan for recovery of native vegetation in the state of Pará (semas.pa.gov.br)

land regularization. It is an action tool of the Amazon Now State Plan (PEAA). The focus municipalities of NPC-Brazil— Itupiranga and Marabá—are already established as Sustainable Territories. Benefits include technical assistance for environmental regularization; technical assistance for land regularization; technical assistance for access to rural credit; and technical assistance for implementing good agricultural practices.

- Pará Productive Restoration Initiative aims to promote forest restoration of altered areas with the introduction of agroforestry systems and natural regeneration strategies for the environmental adaptation of rural properties and generation of income for family farming in the state of Pará. It does not yet operate in the NPC Brazil region, but has synergy. Benefits offered technical assistance for environmental regularization; technical assistance for marketing; technical assistance for the implementation of good agricultural practices; technical assistance for the implementation and certification of agroindustries; Implementation of agroforestry systems; Restoration; Training in financial and managerial education; training in gender equality education; Training for young people.

- Restaura Amazônia: RestaurAmazônia is an initiative of the Solidaridad Foundation with support from the JBS Fund for the Amazon, which aims to create a viable development model that can be replicated in other regions of the Amazon, based on low-carbon agriculture, credit leverage, and strengthening of the territory. RestaurAmazônia enables productive restoration and socioeconomic inclusion of family farmers in the Trans-Amazonian region of Pará. Through technical assistance and improved territorial governance, the initiative promotes low-carbon agriculture with the implementation of agroforestry—with cocoa as the flagship crop—combined with sustainable livestock farming and forest conservation. The project encourages and offers technical assistance so that family farmers in the region have greater access to new technologies and good practices, in addition to being able to invest in business startups in cooperatives in the region.

- One of the municipalities where NPC BR operates is Novo Repartimento. Benefits offered technical assistance for implementing good agricultural practices; technical assistance for increasing productivity and implementing agroforestry systems.

- Environmental Regularization of Rural Properties in the Amazon and in Transition Areas for the Cerrado Project (*Regulariza Agro*). The "Environmental Regularization of Rural Properties in the Amazon and in Transition Areas to the Cerrado" (CAR) is a project led by the MMA/SFB, financed by the BMUB through IKL. One of its components is "Structuring Restoration Reference Centers" program, which includes actions such as the implementation of Demonstration Units and Implementation of Ongoing Training Programs.

- National Plan for Environmental Regularization of Rural Properties (REGULARIZAGRO).[56] Instituted by Decree No. 11,015 of March 29, 2022. *RegularizAgro* is based on the following strategic lines of action: Support for the registration and analysis of the environmental status (regular/irregular) of rural properties; Support for the implementation of state and district Environmental Regularization Programs (PRA); Incentives for the environmental regularization of rural properties and support for the restoration of native vegetation in Legal Reserves, Permanent Preservation Areas, and Restricted Use Areas; and, finally, strengthening of institutional arrangements for environmental regularization of rural properties and strengthening of the capacities of staff to act on the National Plan's agenda.

- National Productive Forest Program. Ministry of Agrarian Development and Family Farming (MDA). Secretariat of Land Governance, Territorial and Socioenvironmental Development (SFDT). The objective is to promote productive restoration processes* in family farms and lands occupied by traditional peoples and communities in the six Brazilian biomes, with the overall aim of contributing to the

56 National Plan for Environmental Regularization of Rural Properties RegularizAgro.pdf (www.gov.br)

sustainable production of healthy food, food and nutritional security of Brazilian people, the generation of work, employment and income in the rural areas, the mitigation of global warming, and the fulfillment of the national goals for the reduction of greenhouse gases (GHGs) under the Paris Agreement. The inaugural Project will be in Pará and involve 20 Settlement Projects; 10 Rural Territories; 1,680 rural families; 1,680 Local Agents; 40 extension workers; 1:42 (extension worker: rural families).

- JBS Fund for the Amazon: works on the recovery of degraded areas and the generation of value for the standing forest.

- JUNTOS Program: People + Forest + Livestock: JUNTOS develops economic models for small livestock producers in the Amazon focused on increasing productivity and incomes, and ensuring traceability from the beginning of the chain and zero deforestation.

- Green Workshops (Oficinas): program contributes to the inclusion of producers, ensuring environmental regularization of rural properties and developing sustainable cattle raising.

- SOBRE Restauração – SOBRE was created in 2010, the result of gatherings that arose from REBRE (a nonhierarchical network of people, without legal personality, who share information and freedom of expression) to promote technical and scientific collaboration and the exchange of knowledge about ecological restoration efforts being conducted in Brazil. It provides information on the Restoration Chain, including services and inputs, research and extension, legislation, and public policies.

- Nova Mata Project is an independent, nonprofit initiative that maps ecological restoration projects and associated service providers – nurseries, seed collectors, and consultants – in all Brazilian ecosystems. The following initiatives were identified in the NPC-Brazil Program territory:

    - Inclusive and Sustainable Territories Program in the Amazon. Recovery of degraded pasturelands with agroforestry systems and cocoa on small properties in the municipality of Novo Repartimento (Pará). The project was implemented between 2016 and 2020. On properties of family farmers with livestock and cocoa activities, Solidaridad Brasil (2020) estimated that in a scenario with good management practices, zero deforestation, and restoration, GHG emissions can be reduced by 75 percent per kilo of weaned calf and 20 percent per ton of cocoa beans produced.

    - Inovaflora. A participatory research initiative developed by Embrapa Amazônia Oriental together with family farmers in southeastern Pará. The Inovaflora Project, linked to the Amazon Fund, aims to restore productive forest, permanent preservation areas, and legal reserve areas. Planting species of economic interest in the areas, while promoting environmental compliance of farms with legislation, generates benefits (food security and income) for producers and increases the value of their land.

        I. Carried out as part of the Mamuí settlement project, the Inovaflora initiative seeks to introduce low-cost forest restoration strategies such as planting pre-germinated seeds and seedlings of species already existing in the area. More than 50 native tree species, some of which had almost disappeared from the region, were planted in the permanent preservation areas previously consisting of pasture and poor secondary regeneration.

        II. In Marabá, the project is being developed in the 26 de Março settlement on the IFPA Marabá Rural campus.

    - Nurseries in Marabá: The Prefecture has set up two municipal nurseries partially dedicated to native fruit and

forest species for family farmers and the reforestation of degraded areas.57

- Floresta Viva FUNBIO. Floresta Viva's general objective is to contribute to investments in ecological restoration in Brazilian biomes with a view to deriving benefits from biodiversity preservation, available water resources, reduction of erosion, microclimate improvement, removal of carbon dioxide from the atmosphere, and generation of jobs and income. Floresta Viva operates by pooling resources from the BNDES Socio-Environmental Fund with those of supporting institutions. The latter are companies, foundations, and private associations, legal public law entities, or indirect public administration bodies. Together with BNDES, they participate in Floresta Viva, contributing funds for implementing restoration subprojects. The initiative aims to invest R$500 million over seven years, with up to 50 percent of funding originating from BNDES. FUNBIO is the managing partner responsible for organizing and conducting the hiring and selection processes, oversight, and monitoring of the results of restoration projects. While these projects are awarded through public competition and/or structured funding, no public announcement calling for proposals for the NPC-Brazil territory has yet been published.

- Amazon-Sustainable Landscapes Project (ASL BRASIL) posits that the Amazon can be conserved through integrated joint efforts. Private conservation units play a fundamental role in the sustainable development of the region and in deforestation reduction, and are both essential for maintaining the services provided by nature to the people of Brazil and further afield. In Brazil, the project is coordinated by the Ministry of Environment, through the Secretariat of Biodiversity, in partnership with the State Environmental Agencies of the states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins, and relevant federal bodies such as the Brazilian Forest Service (SFB) and the Chico Mendes Institute for Biodiversity Conservation (ICMBio). Conservation International is the executing entity of the "Public Policies and Plans for the Protection and Recovery of Native Vegetation."

- Brazilian Waters Program, under the Ministry of Integration and Regional Development (MDR), runs 10 projects related to water recovery that have been approved for the basin.

- Eletrobrás Regional Funds. Pro-Legal Amazon disburses R$295 million annually (30 percent from the CDN (Navigability Development Account) for the structural reduction of energy generation costs in the Legal Amazon and the navigability of the Madeira and Tocantins rivers. The CDN was created to manage these funds for the exclusive purpose of developing navigability projects on the Madeira and Tocantins Rivers.

- Cacau Floresta Project[58] – The Nature Conservancy (TNC) with cocoa producers (São Félix do Xingu – PA). The initiative commenced in 2012 in the municipality of São Félix do Xingu, in southeastern Pará, with the *Cacau Mais Sustentável* (More Sustainable Cocoa) project. The project now benefits 310 family farmers, with approximately 1,000 hectares of cocoa plantations in agroforestry systems implemented. The initiative, run in partnership with private companies and local associations, aims to encourage small rural producers and livestock farmers to recover deforested or unproductive areas by planting cocoa and other forest species, thus promoting low-carbon family farming. As well as being a way to prevent deforestation, cocoa planting benefits the local, regional, and national economy and boosts the incomes of family farmers. The Project's expertise could support the development of agroforestry systems (AFSS), an agroforestry model that can serve as a model for settling environmental liabilities in the Pará CAR.

57 Seagri: Seedling nursery distributed more than 400,000 seedlings in 2020 - Prefecture of Marabá - Pa (maraba.pa.gov.br)

58 Cacau Floresta: Information booklet, podcasts and leaflets (tnc.org.br)

- Vale Fund.[59] In 2018, the Vale company announced six sustainability commitments to be achieved by 2030, in line with the UN agenda, including protecting and restoring 500,000 hectares of areas beyond the borders of the company's land. Of the 500,000 hectares of Vale's 2030 Forest Target, 400,000 are intended for forest conservation and 100,000 correspond to degraded areas that, through the Vale Fund and a network of partners, will be restored through business arrangements with positive socioenvironmental impacts, mainly through agroforestry systems.

- The Green Municipalities Program (PMV)[60] run by the Pará state government was developed in partnership with municipalities, civil society, the private sector, the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), and the Federal Public Ministry (MPF). The Executive Center of the Green Municipalities Program (NEPMV) is a Management Unit of the State Government of Pará, created by State Law No. 7,756/2013 to manage the resources and activities of the PMV, contributing to the implementation of the State Government Plan of Pará by Encouraging and Promoting the Sustainable Use of Environmental Resources of the Environment and Sustainable Territorial Planning Program. In 2023, the Executive Center started implementing the Environment and Sustainable Territorial Planning Program, which plays a key role in supporting municipalities to implement the 5th Phase of the PPCDAm.

- Mixed Agricultural Cooperative of Tomé Açu (CAMTA) and Agroforestry System of Tomé-Açu (SAFTA).[61] The development of SAFTA began in the 1970s based on the intercropping of various agricultural, fruit, and forestry crops in areas where black pepper monoculture had been in decline. The system was modeled on the experience of the inhabitants of the banks of Amazonia's rivers, who plant a mixture of fruit and forest trees in their backyards to create a similar environment to the real forest. Over 200 agroforestry models have been tested over time involving intercropping with various species such as: cocoa, bananas, passion fruit, acerola, açaí, cupuaçu, rubber, Brazil nut, andiroba, bacuri, uxi, mahogany, etc.

- Pará PES Program: The Pará Environmental Services Program62 aims to encourage rural producers to carry out regeneration, recovery, maintenance, and environmental conservation actions. The initiative, which is already boosting the conservation and sustainable use of natural resources with payments to farmers of up to R$1,400 in funding and technical assistance, will henceforth be focused more on communal land held by traditional peoples and communities (Indigenous people, Quilombolas, and extractivists). The structuring of this new stage of the PES is being discussed with the Inter-American Development Bank (IDB).

- Black Jaguar Foundation.63 The Black Jaguar Institute is a nonprofit organization working to restore Brazil's Amazon Forest and Cerrado. The objective is to plant native trees on a large scale in partnership with landowners in the two areas with a view to creating the Araguaia Biodiversity Corridor.

2.2.2 GENDER ISSUES IN THE APPLICATION OF THE THESIS

According to the report *Harnessing Climate Finance to Advance Women's Climate Leadership* (CIF, 2023), climate change disproportionately affects women. If we consider rural, Indigenous, Quilombola, and riverside communities, as well as coconut shellers, and many others whose subsistence and way of life depend on land and the forest, this impact of climate change is even worse.

59 Vale Fund | Meta Florestal 2030 da Vale – Vale Fund

60 Green Municipalities (municipiosverdes.pa.gov.br)

61 Sustainability (camta.com.br)

62 Pará is preparing a new phase of the Payment for Environmental Services Program focused on traditional communities - Agência Pará (agenciapara.com.br) and https://www.semas.pa.gov.br/2023/10/19/programa-de-pagamento-por-servicos-ambientais-e-sistema-redd-sao-destaque-em-evento-sobre-meio-ambiente/

63 SOBRE - Black Jaguar Foundation (black-jaguar.org)

While the report raises awareness about the risks faced by women, it also draws attention to women's potential to contribute to forest protection and restoration projects, given that every day "caring" tasks, reinforced by gender stereotypes, are often related to the use and management of land. Women are, for example, more aware of the negative consequences of water and soil contamination, the effects of deforestation, and changes in soil, rainfall, and temperature regimes.

On the other hand, the inclusion of women is considered key to ensure environmental quality, and their specific knowledge and priorities should be recognized and guaranteed so that restoration objectives can be met. Hence, similar projects should acknowledge the different land and landscape uses and knowledge in order to carry out effective actions.

By adopting a Gender Policy in 2018, CIF committed to promoting gender equality in its entire investment portfolio, ensuring equal participation and contribution of men and women, and aiming for the outcomes spelled out in goal no. 5 (SDG 5) of the United Nations 2030 Agenda for Sustainable Development.

Using a *gender transformative approach*, the aim is to identify the main bottlenecks and structural barriers to the effective participation of women and propose actions and criteria that can not only generate changes in the current scenario within the region defined by the project, but also serve as an incentive for other areas.

While women make up 51.1 percent of Brazil's population (IBGE, 2022), they still face substantial inequality, with one of the issues being the 22 percent wage gap between women and men (IBGE, 2022). In 2023, Brazil ranked 57th on the Gender Inequality Index among the 146 countries surveyed in the World Economic Forum's Global Gender Gap Report 2023. Increasing women's active participation in decision-making spaces and their inclusion in production systems is one of the current items of urgent interest to the United Nations within SDG 5.[64]

According to the latest Agricultural Census of 2017, only 19 percent of producers in agricultural establishments in the country are female (and only 8.7 percent in cooperatives). Education levels are lower among women (75.2 percent of female producers are literate compared to 77.4 percent of men). At the same time, however, women represent 50 percent of the labor force that produces seedlings and seeds,[65] and are responsible for 45 percent of food production in Brazil, reinvesting around 90 percent of profits in education and family welfare,[66] and generating communal social benefits with their work.

In addition to understanding the role of women in rural production and forest landscape restoration, this diagnostic also addresses the situation of women within the national forestry sector. The *Rede Mulher Florestal* has been producing the Gender Outlook of the Forestry Sector (Panorama de Gênero do Setor Florestal) since 2019, which in 2023 continued to indicate that women have fewer opportunities and access than men and that their work in the forestry sector is less valued.

According to the above mentioned document, only 18 percent of the people employed in the forestry sector are women, and of these, 47 percent are black or of mixed race. However, 87 percent of companies in the sector have implemented policies to promote diversity and combat discrimination, which shows that such an approach still calls for more engagement and practical action by the companies' professional staff and ensures a robust, long-term commitment to the issue. The pay gap between men and women is 25.9 percent in the sector (higher than the overall average in Brazil), revealing the disparity between policy making and effective outcomes.

64 Equality between men and women in sustainable productive activity projects supported by the Amazon Fund. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and Brazilian Development Bank (BNDES), 2019.

65 Women in Forest Landscape Restoration, Pact for the Restoration of the Atlantic Forest and IUCN, n/d.

66 Equality between men and women in sustainable productive activity projects supported by the Amazon Fund. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and Brazilian Development Bank (BNDES), 2019.

If we consider the goal of the National Plan for the Recovery of Native Vegetation (PLANAVEG) of restoring 12 million hectares by 2030, it is estimated that there is a potential for creating 1 to 2.5 million direct jobs in the country,[67] which suggests that ensuring equal opportunities and benefits for women and men in projects and initiatives can have a significant impact on inequality rates in the sector. In this sense, the Investment Plan has an opportunity to generate relevant impacts by incorporating social and gender criteria and indicators.

Analyzing the topic in the state of Pará, we find that in this territory, "women are still most occupied with domestic chores, directly interfering with their activities outside the home environment, when considering the hours occupied and available for paid work; both factors contribute to inequalities in the entry of women in the job market."[68] On the other hand, it is important to consider that several activities carried out by rural women and considered "domestic chores" are related to the management of natural resources and the agroecological production of food,[69] which can be analyzed and incorporated as initiatives within the scope of *Nature-Based Solutions* (more information in item 1.2).

However, land ownership remains one of the major challenges in the state, where women hold only 20 percent of property titles. This is due to structural, cultural issues that need to be identified and transformed through specific cross-cutting policies.

According to the Report titled *Equality between Men and Women in Sustainable Production Activity Projects Supported by the Amazon Fund*, "inequality between men and women in the distribution of land titles in the Amazon is due to men's preference for inheritance, men's privileges in marriage, the unequal distribution of land by government programs, and inequality in the market, both on private and communal lands" (GIZ/BNDES, 2019, p. 15). Faced with this situation, women end up with little access to decision-making on land use and find themselves even more vulnerable in the event of marital breakdown, particularly in cases where men abandon the family home.

In this sense, it is worth pointing out the importance of future reviews of the *Pará State Native Vegetation Recovery Plan* (PRVN-Pará) —one of the policies considered in this diagnostic when defining the territory of the CIF NPC Brazil Investment Plan—to increase synergy and leverage, by incorporating a cross-cutting gender approach into the Plan's methodology and indicators. As stated in the PRVN-Pará, in addition to recovering native vegetation, the aim is to promote "benefits such as improving the quality of life related to people's health and welfare, (...) generating jobs and income through activities directly related to the production chain ranging from the production of inputs, such as seeds and seedlings, to the sale of products from the recovered areas." In line with the Restoration Opportunities Assessment Method (*Metodologia de Avaliação de Oportunidades de Restauração*) adopted by PRVN-Pará, the incorporation of gender guidelines[70] is essential for promoting social benefits such as those defined by the state government, since gender inequality is one of the most widespread forms of discrimination, perpetuating various human rights violations and inhibiting social progress.

On a final note, it must be emphasized that given the central role that women play in the use and management of natural resources, the absence of a gender analysis can lead to risks regarding (i) limited sustainability and effectiveness of restoration measures and results; (ii) the maintenance of existing inequality in land tenure and resource use rights; and (iii) the creation or exacerbation of unequal benefit-sharing systems due to inadequate identification of stakeholders.[71]

67 BRANCALION et al., P. H. S. Gender inclusion in ecological restoration. Restoration Ecology, 2021.

68 ODS Report No2/2019 Education, Gender, and Social Justice in Pará. (p.25)

69 Equality between men and women in sustainable productive activity projects supported by the Amazon Fund. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Brazilian Development Bank (BNDES), 2019. (p.17).

70 See IUCN (2017). Gender-responsive restoration guidelines: A closer look at gender in the Restoration Opportunities Assessment Methodology . Gland, Switzerland: IUCN.

71 According to analysis of the IUCN report (2017). Gender-responsive restoration guidelines: A closer look at gender in the Restoration Opportunities Assessment Methodology. Gland, Switzerland: IUCN. (p.03)

2.3 EXPECTED IMPACTS OF THE APPLICATION OF THE THESIS

At the highest level, all CIF programs and activities, including NPC-Brazil, must share a common goal as described in the Climate Investment Fund Impact Statement: "*accelerating transformational change and climate finance that enable progress toward net-zero emissions and adaptive, climate-resilient development pathways, in a just and socially inclusive manner.*"

"The term ***Nature-Based Solutions*** *(NbS) encompasses a range of ecosystem-related approaches to addressing societal challenges. NbS can encompass natural infrastructure and green infrastructure, as well as approaches that combine green and gray elements (referred to as "integrated" approaches). In the context of this report, NbS refers to activities associated with the protection, management, enhancement, and restoration of natural capital to develop climate-resilient infrastructure.*

Examples of how NbS can help increase the climate resilience of infrastructure include watershed (basin) restoration to regulate water supply and reduce sedimentation in order to keep a hydroelectric dam in operation, and coral reef management/rehabilitation to dissipate wave energy and reduce flood risk.

NbS can help mitigate multiple hazards (e.g., flood risk, landslides, and water stress) while generating a range of co-benefits (e.g., biodiversity conservation, and income generation and recreational opportunities) [...]

Furthermore, NbS can support the delivery of infrastructure services with greater resource efficiency than "gray" solutions, while sequestering carbon and increasing resilience to climate change impacts. NbS can also provide direct economic value by reducing losses through increased resilience (e.g., by reducing the risk of inland flooding) and providing benefits, some of which can generate revenue.

The profile of NbS is growing as these benefits are increasingly recognized, especially in the context of climate change. For example, the UN Secretary-General presented NbS as one of the six priority Action Portfolios at the 2019 UN Climate Action Summit."[72]

Nature-based Solutions bring together types of Projects that closely follow the *Climate Investment Fund Impact Statement*. Forest Restoration with Environmental Recomposition is one of the Projects with the largest number of features of a *Nature-based Solution*. The topic also fulfills Brazil's requirements to meet its Nationally Determined Contributions (NDCs) under the Paris Accords.

"The IUCN Global Standard[73] for Nature-based Solutions is the result of the work of over 800 experts from around 100 countries, combining their insights and knowledge on how nature can be an effective ally in tackling climate change and other 21st century challenges. The guide provides clear benchmarks for defining NbS and a common framework to support project development, evaluation, and concept scaling in a consistent and reliable manner.

Its target audience includes a wide range of users, particularly those from outside the traditional conservation sector. The guide is also part of a larger IUCN project to establish a global community of users who can collectively learn from and support the guide's four-yearly updates.

In practice, eight criteria and 28 indicators that address the pillars of sustainable development (biodiversity, economy, and society) and resilient project management are discussed. The latter is based on the premise that a solution needs to be responsive to a given context and that the outcome will vary from case to case. The Guide helps users (i) assess the extent to which a proposed solution qualifies as an NbS, identifying what actions can be taken to strengthen the intervention; (ii) support the adherence of a solution to the criteria and indicators; (iii) develop and implement new projects within the parameters. The result is in the form of a percentage match compared against good practices, with a traffic light system to identify

72 Watkins, G., Silva, M., Rycerz, A., Dawkins, K., Firth, J., Kapos, V. et al. (2019). Nature-Based Solutions: Increasing Private Sector Uptake for Climate-Resilience Infrastructure in Latin America and the Caribbean.

73 International Union for Conservation of Nature - IUCN

areas for further work and adherence to the Global Standard for Nature-based Solutions."[74]

The Causal Thesis proposed in the Theory of Change for NPC-Brazil is part of a Nature-based Solution when planning a Forest Restoration with Environmental Recomposition project that results in "*ecological rehabilitation and/or the restoration of ecosystems, with the engagement of communities and based on Integrated Territorial Management (ITM),* [75] *in a context of socio-environmental, economic, and cultural management of landscapes, it will promote the transformation of a territory with high rates of environmental degradation and social exclusion into a territory with social, environmental, and resilient sustainability to face climate crises.*"

Thus, the eight criteria and 28 indicators that were formulated in the IUCN Global Standard Guide applicable to Nature-based Solutions Projects may be combined with the Climate Investment Fund Indicators (annex 5) to measure the results of NPC-Brazil, whose planning may be summed up in the Investment Plan adhering to the following elements of the Theory of Change. However, this decision must be appraised jointly with the Technical Group, in order to determine the validity of expanding or not the results measurement indicators, for highlighting and validating the NPC-Brazil project vis-à-vis the Climate Investment Funds.

2.3.1 IMPLEMENTATION DESIGN ELEMENTS

The thesis posited by the NPC-Brazil Program is that "The NPC-Brazil Program is based on the inferences that the restoration of landscapes and forests, with community engagement, gender equity, and based on Integrated Territorial Management, with a view to socio environmental, economic, and cultural management

Picture from Daniel Granja in Unsplash

of landscapes, will promote the transformation of a territory with high rates of environmental degradation and social exclusion into one with social and environmental sustainability as well as resilience in facing climate crises."

Landscape and forest restoration involves transforming degraded areas and forests into productive and practicable spaces, thus improving the socioeconomic conditions of the local population.[76] There are several methods for restoring landscapes, and the choice of the most appropriate one needs to consider the social, economic, and environmental conditions of the areas to be restored and the benefits expected from the landscape by the key stakeholders.[77]

Figure 10 below, from the Pará State Native Vegetation Recovery Plan - PRVN - Pará, illustrates how the NPC-Brazil thesis aligns, with the integrated management of all factors considered with respect to landscapes and forest restoration.

74 © 2024 | All rights to this material are reserved to NEXO JORNAL LTDA., in accordance with Law No. 9,610/98. Link to article: https://pp.nexojornal.com.br/bibliografia-basica/2021/11/04/nature-based-solutions-and-coping-with-climate-change

75 Inguelore Scheunemann and Luiz Oosterbeek (orgs.), Integrated Territorial Management: Economy, society, environment, and culture 2012.

76 WRI, 2019.

77 Calmon, 2021.

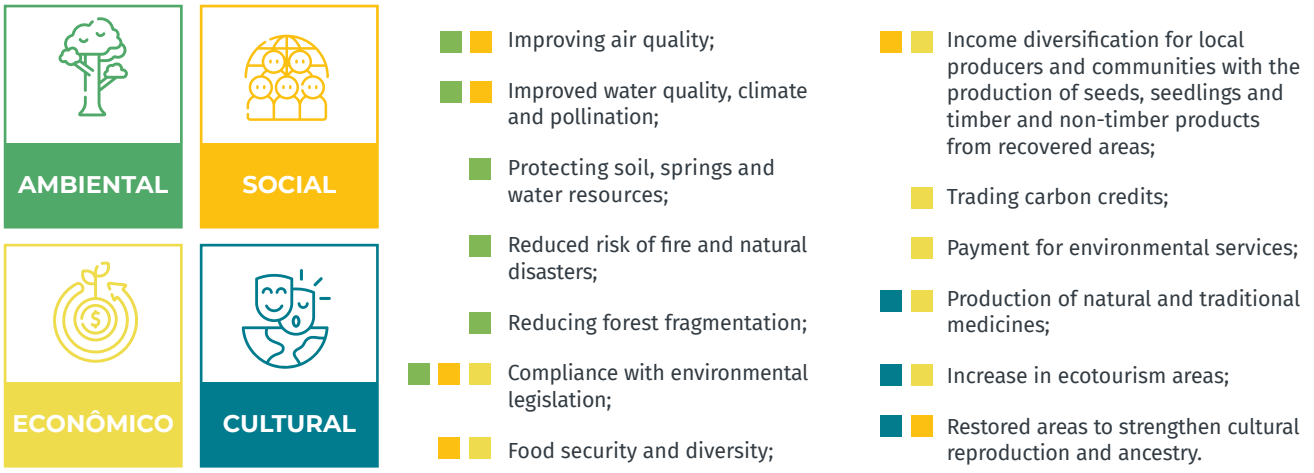

Figure 10 The environmental, social, economic, and cultural benefits of restoring landscapes and forests

In Brazil, the main causes of landscape degradation are deforestation and degradation, intensive land use without adequate management, and the irregular occupation of protected and vulnerable areas, such as springs, slopes, and the edges of watercourses.

It is worth noting that degraded areas are major emitters of greenhouse gases (GHG), such as carbon dioxide (CO2), which have caused temperature rises and climate change on the planet. In Brazil, during the 2017–2020 period, the energy sector accounted for 23 percent of emissions, and agriculture, forestry, and land use change for 66.5 percent of emissions, with the figures related to Land Use, Land Use Change, and Forestry[78] (LULUCF - see table 2 below) being particularly high.

Restoring landscapes and forests is an important strategy for Brazil to achieve its international commitments, contribute to the Sustainable Development Goals (SDGs), and become a global leader in the Decade of Ecosystem Restoration.[79]

Table 2 Results of greenhouse gas emissions in 2020, by sector. Emissions unit: million tons of CO 2 eq.

TOTAL DE EMISSÕES LÍQUIDAS EM 2020 - 1.675,76 MILHÕES DE TONELADAS DE CO_2eq								
SETORES	EMISSÕES TOTAIS	CONTRIBUIÇÃO SETORIAL (%)	CO_2	CH_4	N_2O	PFCS	HFCS	SF_6
ENERGIA	389,48	23,2%	366,91	12,57	10,01	-	-	-
IPPU	101,94	6,1%	92,45	0,80	0,36	0,24	7,76	0,33
AGROPECUÁRIA	477,67	28,5%	26,00	298,6	153,06	-	-	-
LULUCF	637,04	38,0%	596,29	596,29	12,89	-	-	-
RESÍDUOS	69,63	4,2%	0,23	0,23	2,76	-	-	-

Source: Annual estimates of greenhouse gas emissions in Brazil, 6th Edition. MCTI, 2022

78 Annual Estimates of Greenhouse Gas Emissions in Brazil, 6th Edition, MCTI, 2022.

79 United Nations Decade on Ecosystem Restoration (2021–2030). Resolution adopted by the General Assembly on March 1, 2019.

As indicated in item 2.2.1.1 above, the territory selected for the application of NPC-Brazil resources is justified by the **high deforestation rates recorded** (annex 3), because they are **priority municipalities for the Union with Municipalities Program** and because they are **located within the boundaries of the Tocantins Araguaia Basin** (figure 11 below).

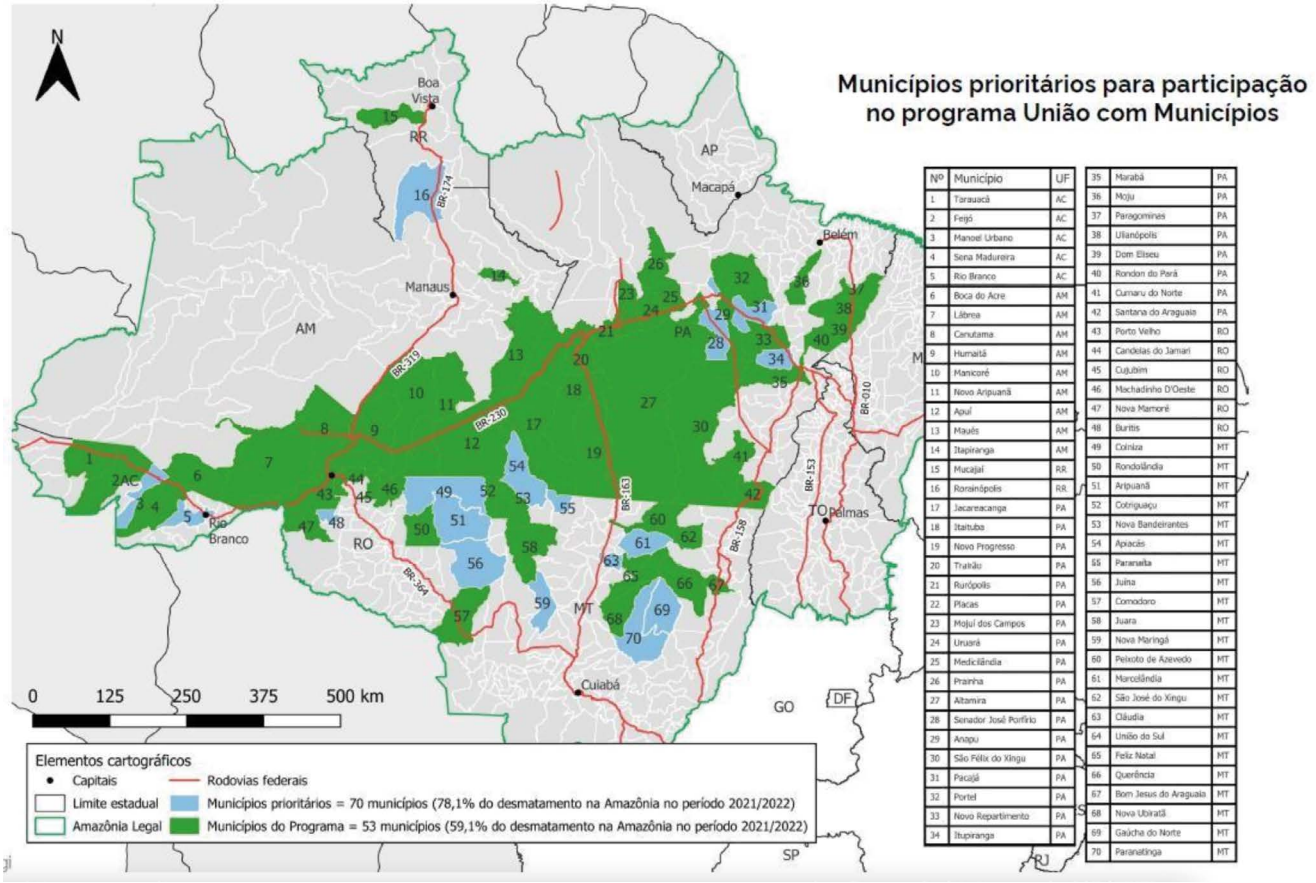

Figure 11 Priority municipalities in the Union with Municipalities Program for the Reduction of Deforestation and Forest Fires in the Amazon. Source: Union with Municipalities Program.

The Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) 5th Phase (2023 to 2027) is one of the government programs that reinforces the NPC-Brazil thesis and, together with the Native Vegetation Recovery Plan of the State of Pará, consists of agreed strategies for environmental and forest restoration in Brazil.

One of the lines of action defined by the Union with Municipalities Program for promoting sustainable development and reducing deforestation and forest degradation in the Amazon is "**productive recovery of native vegetation**", and the main objective of the alignment of the Pará State Native Vegetation Recovery Plan (PRVN-PA) is number 1, "promoting **the recovery of native vegetation**." Figure 12 illustrates the integration regions of Pará in relation to current land use and occupation.

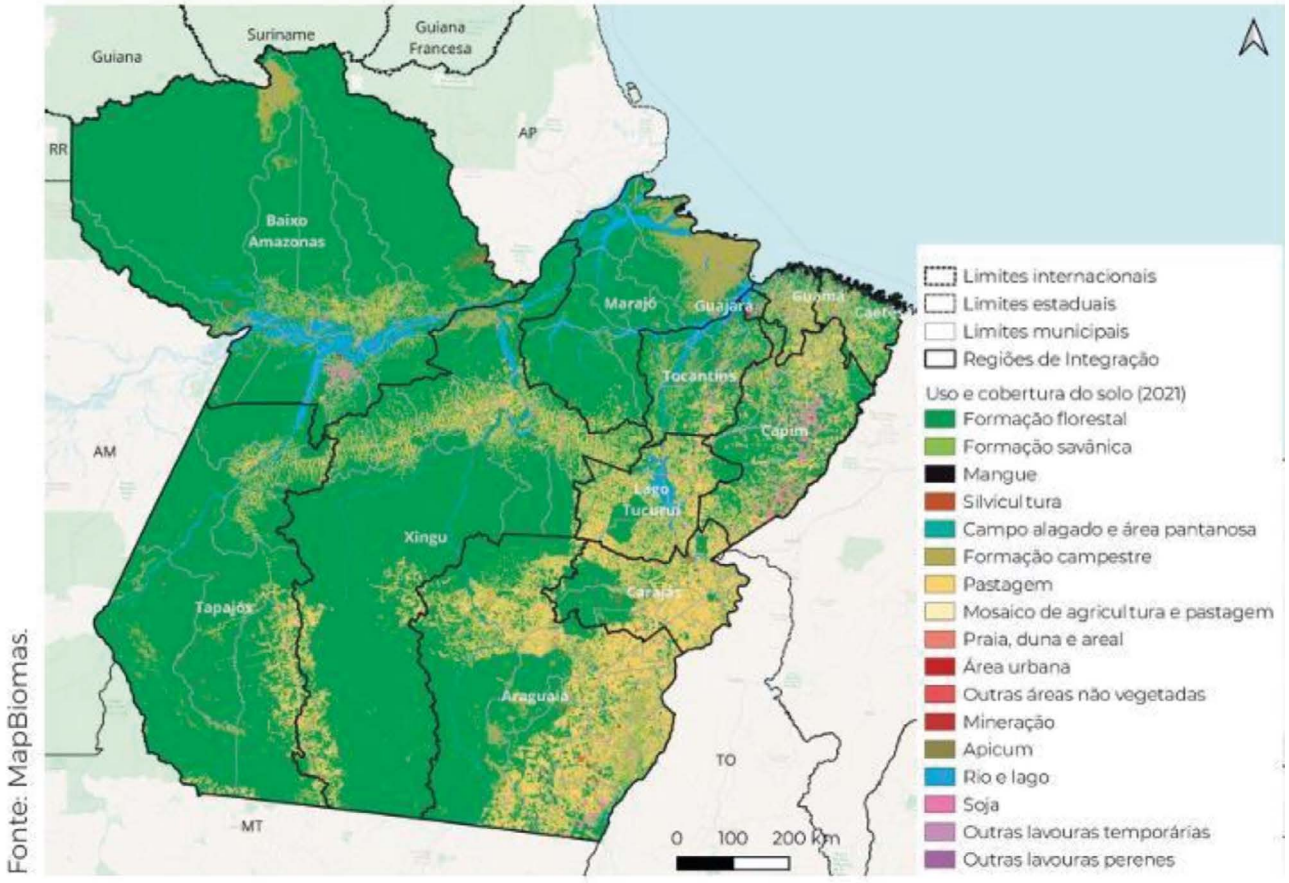

Figure 12 Soil use and coverage with emphasis on 12 integration regions delimited by the Secretariat State of Environment and Sustainability (SEMAS-PA)

Source: PRVN – Pará, 2023. The territory of the NPC-Brazil Program is located in the southeast region, in the areas of confluence of the Lago Tucuruí, Carajás, and Rio Capim Integration Regions. (Source: MapBiomas)

The areas subject to recovery, for example, open areas with no native vegetation cover, in the state of Pará, represent 18.6 percent of the territory (23.2 million hectares (Mha) distributed across private properties (12.8 Mha), rural settlements (5 Mha), Indigenous territories (424,000 ha) and *Quilombolas* (337,000 ha), protected areas (1.6 Mha), and other non-designated public forests (2.9 Mha).

These areas, which are characterized mainly by low-productivity pastures and agriculture, are concentrated in the east and southeast of the state. In private rural properties, approximately 2.88 Mha of these open areas are environmental liabilities and should make up Legal Reserves (LR: 80 percent of rural landholdings subject to LRs in forest areas in the Legal Amazon) and permanent preservation areas (PPAs) with native vegetation, as explained in Brazil's Forest Code. In rural settlements, these environmental liabilities correspond to approximately 911,000 hectares (PRVN-PA, 2023).

According to information from the Rural Environmental Registry (CAR) bulletin of September 2022 (RegularizAgro, 2022), there are currently more than 6.75 million Rural Environmental Registries entered in SICAR. Of these, 6,736,501 registries are for rural properties, 3,191 for territories occupied by traditional peoples and communities, and 16,509 for Agrarian Reform settlements. In terms of registered area, 629,003,885 hectares are currently covered by the SICAR database, of which 534,585,948 hectares refer to areas of registered rural properties, 39,303,721 hectares refer to traditional territories, and 55,114,216 hectares refer to agrarian reform settlements.

Table 3 Table 3 below indicates the Territorial Area, Cadastral Area, and Area Registered in the CAR, October 2023. Source: SEMAS/SICAR. Prepared by: FAPESPA

MUNICIPALITY	TERRITORIAL AREA (IBGE/KM²)	CADASTRAL AREA (KM²)	% CADASTRAL AREA	CAR AREA (KM²)	% OF CAR AREA
Itupiranga	7,880.10	6,354.46	80.64	5,880.25	92.54
Marabá	15,128.05	11,555.34	76.38	10,793.84	92.94
Novo Repartimento	15,398.72	12,008.78	77.99	10,438.70	86.93
Rondon do Pará	8,246.39	8,225.99	99.75	7,488.32	91.03

The figures below illustrate the composition of the Legal Reserve, Permanent Preservation Areas (PPAs), and the existence of the Rural Environmental Registry in the four municipalities of the NPC-Brazil territory.

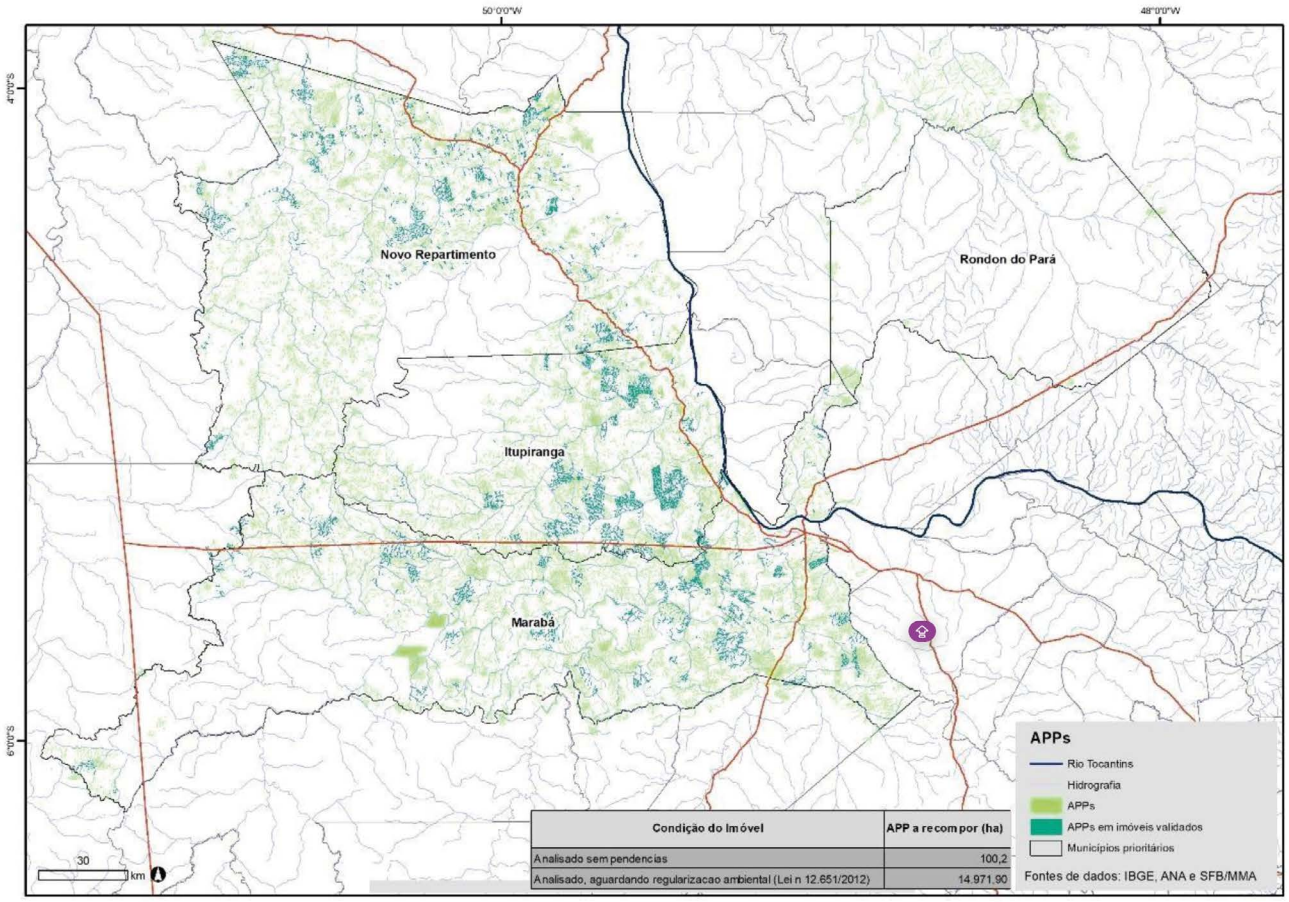

Figure 13 Map showing the areas of PPAs and PPAs in properties with a validated CAR in the municipalities of the NPC-Brazil Territory. Source: L.P.Perez and C.G.Messias

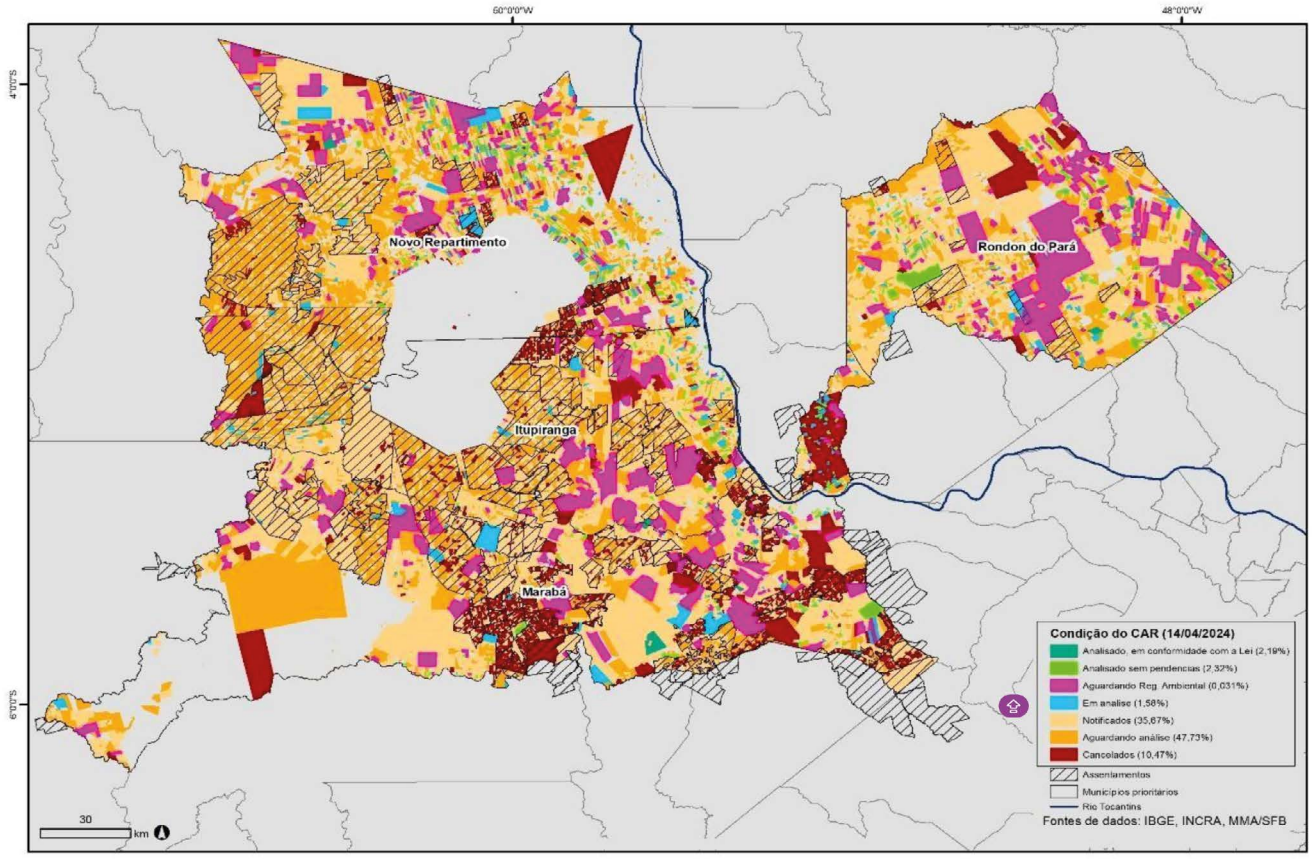

Figure 14

Figure 14 and table 4 indicate the situation with respect to regularization of the Rural Environmental Registry (CAR) in the four municipalities, NPC-Brazil Territory. Source: L.P.Perez and C.G. Messias, 2024.

Table 4

SITUATION	AMOUNT
Awaiting analysis	15228
Analyzed without pending issues	741
Analyzed, awaiting response to notification	11379
Analyzed, awaiting environmental regularization (Law No. 12,651/2012)	699
Analyzed in accordance with Law No. 12,651/2012	10
Canceled by administrative decision	3185
Canceled by court order	155
Canceled due to duplication	2
Under analysis	506
TOTAL	31905

SITUATION	NUMBER	%	
Validated	751	2.35%	6.13%
Validation under way	1205	3.78%	
Notified	11379	35.67%	
Never analyzed	15228	47.73%	
Canceled	3342	10.47%	

The Legal Reserve is the area located within a rural property or holding, delimited in percentage terms, based on the total area of the property, and which has the function of ensuring the sustainable economic use of the natural resources of the rural property, assisting in the conservation and rehabilitation of ecological processes and promoting the conservation of biodiversity, as well as providing shelter and protection for wild fauna and native flora (Forest Code - art. 3, item III). For the Legal Amazon, 80 percent of the property in forest areas must be allocated to the Legal Reserve. In the Legal Reserve, the native vegetation cover must be preserved and, as a general rule, traditional agricultural activities are not permitted; however, the economic exploitation of native vegetation is permitted **through sustainable forest management**. Management for commercial purposes within the protected area must be previously authorized and comply with certain conditions (not to disfigure the vegetation cover; not to harm the conservation of the native vegetation in the area; to ensure the maintenance of species diversity; and, in the case of including management of exotic species, to be carried out in a way that favors the regeneration of native species). Sustainable management is the handling of the forest to obtain economic, social, and environmental benefits, for the use of timber species, non-timber products and by-products and other goods, and for the provision of forest services (article 3, item VII, of the Forest Code). Furthermore, in relation to Legal Reserves, in the regime for consolidated rural areas, the Forest Code provides for the possibility of restoring vegetation (art. 66, item III), which can be done by planting native species, interspersed with exotic ones, in agroforestry systems, allowing the economic exploitation of these systems (art. 66, §§ 3º and 4º). The Forest Code also provides for the creation of Environmental Regularization Programs (PRA). According to art. 59 of the regulation, the Union, the states, and the Federal District must implement these programs. It is also through the state PRA that the complementary procedures to be adopted in each state for the purpose of environmental regularization of rural properties are specified. Finally, it is worth noting that art. 42 of the Forest Code also provides for the creation of a federal program to support and encourage environmental preservation and recovery and the adoption of technologies and good practices that reconcile agricultural and forestry productivity. The device provides for the use of economic instruments and other mechanisms to support the conservation and recovery of native vegetation and environmental regularization, through state credit lines, comprising: Payment for Environmental Services (PES); compensation mechanisms through facilitated and subsidized conditions for agricultural credit and agricultural insurance; tax exemptions and allocation of part of the funds arising from charging for the use of water for environmental purposes; and marketing, innovation, and expedited actions for the recovery, conservation, and sustainable use of environmental resources.

Picture from Nathalia Segato in unsplash

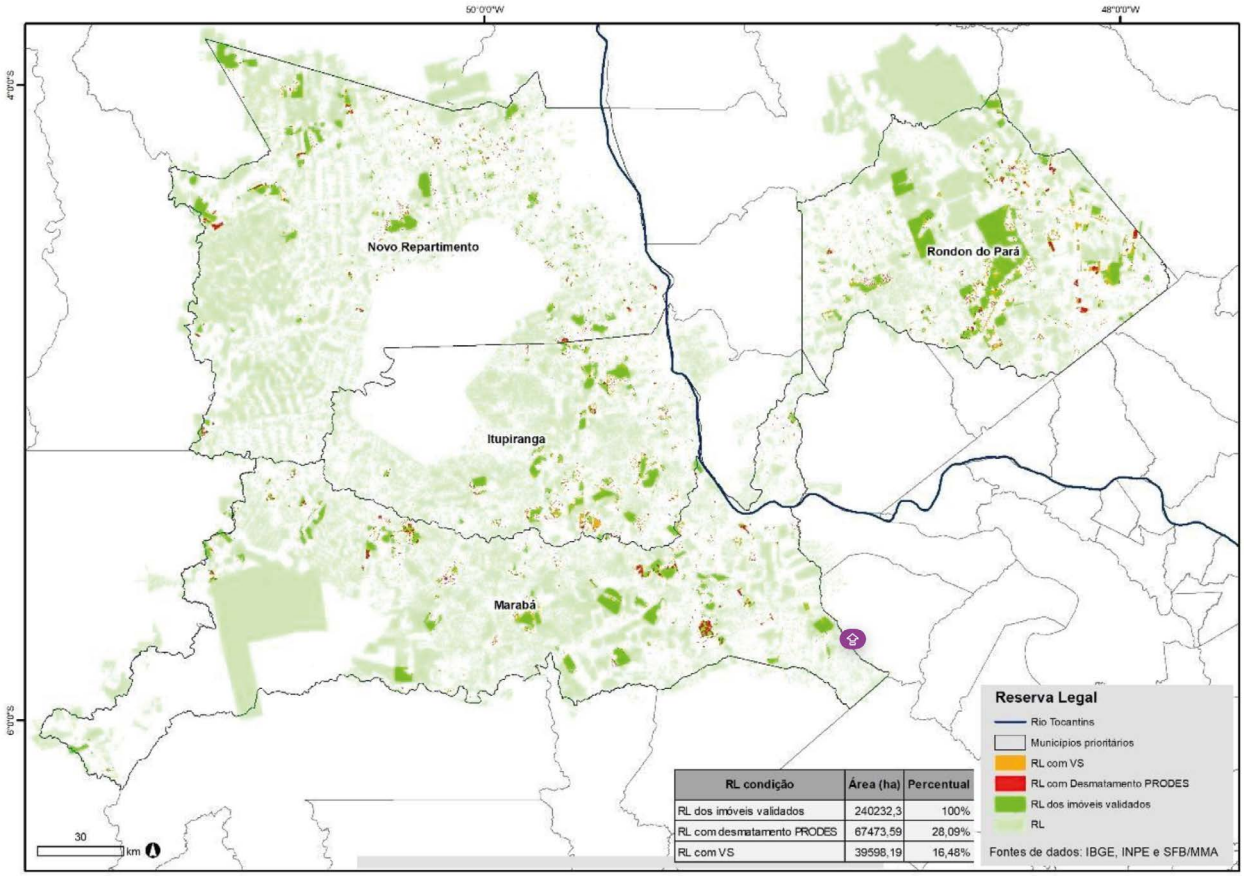

Figure 15 Map showing the layout of Legal Reserves already validated by CAR and Legal Reserves with deforestation, and those that already show regeneration based on the detection of secondary vegetation (SV). The map shows that of all the legal reserves within properties (i) analyzed without pending issues; (ii) analyzed awaiting a PRA; and (iii) analyzed in accordance with the law, 28 percent suffer deforestation, 16.5 percent of this deforested area is currently covered with secondary vegetation (SV). Source. L.P. Perez and C.G. Messias, 2024.

As demonstrated above, the four municipalities of the NPC-Brazil Territory, Itupiranga, Marabá, Novo Repartimento, and Rondon do Pará, have accumulated 31,007 km2 of deforested area (PRODES, annex 3). The economy of the four municipalities is largely based on agriculture and livestock farming. The environmental regularization of properties is important for medium and large producers, as well as for community and small producers.

The demand for environmental regularization combined with the potential for generating income and employment and diversifying the economy **through productive restoration**, combining ecological restoration with productive species, with the use of the area for economic food production, and improving the ecosystem functions of the degraded environment, **is the core argument for developing the guiding principle of the NPC-Brazil Program in the selected territory**.

In the construction of the PRVN-PA, the Restoration Opportunities Assessment Methodology (ROAM) was applied.[80] According to this methodology, successful recovery processes have three characteristics in common: 1. Clear motivation 2. Favorable conditions 3. Capacity and resources for sustained implementation. For each of these characteristics, ROAM presents a series of key factors that must be present (green), partially present (yellow), or absent (red) for the success of the recovery actions. These key success factors were assessed by participants in the regional workshops held to prepare the PRVN-PA. The results obtained are shown in the PRVN – PA tables. For Pará, and within the scope of this

80 Hanson, C.; Buckingham, K.; DeWitt, S.; Laestadius, L. (2015). The Restoration Diagnosis. A Method for Developing Forest Landscape Restoration Strategies by Rapidly Assessing the status of Key Success Factors.

Program, it is worth highlighting that restoration generates economic, social, and environmental benefits. However, the challenges for enhancing awareness about the importance of aspects related to implementation are substantial, especially those related to financial resources. On the other hand, the positive role of science (research, knowledge, and committed leadership) is a major success factor in restoration processes. It will be important to apply this methodology in the territory of the NPC Program for planning and instituting the project.

To engage the interest of local people, it will be necessary to demonstrate the potential to generate jobs, especially in regions in need of job diversification and better income distribution. All the models of the restoration chain have the potential to identify suppliers of inputs and related services and ensure the quantity and quality of seedlings, seeds, and other inputs, thus ensuring that supply meets recovery demands while expanding access to inputs and services.

The main links in the restoration production chain are seed collection, seedling production, planting and maintenance, and technical services and follow-up. An important link, not always acknowledged, is the generation of technical and scientific knowledge by universities and research centers. It is also vital to consider the importance of logistics and infrastructure for the restoration production chain to gain scale.

A recent study titled "*Ecosystem Restoration Job Creation Potential in Brazil*"[81] shows that in Brazil, active forest restoration has the capacity to generate 0.42 jobs per hectare. This means that one job is generated for every 2 hectares restored. Given that the National Plan for the Recovery of Native Vegetation (PLANAVEG) foresees between 20 percent and 50 percent of active restoration with the planting of seedlings and seeds, it should be possible to generate 1 million to 2.5 million jobs.[82] The authors also highlight that "Notwithstanding long-term results, jobs are available throughout the territory at the outset of the restoration process (seed collection and seedling production, planting, maintenance, and monitoring), thus benefiting vulnerable populations." This study, corroborated by the publication of the SOBRE Restauração network,[83] argues that "*restoration work is currently concentrated in the southeast region (61 percent), with one third in the state of São Paulo. Likewise, most existing jobs involve, in whole or in part, the Atlantic Forest (85 percent), a pioneer in restoration activities in Brazil. These data pinpoint the need to develop the forest restoration chain in other regions and biomes.*"

The PRVN-PA sets out some key actions to provide technical assistance and rural extension as increasingly essential elements of the restoration chain. The following recommendations are of special relevance for the NPC-Brazil territory:

- *Create a network at the territorial level, in integration regions, or in basins for promoting contact and coordination between producers of seedlings, cuttings, and other crucial economic and environmental inputs as a way of disseminating regulations, collecting and registering data, and organizing meetings on specific topics.*
- *Promote the strengthening and expansion of the structure of the Sustainable Territories program and the Forest Restoration Project through Agroforestry Systems (PROSAF), to prevail on local prefectures and communities to construct nurseries and seed houses in the different integration regions of the State.*
- *Map institutions and companies providing recovery services, and incorporating the resulting data into the online restoration chain supply and demand platform.*
- *Develop and implement ongoing training programs for professional technical staff on good agricultural practices and the recovery of native vegetation, with a view to integrated landscape management. Skills training should Include how to advise producers on the Environmental Regularization Program (PRA), how to draft a Project for the Recovery of Degraded or Altered Areas*

[81] Brancallion et al., 2022

[82] Ecosystem Restoration Jobs in Brazil

[83] Ecosystem restoration job creation potential in Brazil.

(PRADA), and procedures for participating in the State Program for Payment for Environmental Services.

- *Promote links between researchers and people with local knowledge to develop social technologies in the context of Amazonian requirements for their wider application in the RVN.*

- *Create multidisciplinary teams known as "Caravanas da RVN Florestal" for each mesoregion, composed of rural extension workers and local leaders (Indigenous People, Quilombolas, fishermen, extractivists, family farmers, etc.), in addition to technical staff drawn from the territories in which the work will be carried out, trained by reputable educational institutions.*

Projects such as PROSAF,[84] developed by the Institute for Forestry and Biodiversity Development of the State of Pará (IDEFLOR-Bio), have installed more than 250 nurseries (institutional, collective, and/or individual community nurseries), which represent an installed production capacity of approximately 4,011,040 seedlings. Seedling Production Nurseries are an integral part of the methodology since they are an essential tool for acquiring seedlings, which in turn are vital vectors for restoring altered and/or degraded areas. The Project page contains general information on the list of 196 nurseries in the state of Pará, updated to September 2020.[85] In all four municipalities of the NPC-Brazil Territory, institutional or community nurseries are indicated. Figure 16 below shows the location of the nurseries in the different integration regions of the state of Pará.

Picture from Brazilian Forest Service Archive

84 Prosaf Project – IDEFLOR - Bio (ideflorbio.pa.gov.br)

85 Project-PROSAF- General - data - of - nurseries - updated - on - September - 25 , 2020.xlsx (live.com)

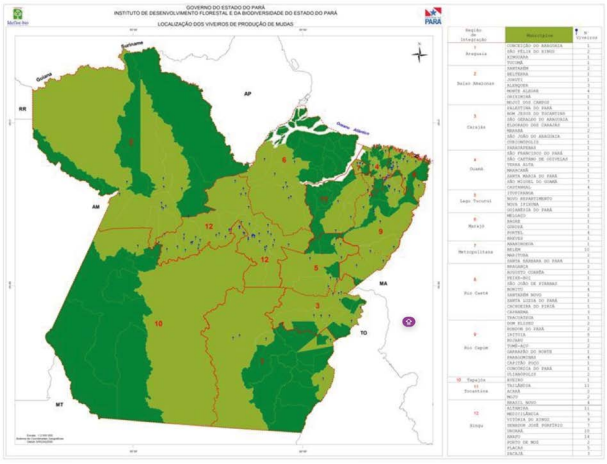

Figure 16 Location of the seedling production nurseries in Pará in 2020. Source: IDE-FLOR-BIO 2020

In an IPEA study conducted in 2015 (Silva et al., 2015) to outline a quantitative, economic, and social profile of the production of seedlings of native forest species in Brazil, 106 nurseries were identified in the state of Pará. This research survey was important because it mapped information on seed and seedling production, different species, production costs, and the identification/location of nurseries in the country. The same study also points out that *policies to foster the restoration sector could be implemented in regions where seedlings and seeds are in short supply by combining activities in the forest restoration chain as generators of employment and income, or as a complementary activity in low-income places.*

2.3.2 SYSTEMIC DESIGN ELEMENTS

If applied at scale, *supporting the restoration of degraded areas to provide socioeconomic benefits has the potential to make the Amazon more resilient to climate change; empower local populations; create jobs to boost rural economies; and contribute to biodiversity conservation and the delivery of basic ecosystem services such as drinking water, food, and carbon storage and sequestration* (Barlow et al., 2023).

Based on the premise that the NPC-Brazil Program will implement actions for the "productive recovery of native vegetation," in accordance with the main guideline of the Union with Municipalities Program, a series of studies and methodologies that could be part of the NPC Program are outlined immediately below. It is important to emphasize, however, that different restoration modalities can be adopted and implemented in a linked, complementary manner in order to bolster the economic and socioenvironmental viability of large-scale forest restoration initiatives in the Territory.

The study on the Climate Policy Initiative (Lopes & Chiavari, 2024) contains a number of modalities, two of which reflect the precepts of the NPC-Brazil Program.

1. Native silviculture in multifunctional forests, which considers both the environmental and economic importance of forests. Multifunctional forests combine silviculture of native species, combined or not with exotic species, with restoration techniques to reconcile the production of timber and non-timber products with the conservation of biodiversity and maintenance of ecological processes.

2. Landscape and Forest Restoration (LFR) can encompass, in addition to ecological restoration, productive restoration models such as native species silviculture (biodiverse, monoculture, or mixed), Agroforestry Systems (AFSs), particularly Biodiverse AFSs,[86] and the restoration of degraded pastures with Integrated Crop-Livestock-Forestry (ICLF), aimed at recovering the degraded area, generating employment and income. This modality is regarded as a sustainable restoration of degraded agricultural lands. According to Barlow et al., 2023, "restoration practices could be applied to approximately 24 million hectares of moderately or severely degraded pastures in the Brazilian Amazon. This could be achieved together with the maintenance of livelihoods and economies by incorporating socially beneficial aspects of restoration into pre-existing agricultural systems. This is particularly relevant for the Amazon Basin, where degraded pastures typically generate little income, and which could

86 Soares et. al., 2021

be significantly improved by carrying out soil conservation measures, adopting silvopastoral approaches, and forestry and agroforestry systems. Many of these practices have demonstrated great success in terms of economic returns and food production diversity."

There are several studies and experiences that reinforce the potential of restoration, including through conducting forestry business with native species (Batista et al., 2021). Calmon, through the *Verena* project,[87] showed that the recovery of degraded areas through silviculture using native species and agroforestry systems can generate attractive financial returns for producers and investors.

In the 2017 Agricultural Census of the Brazilian Institute of Geography and Statistics (IBGE), there were more than 13.863 million hectares cultivated in agroforestry systems in Brazil, including native species such as açaí, andiroba, avocado, macadamia, babassu, baru, rubber, buriti, cocoa, Brazil nut, juçara, macaúba, mangaba, murumuru, pequi, piassava, pine nut, and umbu.

These models of biodiverse and productive Agroforestry Systems have already been implemented in the region proposed for the NPC-Brazil Program (Itupiranga), by EMBRAPA together with family farmers from the Southeast of Pará.[88] Land use in the settlements is based on the traditional process of "slash and burn," when forest areas are opened up for productive activities and later temporarily abandoned to allow soil renewal. This practice contributes to deforestation, loss of biodiversity, and increased environmental liabilities, since, in many cases, the areas that are deforested are in places defined by law as Permanent Preservation Areas.[89] The Batista study revealed that planting native forest and fruit species is the most recommended way to recover areas of permanent preservation in the Amazon region. For areas of legal reserve, the recommendation is to implement Agroforestry Systems (AFSSs). The Itupiranga Project also demonstrated that production through agroforestry systems to recover degraded areas guarantees food security and income generation through the sale of economically viable fruits such as açaí, banana, and cocoa. This same model has been implemented in several other programs developed in the state of Pará (see TNC Cacau Floresta and CAMTA above).

It is worth adding that agroforestry systems are also an important tool for adapting agriculture to climate change. A study conducted by Calmon and Feltran-Barbieri in 2019 demonstrates that *agroforestry produces adaptation benefits for the local climate, including reducing the impact of five types of extreme events (droughts, heat waves, cold waves, heavy rain, and natural disasters), improving soil quality and water availability, attracting pollinators and improving biodiversity*.

It is important that the projects to be developed within the scope of the NPC-Brazil Program consider multifarious options for restoration models, especially landscape restoration. Barlow et al., 2023, maintain that landscape restoration will be effective when the following points are considered: (i) carrying out active, assisted, and passive restoration where it is most effective, leaving the most expensive approaches for specific, highly degraded sites, by relying on natural regeneration to produce large-scale new growth. Therefore, it will be important to include the analysis of the Secondary Vegetation (SV) index in the models to be applied, and to propose public policies to protect and safeguard these areas of secondary vegetation; (ii) minimize the loss of agricultural production, focusing on the least productive and most degraded lands; (iii) increase the well-being and livelihoods of the population by increasing the availability of forest products, expanding the food supply, improving water security and supporting the various cultural values inherent in landscapes; (iv) maximize biodiversity benefits, increasing connectivity between old forest fragments to spur movement and flow of genes between species; (v) reduce the risk of wildfires by suppressing the growth of rough grass that facilitates the spread of fires and creating buffers that protect the edges of primary forests from ignition sources and from hotter, drier non-forest landscapes; and (vi) reduce the demand for timber

87 Verena Project | WRI Brasil

88 Planting native Amazonian trees restores permanent preservation areas in southeastern Pará - Embrapa Portal

89 https://www.embrapa.br/busca-de-noticias/-/noticia/84885304/plantio-de-arvores-nativas-daamazonia-recupera-areas-de-preservacao-permanente-no-sudeste-do-para?link=agencia

from natural forests by permitting larger areas to be designated for conservation or other sustainable uses, and to undertake lower-intensity forest management in areas already designated for these purposes (e.g. forest concessions).

It is also important to emphasize that the "expansion of agroforestry and regenerative production systems" is an integral part of the expected results outlined in the State Bioeconomy Plan of the State of Pará (PlanBio, 2022), which envisages that "bioeconomy goes beyond sustainable production and climate resilience, but also includes actions related to green infrastructure, job creation, and potential for low-carbon socioeconomic growth."

PlanBío Pará also seeks to promote nature-based solutions (NbS) to enable the transition to a diversified economy capable of creating and/or improving local production processes and sociobiodiversity, ensuring the safety of genetic heritage, and protecting and valuing the knowledge and culture of traditional peoples." The plan for Pará also aims to achieve several other outcomes related to the proposed NPC-Brazil model: expansion of the state's forested area; greater diversification and increased size of the bioeconomy's production matrix and aggregate value; expansion of consumer markets and sales; and intensified efforts to secure bioeconomy-related loans.

2.3.3 FINANCIAL ELEMENTS

In subsequent discussions on this document, the Consultancy will explore a number of other elements (with supporting data sequenced in the plans based on the Theory of Change methodology), to demonstrate that the types of Forest Restoration Projects in the selected Municipalities can contribute to the creation and expansion of new markets as climate financing and investments become available.

2.3.4 POLICY AND PROGRAM ELEMENTS

Government policies and programs that, by their very nature, are the most appropriate for addressing the topics discussed here.

2.3.5 ENHANCEMENT ELEMENTS

Incorporate discussion on the emergence of disruptive climate technologies and innovative solutions? Is it feasible to announce and demonstrate here that the proposal based on restoration using secondary vegetation (SV) is an innovative technology?

2.4 THEORY OF CHANGE: POINTS TO PLAN

The planning of the NPC-Brazil Investment Plan is currently underway. This phase, however, requires more contact with experts in Forest Restoration, professionals responsible for Public Programs and Policies, and teams involved in co-financing projects that impact the territory and carry particular weight in the decisions arising from the discussions on Output 3, the Consultation in Output 4, and the Final Diagnostic in Output 5.

After the in-depth information on the impact elements presented up to this point in this Preliminary Diagnostic, the subsequent items in the text still require discussion, reflection, and decision-making with the Technical Group, the representatives of the MDBs, and also with other stakeholders that may be involved in the coming weeks of work leading up to the preparation of the Investment Plan.

It will be necessary to define, for example, whether all the municipalities proposed as a Territory should participate in the Investment Plan, or just one of them. Furthermore, a decision is needed on whether to commit CIF resources to other existing or planned

MDB projects in the region, and whether the NPC-Brazil Project should complement or align with other initiatives of the Government of Pará. In short, these are some of the questions that may arise during discussion of this Preliminary Diagnostic.

The Consultancy decided to maintain the items below to scope the Investment Plan planning process using the Theory of Change methodology, based on the Causal Thesis and Impact Elements already indicated in this Preliminary Diagnostic. To leverage discussions with the Technical Group and representatives of the MDBs, a road map will be prepared. This will map and track the data and decisions still needing to be addressed over the next few weeks of work on Outputs 3, 4, and 5 of the Terms of Reference for Supporting the Preparation of the Investment Plan of the Investment Program: Nature, People, and Climate (NPC) for Brazil (NPC-Brazil).

2.4.1 EXPECTED RESULTS OF THE APPLICATION OF THE THESIS

The CIF Theory of Change results take into account the set of programs funded and implemented by third parties, by first assessing their short-term outcomes where activities with more immediate impact such as gender, stakeholder engagement, implementation of activity monitoring, evaluation of initial learning process, political support, and other initiatives are calculated.

Although the CIF depends on the effective results of its resources allocated to a funded Project or Program, the Theory of Change outlined in this document places the Climate Investment Funds into a broader theoretical framework, designed to bring together the multiple initiatives and activities in the Project territory under a single planning, implementation, and benchmarking model of the transformational impacts of the causal theory of change.

2.4.1.1 IMPLEMENTATION DESIGN ELEMENTS

Land, Resources, and Environmental Assets: greater sustainability, use and management of rural and urban lands, resources, and assets, i.e., forests, coasts, agricultural areas

People: strengthened livelihoods, well-being, gender equality, food, security, adaptive capacity and climate understanding, with greater social inclusion and distributive equity.

2.4.1.2 SYSTEMIC DESIGN ELEMENTS

Markets: signs of more competitive emerging markets, with increased climate lockdowns and attention paid to ESG principles

2.4.1.3 FINANCIAL ELEMENTS

Assess whether it is applicable here. Discuss this with MDB representatives in relation to the Climate Investment Funds programs.

2.4.1.4 POLICY AND PROGRAM ELEMENTS

Policies: Improved climate-responsive governance, with policies and regulatory frameworks adopted and implemented. Determine the institutional framework and skills support for the NbS, including national green growth plans or policies, jurisdictional approaches, laws, policies, state ministries or agencies, relevant regulations or standards?

2.4.1.5 ENHANCEMENT ELEMENTS

Innovation: successful management of new or transferred climate technologies and innovative solutions in CIF beneficiary countries. Regarding the role of the private sector in innovation and leveraging of resources, this question needs to be defined according to the “approved” Territory and guidance provided by the Technical Group and MDB representatives.

2.4.2 EXPECTED DELIVERABLES OR OUTPUTS FROM THE APPLICATION OF THE THESIS

The deliverables or outputs proposed here are short-term, and the results show the impact of the investments made with CIF-granted resources. As other relevant investment channels begin to take shape, and the medium- and long-term strategies show their first effects, other deliverables or outputs are listed for possible future evaluation.

2.4.2.1 IMPLEMENTATION DESIGN ELEMENTS

For example, new investments made with NPC-Brazil resources to generate renewable energy, energy storage and integration with distribution networks, construction of isolated power generation systems, elimination of use of fossil fuels power generation, land and ecosystems, cities, industries, forests and clean technologies, climate adaptation/resilience.

2.4.2.2 SYSTEMIC DESIGN ELEMENTS

Climate Action: Accelerated by Funding Countries, MDBs, Institutions, Local Stakeholders and the Private Sector

Inclusion and systems-level coordination: Demonstrable social inclusion and systems-level coordination in Brazil-owned development activities.

2.4.2.3 FINANCIAL ELEMENTS

Climate-sensitive markets and policies impacted by the NPC-Brazil Project that will gain scalability

2.4.2.4 POLICY AND PROGRAM ELEMENTS

Choose whether this is applicable here. Discuss with MDB representatives in relation to the Climate Investment Funds programs.

2.4.2.5 ENHANCEMENT ELEMENTS

Learning and Innovation: accountability, feedback loops, and promotion of innovation

2.4.3 ACTIVITIES PLANNED FOR THE APPLYING THE THESIS

Activities should depict the main areas of ongoing CIF operations and, as with Deliverables or Outputs, the first Activity should present the main components in 3 parts:

2.4.3.1 IMPLEMENTATION DESIGN ELEMENTS

Activity 1: Investment Planning

I. Upstream Support: Diagnostic, Roadmaps, Market and Systems Operations, Technical Assistance;

II. Country Investment Planning: Designing large-scale, system-wide investment plans for CIF beneficiary countries;

III. Development of a Coherent and Fundable Project Pipeline through projects implemented by MDBs.

2.4.3.2 SYSTEMIC DESIGN ELEMENTS

Discuss with the MDB representatives whether this topic is relevant to the Climate Investment Funds programs.

2.4.3.3 FINANCIAL ELEMENTS

Climate finance: Providing flexible and innovative climate finance, with a tool to attract strategically aligned investments from MDBs, international organizations, public/private capital, and domestic resources from multiple sources. Are there any ancillary activities coordinated with other development partners?

2.4.3.4 POLICY AND PROGRAM ELEMENTS

Discuss with the MDB representatives whether this topic is relevant to the Climate Investment Fund programs.

2.4.3.5 ENHANCEMENT ELEMENTS

Strengthening Activities: Tailored technical assistance, capacity building, dialogue policy, gender mainstreaming, stakeholder engagement, and learning activities. Analysis of gaps in access to resources, services, and markets that men and women face in the NbS context?

CIF-MDB technical and administrative support with CIF Level program, coordination, monitoring, evaluation and learning, gender, knowledge management, and governance activities coordinated with the MDBs.

2.4.4 PLANNED INPUTS FOR IMPLEMENTATION OF THE THESIS

In the CIF Theory of Change (ToC) model the types of inputs needed for the Funded Project constitute the basic features of the CIG's business model, together with various key requirements related to partner engagement and resource availability. These inputs closely mirror the outputs forecast in CIG reports from application of its ToC model to Projects. However, the Input reports should be moderately expanded to cover the non-programmatic aspects of a CIF-funded Project.

2.4.4.1 IMPLEMENTATION DESIGN ELEMENTS

Programmatic Approach: participatory, programmatic approach driven by the funded country

Capacity to intervene at scale: capacity to support coherent, large-scale actions by public authorities and the private sector that can contribute to the goals of the Paris Agreement.

Multi-MDB approach: multi-MDB technical and climate knowledge used in coordinated actions to address strategic gaps in CIF beneficiary countries

2.4.4.2 SYSTEMIC DESIGN ELEMENTS

Transformational and Inclusive Design Considerations: Consideration of transformational systems, gender equality, social inclusion, distributive equity, accountability, and learning from first principles.

2.4.4.3 FINANCIAL ELEMENTS

Climate Financing at Scale: ambitious, expanded, flexible, and predictable. Concessional climate finance for CIF beneficiary countries

2.4.4.4 POLICY AND PROGRAM ELEMENTS

Discuss with the MDB representatives whether this topic is relevant to the Climate Investment Funds programs.

2.4.4.5 ENHANCEMENT ELEMENTS

Resources for innovation: Dedicated climate financing and resources to boost innovation, political support, technology transfer, and technical assistance.

2.4.5 ASSUMPTIONS, BARRIERS, AND RISKS

The assumptions, barriers, and risks that support the Theory of Change proposed here provide a guiding framework for carrying out this Social Project planning model effectively, seeking to capture the real impact results of the allocated resources, the implementation of the measures funded by these resources, and what they actually represent for the Climate

Investment Funds Impact Statement. The correct identification of the assumptions, barriers, and risks therefore helps identify possible deviations from the transformational potential that the funds invested aim to promote.

In line with the guidelines on assumptions, barriers, and risks set out in the report "Theory of Change for the Climate Investment Funds," the planning proposed here for NPC-Brazil illustrates what would appear to apply to the Forest Restoration with Environmental Recomposition project in the Tocantins-Araguaia Hydrographic Basin - considering not only the typologies of the Climate Investment Funds, but also what was judged appropriate for the proposed Brazilian case.

With the definitions from item 1.3 above, the Consultancy will also adopt the Climate Investment Funds' approach to assumptions, barriers, and risks. The CIF divides them by Categories (Upstream & Downstream) broken down by types of elements within each of the 5 (five) levels of definitions of its Theory of Change model: Impacts, Outcomes, Outputs, Activities, and Inputs.

3. NPC-BRAZIL TECHNICAL SEMINAR

The consultation process is a timely opportunity for reviewing this Diagnostic, mainly to ensure that the projects to be implemented include elements validated by experts, local leaders and representatives of governmental and nongovernmental organizations familiar with the reality of the chosen territory.

Technical Group discussions on this Preliminary Diagnostic must include defining the proposal for a Public Consultation mechanism or a Diagnostic Analysis Mission (Output 4 to be delivered by the Consultancy contains recommendations on these topics).

The aforementioned proposal is especially important for engaging female leaders in participation and discussion and ensuring social inclusion. It is essential, therefore, to involve women's organizations, or those mentioned in this diagnostic that work on gender issues, or that may be identified during discussions on the consultation methodology.

The Government Focal Point, MDBs, and the Consultancy will need to concur on the diagnostic consultation process so that it can be included in the preparation of the Investment Plan.

The Consultancy submits the following proposal (for validation by the Technical Group and subsequent support of the consultants) to conduct the Diagnostic Analysis Mission.

3.1.
Mission Objective: to obtain strategic and technical inputs to strengthen the mission of the NPC-Brazil Program based on the review of the Preliminary Diagnostic.

3.2.
Date: We suggest the week between May 13–17, 2024.

3.3.
Venue: We suggest that this consultation be conducted in one of the municipalities of the NPC-Brazil Territory (Itupiranga, Marabá, Novo Repartimento, or Rondo do Pará).

3.4.
Format: Technical seminar with presentations on the NPC Program, the development process in Brazil, and presentation of the Diagnostic.

3.4.1.
We suggest half a day for plenary presentations, followed by a day of group discussions, and subsequent discussion of the results in plenary.

3.4.2.
Each group will have a focal point and rapporteur, and should prepare a work plan based on the discussions. The proposed topics are:

- Recovery chain and financial mechanisms;
- Restoration as a process combining landscape management and public policy decisions;

- Environmental restoration in southeastern Pará (technical and scientific information, experiences, results, challenges);
- Restoration as a process of culturally appropriate and technologically innovative social, environmental, and economic development.

3.4.3.
Program and methodology details: to be developed.

3.5.
Organization process:

- We require formal communication with the selected persons/organizations so that we can **explain the objective** and send the Diagnostic to them at least 15 days in advance of the Diagnostic Analysis Mission where it will be analyzed and discussed.
- Logistics: to be determined according to the selected venue.
- Suggested participants[90] will be identified during the organizing process. The list below will be reviewed with the Technical Group.

  - **Non-governmental organizations:**
    - World Wide Fund for Nature (WWF Brazil)
    - Amazon Institute of People and Environment (IMAZON)
    - The Nature Conservancy (TNC)
    - Amazon Environmental Research Institute (IPAM)
    - Socioenvironmental Institute (ISA)
    - Federation of Indigenous Peoples of Pará (FEPIPA)
    - Associations of Remaining Quilombo Communities of Pará (MALUNGU)
    - National Council of Extractive Populations (CNS)
    - Women's Forest Network
    - Alliance for the Restoration of the Amazon
    - Brazilian Society for Ecological Restoration (SOBRE)
    - Brazilian Biodiversity Fund (FUNBIO)
    - Eastern Amazon Fund (FAO)
    - Black Jaguar Foundation
  - **Universities and Research Centers**
    - International Center for Agroforestry Research (ICRAF Brazil)
    - Embrapa Oriental
    - Federal University of Pará
    - Goeldi Museum
  - **Companies:**
    - VALE Technological Institute
    - JBS
    - Others to be identified
  - **Representatives of Government Ministries and Agencies – Federal, State, and Municipal (to be indicated by the representatives of the same in the Technical Group)**
  - **Pará Sustainable Territories - Environment and Sustainability Secretariat**
  - **Banks and Funds**

[90] Identified from the surveys carried out in the preparation of this diagnostic and who have direct involvement with activities related to the NPC-Brazil Program, Amazon restoration, and restoration in Pará and the selected region.

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ANNEX 4

INDEPENDENT QUALITY REVIEWS

Picture from Brazilian Forest Service Archive


Picture from Brazilian Forest Service Archive

1. TITLE OF INVESTMENT PLAN:
NPC BRAZIL INVESTMENT PLAN: From the Arc of Deforestation to the Arc of Restoration in the Tocantins-Araguaia Basin

2. GCAP PROGRAM:
CIF Nature, People, and Climate (NPC)

3. NAME OF THE REVIEWER:
Paul Elliott Little

4. DATE OF SUBMISSION:
December 19, 2024

5. PART I: GENERAL CRITERIA

5.1 INSTITUTIONAL FRAMEWORK AND CAPACITY

- **COUNTRY CAPACITY –** Brazil has a long-established and well-functioning legal and policy framework for addressing deforestation, environmental degradation, and forest restoration. The Brazilian government is actively working to achieve its Nationally Determined Contributions (NDC) goals for 2035. This IP is designed to contribute to meeting those goals.
- **INSTITUTIONAL ARRANGEMENTS AND COORDINATION –** Brazil has a robust policy framework for preventing and controlling deforestation in the Amazon (PPCDAm) and the Cerrado (PPCerrado) and, since 2017, has developed and refined an extensive national plan for native vegetation recovery (PLANAVEG).
- **LESSONS LEARNED –** The thematic focus and landscape approach of this IP builds upon the lessons learned over the past decade of investments and policy advances in Araguaia-Tocantins Basin, most notably regarding work with private-sector ranchers in the implementation of the Rural Environmental Registry (CAR) and the Environmental Regularization Program (PRA).

5.2 FINANCIAL INVESTMENTS

- **COMPLIANCE WITH NPC PRINCIPLES, OBJECTIVES, AND INVESTMENT CRITERIA –** The IP operates within overall NPC framework, particularly with regards to achieving a land and ecosystems transition in forests, employing Nature-based solutions, creating incentives for the sustainable use of lands, and supporting indigenous peoples and rural communities.
- **PRIORITIZATION OF INVESTMENTS –** The use of a forest restoration approach to promote a transformation of an expanding agricultural frontier into a restorative one prioritizes most of the NPC investment criteria: promotion of transformational change under the principles of just transition; enhancing resilience to climate risks; gender equality and social inclusion; and development impact potential.
- **SUPPORTS NEW INVESTMENTS –** Through an innovative blended finance facility managed by BNDES which joins funds from CIF-NPC, the World Bank and the Climate Fund in Brazil, NPC Brazil IP will leverage four times the amount of its concessional loan.

- TECHNICAL ASSESSMENTS – The IP is based on a wide-range of up-to-date scientific and policy information, all of which is fully cited in the footnotes and bibliographical references.

- COST EFFECTIVENESS – The IP indicates that CIF-NPC funds will operate with an interest rate of 0.98% to 1.17% which represents a low cost of capital. The FINEM Environment and Native Forests Climate Fund, which are part of the same Budget Envelope, will charge much higher interest rates. These discrepancies need to be thoroughly fleshed out before the initial concessional loans are made.

  - **REPLY TO COMMENT:** Project-level target and ensuing cost-effective analyses will be calculated as part of the preparation of the proposed project. It can be estimated that in addition to the conditions usually practiced by BNDES (conditions in force for the Climate Fund and ordinary resources of BNDES - FINEM), US$ 47 million will be transferred for the cost of CIF, in dollars, for projects in the Tocantins Araguaia Basin. It is important to highlight that the final financing conditions are subject to approval by the competent authorities of BNDES. The effectiveness of the IP would be demonstrated by the restoration rating in the selected region.

- MONITORING AND EVALUATION – The IP faces the challenge of accommodating both the CIF guidelines for the use of the Integrated Results Framework (IRF) and those of BNDES which is the primary borrower of the World Bank cofinancing loan and the Climate Fund financial resources. Furthermore, the results of the entire Budget Envelope will need to be inserted into national climate and forest restoration goals, including the NDC.

  - **REPLY TO COMMENT:** BNDES project indicators compatible with those of CIF were incorporated into the IRF in the final review of the IP. The IP Focal Point (Ministry of Environment and Climate Change, MMA) will monitor the country indicators and the indicators consolidated by BNDES on a project scale. It is worth noting that all the specific project indicators will be identified and agreed upon during project preparation.

5.3 ENVIRONMENTAL TRANSFORMATION

- DEMONSTRATES TRANSFORMATIONAL IMPACT – The IP will support actions of ecological restoration, productive restoration, and reforestation. Since forest recovery is a long-term process, the speed and scale of the introduction of these interventions will determine whether a truly transformational impact will be generated and be sufficient to reverse the process of deforestation and forest degradation.

- ENVIRONMENTAL ISSUES – The Brazilian forest restoration industry is still in its early stages of consolidation and requires major investments in order to achieve the large-scale restoration of degraded lands. The IP investments should serve to jump-start this process, but additional support will be needed to generate impacts at scale.

- LINKS TO RESULTS FRAMEWORK – The IP will employ the CIF-NPC Integrated Results Framework but this has not yet been developed. Currently, the IP only mentions vaguely worded results: “better management”; “greater access”; “improved livelihoods” (p.79)[1]. These results will need to be refined and subsequently specified with a complete set of indicators.

  - **REPLY TO COMMENT:** The final review of the IP incorporated the CIF-NPC Integrated Results Framework with the proposal of indicators.

5.4 SOCIAL ENGAGEMENT

- POVERTY REDUCTION – The main mechanism of poverty reduction in the IP is the creation of jobs. The IP “strives to involve private sector actors in the forest restoration value chain to work together with local communities” (p.79), however, it does not outline any specific methodology or outreach efforts regarding how this will be accomplished. This should be a priority of the IP.

1 Quotations and page numbers are referenced to the *NPC Brazil Investment Plan – December 6, 2024*.

- **REPLY TO COMMENT:** In the final review of the IP, item 4, immediately after the tables with employment estimates, the following caveat was included regarding job creation mechanisms and local community engagement: It is important to emphasize that the actual result of job creation will depend on the restoration models (ecological and productive) to be adopted by the companies that will receive these resources from the BNDES, as well as the level of technological development that the implementation areas will allow. Furthermore, forest restoration is recognized in the specialized literature as a highly labor-intensive activity, which will have significant impacts on local communities. The way in which this impact will be implemented is also related to the type of company that will receive these resources, the level of consolidated social capital in the intervention areas, among other local factors.

- GENDER ISSUES – The IP states that a first step in addressing gender issues "involves carrying out a precise diagnostic of the gender gaps and inequalities in the intervention region" (p.63). The performance of this task will need to be conducted early in the roll-out process of the IP so as to allow for the incorporation of its conclusions and recommendations into the Plan's forest restoration actions.

  - **REPLY TO COMMENT:** Agreed. The recommendation is that the company implementing the project conduct surveys in the territory to be restored to understand the gaps related to gender and social inequalities, indicating the possibility and potential of incorporating actions to address the challenges encountered.

- SOCIAL ISSUES – The IP indicates that "it is essential to build the capacity of agents and institutions, strengthening the skills, knowledge and resources needed to maintain and adapt to change" (p.79). The IP does not contain any line items or investment strategies for capacity building.

  - **REPLY TO COMMENT:** The restoration projects to be implemented by the companies may involve capacity-building activities among the planned activities, considering the gaps identified in the territory.

- STAKEHOLDER CONSULTATION AND ENGAGEMENT – The IP was developed after collecting input from a diverse array of government agencies, development banks, and bilateral cooperation agencies. A technical seminar held in Belém also garnered important criteria. So far, there seems to be a lack of significant input from and consultation with the local communities and indigenous peoples that live in the 256 municipalities of the Arc of Deforestation.

  - **REPLY TO COMMENT:** The consultations carried out during the preparation of the IP involved interviews and participation in working meetings with governmental and non-governmental organizations, companies and community representatives in the area defined as the focus of the NPC - Tocantins Araguaia Basin. In these meetings and interviews, the proposed Investment Plan was extensively discussed, and contributions were collected for improving the IP. The Deforestation Arc region within the Basin includes 156 municipalities. It was not possible to define which territory will be implemented by the project, which will be proposed by the company receiving funds from BNDES.

6. PART II: COMPLIANCE WITH THE INVESTMENT CRITERIA OR BUSINESS MODEL OF THE NPC

6.1 INSTITUTIONAL FRAMEWORK AND CAPACITY

- INSTITUTIONAL FRAMEWORK – Brazil's implementation of the 2012 Forest Code has greatly advanced the process of environmental regularization, which is an essential component of any forest restoration action. The National Rural Environmental Registry System (SICAR) has been expanded, a decade-long program supporting low-carbon emissions in agriculture (ABC+) is being implemented, and the National Plan for the Recovery of Native Vegetation (PLANAVEG) has a goal of recovering 12 million hectares by 2030.

- IMPLEMENTATION CAPACITY – Brazil has a long history of implementing environmental programs supported by international financial institutions, bi-lateral international cooperation, and national development banks. The most relevant example of implementation capacity is the successful completion of the Forest Investment Program (FIP Brazil 2012-2024), whose results will serve as a foundation for future investments.

- PRIVATE SECTOR ENGAGEMENT – The success of the IP depends on the active and sustained involvement of private sector stakeholders who will be offered credit to "induce" them "to direct their efforts toward restoring forests that have been degraded" (p.68). It is not clear whether there exists sufficient demand for this credit by the private sector. The Theory of Change must explain why private companies will adopt an investment strategy of "'patient capital' willing to wait for long-term returns" (p.45) rather that their current strategy of economic development investments which provide immediate returns at the cost of environmental degradation. What other incentives will be available (such as carbon credits)? Will there be a compulsory component ("legal or market obligations" p.49) to the offer of credit? These are crucial issues that must be addressed in a more sustained manner by the Theory of Change.

  - **REPLY TO COMMENT:** The section "3.6 Private Sector Engagement" was revised to present more clearly the following thesis: Agribusiness and energy sector companies have traditionally driven demand for restoration projects. Recently, however, this market has begun to open up to other types of companies targeting the voluntary carbon market and the production of agricultural commodities and timber that can be integrated into agroforestry systems and forest integration models. Structural issues within Brazil's forest restoration chain have led to a significant demand deficiency in the native forest segment, primarily due to the historical prioritization of command-and-control instruments over economic tools in environmental policies (Nogueira and Pereira 1999). Companies with significant environmental liabilities, such as those in the energy, mining, and export-oriented agribusiness sectors, have traditionally executed restoration projects due to legal or market obligations. Recent data provide that the demand for forest restoration is rising significantly due to carbon markets and agriculture commodities suitable in agroforestry systems. So, companies will likely adopt a forest restoration investment strategy if they have access to "patient capital" and conditions compatible with such activities. Therefore, this investment plan has the potential to deliver significant social, economic, and environmental benefits.

- PARALLEL ACTIVITIES SUPPORTIVE OF NBS – Current environmental initiatives in Brazil that are complementary to the goal of this IP include four sustainable landscapes projects financed by the World Bank, bioeconomy and

sustainable development projects supported by the Inter-American Development Bank, and the ongoing financing of REDD+ actions through the Amazon Fund.

- CATALYZE INCREASED INVESTMENT –The best long-term mechanism for catalyzing future investments is to make forest restoration a more profitable enterprise. To this end, the use of carbon credits and payment for ecosystem services (PES) comprises an essential strategy for making forest restoration an economically viable enterprise. Currently, the Brazilian Emissions Trading System and the National Program for Payments for Environmental Services (Law 14.119/2021) need their formal regulations to be established by the Brazilian government. Close tracking of these developments would allow them to be incorporated into the implementation of the IP as soon as they are available.
  - **REPLY TO COMMENT:** Federal Law No. 15,042 of December 11, 2024 has already regulated the Brazilian Greenhouse Gas Emissions Trading System (updated in the final version of the IP) and its effects are being monitored. The Working Group for regulating Federal Law No. 14,119/2021 will be concluding its work in 2025.

6.2 ENVIRONMENTAL TRANSFORMATION

- GREENHOUSE GAS EMISSIONS – The second Brazilian NDC (2024) sets a goal of a 59% to 67% reduction in GHG emissions compared to 2005 levels. This IP will contribute to the 2030 goal of the Arc of Restoration Initiative of restoring 6 million hectares of forest. The IP, however, contains no projections of the GHG emissions reductions from its investments.
  - **REPLY TO COMMENT:** At this stage of IP preparation, the number and scope of carbon credit projects that the financed companies will develop are not known. Private companies in the restoration sector, which are still pre-operational, invest in restoration for carbon credits, generating demand for the restoration sector chain (seed collection, seedling nurseries). The chain is characterized by being close to the restoration areas, boosting the generation of jobs and income in the territory.
- ENABLING ENVIRONMENT – In anticipation of Brazil's hosting of the COP 30 Climate Conference in Belém, Pará, all the environmental and sustainability sectors of the Brazilian government are working full speed to generate solid advances to its climate agenda. This provides a favorable environment for the launching and implementation of the Brazil NPC IP.
- IDENTIFICATION OF NBS MODELS – The IP adopts an integrated landscape management approach to forests in the Araguaia-Tocantins Basin with a specific focus on the Arc of Deforestation where the highest GHG emissions occur. Large-scale forest restoration interventions are designed to coax private sector stakeholders towards a transition from an expanding agricultural frontier to more sustainable and resilient models.
- CLIMATE-RESILIENT LOCAL COMMUNITIES, ECONOMIES, AND/OR BUSINESSES – The establishment of local economies and communities that are more climate resilient will depend, in large part, upon the type of economic and social relationships developed between local communities and private companies that will receive most of the IP's concessional loans. These investments would need to include support for a host of local socioenvironmental practices, such as agroforestry systems and sustainable timber production.
  - **REPLY TO COMMENT:** There are other Public Programs underway in the territories mentioned in the IP that will benefit from the consolidation of a Brazilian forest restoration business chain. In addition, the DGM and other Brazilian social policies will combine to deliver results in line with CIF-NPC policies based on projects by companies financed by BNDES.
- CLIMATE-RESILIENT NATURAL RESOURCES AND ECOSYSTEMS – In addition to economic benefits, the activities of forest restoration can also provide for a host of other environmental functions –reduced fire risk, increased water supply, increased genetic connectivity – that enhance the resilience of natural resources and ecosystems.

- SENSITIVITY TO CLIMATE CHANGE – Only by reducing the rate of deforestation and simultaneously promoting a sustainable, low-carbon development alternatives (such as this forest restoration initiative) can the Araguaia-Tocantins Basin avoid tipping irrevocably towards a climate of increased temperatures and decreased water supply.

6.3 SOCIAL ENGAGEMENT

- LIVELIHOODS OF RURAL COMMUNITIES AND INDIGENOUS PEOPLES – In addition to job creation, the main benefits to the livelihoods of rural communities and indigenous peoples will come from the supplemental Dedicated Grant Mechanism (DGM/NPC). Prior DGM investments in Brazil have generated excellent results and the implementation of the DGM/NPC is essential to improving livelihoods of rural communities and indigenous peoples.

- GENDER GAPS / EMPOWERMENT OF WOMEN – The IP presents an excellent gender gap analysis (p.46-9) and a chart with guidelines for ensuring gender equity in forest restoration projects (p.64-6), but does not outline specific avenues to directly address these gaps. The actions proposed in the chart include providing leadership skills, development programs, and mentoring to women, addressing gender-based violence and discrimination, supporting unpaid care work, and improving women's access to and control over economic resources. The IP does not clearly indicate when and where these actions will be introduced into the forest restoration process and who will pay for them. One promising area of potential action is the buttressing of the seedling production economy, which is currently operating well below its maximum capacity and which utilizes a large percentage of women.

  - **REPLY TO COMMENT:** We recommend that, at the time of project design and based on the specific area of intervention, a diagnosis of gender and social inclusion gaps be carried out, so that the most appropriate activities to address the identified gaps can be defined. This should be implemented by the companies taking out the loans, and it should be considered that there will be limitations on the depth and breadth of these activities and that it will not be possible to substantially fill the gender gaps through the project alone. Other activities related to the DGM and public policies could complement and reinforce these actions.

- Gaps in access to resources, services, and markets – When compared with large agricultural enterprises, small-scale farmers and traditional producers have less access to credit, face higher costs for forest restoration due to their sensitivity to economies of scale, and have less ability to wait for long-term returns (ranging from 13 to 30 years). The credit available from this IP will not attract much interest from this segment of the rural population, which will need to wait for the creation of a more efficient supply chain to offer them resources at competitive costs.

  - **REPLY TO COMMENT:** the section "3.6 Private Sector Engagement" shows that investments in agroforestry systems and forest integration models, which incorporate high-value crops, have become increasingly attractive. These models not only promote environmental conservation but also offer an economically viable solution for agricultural producers of various scales, encouraging the adoption of sustainable practices that contribute to the recovery of degraded areas and increased agricultural productivity. Companies (such as Belterra Agroflorestas) that develop carbon projects are looking for this kind of project and engaging producers of different scales. Additionally, major Brazilian agribusiness exporters, such as JBS, Marfrig, and Minerva Foods, have shown a growing commitment to forest restoration and anti-deforestation efforts within their supply chains, including support for producers of different scales. For instance, JBS launched the "Green Offices" initiative in 2021, providing free consultancy and technical support to producers interested in regularizing their properties and adopting better practices. So, this evolving landscape puts a spotlight on the potential for engaging small-scale farmers and traditional producers from anchor companies. Therefore, this investment plan has the potential to yield significant social, economic, and environmental benefits, addressing the concerns raised.

7. PART III: RECOMMENDATIONS

1. The IP should develop an explicit Theory of Change (in addition to the Impact Matrix on p.14) that will explain its strategy for: (I) attracting private-sector interest in accessing credit for forest restoration activities; and (ii) facilitating mutually beneficial economic interactions between the large private companies that will receive the investment loans and the rural communities and indigenous peoples that will provide the bulk of the labor.

   - **REPLY TO COMMENT:** This issue may be addressed with one of the contractual obligations to be inserted in loan agreements for companies, which, when submitting their projects for BNDES financing, might present proposals to respond to these two questions highlighted in the PI.

2. The IP should construct a robust Results Framework that has clearly stated targets and indicators for each outcome and which combines the requirements of the CIF and BNDES frameworks within a single system.

   - **REPLY TO COMMENT:** BNDES may monitor and track the indicators of its Results Framework for restoration projects, as already stated during the preparation of the CIF Investment Plan. If necessary, specific indicators may be discussed on a case-by-case basis and agreed upon between IBRD and BNDES during the structuring of the external loan operation. It is important to mention that additional indicators eventually may require additional monitoring and evaluation resources, and may be assessed with the involvement of the Ministry of Environment and Climate Change (MMA) for a possible adjustment of the monitoring method. This point was revised in the final version of the IP.

3. Every effort should be made to guarantee that the Dedicated Grant Mechanism for Indigenous Peoples and Local Communities (DGM/NPC) is implemented coterminously and in synergy with the IP.

   - **REPLY TO COMMENT:** We agree with the reviewer's comment. We recognize that coterminously would be desirable and synergy is crucial.

4. The IP would increase its chances of success if it provided a space for investments in capacity-building and training in the core areas of the forest restoration value chain: seed collection; seedling production; planting; maintenance; monitoring; and fire prevention.

   - **REPLY TO COMMENT:** As previously mentioned, these issues will be addressed in the process of developing the project to be implemented.

5. Specific investments in seedling production, which is currently operating with low dynamism (Table 9, p.76), are needed and would offer women an important source of jobs and income.

   - **REPLY TO COMMENT:** Investment in the production of seedlings and seeds and in the provision of jobs - for women and local communities, will occur in the process of implementing the company's project.

6. The IP should develop a tailor-made job creation strategy for forest restoration based upon the data contained in Tables 3 and 4 (p.53) and disseminate it to all private-sector loan recipients who are implementing forest restoration projects.

   - **REPLY TO COMMENT:** The IP has the capacity and potential to establish inclusive and scalable restoration projects. However, there is a multitude of restoration strategies from natural regeneration and seed and seedling planting, through native silviculture, to agroforestry systems, with distinct costs and revenues. Different restoration modalities can be contemplated and adopted, in a complementary way, to enhance the economic and socio-environmental viability of large-scale forest restoration initiatives. The IP Focal Point (MMA)

and BNDES will surely develop a strategy to promote and attract new entrepreneurs.

7. The IP should develop an outreach and consultation process with local communities and indigenous people within the Araguaia-Tocantins Basin as part of an effort to harmonize its investments with local needs and interests.

   - **REPLY TO COMMENT:** A summary of the IP preparation consultation process is presented at Annex 1. We recognize that an additional consultation process is crucial during project preparation. A survey should be carried out when preparing the project to map the demands and needs of local communities, including women, indigenous people, and traditional peoples in the intervention area.

8. The Focal Point of the IP should track the process of governmental regulation of the national carbon credit system and payment of ecosystem services law to facilitate access to these payments by the debtors of the investment portfolio.

   - **REPLY TO COMMENT:** The IP Focal Point will articulate and interact with different economic agents to guide and promote the engagement and scalability of the effects of the NPC Brazil Program, not only with the SBCE created by Law No. 15042/2024 (regulated carbon credit market in Brazil), with the instruments that are regulated by Law No. 14/119/2021 (National Program for Payments for Environmental Services), with Planaveg – National Plan for the Restoration of Native Vegetation, but also with several other government programs underway in the country, as presented at different points in this Investment Plan.

9. The IP should include a list of acronyms used.

   - **REPLY TO COMMENT:** The team has edited the IP to include a list of acronyms.

ANNEX 5

PROJECT CONCEPT: SUPPORT FOR THE ARC OF RESTORATION

BORROWER: National Bank for Economic and National Development - BNDES

MDB: IBRD

PROBLEM STATEMENT

Brazil is pivotal in the global climate agenda by preventing deforestation and restoring degraded lands, significantly reducing CO2 emissions and sequestering carbon. This dual approach not only addresses climate change but also tackles biodiversity loss and food security. The National Policy for the Recovery of Native Vegetation (Proveg) and its National Plan (Planaveg) aim to recover 12 million hectares of forests by 2030, with initiatives for carbon credit commercialization demonstrating Brazil's commitment to sustainable development.

The Brazilian government views the recovery of native vegetation as a key economic strategy, particularly in the Amazon and Cerrado regions. This initiative has the potential to generate up to 2.5 million jobs through activities like seed and seedling production, soil preparation, and maintenance of recovered areas. However, a production chain with private agents is still needed for large-scale restoration. Investments in Sustainable Agroforestry Systems (SAFs) and forest planting exceed R$ 3.2 billion, but more funding is required to meet the country's extensive needs. The recovery efforts also promise significant socioeconomic benefits, especially for traditional and local communities connected to forests. These efforts demonstrate Brazil's commitment to balancing environmental conservation with economic growth, while pursuing its Nationally Determined Commitments (NDC) under International Climate Agreements.

CONTRIBUTION TO A TRANSFORMATIONAL IMPACT

BNDES prioritizes the recovery of native vegetation through both reimbursable and non-reimbursable financing, with significant contributions from the Amazon Fund and the Living Forest Program (R$ 570 million) and the Climate Fund (over R$ 500 million). Despite these efforts, a consolidated forest restoration production chain is necessary to meet the nation's extensive needs. Partnerships with entities like the IBRD enhance BNDES's performance in forest restoration.

The proposed NPC project consists in providing the concessional resources to the BNDES, which in turn will apply them into its credit lines related to forest restoration in the target territory. As it involves private agents borrowing resources to finance their respective business projects in the Brazilian restoration chain, the private sector will be responsible for structuring and implementing restoration projects.

The direct beneficiaries of the project are private companies in the forest restoration sector. The inclusion of these stakeholders in the project will promote the forest restoration in Brazil, mobilizing large-scale capital and strengthening the nascent forest restoration industry. The impact of the project is expected to strengthen local communities, making them more resilient to climate change and promoting a just transition with gender equality and social inclusion, contributing to the fulfillment of Brazil's new NDC in the International Climate Agreement.

Indirectly, the main beneficiary of the project will be Brazilian society, through green investments that will foster economic development, job creation and the improvement of environmental quality. The project will allow the implementation of more efficient land use systems, contributing to the green transition of the Brazilian economy.

IMPLEMENTATION READINESS

BNDES will be in charge project implementation, and it already carries out operations that meet the needs of the proposed project, granting loans to sub-borrowers that will execute sub-projects according to its Operational Policies.

RATIONALE FOR CIF/ NPC FINANCING

Private companies capable of mobilizing large capital and generating sufficient value to cover needed loans, from CIF/NPC and other financing sources, can create sustainable business models for Brazil's forest restoration industry. This would ensure the necessary capital and scalability to restore degraded areas. Funds from the IBRD and CIF will support investment projects in forest restoration, facilitating financing for carbon capture initiatives.

BNDES's decision to raise funds from IBRD and CIF is due to IBRD's expertise in financing and monitoring Nature-based Solutions projects. The financial conditions of the loan are attractive, with long repayment and grace periods, and disbursements will be adjusted according to the execution of actions. The project seeks to diversify BNDES's funding portfolio with complementary external funding, unlocking investments in forest restoration projects to consolidate the nascent Brazilian forest restoration production chain. This will expand forest cover through ecological restoration and agroforestry systems, partnering with landowners and local communities to reduce greenhouse gas emissions, protect water resources, and conserve biodiversity.

FINANCING PLAN

BNDES will be the borrower responsible for allocating the resources necessary for the execution of the project, with IBRD releasing the funds for investments. The Federal Government, through the National Treasury Secretariat (STN), will guarantee the operation (Brazilian Sovereign Guarantee). BNDES will also comply with all the terms and obligations of the Loan Agreement with the IBRD and as a financial intermediary of the CIF/NPC. The total cost of the project is US$ 247 million. This includes the US$47 million from CIF/NPC, and a total of US$ 200 million as cofinance from IBRD and BNDES, summarized in table 1 below:

Table 1 Total cost of NPC Brazil

SOURCES OF FUNDS	BUDGET US$
IBRD	100,000,000
CIF/NPC	47,000,000
BNDES	100,000,000
Total:	247,000,000

All the CIF/NPC allocated funding for the Brazil Investment Plan will support this project. No funding will be requested for project preparation. CIF/NPC funding is detailed in the following table 2:

Table 2 CIF/NPC Brazil funding.

PROJECT NAME	RESPONSIBLE MDB	CIF FUNDING (USD MILLION)				TOTAL (USD MILLION)
		PPG	GRANT	LOAN	MPIS	
Support for the Arc of Restoration	IBRD	0	0	47	0	47

The formalization of the contract between BNDES and IBRD will occur after the conclusion of the negotiations, including the competent government agencies. The project will be executed through disbursement requests submitted by BNDES, with proposals evaluated by the IBRD according to the agreed criteria. All operations will follow BNDES' internal rules. After the approval of the IBRD, the funds will be disbursed directly to BNDES. The final approval of the project will be submitted to the BNDES Board of Directors after formal negotiations.

RESULTS INDICATORS

The Brazilian government, BNDES and the IBRD seek to implement all guidelines and indicators set out in the Integrated Results Framework and other Climate Investment Funds guidelines. The final details of monitoring requirements will be defined during project preparation. This will consider that the sub-projects to be selected to obtain financing will be formulated and submitted to selection by private companies invested by groups capable of offering corporate guarantees, with a focus on forest restoration.

Thus, the project seeks to achieve the following estimated goals for the minimum group of monitoring and evaluation indicators below:

Table 3 Integrated Results Framework

RESULT STATEMENT	MONITORING APPROACH				
	INDICATORS	BASE-LINE	MEANS OF VERIFICATION	TARGET (DATE)	NOTES
A. Improved management of natural resources	**NPC CORE 1 (= CIF 1). Mitigation:** GHG emissions reduced or avoided or enhancement of carbon stocks (mt CO_2 eq) – direct/indirect	0	Project results data by BNDES / funding recipient	7.75 mt CO_2 eq/ year	Mid-term and lifetime estimates by projects This indicator feeds into **CIF Impact 1 (Mitigation)** and could be reported as direct vs. indirect reductions (per MDB-approved methodologies) with evidence provided at mid-term and completion.
	NPC CORE 2. Land Area: Area of land or other physical environments covered by climate-responsive natural resource management practices (ha) – *mitigation/ adaptation*	0	Project results data by BNDES / funding recipient	54,000 ha of forest restoration	Annual monitoring. This indicator measures the total land area under restoration process as result of the project. Disaggregation: Mitigation vs. adaptation During project preparation, the details about disaggregated targets will be defined.
E. Mobilized public and private capital	**NPC CORE 5 (= CIF 4). Co-Finance:** Volume of co-finance leveraged (USD) – *mitigation/ adaptation*	0	Project financial data	200 million USD	As part of a blended finance Brazil IP will be composed of co-financing resources of USD 100 million from the Climate Fund and another USD 100 million from the World Bank. Disaggregation: Source of co-financing (MDB, Climate Fund, Private Sector, and Other); mitigation vs. adaptation. During project preparation, the details about disaggregated targets will be defined.

RESULT STATEMENT	MONITORING APPROACH				
	INDICATORS	BASE-LINE	MEANS OF VERIFICATION	TARGET (DATE)	NOTES
F. Rural communities and Indigenous Peoples' sources of livelihoods improved	**NPC CORE 6. Livelihoods:** Number of people receiving livelihood benefits	0	Project results data by MDB / BNDES / funding recipient	21,000	The target is an estimate based on the number of jobs created and it will be revisited during the implementation phase to include other type of beneficiaries. Disaggregation: By type of benefit; by gender. During project preparation, the details about disaggregated targets will be defined.
	NPC CORE 7. Jobs: Number of jobs created	0	Project results data by MDB / BNDES / funding recipient	21,000 direct jobs women/ men,	Direct jobs created should be reported by projects. While there might be some overlap with NPC CORE 6, this indicator measures the number of jobs rather than the number of beneficiaries. Disaggregation: By gender. During project preparation, the details about disaggregated targets will be defined.
G. Business case for private sector investments demonstrated	**NPC CORE 8. Private Sector Investments:** Number (#) and value ($) of CIF-supported private sector investments in sustainable land natural resource management – *mitigation/ adaptation*	0	Project financial data by BNDES / funding recipient	Number of investments TBD 247 million USD	This indicator measures the value of project-supported private sector investments in restoration activities. Disaggregation: Mitigation vs. adaptation During project preparation, the details about disaggregated targets will be defined.
H. Fostered innovation	**NPC CORE 9 (= CCV 1). Innovation:** Number of innovative businesses, entrepreneurs, technologies, and other ventures demonstrating a strengthened climate-responsive business model	0	Project results data by BNDES / funding recipient	Number of investments TBD	This indicator measures the extent to which private sector agents involved in forest restoration have strengthened their overall business development. It is expected that the investments will overlap with **NPC CORE 8**
Social and Economic Development Co-Benefits	**CO-BENEFIT 1. Green Growth:** Economic growth of targeted sectors or industries within the landscape or ecosystem	TBD (nonzero)	Sub-national statistics, project estimates	TBD	The composition of the target will be given by an estimate by the areas of the funded projects – to be obtained in the implementation phase of the NPC

Source: NPC Integrated Results Framework Guideline X BNDES Frameworks

PROJECT PREPARATION TIMETABLE

The main stages for preparing, approving, and commencing execution of the project are estimated in the following timetable:

Table 4 Project preparation timetable

ACTIVITIES	ESTIMATED TIMELINE
Analysis stage commences with the presentation of the Financial Proposal (Carta Consulta) to Ministry of Financing and ends with the endorsement of the financing proposal in the context of the COFIEX.	January- March, 2025
Preparation stage includes project design, consultations and institutional arrangements following IBRD and BNDES procedures	April- December 2025
Project submitted do CIF for funding approval	January 2026
Negotiating phase between the BNDES, Government of Brazil and the IBRD.	April 2026
Signature phase by the parties, referring to the external credit operation. Formalization of contract subject to approval of the external credit operation by the Federal Senate.	June 2026
Effective phase commences from the date of the signature of the Loan and Guarantee Contracts.	July 2026
Execution phase begins from the date of the first disbursement and finishes on the date planned for the last disbursement, in accordance with that set forth in the Loan Contract of the operation.	To be defined

CIF
CLIMATE INVESTMENT FUNDS

The Climate Investment Funds

The Climate Investment Funds (CIF) were established in 2008 to mobilize resources and trigger investments for low carbon, climate resilient development in select middle and low income countries. To date, 14 contributor countries have pledged funds to CIF that have been channeled for mitigation and adaptation interventions at an unprecedented scale in 72 recipient countries. The CIF is the largest active climate finance mechanism in the world.

THE CLIMATE INVESTMENT FUNDS

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