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Report No: PAD5325

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A
PROPOSED LOAN

IN THE AMOUNT OF
US\$50 MILLION

TO THE

STATE OF PIAUÍ

WITH A GUARANTEE FROM THE
FEDERATIVE REPUBLIC OF BRAZIL

FOR A

PIAUÍ PILLARS OF GROWTH AND SOCIAL INCLUSION PROJECT II

FEBRUARY 19, 2024

Agriculture and Food Global Practice
Latin America And Caribbean Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective {Jan 18, 2024})

Currency Unit =

= US\$1

US\$ = SDR 1

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

ANA	National Water and Sanitation Agency (<i>Agência Nacional de Águas e Saneamento Básico</i>)
APPs	Areas of Permanent Preservation
CAR	Rural Environmental Registry (<i>Cadastro Ambiental Rural</i>)
CEDERPA	State Council for Rural Development and Agricultural Policy (<i>Conselho Estadual de Desenvolvimento Rural e Política Agrícola</i>)
CEPRO	Superintendence of Economics and Social Studies and Participatory Planning (<i>Superintendência de Estudos Econômicos e Sociais e Planejamento Participativo</i>)
CEPM	State Coordination of Policies for Women (<i>Coordenadora Estadual de Políticas para Mulheres do Piauí</i>)
CERC	Contingent Emergency Response Component
CERH	State Water Resources Users Registry (<i>Cadastro Estadual de Usuários de Recursos Hídricos</i>)
CGEO	State Land and Environmental Geotechnical Center (<i>Centro de Geotecnologia Fundiária e Ambiental</i>)
CGJ	Office of the Inspector General of the State Secretariat of Justice (<i>Corregedoria Geral de Justiça do Poder Judiciário do Estado do Piauí</i>)
CNPM	National Conferences on Policies for Women (<i>Conferência Nacional de Políticas para as Mulheres</i>)
COGEP	Steering Committee (<i>Conselho Gestor do Projeto</i>)
CPF	Country Partnership Framework
CSA	Climate Smart Agriculture
DFIL	Disbursement and Financial Information Letter
EMBRAPA	Brazilian Agricultural Research Corporation (<i>Empresa Brasileira de Pesquisa Agropecuária</i>)
ESF	Environmental and Social Framework
EHSG	Environmental Health and Safety Guidelines
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization of the United Nations
FFO	Family Farmers' Organization
FM	Financial Management
FMA	Financial Management Assessment
GDP	Gross domestic product
GHG	Greenhouse Gas
GPV	Gross Agriculture Production Value
GRM	Grievance Redress Mechanism
HAC	High Activity Clay
HDI	Human Development Index
IA-CM	Internal Audit Capability Model
IBGE	Brazilian Institute of Geography and Statistics (<i>Instituto Brasileiro de Geografia e Estatística</i>)
ICT	Information and Communications Technologies
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IFR	Interim Financial Report
INCRA	National Institute of Land Reform (<i>Instituto Nacional de Colonização e Reforma Agrária</i>)

INPE	National Institute for Space Research (<i>Instituto Nacional de Pesquisas Espaciais</i>)
INTERPI	Piauí State Land Regularization and Real Estate Assets Institute (<i>Instituto da Regularização Fundiária e do Patrimônio do Estado do Piauí</i>)
IPF	Investment Project Financing
IPCC	Intergovernmental Panel on Climate Change
LMP	Labor Management Procedures
LUCF	Land Use Change and Forestry
M&E	Monitoring and Evaluation
NCI	Internal Control Units (<i>Núcleos de Controle Interno</i>)
NDC	Nationally Determined Contribution
MFD	Maximizing finance for development
OGE	General State Ombudsman (<i>Ouvidoria Geral do Estado</i>)
OPM	Organizations for Women's Policies (<i>Organização de Políticas para Mulheres</i>)
PCM	Private Capital Mobilization
PDO	Project Development Objective
PEMP	State Plan of Policies for Women (<i>Plano Estadual de Políticas para Mulheres</i>)
PERH	State Plan for Water Resources of Piauí (<i>Plano Estadual de Recursos Hídricos de Piauí</i>)
PIP/PN	Productive Investment Plans and Business Plans (<i>Planos de Negócios</i>)
PIU	Project Implementation Unit
PCU	Project Coordination Unit
POM	Project Operational Manual
PPSD	Project Procurement Strategy for Development
PRA	Environmental Regularization Program (<i>Programa de Regularização Ambiental</i>)
REGINA	Register of Agrarian Information (<i>Sistema de Registro de Informações Agrárias</i>)
RF	Results and Monitoring Framework
RfQ	Request for Quotations
RL	Legal Reserve (<i>Reserva Legal</i>)
SADA	State Secretariat for Technical Assistance and Agricultural Defense (<i>Secretaria de Estado da Assistência Técnica e Defesa Agropecuária</i>)
RPF	Resettlement Policy Framework
SAF	State Secretariat for Family Agriculture (<i>Secretaria de Estado da Agricultura Familiar</i>)
ASD	Agendas of Sustainable Development
SEI	Electronic Information System (<i>Sistema Eletrônico de Informação</i>)
SEMARH	State Secretariat of Environment and Water Resources (<i>Secretaria de Estado de Meio Ambiente e Recursos Hídricos do Estado Piauí</i>)
SEP	Stakeholder Engagement Plan
SEPLAN	State Secretariat for Planning (<i>Secretaria de Estado do Planejamento</i>)
SICAR	CAR National Electronic System (<i>Sistema Nacional de Cadastro Ambiental Rural</i>)
SIGMA	Management, Monitoring and Evaluation System (<i>Sistema web de Gestão, Monitoramento e Avaliação</i>)
SPM	Secretariat of Policies for Women (<i>Secretaria de Políticas para as Mulheres</i>)
STEP	Systematic Tracking of Exchanges in Procurement
SUPOE	Superintendence of State Budget (<i>Superintendência do Orçamento Estadual</i>)
SUTEF	Superintendence of Technical-Financial Cooperation (<i>Superintendência de Cooperação Técnico-Financeira</i>)
TCE/PI	State Court of Accounts (<i>Tribunal de Contas do Estado do Piauí</i>)
ToC	Theory of Change
TPC	Traditional People and Communities
UA	Universally Aligned

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**DATASHEET****BASIC INFORMATION**

Project Beneficiary(ies) Brazil	Operation Name Piauí Pillars of Growth and Social Inclusion Project 2		
Operation ID P177474	Financing Instrument Investment Project Financing (IPF)	Environmental and Social Risk Classification Substantial	

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date 14-Mar-2024	Expected Closing Date 31-Jul-2029
Bank/IFC Collaboration No	

Proposed Development Objective(s)

To increase land tenure security, the adoption of sustainable natural resources management practices, and Climate-Smart Agriculture practices among target beneficiaries in the State of Piauí; and in case of an Eligible Crisis or Emergency, respond promptly and effectively to it.

Components



The World Bank

Piauí Pillars of Growth and Social Inclusion Project 2 (P177474)

Component Name	Cost (US\$)
Land tenure regularization	20,080,000.00
Environmental management and geospatial information management	14,000,000.00
Climate-smart rural development	25,280,000.00
Project management	3,960,000.00
CERC	0.00

Organizations

Borrower: State of Piauí
 Implementing Agency: Piauí State Secretariat for Planning (SEPLAN)

PROJECT FINANCING DATA (US\$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? No

Is this project Private Capital Enabling (PCE)? No

SUMMARY

Total Operation Cost	63.32
Total Financing	63.32
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	50.00
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Non-World Bank Group Financing

Commercial Financing	0.82
Unguaranteed Commercial Financing	0.82



Counterpart Funding	12.50
Borrower/Recipient	12.50

Expected Disbursements (US\$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	5.00	8.50	10.00	12.00	12.00	2.50
Cumulative	0.00	5.00	13.50	23.50	35.50	47.50	50.00

PRACTICE AREA(S)

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Environment, Natural Resources & the Blue Economy;
Urban, Resilience and Land; Water

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Low
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Low
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Moderate
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial



8. Stakeholders	● Moderate
9. Overall	● Moderate

POLICY COMPLIANCE**Policy**

Does the project depart from the CPF in content or in other significant respects?

[] Yes [✓] No

Does the project require any waivers of Bank policies?

[] Yes [✓] No

ENVIRONMENTAL AND SOCIAL**Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

**LEGAL****Legal Covenants****Sections and Description**

Schedule 2. Section I, A, 1 (b): The Borrower shall no later than 90 days after the Effective Date, complete, in a manner acceptable to the Bank, the staffing of the PCU as set out in the Project Operations Manual.

Schedule 2. Section I, A, 2 (b): The Borrower shall, not later than 90 days after the Effective Date, complete, in a manner acceptable to the Bank, the staffing of the PIUs as set out in the Project Operations Manual.

Schedule 2. Section I, A, 3: Not later than 90 days after the Effective Date, the Borrower shall establish, and thereafter operate and maintain, throughout Project implementation, a steering committee responsible for Project oversight, providing strategic direction, ensuring inter-agency collaboration, monitoring progress, and with composition, functions and resources acceptable to the Bank, as further detailed in the Project Operations Manual.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Condition-1	Article IV. 4.01. (a) The Project Coordination Unit (PCU) has been established and its Key Staff appointed in a manner acceptable to the Bank.	IBRD/IDA
Effectiveness	Condition-2	Article IV. 4.01 (b) The Project Implementation Units (PIUs) have been established and their Key Staff appointed in a manner acceptable to the Bank.	IBRD/IDA
Effectiveness	Condition-3	Article IV. 4.01 (c) The Subsidiary Agreement has been entered into in form and substance acceptable to the Bank, and all conditions precedent to its effectiveness (if any) have been fulfilled.	IBRD/IDA
Effectiveness	Condition-4	Article IV. 4.01 (d) The Project Operations Manual has been prepared, approved and adopted in a manner acceptable to the Bank.	IBRD/IDA



Disbursement	Condition-5	Section III, B, 1 (a): For payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed ten million Dollars (USD 10,000,000) may be made for payments made prior to this date but on or after the date falling 12 months prior to the Signature Date, for Eligible Expenditures;	IBRD/IDA
Disbursement	Condition-6	Section III. B, 1 (b) For Emergency Expenditures under Category 3, no withdrawal shall be made, unless and until all of the following conditions have been met in respect of said expenditures: (i) (A) the Borrower has determined that an Eligible Crisis or Emergency has occurred, and has furnished to the Bank a request to withdraw Loan amounts under Category (3), and (B) the Bank has agreed with such determination, accepted said request and notified the Borrower thereof; and (ii) The Borrower has adopted the CERC Manual and Emergency Action Plan, in a form and substance acceptable to the Bank.	IBRD/IDA



I. STRATEGIC CONTEXT

A. Country Context

1. Output and job market recoveries in Brazil continued through 2022, propelled by a successful vaccination campaign, strong demand for services, and fiscal stimulus. In 2022, the Gross Domestic Product (GDP) grew by 2.9 percent year-on-year, supported by a recovery in consumer demand as COVID-19 restrictions eased, especially in the services sector. The labor market continued to recover through 2022, including for women, youth and Afro-Brazilians. Unemployment fell to 7.9 percent by December 2022 (compared to 11.1 percent in December 2021), the lowest unemployment rate since February 2015 (7.5 percent). Persistent inflation (5.8 percent as of January 2023) has prompted the tightening of monetary policy. Higher than expected revenues, gradual economic recovery and elevated commodity prices boosted fiscal results in 2022, with the 12-month primary surplus of the public sector reaching 1.2 percent of GDP and public debt declining to 72.9 percent of GDP as of January 2023 (a 5.4 pp. reduction). GDP growth is expected to slow to 0.8 percent in 2023 due to the lagging effects of domestic monetary tightening, persistent inflation and the deceleration of the global economy, which mildly accelerated to 2.0 percent in 2024 on the back of a more accommodative monetary policy, easing inflation and higher global growth. Fiscal balance is expected to deteriorate in 2023 as projections indicate a primary deficit of 0.7 percent of GDP, reflecting the temporary higher social expenditures authorized in the 2023 Budget and lower economic activity.

2. Poverty levels in Brazil are expected to have decreased in 2022. The strong labor market and major expansion of income transfer programs in terms of coverage (48 percent growth in 2022) and average benefits (170 percent growth in 2022) are expected to lead to a decline in the poverty rate from 28.4 percent in 2021 to 24.3 percent in 2022 (Poverty line = US\$6.85/day, 2017 PPP). A real increase in minimum wages combined with a major overhaul of the *Bolsa Família* program is expected to lead to significant poverty reduction (down to 23.9 percent in 2023). Moreover, the new administration is about to process bigger payments to larger families and an extra benefit of R\$150 per child in all recipient households. Further reductions may occur as the economy recovers but remains volatile in the absence of stronger investments in human capital among the less well-off.

3. The State of Piauí, located in the Northeast Region, is one of the poorest in Brazil, with a Human Development Index (HDI) of 0.646 ranking the State 24th among the country's 27 states.¹ After falling 0.6 percent year-on-year in 2019, Piauí's GDP dropped 3.5 percent year-on-year in 2020, in alignment with the national GDP (-3.3 percent) due to the effects of the pandemic. Piauí state represented 0.7 percent of the country's GDP and its economy heavily relies on the services sector (74.8 percent of the GDP as of 2020). The State's GDP-per-capita (as of 2020) is almost half of the Brazilian average (BRL 35,935) and the second lowest among all Brazilian states at BRL 17,184.70, only above Maranhão state, also in the Northeast Region.² Piauí has a population of 3,289,290 inhabitants³, with 34.2 percent living in rural areas. 41.1 percent of the state population lives in poverty⁴ (US\$6.85/day, 2017 PPP), with 70.6 percent of the extreme poor (under US\$2.15/day, 2017 PPP) located in rural areas.⁵ According to current Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística – IBGE*) data, the average monthly nominal household income per capita (BRL 1,110.00) in Piauí improved, as Piauí ranks 18th among the 27 states of the federation in 2022, improving from the 23rd position in 2019.⁶

¹ IBGE. <https://cidades.ibge.gov.br/brasil/pi/panorama> [Access on 02.03.2022]

² IBGE. <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9054-contas-regionais-do-brasil.html?=&t=resultados> [Access on 02.03.2023]

³ IBGE. <https://cidades.ibge.gov.br/brasil/pi/panorama> [Access on 02.03.2023]

World Bank Calculations using harmonized PNADC.

⁵ Fundação Centro de Pesquisas Econômicas e Sociais do Piauí (CEPRO). 2018. Estudo sobre Desenvolvimento Humano e Política Social do Piauí, Estado do Piauí, 154p.

⁶ IBGE. <https://cidades.ibge.gov.br/brasil/pi/panorama> [Access on 02.03.2023]



4. The territorial area of the State of Piauí is 250,000 km², equally split between two terrestrial biomes with diverse characteristics: the *Cerrado* biome and the *Caatinga* biome (thorny scrub).⁷ The *Cerrado* is a strategic biome for economic and environmental reasons, including its current and potential contribution to addressing food security and climate change challenges in the region and globally. It covers an area that contains significant carbon stocks and water resources, as well as substantial biodiversity, with 23 types of vegetation composed of tropical savannas, woodlands, grasslands and forests. The second biome, the *Caatinga*, is the only exclusively Brazilian biome, which means that a large part of its biological heritage cannot be found anywhere else on the planet. The *Caatinga*'s flora is species-rich with some 1,500 species recorded, including at least 318 endemic species and 18 endemic genera. However, the *Caatinga* is also subject to strong periodic droughts, where very reduced rainfall occurs across several consecutive years.⁸

B. Sectoral and Institutional Context

5. The food and agriculture sector plays a significant role in the Brazilian economy. Agriculture and agribusiness account for about 8.4 percent of the country's GDP; 16.2 percent of total employment; and 40 percent of total exports (Brazil is the world's second largest food exporter).⁹ Against the backdrop of COVID-19, agriculture has become an important factor for mitigating the negative economic effects of the pandemic. The growing harvests of the past years, together with growing food prices year on year, are expected to increase competition for agricultural land.¹⁰

6. Agriculture is the main source of economic activities in rural areas of Piauí, particularly for family farmers.¹¹ The agricultural sector accounts for 8.0 percent of the State's GDP and provides work for 670,321 individuals. It is directly related to food and nutritional security, with 84.4 percent of family farmers directing their production solely to self-consumption.¹² Piauí has 245,601 farms or agricultural production units.¹³ Around 90 percent of these farms are considered family farms (most of which are smallholders, with less than 20 ha) and work on 28 percent of the total area (see Figure 1).¹⁴ Even though family agriculture occupies a relatively small area, they still account for 21.3 percent of the Gross Agriculture Production Value (GPV). Production and income generated by the agricultural sector in Piauí is not evenly distributed across the State. The southern territories concentrate all the large soy-producing farms, where 10 municipalities are responsible for 76 percent of the total GPV.¹⁵

7. Agriculture activities and rural population in Piauí are highly vulnerable to climate change. Brazil's average annual temperatures are expected to rise by 1.7°C to 5.3°C by the end of the century. The projected increased heat will increase stress on crops and is likely to change the length of the growing season, potentially leading to yield reductions and affecting livestock production. Rainfall is also expected to reduce yields and alter suitable areas for agriculture or crop production. Increased heat and water scarcity conditions will increase evapotranspiration, further contributing to crop failures and

⁷ A biome is a biogeographical unit consisting of a biological community that has formed in response to the physical environment in which they are found and a shared regional climate. It comprises a variety of habitats. <https://biblioteca.ibge.gov.br/visualizacao/livros/liv101676.pdf>

⁸ FIDA. 2017. Um novo retrato da Agricultura Familiar do Semiárido Nordestino Brasileiro a partir dos dados do Censo Agropecuário 2017. <https://www.scielo.br/j/abb/a/ZH98wR9sqpC9NtbwKwd3G8d/>

⁹ World Bank Group. 2016. Brazil Systematic Country Diagnostic.

¹⁰ WB 2020. COVID-19 in Brazil—Impacts and policy responses.

¹¹ Law 11.326 (2006) defines family farmers as follows: (i) does not have under any tenure regime an area of more than four fiscal modules (fiscal modules are defined by a number of hectares that can vary between municipalities and states); (ii) predominantly relies on its own family labor; (iii) household income predominantly originates in the family farm; and (iv) family members operate the farm. In Piauí, a fiscal module ranges from 30 hectares to 90 hectares.

¹² FIDA. 2022. Um novo retrato da agricultura familiar do Semiárido Nordestino brasileiro a partir dos dados do Censo Agropecuário 2017. <https://aksaam.ufv.br/ToolSys/Download/Publicacao/5/6>

¹³ IBGE. 2017. Censo Agropecuário.

¹⁴ Ibid

¹⁵ IBGE – PAM (Pesquisa Agrícola Municipal). 2020. Cited in <https://g1.globo.com/pi/piaui/noticia/2021/09/22/dez-cidades-do-piaui-sao-responsaveis-por-quase-80percent-de-toda-a-producao-agricola-do-estado.ghtml> [Access on 13.06.2022]



overall yield reductions. Moreover, land degradation and soil erosion, exacerbated by recurrent extreme weather events¹⁶ adversely impact agricultural production and livelihoods of the rural poor. Family farmers are more sensitive to impacts of climate events as they have limited resources to increase resilience to climate change. The main consequences of climate change expected to affect Piauí (increased temperatures and droughts and decrease rainfall) significantly worsen the risks the State is already facing with native vegetation fires and water scarcity. At the same time, the agricultural sector is also an important contributor to Piauí's overall greenhouse gas (GHG) emissions. Annual data shows that the emissions in the State of Piauí coming from Land Use Change and Forestry (LUCF) and Agriculture sectors represented 53 percent and 28 percent, respectively.¹⁷

Figure 1: Number of farms and area occupied in Piauí (IBGE, 2017 and INCRA, 2018)



8. Rural areas of Piauí are characterized by high poverty levels, particularly among family farming households, Traditional Peoples and Communities (TPC).¹⁸ This hinders their ability to invest in enhancing their resilience to climate change.

9. Women farmers in Piauí face even stronger challenges, particularly in terms of reduced access to land title and low representation in leadership positions in rural communities. Women fall behind men in official labor force participation and salaries: 63.5 percent of them are outside the labor force compared to 36.9 percent of men, whilst earning an average of 9.8 percent less.¹⁹ Although 85 percent of women living in rural areas in Brazil regularly engage in agricultural activities, only 22.1 percent of farmers in Piauí who are declared as head of an agricultural establishment are women of which only 18.5 percent have a partner, and 77.9 percent are men.²⁰ Reduced access to land titles causes challenges when accessing credit and technical assistance, which in turn hinders women's chances of successfully running their own agricultural establishments. In Piauí, 78.1 percent of farmers with a land title are men and only 21.9 percent are women.²¹ 81.8 percent of farmers who report having received technical assistance in Piauí are men (and only 18.2 are women), and 96.1 percent

¹⁶ El Niño events are expected to bring stronger and more frequent precipitation events, with an increased likelihood of longer drier periods in between.

¹⁷ Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa.

(SEEG)<https://plataforma.seeg.eco.br/territories/piaui/card?year=2020&cities=false> [Access on 13.06.2022]

¹⁸ As per Decree nº 6.040, de 07/02/2007 that sets the National Policy on Sustainable Development of Traditional People and Communities. There are 153 known TPC in Piauí, including 83 certified Quilombola communities (of which 61 have open land regularization processes at the National Institute for Colonization and Land Reform (Instituto Nacional para Colonização e Reforma Agrária – INCRA).

¹⁹ Piauí CEPM. 2021. Diagnóstico sobre o perfil da mulher piauiense no contexto atual. <https://portal.pi.gov.br/cepm/wp-content/uploads/sites/23/2022/03/Diagnóstico-da-Mulher-PI..pdf>

²⁰ 18.5 percent of women declared as head of their farm have a partner, when more than three quarters of men declared as head of their farm had. (IBGE, 2010).

²¹ Instituto Brasileiro de Geografia e Estatística (IBGE).2017. Censo Agropecuário, Florestal e Aquícola. <https://censoagro2017.ibge.gov.br/>



of women farmers in Piauí report challenges to access rural credit.²² This environment is further aggravated by a very low representation of women in leadership positions in rural communities and farmers organizations, that could potentially advocate for change. In Piauí, 78 percent of women declared that the number of women leaders in their communities and municipalities was low. When asked about reasons, they mostly named household and care-taking tasks and cultural prejudices against women leaders.²³

10. Piauí's agrarian structure is characterized by pronounced land inequalities, as is the case in most Brazilian States. Land tenure data in Piauí has been historically very unreliable, which is one of the reasons behind the government's efforts to modernize the Piauí State Land Regularization and Real Estate Assets Institute (*Instituto da Regularização Fundiária e do Patrimônio do Estado do Piauí – INTERPI*) and formalize land tenure throughout its territory. There are 709 agrarian reform settlements²⁴ in Piauí that include over 45,000 farms. 290 of these agrarian reform settlements depend on the State²⁵ and are created and administrated by INTERPI within the framework of Brazil's agrarian reform to provide productive land to landless peasants. While land was initially owned by the State, as part of the State land tenure regularization program, INTERPI is transferring land ownership to family farmers located within these settlements. As of January 2023, INTERPI has delivered 15,054 land titles in more than 120 settlements.²⁶

11. Formalizing the land tenure of family farmers and TPC is a priority of the State government to reduce land conflicts, improve productivity, and encourage the adoption of sustainable land management practices. There is a high level of land tenure informality in the State among family farmers and TPC, exposing farmers to unfair dispossession and making their access to credit more difficult, preventing them from investing in more productive and sustainable agricultural practices. Piaui's TPC have gained attention over the last decade, primarily in the southern part of the State where the rapid expansion of the agribusiness has resulted in an increasing number of land conflicts between TPC and large-scale farms. This has led the government to adopt a series of measures, including a new state law on land tenure regularization in 2019²⁷, and the creation of a unit dedicated to TPC within INTERPI, under the Pillars 1 project. There is ample evidence that formalized land rights significantly reduce the number of land conflicts, and improves productivity and income generation. Per the Intergovernmental Panel on Climate Change (IPCC), insecure land tenure affects people and communities' ability to adjust land use in ways that can advance climate adaptation and mitigation outcomes. Securing land tenure encourages the adoption of climate-smart land management practices.²⁸

12. The ability of family farmers to invest in productivity improvements and resilience to climate change is further limited by the costs and difficulties to comply with the Native Vegetation Protection Law. Said Law (Forest Code, Law 12.651 of 2012), which requires farmers to register in the Forest Code, defines Rural Environmental Cadastre (*Cadastro Ambiental Rural – CAR*)²⁹ and is, at the same time, a requirement to access most public programs.³⁰ The Areas of Permanent Preservation (APPs) and the Legal Reserves (*Reserva Legal – RL*) defined in the Forest Code provide ecosystem

²² Piauí CEPM. 2021. Diagnóstico sobre o perfil da mulher piauiense no contexto atual. <https://portal.pi.gov.br/cepm/wp-content/uploads/sites/23/2022/03/Diagnóstico-da-Mulher-PI..pdf>

²³ Ibid.

²⁴ Agrarian reform settlements are settlements of small-scale farmers that were established under Brazil's Land Reform program. Many were created within the framework of the Brazilian Federal Land Reform program (launched in 1964) to provide unproductive land to landless peasants. Many States and local government have also established agrarian reform settlements, such as Piauí with 290 State-level agrarian reform settlements.

²⁵ The remaining settlements depend on INCRA.

²⁶ 6,329 families received a land title under Pillars 1 project in more than 70 settlements (see Annex 2).

²⁷ In 2019, Piauí adopted State Law nº 7.294/2019, which recognized the existence of "traditional territories" and include land tenure regularization provisions for the same.

²⁸ IPCC, 2019 and IPCC, 2020.

²⁹ CAR is a geo-referenced cadaster for identifying rural properties or occupied private landholdings, and delimiting areas of vegetation to be preserved. The Brazilian Forest Code requires that rural landholders retain the natural vegetation on steep slopes, along water courses or in the vicinity of springs (APPs). The private landholders must also set aside an area called RL, which size differs according to the biome, from 80 percent in the Amazon biome to 20 percent in other biomes.

³⁰ Such as the federal National plan for Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar – PRONAF*).



services that benefit agricultural production through biological pest control, regulation of climatic and hydrological systems, maintenance of soil structure and fertility, nutrient cycling, and pollination. Registration in the CAR National Electronic System (*Sistema Nacional de Cadastro Ambiental Rural – SICAR*) is required to obtain an environmental license for rural economic activity on the land, and for other official permits and authorizations issued by the environmental authorities. The CAR is a potentially promising avenue to slow illegal deforestation on private properties as the implementation of environmental regularization³¹ of rural landholdings through the CAR enables a more effective monitoring of deforestation and degradation of native vegetation. Furthermore, the widespread application of the CAR contributes to the better management of the remaining native vegetation areas on private landholdings and to recover degraded RL and APPs in them, enhancing carbon storage and increasing resilience to climate change impacts.

13. Currently, the implementation of the CAR in Piauí is ongoing (262,600 cadasters in the SICAR by April 2023, covering more than 20 million hectares or 80 percent of the State). However, 39 municipalities in the State have less than half of their territory with CAR information, which implies that areas with large stock of public lands present high risks of potential irregular occupations and/or change in land use. Despite progress in SICAR enrollment, which is based on farmers' self-declaration, the following steps are still necessary to achieve the CAR regularization: registries' analyses, resolution of data conflicts and inconsistencies; and support natural resources restoration plans. Challenges found by the State Secretariat of Environment and Water Resources (*Secretaria de Estado de Meio Ambiente e Recursos Hídricos do Estado Piauí – SEMARH*) at this phase include: the high number and low quality of records, and scarce cartography data and technical and human resources to perform analyses and support the preparation of restoration plans to meet the requirements of the Forest Code, as necessary.

14. Along with the low compliance with Brazilian Forest Code requirements, the use of unsustainable practices by farmers and ranchers aggravates the impacts on natural resources. The dynamics of native vegetation of the *Cerrado* biome is often associated with fire. Nevertheless, human land use practices and climate change have altered the natural fire regime. In the dynamics of illegal deforestation, forest fires are a substantial part of the modus operandi of environmental illegality. In addition, fires set to induce regrowth of pastures, as well as to trap and capture wild animals, often get out of control and spread over wide areas, affecting protected areas, community territories and remnants of native vegetation, and having a significant impact in terms of GHG emissions. In an annual ranking of the Brazilian states that have the highest number of hotspots, Piauí is always ranked among the first eight.³² Fires are also closely linked to climate change, as these are expected to increase in frequency due to extreme droughts combined with higher temperatures. At the same time, they also contribute to the emission of carbon compounds resulting in the acceleration of climate change, polluting the atmosphere, causing an increased vulnerability of people and ecosystems to climate impacts such as acceleration of the processes of desertification and loss of biodiversity.

15. Environmental challenges are further compounded by a limited use of improved agricultural practices and technologies in farms throughout the State, which translates into low levels of agricultural productivity. The use of improved agricultural technologies, such as limestone application and fertilization, is limited, with 11 percent of family farmers in the State using some sort of fertilizer.³³ Moreover, there is a lack of knowledge of available technologies and practices that could help increase family farmers productivity and resilience and foster climate-smart agriculture adoption. Agricultural research and extension services have been reduced over the past three decades as a result of fiscal constraints and privatizing policies. Though there has been new support towards the reconstitution and training of staff of the State Secretariat for Technical Assistance and Agricultural Defense (*Secretaria de Estado da Assistência Técnica e Defesa Agropecuária - SADA*), staff devoted to extension services to farmers in the State (1 extensionist for every 400 farmers) is clearly under-dimensioned. Only 20 percent of farmers receive any sort of public technical assistance and extension

³¹ Environmental regularization is the process carried out by the rural producer, so that his property and/or rural real estate fits within the principles established in the environmental legislation.

³² In 2022, 10,866 hotspots were registered by the National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais – INPE*) in the State of Piauí.

³³ At the national level, 42 percent of farmers are using fertilizers and 35 percent are using pesticides. IBGE. 2017. Censo Agropecuario



services.

16. Low productivity and high variability of incomes are also linked to limited access to finance and markets. When technology is known, its adoption is hindered by the lack of financial resources, with only 14 percent of farmers in the State of Piauí having access to credit.³⁴ Investment loans provided by commercial banks to family farmers are restricted for several reasons: (i) formal requirements (such as land titling, CAR registration) are not met by farmers, and (ii) a lack of viable investment projects, mainly due to poor integration into value-chains and/or to an absence of technical and managerial project implementation support. Most family farmers are not linked to economic, productive, or commercial organizations such as cooperatives and associations, experiencing difficulties in selling their products, both on public and private markets. It is estimated that in the Northeast, around 20 percent of family farmers have low access to markets, allocating part of their production to self-consumption and trading the surplus irregularly in local markets over time.³⁵

C. Relevance to Higher Level Objectives

17. The Project will contribute to enhance income and food security for family farmers in agrarian reform settlements and for TPCs. The State of Piauí is committed to address the above-mentioned challenges in its Multiannual Plan 2020-2023³⁶, in its chapters on (i) Innovative and prosperous Piauí; and (ii) Sustainable Piauí. The project is also fully aligned with three of the four strategic axis of the Piauí 2030 Plan (*Plano Piauí 2030*).³⁷ The project will specifically target the following structural barriers highlighted in the document as key for the State's development: (i) land tenure and regularization; (ii) densification and consolidation of value chains; (iii) socioeconomic inequalities; and (iv) absence of tools for management and monitoring of actions.

18. The proposed project is fully aligned with Focus Areas 2 and 3 of the World Bank Group's Country Partnership Framework (CPF) for Brazil FY18–FY23 (Report no. 113259-BR, discussed by the Executive Directors on July 13, 2017). Under CPF Focus Area 2 (Private Sector Investment and Productivity Growth), the project aims to reduce financial market distortions to improve resources allocation and producers' credit access by empowering their organizations to meet market requirement and reducing risks and costs associated to their businesses. Under CPF Focus Area 3 (Inclusive and Sustainable Development), the proposed project aims to promote socioeconomic development of poor rural producers and vulnerable groups through investments that contribute to improved climate resilient agricultural production, environmental compliance, and management and market access of local agribusinesses with a focus on land use and regularization. The Project is also aligned with the current and the upcoming update of the World Bank Group's Gender Strategy.³⁸

19. The proposed project is aligned with the goals of the Paris Agreement and is consistent with the country's climate commitments reflected in Brazil's Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) and National Adaptation Plan (NAP). In the latest update (2022) of its 2015 original NDC, Brazil commits to reduce emissions by 37 percent by 2025 by 50 percent by 2030, both compared with 2005, and sets a long-term objective to achieve climate neutrality by 2050. Agriculture and forestry sector mitigation priorities in the NDC include strengthening low-carbon agriculture approaches, restoring degraded pasturelands, enhancing integrated cropland-livestock-forestry systems, strengthening and enforcing the Forest Code, reaching zero illegal deforestation, restoring and reforesting forests, and enhancing sustainable forest management systems. The project is aligned with these mitigation priorities through its support to the adoption of low-carbon and climate resilient practices and technologies on family farms (component 3) and support for compliance with the Forest Code including through re-

³⁴ This percentage is similar to the national level (15 percent of farmers accessing credit). IBGE. 2017. Censo Agropecuario.

³⁵ World Bank. 2015. Agricultural productivity and family farms in Brazil: Creating opportunities and closing gaps.

³⁶ http://www.antigoseplan.pi.gov.br/upe/PPA/PPA_2020_2023/lei-7326.pdf

³⁷ (i) Axis 1: environment and climate change; (ii) Axis 2: labor, employment, and income; (iii) Axis 3: reduction of inequalities.

³⁸ The project is aligned with the Gender strategy (i) Pillar 2, which will emphasize creating more and better jobs in alignment with the structural transformation and green transition; (ii) Pillar 3, which will encompass natural assets in addition to economic assets; and (iii) Pillar 4, which will emphasize leadership as well as voice and agency.



vegetation and afforestation on family farming areas (component 2). Brazil's NDC, referring to the second (2021) cycle of the National Adaptation Plan (NAP), also cites the development of adaptation strategies in the agricultural sector with a view to ensuring food security, such as improving agricultural risk and vulnerability monitoring and diagnosing vulnerability to climate change of indigenous populations and lands. The project will contribute to these adaptation efforts through its support for improved monitoring and control of forest fires (component 2) and by including diagnostics of climate vulnerabilities in the design of the Investments Plans to be supported under Component 3. The project also responds to the agriculture sector priority interventions identified in the World Bank Country Climate and Development Report (CCDR) for Brazil.³⁹ These include scaling up climate-informed landscape management and efficiency gains in the livestock sector, which the project will contribute to under Component 3 support to family farmers. The CCDR also prioritizes curbing deforestation and explicitly mentions accelerating registration and analyses of CARs, which the project will support under Component 2. The project is also aligned with and supports the WBG Climate Change Action Plan 2021-25 and the WBG Roadmap for Climate Action in Latin America & the Caribbean.

II. PROJECT DESCRIPTION

A. Project Development Objective (PDO)

20. PDO Statement

To increase land tenure security, the adoption of sustainable natural resources management practices, and Climate-Smart Agriculture practices among target beneficiaries in the State of Piauí; and in case of an Eligible Crisis or Emergency, respond promptly and effectively to it.

PDO Level Indicators

The proposed PDO-level indicators are:

- (i) Increase land tenure security: People who received land titles issued by INTERPI (Number); of which are women beneficiaries or co-beneficiaries (Number);
- (ii) Increase sustainable natural resources management: Landholdings and Community Territories implementing sustainable natural resources management practices (Number);⁴⁰
- (iii) Increase adoption of Climate-Smart Agriculture: Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technologies (Number, disaggregated by sex, and by TPC core indicator). This core indicator will monitor the adoption of climate-smart agriculture practices and technologies.⁴¹

B. Project Components

Strategic approach

21. The proposed project aims to support family farmers and TPC in targeted areas with (i) land tenure regularization, (ii) environmental regularization and natural resources sustainable management, and (iii) financial and technical

³⁹ World Bank Group.2023.Brazil Country Climate and Development Report.

⁴⁰ This indicator will measure the number of landholdings and Community Territories for which new and/or improved sustainable natural resources practices have been introduced as a result of the project. Sustainable natural resources practices refer to technologies and approaches that ensure the sustainable use of natural resources, either by regenerating or protecting them. For example: rural environmental cadaster, natural vegetation restoration plans, fire prevention, control and management, and water monitoring and management.

⁴¹ CSA means an integrated approach to managing landscapes, cropland, livestock, forests and fisheries that addresses the interlinked challenges of food security and accelerating climate change, by increasing productivity, enhancing resilience to climate-related risks and shocks and reducing emissions. CSA practices are those that contribute to climate change resilience, including adaptation and mitigation approaches. See Box 2 for further details.

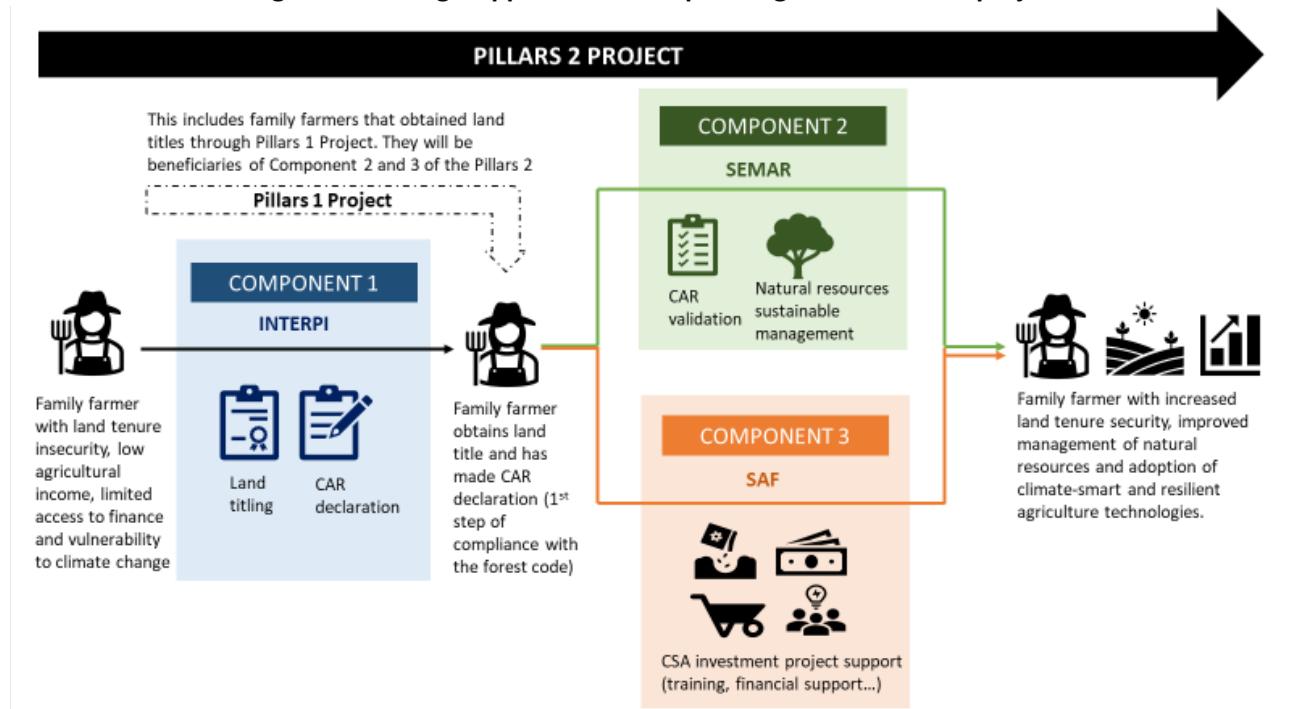


assistance to support investments in climate-smart agriculture. This three-pronged approach aims to create an enabling environment for sustainable development and for enhancing climate adaptation and mitigation of targeted areas. The project will also provide support to the State of Piauí to integrate and monitor this approach into its policies and programs for rural areas.

22. All state agrarian reform settlements and territories of TPC where land regularization has not been completed will be eligible under Component 1. Under Components 2 and 3, the project will implement activities in the areas targeted under Component 1 as well as in agrarian reform settlements and rural communities where the Pillars I project intervened with regards to land regularization to deliver on the two other aspects of the integrated approach (environmental regularization and climate-smart agriculture). This will also allow to jump start implementation of Components 2 and 3 (see Figure 2). Component 3 will focus more particularly in six territories of development (4 Northern Territories of Development and two territories in the South of the State)⁴² to ensure complementarity with other projects implemented by the State.⁴³

23. As of today, INTERPI has about 250 identified settlements, adding up to a population of approximately 27,000 families. The project aims to provide land regularization and CAR declaration to approximately 60 percent of those families and to 10 percent of the TPC.⁴⁴ The project will provide climate-smart productive support to 20 percent of those families. The project will also support institutional strengthening of the four agencies involved in the implementation of the project to ensure that support to family farmers and TPC on land regularization, sustainable natural resources management and climate-smart agriculture will continue after the closing of the project.

Figure 2. Strategic approach and sequencing of the Pillars II project



24. The proposed project is an Investment Project Financing (IPF) in the amount of US\$50 million to be implemented

⁴² Território Planície Litorânea; Território dos Cocais; Território dos Carnaubais; e Território Entre Rios in the North and Território Chapada das Mangabeiras; e Alto Parnaíba in the South.

⁴³ In particular IFAD-funded Viva o Semi-Arido project and the IADB-IFAD Sustainable and Inclusive Piauí's project that are providing productive support to family farmers in the remaining territories of development of the State.

⁴⁴ The project aims at regularizing 20 TPC territories out of the 153 known TPC in the State.



over a five-year period. The total project cost is estimated to be US\$63.32 million, including US\$12.5 million of counterpart funding from the State of Piauí and US\$0.82 million from project beneficiaries. The project will be implemented through 4 components: (i) Land tenure regularization; (ii) Environmental management and geospatial information management; (iii) Sustainable rural development; (iv) Project management; and (v) a Contingent Emergency Response Component (CERC) has been included.

25. Project design builds upon the successful results and lessons learned from the Piauí Pillars of Growth and Social Inclusion project (Pillars I),⁴⁵ including the strengthening of INTERPI and its land regularization processes and of the State Land and Environmental Geotechnical Center (*Centro de Geotecnologia Fundiária e Ambiental - CGEO*), that integrates land and environmental data. This second phase aims at bringing further integration and coordination between INTERPI, SEMARH and the State Secretary of Family Agriculture (*Secretaria de Estado da Agricultura Familiar - SAF*) to deliver sustainable productive support to beneficiaries, in addition to the land regularization. Project design will also leverage lessons learned from similar ongoing or completed projects in the State and in Brazil, funded by World Bank or other development partners.⁴⁶ A close coordination and synergy will be built with ongoing or upcoming projects and programs to optimize development outcomes and avoid duplication.⁴⁷

Component 1 – Land Tenure Regularization (Total cost US\$20.08 million, of which IBRD loan US\$15.85 million)

26. This component will support the State Government's efforts to strengthen land tenure security for 22,500 family farmers and members of TPC. Beneficiaries will be families eligible for land donation under the state land tenure regularization program. Land titles will be issued under the name of both spouses, and women's participation will be encouraged. Providing these families with formal land rights will remove one of the main sources of land tenure insecurity, which in turn will bring a series of social, economic, and environmental benefits. Families and communities with formal land rights are less exposed to land conflicts and are better protected against unfair dispossession. They are incentivized to invest more, and more sustainably, including through the adoption of sustainable land management practices, soil conservation measures and increased investments in climate-smart agriculture. Therefore, the proposed activities will help increase productivity, encourage climate-smart agriculture practices, while reducing vulnerability to climate change.⁴⁸ INTERPI will lead the implementation of this component.

27. This component will have four main activities: (i) the modernization and strengthening of INTERPI; (ii) land tenure regularization in agrarian reform settlements with a target of delivering 15,000 land titles to family farmers in state agrarian reform settlements; and (iii) land tenure regularization for TPC. The objective will be for INTERPI to regularize the land of at least 20 TPC territories, while helping advance other tenure regularization processes related to TPC territories; and (iv) strategic partnerships with the judiciary and citizen engagement.⁴⁹

28. Activities related to the modernization and strengthening of INTERPI will build upon the achievements of the

⁴⁵ See Implementation Completion Results and Reports (ICRR) from Piauí Pillars of Growth and Social Inclusion Project (P129342), Report ICR00005913, June 30, 2022 and Annex 2.

⁴⁶ Such as the WB funded Bahia Sustainable Rural Development project (P147157).

⁴⁷ In particular IFAD-funded Viva o Semi-Arido project and the IADB-IFAD Sustainable and Inclusive Piaui's project.

⁴⁸ Bambio, Y., and S. Bouayad Agha. 2018. Land tenure security and investment: Does strength of land right really matter in rural Burkina Faso? *World Dev.*, 111, 130–147, doi:10.1016/J.WORLDDEV.2018.06.026.

Robinson, B.E. et al.2018. Incorporating land tenure security into conservation. *Conserv. Lett.*, 11, e12383, doi:10.1111/conl.12383.

IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

⁴⁹ Within the framework of this activity, INTERPI is expected to strengthen existing partnerships with the land tenure regularization center of the Office of the Inspector General of the State Secretariat of Justice (*Corregedoria Geral de Justiça do Estado do Piauí*), the provision of technical legal aid to the poor and alternative land conflict resolution mechanisms, the Inspector General of the Extrajudicial Forum of the State Secretariat of Justice (*Corregedoria do Forum Extrajudicial*), the modernization of the public land registry, the Borrower's Public Prosecutor's Office (*Ministério Público do Estado do Piauí*), the prevention of land registration fraud, and INCRA, the regularization of agrarian reform settlements and territories of PCT.



Project's first phase (see Annex 2). Under the current Project, investments will include the renovation of INTERPI's headquarters ensuring climate resilience and mitigation of the structure, improvement of its land information systems and processes with a particular attention to interoperability and sustainability, training, studies, and technical assistance to strengthen INTERPI's operational capacity and the improvement of the regulatory framework for land administration.

29. Under this component the project will support the delivery of 15,000 land titles to family farmers in state agrarian reform settlements. INTERPI has about 290 settlements, adding up to a population of approximately 27,000 families.⁵⁰ Following the approach adopted under Pillar I project, INTERPI established a list of the remaining settlements to be targeted under the Project.⁵¹

30. This component will also support the regularization of 20 TPC territories while helping advance the regularization processes of other TPC territories. Building on the experience from Pillars 1 project, INTERPI established a list of targeted TPC territories in consultation with social movements that can be updated from time to time in agreement between INTERPI and the World Bank.⁵² The project will support the identification and registration of state land in areas claimed by TPC and family farmers.

31. Project investments in land tenure regularization will help strengthen women's land rights. Today, none of the women living in the target agrarian reform settlements and TPC territories have their land rights formally secured, which leaves them particularly exposed to the risk of losing their land assets in critical life events such as separation or loss of their partner. Processing of land titling for family farmers in the targeted settlements will be carried out under the condition that all land titles will be issued in the name of the women of the family and/or of the married couple to enhance women ownership and control over land in the family farming sector. This land tenure gender gap will be monitored with the objective of ensuring that at least 80 percent of beneficiaries or co-beneficiaries of land titles issued by INTERPI are women.

32. The component will finance works, goods, operating costs, training, consulting and non-consulting services.

Component 2 – Environmental Management and Geospatial Information Management (Total Cost US\$14.00 million; of which IBRD loan US\$12.24 million)

33. Environmental management and climate change resilience involve managing complex dimensions, such as land use changes, natural resources management, sustainable use, and environmental services assessment. The main objective of this Component is to contribute to improving the State's capacity to promote sustainable natural resources management (including natural vegetation cover and water resources) by family farmers, including historically marginalized groups targeted by the project such as TPC and women, and to provide accurate geospatial information for the elaboration of public policies, natural resources management, and climate risk management. SEMARH will lead the implementation of this Component.

34. The Component has four main activities: (i) the implementation of preventive measures or measures to control and combat vegetation fires; (ii) the implementation of a system that enables continuous monitoring of surface water for events or trends over time; (iii) rural environmental cadastre and environmental regularization of individual landholdings and Community Territories in the selected areas; and (iv) the provision of spatial data on hydrometeorology, land use, land tenure, native vegetation and native vegetation fire risk, within CGEO.

35. Preventive measures or measures to control and combat vegetation fires. Prevention and mitigation of wildfires

⁵⁰ At the time of project preparation (April 2023), INTERPI had issued through Pillars 1 and other projects, 10,529 land titles in more than 120 settlements.

⁵¹ This list may be updated from time to time in agreement between INTERPI and the World Bank.

⁵² Under Pillars I, the focus was initially on the regularization of territories of Quilombola Communities, and the objective was to regularize 5 territories. After 2017, per the request of social movements, the project started focusing on other traditional people and communities, including those located in the Cerrado region who were under direct threat of land dispossession.



mean fewer degraded lands and more reclaimed areas. This activity is designed to strengthen fire risk prevention, control and response capacities, strengthen climate resilience, and reduce GHG emissions. This not only will contribute toward reducing net GHG emissions but also to conserving ecosystem services, biodiversity and existing carbon pools in forest vegetation and soil by controlling extreme wildfires. The actions will also include educational actions aimed at rural settlements, communities of family farmers and TPC. Educational activities will consider women's specific needs and realities within their communities, including holding training events at convenient location and times for women farmers.

36. The project will also support the implementation of a system that enables continuous monitoring of surface water for events or trends over time. As the State of Piauí is expected to see increased droughts in the face of climate change, this system aims at monitoring water availability and quality, by updating the monitoring network; modernizing the laboratories for water quality analysis; updating of the State Water Resources Plan; and implement measures to inspect and regulate potentially polluting activities.

37. Rural environmental cadastre and environmental regularization for the selected areas. The environmental regularization process comprises several steps. These steps involve: the registration and analysis of the CAR, and, when required, the implementation and regulation of the Environmental Regularization Program (*Programa de Regularização Ambiental – PRA*⁵³). This activity will support the landholding environmental regularization procedures, including: (i) rural environmental cadastre of the new landholdings and Community Territories supported for land tenure titling (under Component 1), which collects data on the size of individual farms or territories, the areas earmarked for alternative land use, APPs and RLs; (ii) analysis of CARs issued as a result of Pillars I and Pillars II projects; (iii) support landholders' adhesion to the PRA and to support the recovery of degraded areas within private landholdings, as necessary and (iv) recovery and conservation of springs, including inventory, analysis, design and implementation of a degraded area recovery plan (PRADA). This activity will help protect native vegetation and restore degraded areas, enhancing carbon storage in soil and vegetation thus contributing to climate mitigation.

38. The collection and provision of spatial data aims to provide accurate geospatial information for the elaboration of public policies. The hydrogeological and geospatial information will help to enhance resilience to climate change since the data can help to identify extreme weather events risks, related to water scarcity, droughts, and native vegetation fires, enabling technical assistance and extension services to farmers to provide adequate services and to improve disaster risk management. It will support a platform aggregating geospatial data and foster spatial data management innovation consisting of new or modified processes, techniques, systems, and products to provide accurate, accessible, timely, updated, and location-specific information.

39. Component 2 will finance works, goods and equipment, operating costs, training, technical assistance, consulting and non-consulting services.

Component 3. Climate-smart Rural Development (Total Cost US\$25.28 million; of which IBRD loan US\$18.05 million and beneficiaries US\$0.82 million)

40. This Component aims to increase the socio-economic inclusion and climate resilience of family farmers, by (i) supporting the adoption of Climate-Smart Agricultural technologies; (ii) improving access to markets; and (iii) strengthening the agriculture sector public services. All activities under this Component are designed to strengthen the climate resilience of the beneficiaries and to integrate climate change mitigation and adaptation strategies. Investments under this Component will contribute to improve net carbon balances through: (i) emission reductions from improved agroforestry, livestock management and cropping systems and better agriculture management; and (ii) investments in sequestration from afforestation and/or restoration of degraded areas. The Component will be implemented by SAF.

41. The Component will have four main activities: (i) cofinancing (through matching grants) of the adoption of climate-

⁵³ The PRA of rural lands and properties aims at regulating the set of actions and initiatives developed by rural properties owners, with the objective of adapting and promoting the environmental regulation in accordance with Chapter XIII of Federal Law 12.651



smart productive investments by farmers' organizations; (ii) institutional strengthening of SAF and SADA to increase their capacity to deliver support to family farmers, including historically marginalized groups such as TPC and women; (iii) capacity strengthening of farmers' organizations to foster their resilience to climate change and improve access to markets; and (iv) the development of Agendas of Sustainable Development (ASDs)⁵⁴ for agrarian reform settlements and TPC. The ASDs will include actions needed to foster the resilience of the community to climate change. To ensure inclusion, special emphasis will be given to ensure the participation and engagement of rural women, agrarian reform settlers, and TPC in all these activities.

42. Co-financing (in the form of matching grants) will be provided for viable Productive Investment Plans and Business Plans (*Planos de Negócios* - PIP/PN) presented by farmers organizations and TPC associations.⁵⁵ The PIP/PNs will focus on fostering the adoption of Climate Smart Agriculture (CSA) practices and technologies⁵⁶ and will bundle training, technical assistance targeted to the preparation and implementation of the investment initiative, and support for investment costs. The matching grants will be organized around three windows, tailored to the needs of organizations with different levels of organization, business experience, and preparedness for commercial activities.⁵⁷ To support the inclusion of historically marginalized groups, eligibility conditions for PIP/PN will benefit TPC, women and women-led organizations and associations. As a selection criterion, all projects will have to incorporate climate-smart agricultural practices and technologies.

43. Capacity strengthening. SAF and SADA, who will support SAF in monitoring the implementation of the matching grants subprojects, will be strengthened to increase their capacity to deliver support to family farmers and TPC under Component 3. SAF and SADA will also receive training on how to incorporate climate change adaptation and mitigation strategies in the design and implementation of public policies and programs. Family Farmers' and TPC's organizations will be strengthened, through training and technical assistance, on associative governance, business management, and the transition to CSA to facilitate the transformation of agricultural systems under the new realities of climate change. Support will also be provided to the beneficiaries of the ASD in INTERPI's settlements to foster organizational capacities. To foster the implementation of this component SAF could establish Partnership Agreements⁵⁸ (*Termos de Compromissos* or *Convênios*) aimed at engaging in partnerships with national (e.g. Brazilian Service of Support for Micro and Small Enterprises - *Serviço Brasileiro de Apoio às Micro e Pequenas Empresas* - SEBRAE, National Service of Rural Learning - *Serviço Nacional de Aprendizagem Rural* – SENAR, Brazilian Agricultural Research Corporation - *Empresa Brasileira de Pesquisa Agropecuária* - EMBRAPA) and international organizations (e.g. Inter-American Institute for Cooperation on Agriculture - IICA) that have relevant expertise in the achievement of the component's objectives and activities.

44. Women's empowerment within Family Farmers Organizations (FFO) will be prioritized through a series of trainings

⁵⁴ SDPs are plans that collectively identify the socioeconomic opportunities for a more efficient, sustainable and economically viable exploitation of their settlements.

⁵⁵ Selection criteria and maximum amount per beneficiary will be defined in the POM, knowing that each matching grant shall not exceed USD 270,000.

⁵⁶ CSA is an integrated approach to managing landscapes, cropland, livestock, forests and fisheries, that addresses the interlinked challenges of food security and accelerating climate change, by increasing productivity, enhancing resilience to climate-related risks and shocks and reducing emissions (FAO, 2013. Climate Smart Agriculture Sourcebook). CSA practices and technologies present in each subproject will respond to the particular environmental and climate challenges at hand and will be defined in the POM. They might include but are not limited to: Activities directly linked to conservation such as beekeeping; Water re-use systems; Farmer-led irrigation and small-scale collective irrigation schemes, including energy-efficient water pumping systems, on-farm drip and sprinkler irrigation technologies; Improved water harvesting and storage in small, excavated ponds; Soil and water conservation and management practices; Restoration of pasture, pasture management, agro-silvo-pastoralism, and fodder production; Improved livestock management (health, genetics, feeding); Facilities for composting crop residues; Solar panels, Biogas (with livestock manure) for renewable energy; Activities to prevent forest fires such as maintaining natural fire breaks; and Agroforestry systems.

⁵⁷ (1) Window 1 will finance CSA PIP of Family Farmers' and TPC's associations and cooperatives to foster their productivity and resilience to climate change; (2) Window 2 will support CSA PIP to Family Farmers' and TPC's organizations that have technical potential to generate commercial surplus or that have already made small investments towards market inclusion; and (3) Window 3 will support CSA Business Plans for cooperatives that demonstrates greater maturity in business management as well as access to markets.

⁵⁸ Under which part of the proceeds of the loan can be made available



and workshops for both men and women addressing low female representation in decision-making roles. It will include: (i) gender sensitive approaches and address relevant gender-related issues; (ii) the recognition of the economic contribution of women to family farming; and (iii) identifying and addressing the barriers that may exclude women from participation and leadership in FFO. The gender gap of female representation in leadership positions in FFO will be monitored with the objective of registering an increase in the percentage of women working on the Board of directors of FFO by the end of the project. Women's empowerment will also be fostered through the implementation of dedicated training on agroecological practices and monitoring of the monetary and non-monetary income generated by women on productive backyards.⁵⁹ All training and capacity building activities offered under this component for beneficiaries likewise will take into consideration the needs and topics relevant for women to foster their engagement and participation.

45. Component 3 will finance: (i) works, goods, training, operating costs, technical assistance, consulting and non-consulting services; and (ii) matching grants to finance the implementation of CSA PIP/PN ("subprojects").

Component 4. Project Management (Total Cost US\$3.96 million; of which IBRD loan US\$3.86 million)

46. **This Component will be implemented by the State Secretariat for Planning (Secretaria Estadual do Planejamento – SEPLAN).** It will support Project coordination and management, including: (i) project management and administration; (ii) financial management (FM); (iii) procurement; (iv) monitoring and evaluation (M&E) of Project performance and impact; (v) environmental and social risks management and Grievance Redress Mechanism (GRM); and (vi) communication and outreach. Regarding the project M&E, the approach will include a system to monitor the implementation on an ongoing basis. Project monitoring allows adjustments to be made in the implementation to meet the physical indicators. The Project will be implemented by a Project Coordination Unit (PCU) embedded in SEPLAN. The PCU will ensure compliance with World Bank procurement, disbursement, FM, and safeguard policies and procedures by preparing and implementing a comprehensive Project Operational Manual (POM).

47. **A platform aggregating available geospatial data will be set up to facilitate the search and use of information by the different sectors,** including State Secretariat of Finance (*Secretaria de Estado da Fazenda – SEFAZ*); INTERPI; SEMARH and SAF. The intelligent platform will include information generated by different institutions and products (INTERPI; SEMARH; National Institute for Space Research, *Instituto Nacional de Pesquisas Espaciais -INPE*; Brazilian Forest Service; etc). In addition, the PCU will enhance inter-institutional collaboration necessary to the successful implementation of the project.

48. **SEPLAN's capacities will be strengthened to ensure adequate monitoring and coordination** of the 3 co-executing agencies and to foster the use of collected data across the 3 components into designing public policies and programs.

49. Component 4 will finance studies, workshops, training, travel, technical advice, consulting services, administrative services, limited software and equipment, and operating costs.

Component 5. Emergency Response (US\$0)

50. **A CERC with no funds is included in the Project as a mechanism for funding requests arising from emergencies such as natural disasters and other shocks, as defined in the operational manual for the CERC.** If such a crisis develops, the State of Piauí can ask the World Bank to reallocate part or all of the uncommitted loan proceeds to cover the costs of emergency response and recovery. An operational manual acceptable to the World Bank for implementing the CERC will be developed and annexed to the POM. All expenditures under this CERC will be in line with paragraphs 11, 12, and 13 of World Bank IPF Policy. Expenditures will be evaluated and reviewed to determine if they are acceptable to the World Bank prior to disbursement. Disbursements will be made based on an approved list of goods, works, and services required to support mitigation, response, recovery, and rebuilding in a crisis. If this Component is to be implemented based on the prevailing conditions defined in the Loan Agreement, the due diligence on a positive list of CERC eligible activities will be assessed against those reported in the POM to ascertain coverage of CERC activities are included in the Environmental

⁵⁹ This training will follow the Agroecological Handbooks methodology (*Cadernetas agroecológicas*) that puts special emphasis on the monetary and non-monetary income generated by women on their productive backyards.



and Social Management Framework (ESMF). No withdrawal shall be made under this Component unless and until all Environmental and Social Framework (ESF) documents required for said activities are prepared and disclosed and any actions required to be taken under these ESF documents are fulfilled.

Other design aspects

51. Gender. The project conducted a gender assessment and prepared a Gender Action Plan to encourage equitable gender participation in all activities (see Annex 6). Based on the assessment and as shown in the Action Plan, relevant gender gaps affect female family farmers in Piauí, including reduced access to land titles and low representation in leadership positions in rural communities and FFO. Main actions to close the identified gaps include: (i) incorporating beneficiary targeting criteria that explicitly promote gender equality objectives under land regularization activities in Component 1 and under eligibility criteria for PIPs in Component 3 to promote women-led organizations; and (ii) a series of trainings and workshops for addressing low female representation in decision-making roles. Other actions include: (i) organizing activities in locations and conditions that meet women's scheduling and safety requirements; (ii) targeted capacity building; (iii) training in rural communities to address gender stereotypes; (iv) gender-specific training for public administration staff; (v) strengthened data systems to provide systematic gender information; and (vi) utilizing a monitoring and evaluation approach (including gender-disaggregated indicators) for the project that ensures women have the opportunity to access services and trainings offered by the project and allows measurements of the promotion of inclusion and empowerment of rural women. Through these measures, the project expects to contribute to reducing gender gaps among its beneficiaries that will be monitored through dedicated indicators: (i) "Women as beneficiaries or co-beneficiaries who received land titles issued by INTERPI. (end target: 80%); and (ii) Increase in the percentage of women working on the boards of directors, vice director or company treasurer of rural organizations served by the project (End target:15%).

52. Climate change. A GHG assessment of the project was carried out using the ex-ante carbon-balance tool (EX-ACT), which quantifies the net carbon balance expressed in tCO₂e, resulting from GHGs emitted or sequestered during the project implementation and capitalization period (20 years) compared to the without project scenario. The project leads to estimated annual climate change mitigation benefits of 210,676tCO₂eq, when compared to a business-as-usual scenario. After 20 years, GHG mitigation benefits would amount to a reduction of 4,213,519tCO₂eq (see Annex 4). The project was also screened for climate change and disaster risks.

53. Maximizing Finance for Development (MFD). The Project complies with the Bank's MFD framework. It seeks to optimize public resources by improving the conditions for private-sector investments in the sector to contribute to both Private Capital Mobilization (PCM) and MFD enabling aspects. In doing so, under Component 1, it will support increased land tenure security of family farmers and TPC, which among others, facilitate using of farmers' land as collateral assets, thereby improving access of target families to sustainable financial services from financial institutions. Under Component 3, the Project will directly mobilize US\$820,000 from family farmers and TPC through its matching grant schemes. Matching grants are designed to promote the use of climate-smart technologies through a cost-share arrangement. Beneficiaries are expected to cover between 5 and 20 percent cost of investments. Moreover, the Project will strengthen the capacities of services providers that can support Family Farmers' Organizations in developing economically viable and commercially sustainable investments, facilitating future investments supporting the growth of their activities.

54. Citizen engagement. Citizen engagement and participation (through civil society and community-based organizations) is at the core of the project's design. Consultations have been held with the organizations representing the potential beneficiaries of the Project to define the scope of activities, the areas of intervention and the targets of the Project. Furthermore, the Stakeholder Engagement Plan (SEP) defines (i) consultations with key stakeholders, in particular vulnerable individuals and social groups such as women and TPC, to occur during project's implementation; (ii) continuous access by stakeholders to relevant project information and (iii) channels and tools for stakeholders that will facilitate the resolution of grievances. The project's results framework includes the following indicators to measure the extent of



beneficiary feedback and grievance redress: (i) Percentage of responses to complaints related to project implementation and (ii) Percentage of beneficiaries satisfied with the training offered by the project.

C. Project Beneficiaries

55. The Project's direct beneficiaries are family farmers, as defined by the Brazilian law, in rural settlements and TPC. The number of these direct beneficiaries is estimated at 24,480 farmers in total, including beneficiaries of component 3, activity 3.1, that will have benefitted from land titles and CAR under the Pillars 1 project. To ensure inclusion of women and TPC, the project will develop a targeting approach to ensure outreach and tailored capacity building for these groups as well as disaggregate beneficiary indicators to track their participation. In addition, indirect project beneficiaries will include: (i) institutions and organizations that will see their capacities strengthened through the various components, (ii) rural households who will benefit from better natural resources management and (iii) family farmers who will benefit from improved state-wide agricultural land regularization and environmental services.

Table 1: Number of beneficiaries by activities

Activities	Beneficiaries	Estimation
Number of people receiving land titles dans CAR from INTERPI's settlements and TPC (Components 1 and 2)	22,500	15,000 land titles in rural settlement and 20 TPC, whereas in rural settlement 50 percent of land titles are emitted for 2 people, 50 percent of land titles are emitted for 1 people, and in TPC there are 20 families in average, on the same proportion (50 percent of land titles are emitted for 2 people, 50 percent of land titles are emitted for 1 person)
Number of people receiving environment technical assistance and training to prevent and combat forest fire and/or restoration practices (Component 2)	250	Direct project beneficiaries include participants in trainings, field events, educational activities, and other capacity-building and knowledge-sharing activities under Components 2.
Number of people benefitting from the PIP (3 windows) (Component 3.1)	4,950	Direct project beneficiaries include those served by the 207 PIPs. The PIPs will preferably be developed in areas titled by INTERPI.
Number of people benefitting from strengthened capacities (Component 3.2)	1,980	Capacity-building training participants who are not PIP beneficiaries.

D. Results Chain

56. The project aims to address key challenges in the agriculture sector in the State of Piaui that contributes to the high poverty levels in rural areas: high level of land tenure informality, low enforcement of natural resources management regulations, unsustainable agricultural practices that lead to increased fires and low productivity, vulnerability to climate change and low agricultural incomes due to low productivity and low integration to markets. In the Theory of Change (ToC) presented in Figure 3 causes, activities and outputs related to Land Tenure Regularization are shaded yellow, those related to Environmental Management and Geospatial Information Management are shaded green and blue is used for Sustainable Rural Development. The project design includes a significant level of integration among the components, with some outputs contributing to multiple intermediate outcomes.

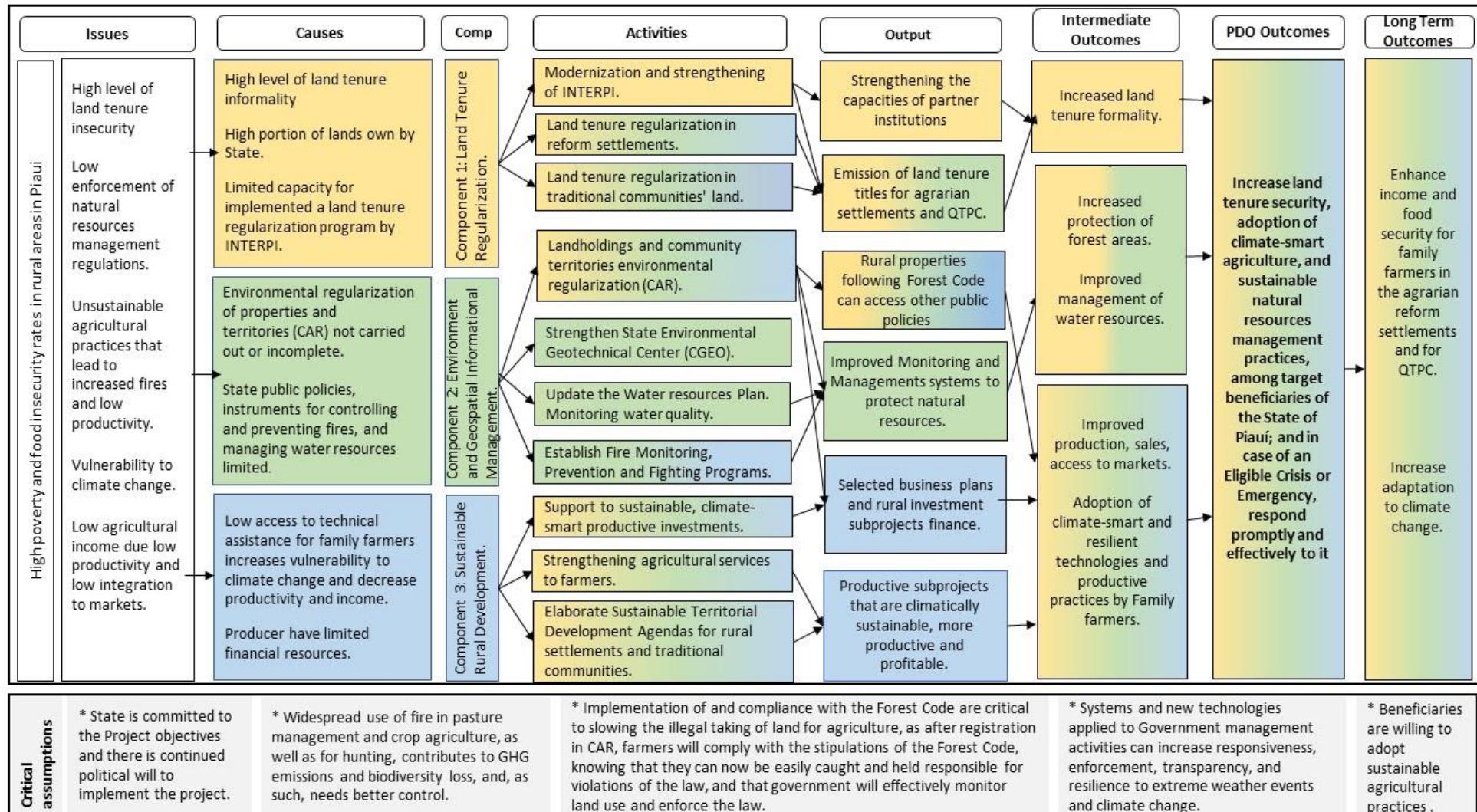
57. Assumptions in the causal chain include: (i) the State of Piauí is committed to the project's objectives and there is



continued political will to implement the project; (ii) widespread use of fire in pasture management and crop agriculture, as well as for hunting, contributes to GHG emissions and biodiversity loss, and, as such, needs better control; (iii) implementation of, and compliance with the Forest Code are critical to slowing the illegal taking of land for agriculture, as after registration in CAR, farmers will comply with the stipulations of the Forest Code, knowing that they can now be easily caught and held responsible for violations of the law, and that government will effectively monitor land use and enforce the law; (iv) systems and new technologies applied to Government management activities can increase responsiveness, enforcement, transparency, and resilience to extreme weather events and climate change; and (v) beneficiaries are willing to adopt sustainable agricultural practices.



Figure 3: Project Theory of Change (ToC)





E. Rationale for Bank Involvement and Role of Partners

58. **The World Bank's long-standing engagement through a series of loans and grants in several States in Brazil, including in Piauí,** with the Piauí Productive and Social Inclusion DPL (P146981) that supported the integration of land regularization and environmental regularization processes within the CGEO, and the Pillars I project, places it in a unique position to share key lessons learned in areas of rural development, poverty reduction, land tenure services provision, sustainable environmental management, climate resilience, climate-smart agriculture. The Pillars I project (P129342) in particular, highlighted the need for beneficiaries of land regularization to receive further coordinated support to foster their compliance with environmental regulations as well as their economic and productive development.

59. **The project will address key constraints and provide critical public goods to foster sustainable agriculture production and incomes in rural areas as well as increased resilience to climate change** The absence of critical public goods such as land and environmental regularization, sustainable natural resources management as well as an insufficient supply of technical assistance to family farmers and financial services are typical market failures that limit private investment in sustainable and climate-smart agriculture, restrict participation in markets by producers and other actors in agricultural value chains, and also limit their access to economic opportunities such as improved inputs and jobs, among others. Public sector intervention is thus needed to ensure land tenure regularization, implement environmental regulations, foster sustainable natural resources management, and support the provision of technical assistance and organizational and business development support to farmers and their organizations to overcome these market failures.

60. **The World Bank will provide technical and strategic knowledge transfer** through the participation of its specialists and ad-hoc external specialists in project implementation and evaluation, promoting knowledge exchanges, capacity building events, and sharing best practices. A multisectoral approach will be used to implement the Project. Expertise from different World Bank Global Practices (Agriculture and Food; Environment, Urban, Resilience and Land) will come together to support the implementation of activities. The project will also rely on an extensive network of public and private institutions and organizations (both national and state entities) that will be contributing with their own skills and experiences under a strong and tightly coordinated framework, collaborating towards ensuring the achievement of the intended project outcomes.

61. **Moreover, the project will benefit from synergies with projects in the region such as the International Fund for Agricultural Development/Inter-American Development Bank (IFAD/IDB) funded Semi-arid Sustainable Development Project implemented by SAF that will provide productive support in the Semi-arid territories of the State.**

F. Lessons Learned and Reflected in the Project Design

62. **The design of the Project reflects experience gained from implementing several World Bank-funded agriculture projects in Brazil,** such as Pillars 1 project (P129342), the Bahia Sustainable Urban Development Project (P147157) and Ceará Rural Development Project Phase II (P167455), as well as relevant World Bank operations and analytics⁶⁰ in other countries. Key lessons reflected in the project design include:

Increasing support to improve land regularization processes is key for agriculture development in Piaui, as concluded in the ICR for the Pillars I Project. There is a need to strengthen human resources and information systems of INTERPI to ensure greater involvement in implementation and thereby gradually reduce the dependence on outsourced work, as well as ensure the definitive internalization of the information management and availability. Furthermore, it is necessary to continue strengthening INTERPI's conflict resolution mechanisms created by the project, in articulation with stakeholders, NGOs and the Judiciary, to anticipate and mitigate land conflicts as a result of the mismatch or lack of information from civil society stakeholders involved with the State's land policy. In particular, it is key to keep a close dialogue with the most

⁶⁰ Amongst them: World Bank. 2016. Linking farmers to markets through Productive Alliances. An assessment of the World Bank Experience in Latin America; and World Bank. 2017. Rachel Sberro-Kessler: How can matching-grants in agriculture facilitate access to finance?



vulnerable groups, notably TPC. The project will strengthen INTERPI's internal capacities as well as invest to improve its information systems. The partnerships developed with National Institute of Land Reform (*Instituto Nacional de Colonização e Reforma Agrária – INCRA*), *Corregedoria Geral de Justiça do Estado do Piauí*, and *Corregedoria do Fórum Extrajudicial* will be focused on providing support to the most vulnerable, in particular TPC, and to alternative land conflict resolution.

63. Projects involving real property rights need to consider several key factors for successful implementation. The project has been designed building up on lessons learned from previous World Bank-financed operations with land property rights actions and components in Honduras, Guatemala, Panama and Brazil. These projects point to the following key implementation success factors: (i) securing political commitment for reforming land administration systems; (ii) targeting priority areas for land tenure regularization, instead of implementing systematic land regularization; and (iii) promoting social communication and beneficiary participation in the processes of land regularization and registration.

64. Public support for land and environmental regularization is critical for productive restoration, and business development of family farmers. For many family farmers, both in rural settlements (*assentamentos rurais*) and elsewhere, non-compliance with environmental laws on the percentage of the land that needs to remain conserved (RL) is a major hindrance for the development of sustainable agriculture, livestock raising and agroforestry. Compliance with the Brazilian forest code is a prerequisite to access credit and several public sector programs. However, farmers will not seek to register their land in the CAR to follow the steps for environmental compliance if they are not sure of being able to implement a mandatory environmental restoration plan. The project will thus assist beneficiaries in, among others (i) obtaining land titles, (ii) investing in their plot to ensure compliance with the forest code.

65. Access to finance through competitive matching grants can be effective for sustained agriculture development. Experience from many WBG-supported programs and projects shows that competitive matching grants, if designed and implemented appropriately, can be effective financial mechanisms if they result in investments that are sustainable over the long term—in other words, the proceeds of investment subprojects are sufficient for investors to continue funding and investing in subprojects on their own. Lessons from previous projects have also shown that small-scale private entities require continuous capacity building. The Project will offer capacity building and technical assistance to recipients of matching grants under Component 3, both before they implement their subprojects (to strengthen their business plans) and during the implementation to ensure successful investments in sustainable agriculture.

66. Development of capacities at the local level and multi-agency coordination is critical for project implementation. Multisectoral projects have shown that effective coordination is needed among different institutions to ensure successful implementation. The previous project has shown that the decentralization of fiduciary capacity between several implementing agencies had slowed down its execution. Projects tend to be more efficient when the coordination of operations, financial management, monitoring and evaluation are centralized under the main implementing institution, but all the government partners with the necessary mandates are included and have clear roles, responsibilities, as well as adequate incentives and mechanisms for intervention. SEPLAN, who has the convening power to coordinate all 3 co-executing agencies, will ensure the coordination of the project's implementation, and financial management while chairing the Steering Committee involving all implementing agencies. The Project will strengthen the capacities of all executing agencies to improve service delivery in rural areas and in monitoring and sharing information generated under the project.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

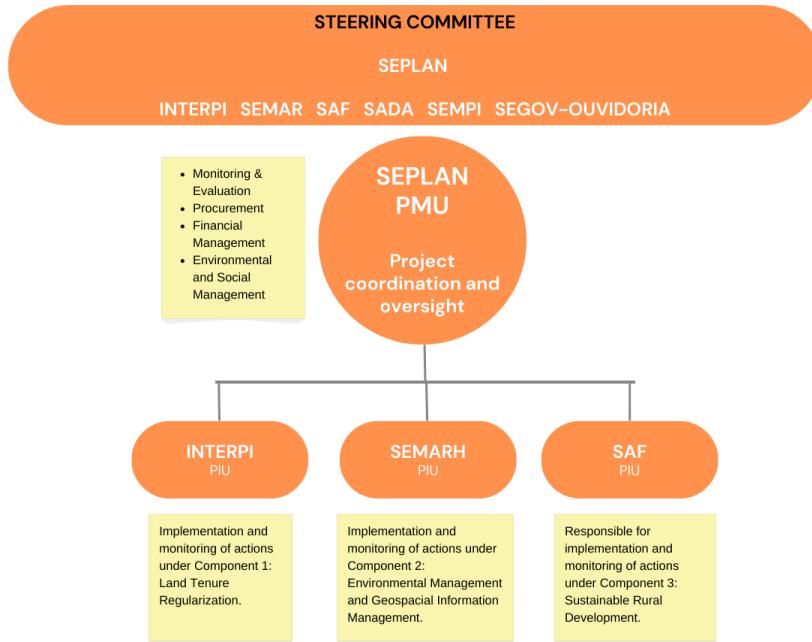
67. The Institutional and implementation arrangements consider a multi-sectoral approach and are based on the Project's scope and risk profile, as well as on the lessons learned from the implementation of previous operations with the State of Piauí, including Pillars 1 project. The arrangements take into account the current physical and human



resources available in SEPLAN, which will perform the role of project coordinator and oversight, as well as INTERPI, SEMARH and SAF that will be implementing part of the operation.⁶¹

68. Borrower and implementing agency. The State of Piauí, through SEPLAN will be the Borrower for the proposed loan, with the Federative Republic of Brazil serving as Guarantor.

Figure 4: Implementation arrangements



69. Project Management. SEPLAN will host a PCU in form and substance satisfactory to the Bank as a condition of effectiveness and will be responsible for overall management, planning, coordination, monitoring and evaluation of all project activities, as well as for project financial management, procurement, disbursements and accounting. SEPLAN will also be responsible for implementing the social and environmental risk management instruments, as well as for disseminating project results through a proactive communication strategy. In addition, SEPLAN will ensure that counterpart resources are foreseen in the State's budget. PCU's fiduciary and environmental and social risk management teams are being trained on the World Bank Procurement Regulations for IPF Borrowers and Environmental and Social Standards, respectively. The PCU will be composed at the minimum of a general coordinator under the responsibility of the Superintendent⁶², one specialist for monitoring and evaluation, a financial specialist, a procurement specialist, and social and environmental specialists.

70. Project implementation. INTERPI, SEMARH and SAF will be responsible for formulating, implementing and monitoring the project's sectoral interventions and results of Component 1, 2 and 3 respectively. Project Implementation Units (PIUs) will be established in each Secretariats and in INTERPI, as a condition of effectiveness, and will include an ESF focal point. The PIUs' technical and operational roles and responsibilities within their units, includes to (i) elaborate the annual operational plan; (ii) issue relevant technical or legal norms to support project's implementation; (iii) prepare technical

⁶¹ Arrangements consider the current charts of SEPLAN, INTERPI, SEMARH and SAF. In case charts change, implementation arrangements will be updated in the Project Operations Manual, in form and substance satisfactory to the World Bank. Arrangements also take into account the need of coordinated efforts and aligned actions with the other World Bank-financed operation – Piauí Health and Social Protection Development project (P178567), to ensure that the proposed institutional arrangements are consistent.

⁶² At the Superintendency of Technical and Financial Cooperation (*Superintendência de Cooperação Técnico-Financeira – SUTEF*).



specifications and terms of reference for the activities to be financed by the project; (iv) monitor project implementation and results; and (v) liaise with other governmental bodies to coordinate and implement intersectoral activities or for monitoring purposes. A subsidiary agreement will be signed between SEPLAN and INTERPI for the implementation of Component 1⁶³ as a condition of effectiveness.

71. Steering committee. To facilitate the dialogue and collaboration amongst the different agencies and ensure oversight over the implementation of the Project, a Project Steering Committee (*Conselho Gestor do Projeto - COGEP*) will be implemented. The COGEP will be created through a legal instrument no later than 90 days after loan effectiveness. It will be chaired by SEPLAN and include representatives of the various institutions involved in the implementation of the project (INTERPI, SEMARH, SAF) as well as representatives of (i) SADA that will support implementation of PIPs in coordination with SAF under Component 3; (ii) the State Secretariat for Women (*Secretaria das Mulheres do Piauí - SEMPI*) in order to support implementation and monitoring of gender-related activities; and (c) the General State Ombudsman (*Ovidoria Geral do Estado - OGE*).

72. The institutional arrangements for the Project will be further detailed in the POM. The POM will be prepared in form and substance satisfactory to the World Bank and adopted as a condition of effectiveness.

73. Procurement Assessment. Procurement under the Project will be carried out in compliance with the “The World Bank Procurement Regulations for IPF Borrowers” dated September 2023. As this Project covers the procurement of a varied set of goods, works, consulting services, and non-consulting service contracts, specific training on the Bank's procurement regulations will be conducted even before the implementation starts. The procurement of all activities will be carried out by SEPLAN through a dedicated Procurement Commission. During implementation, the Bank will identify the contracts subject to prior review procedures. Procurement post-review visits will be carried out by the Bank every 12 months during implementation. The project’s procurement arrangements shall be clearly reflected in the Project’s Operational Manual. A procurement capacity assessment was completed in April 2023 and it confirmed SEPLAN’s capacity to implement procurement transactions and monitor contracts execution, in accordance with the World Bank’s Procurement Regulations. Additionally, the assessment has identified the risks, and framed the mitigation measures to optimize the arrangements for fiduciary management under the proposed Project. The procurement risk is considered **Moderate**.

74. A Financial Management Assessment (FMA) of SEPLAN was performed in accordance with the Bank Policy: Investment Project Financing and Bank Directive, Investment Project Financing, the Financial Management Manual for World Bank-Financed Investment Operations (effective March 1, 2010, and revised September 7, 2021). The scope of the assessment included: (i) an evaluation of existing FM systems to be used for Project planning and budget, monitoring, accounting, and reporting; (ii) a review of staffing arrangements; (iii) a review of the flow of funds arrangements and disbursements methodology; (iv) a review of internal control mechanisms in place, including internal audit; (v) format and content of Interim Financial Reports (IFRs); and (vi) a review of the external audit arrangements. The conclusion is that SEPLAN, as the Project Coordination Unit (*Unidade de Coordenação do Projeto*, PCU), has sufficient capacity to fulfill its FM responsibilities, and with the implementation of the proposed mitigating measures and agreed actions to strengthen the FM system, the FM systems are adequate to provide reasonable assurance that the Project funds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. **The residual FM risk associated with the Project is rated as Substantial.**

B. Results Monitoring and Evaluation Arrangements

75. The PCU, linked to the Superintendence of Technical-Financial Cooperation (*Superintendência de Cooperação Técnico-Financeira – SUTEF*), will have the overall responsibility for managing project data collection and M&E in collaboration with the Superintendence of State Budget (*Superintendência do Orçamento Estadual - SUPOE*), the

⁶³ Including to make part of the proceeds of the loan of the Borrower available to INTERPI.



Superintendence of Economics and Social Studies and Participatory Planning (*Superintendência de Estudos Econômicos e Sociais e Planejamento Participativo* - CEPRO) and the Superintendence of Technical-Financial Cooperation (*Superintendência de Cooperação Técnico-Financeira* - SUTEF). The executive secretariats (INTERPI, SEMARH, and SAF) will have a person responsible for monitoring and evaluation during implementation. Other partners, and private sector service providers may be contracted, as needed. Project monitoring includes: (i) consolidating, coordinating and supervising project implementation; (ii) monitoring, evaluating, and, as necessary, updating performance against the project objectives and targets set out Results and Monitoring Framework (RF); and (iv) supervising overall project resources, as well as the execution of project activities.

76. M&E instruments and tools. The project will employ a set of instruments for M&E technical purposes , namely: (i) Results Framework and other technical and fiduciary reports; (ii) the Annual Operational Plan; (iii) Management, Monitoring and Evaluation System (*Sistema web de Gestão, Monitoramento e Avaliação* – SIGMA); (iv) CGEO; (iv) environmental and social risk management related systems; and (vi) GRM to register, track and answer beneficiaries' complaints and project-affected people, which is reflected in the Results Framework.

C. Sustainability

77. The Project design and activities aim to create an increased stream of income for family farmers and TPC from a sustainable, climate-resilient and market-oriented agricultural production. Socioeconomic sustainability will be achieved through the successful implementation of land regularization and subprojects (PIP/PN) which are expected to generate increased income for family farmers and TPC. The linking of Family farmers and TPC to financial institutions and the leveraging of private finance for the PIP/PN under Component 3 will foster financial sustainability. Environmental sustainability will be achieved through increased capacities both at the State's and at the Family farmers' and TPC's level, for sustainable natural resources management and implementation of climate-smart agricultural practices.

78. Program preparation benefitted from strong commitment and ownership by the State of Piaui, which bodes well for implementation and institutional sustainability. The proposed implementation arrangements involve the participation of high-level authorities from different secretariats. This participation should ensure commitment to the Project and ownership at a high level, which in turn will favor the sustainability of Project outcomes. The sustainability of Project outcomes should also benefit from the project's engagement with public institutions as implementing partners and from efforts to strengthen their capacity to fulfill their respective mandates and deliver their respective services. Moreover, institutional sustainability will also be achieved through the institutional strengthening activities developed under each component. These are expected to strengthen local and State operational capacities, which will endure beyond project closure.

79. The project will promote engagement of all participants, not only at Government level but also between beneficiaries. The project will have a strong focus on engaging project beneficiaries to ensure ownership and therefore sustainability of project results. Project activities will promote participation of all participants in decision making, implementation, and cost sharing.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

80. The proposed project will adopt a coordinated approach aiming to support family farmers in targeted areas with (i) land tenure regularization, (ii) environmental regularization and natural resources sustainable management, while (iii) providing them with support (financial and technical assistance) to invest in sustainable productive agricultural activities. The project will also strengthen inter-institutional coordination and operational capacity of key implementing agencies for improved public services in rural areas.



81. This will result in increased agriculture production, through increased land tenure security, increased access to credit and technical support public services, increased agricultural productivity and increased resilience to climate change through the increase adoption of climate smart agriculture practices. The project is also expected to generate climate and environmental benefits, such as a reduction in greenhouse gas emissions, through enhanced capacities to monitor, control and prevent natural vegetation fires, improved implementation and monitoring of the Forest Code, and improved water resources management and quality.

82. The project is expected to generate substantial net incremental benefits for farmers, rural entrepreneurs and communities, including vulnerable priority groups in the project area. Benefits would accrue from: (i) increased value of property as a proxy for increased investment and access to finance stemming from an increase in titling; (ii) increased value of ecosystem services through increased forest and water conservation and restoration practices⁶⁴ (environmental compliance, better control of forest fires, protection of streams and water sources); (iii) more resilient crop and livestock productivity due to adoption of improved husbandry and climate resilient practices; (iv) better access to diversified markets; and (v) increased employment either for hired or family labor, for both on-farm and off-farm activities.

83. Regarding Component 1, the economic benefits considered are based on an increase in property value of the 15,000 parcels that are expected to receive new titles in 117 settlements. The analysis assumes that the project achieves titling of 95 percent of targeted plots, and of which 75 percent of the landholders obtain a progressive increase in rural income equivalent to US\$ 150/ha/year. This is a proxy measurement for other potential benefits, including: (i) an increase in land-related investments and (ii) an increase in access to collateral-based credit.

84. Expected economic benefits from Component 2 stem from increased forest and water conservation and restoration practices (environmental compliance, better control of forest fires, protection of streams and water sources) leading to an increased value of ecosystem services provided. Monetary values per hectare associated with ecosystem services were taken from recognized relevant studies that assess the incremental economic benefits of ecosystem services. Regarding Component 3, expected economic benefits have been assessed based on the experience of the Pillars 1 project, that provided real-case business plans.⁶⁵

85. A cash-flow analysis to present the “with” and “without” scenario analysis was conducted for each one of these models. The incremental analysis shows Financial Internal Rate of Return (FIRR) varying between 15 and 75 percent and benefit cost ratio oscillating between 1.25 and 2.71, based on the selected enterprise model. The economic analysis was carried out by converting the financial analysis to social prices, using conversion factors, opportunity cost of production, and removing taxes and transfers. These economic benefits were then aggregated based on the phasing of major project area results. Overall, the economic analysis shows that the project is an economically viable investment. The Project economic Net Present Value (NPV) of the net benefit stream, discounted at 10 percent, is US\$1.12 million producing an EIRR of 10.21 percent for the base case scenario.

86. Greenhouse gas analysis: the project's economic analysis indicators were estimated using a higher carbon price (HCP) assumption and a lower carbon price (LCP) assumption to estimate economic benefits from reducing GHG.⁶⁶ Under the HCP scenario, the economic rate of return (EIRR) for the entire Project is 35.2 percent and the net present value (NPV) is approximately US\$114 million. Under the LCP scenario, the EIRR is 12.3 percent and the NPV is approximately US\$12.56 million.

⁶⁴ The following restoration practices are considered: technical assistance to prepare restoration plans; technical assistance for Legal Reserves and Permanente Protected Areas maintenance and/or enrichment; fencing; natural regeneration; assisted regeneration; planting or direct seeding of native or non-native tree species; terraces.

⁶⁵ Value-chains used for this assessment include: (i) apiculture and honey production, (ii) fruticulture (guava, acerola, caja, graviola, maracuja), produced fresh and for pulp; (iii) cassava for flour or fresh (to be fried); (iv) poultry production; (v) goat and/or sheep meat; and (vi) home gardens.

⁶⁶ World Bank. 2023. Guidance note on shadow price of carbon in economic analysis.



87. Sensitivity analysis. The robustness of these indicators was tested and confirmed with a sensitivity analysis that resulted in a switching value for cost increments of 280 percent and 30.7 percent under the HCP and LCP scenarios, respectively, and of 74 percent and 23.5 percent for reductions to economic benefits under the HCP and LCP scenarios, respectively. These indicators suggest that the Project represents an economically worthwhile investment for the state economy as a whole.

88. Paris Alignment: The operation is aligned with the Paris Agreement on both mitigation and adaptation. Assessment and reduction of mitigation risks: The operation supports activities that are neutral and encourage the country's progress toward a low-emission development pathway. Land tenure regularization activities under Component 1 and capacity building, as proposed in the scope and context of the project, are on the Universally Aligned (UA) list under the category Economic Services (sub-category land administration and capacity building) and considered to be always consistent with low-GHG development pathways. Project activities in Component 1 are expected to incentivize the adoption of sustainable land management practices, soil conservation measures and increased investments in climate-smart agriculture, not leading to increased GHG emissions. The land regularization will allow avoiding the deforestation of 30 percent of the total regularized hectares through supporting the application of the Forest Code. Activities under component 2, (i) the implementation of preventive measures or measures to control and combat vegetation fires; (ii) the implementation of a system that enables continuous monitoring surface water for events or trends over time; (iii) the application of the CAR and environmental regularization for the selected areas; and (iv) the provision of spatial data on land use, land tenure, native vegetation and native vegetation fire risk, are intended to lower the mitigation risks and support compliance with the Forest Code, included among the mitigation priorities within the NDCs for the agriculture and forestry sector. The project will support preventive measures to control and combat vegetation fires, and it is expected that the percentage of burned area will decrease by an extra 10 percent at the end of the project. The project also seeks through the implementation of CAR (and PRA) to reverse the situation in degraded areas. Furthermore, activities under component 3 will support the promotion and adoption of CSA practices and technologies that are on the UA list. The project's activities will contribute to improve net carbon balances through: (i) emission reductions from improved agroforestry, CSA livestock management and cropping systems; (ii) improved grassland and agriculture management; and (iii) agroforestry systems. Without project, it is assumed that these hectares would remain in their initial degraded condition. A GHG accounting of the project has been undertaken using the Ex-Ante Carbon-balance Tool (Ex-ACT) (Annex 4). The results indicate that the project constitutes a carbon sink of -1,053,380 tCO₂-eq in 5 years of project implementation and -4,213,519tCO₂-eq in 20 years when ecosystem equilibrium is reached. The project thus doesn't carry a risk of preventing Brazil's transition to low-carbon development pathway and will likely have a positive contribution to it.

89. Assessment and reduction of adaptation risks: The project was screened for climate change and disaster risks. The exposure of the project location to climate and disaster risks (in particular increased temperatures, increased droughts and increased risk of forest fires) is rated high. However, the potential impacts on project investments are rated as low as the project aims at improving resilience to these climate risks and mitigating their impacts. The activities supported by the project will do so through improved monitoring and control of forest fires, improved management of natural resources (including water) and increased adoption of climate-smart agriculture practices. Furthermore, under component 3, provisions have been included to assess the climate vulnerability of the PIPs targeting family farmers and TPC. The residual adaptation risk is thus assessed to be low.

90. As a result of the assessment, the project is considered aligned with the goals of the Paris Agreement on both mitigation and adaptation.

B. Fiduciary

(i) Financial Management

91. A Financial Management Assessment (FMA) of SEPLAN was performed in accordance with the Bank Policy: Investment Project Financing and Bank Directive, Investment Project Financing, the Financial Management Manual for World Bank-Financed Investment Operations (effective March 1, 2010, and revised September 7, 2021). The scope of



the assessment included: (i) an evaluation of existing FM systems to be used for Project planning and budget, monitoring, accounting, and reporting; (ii) a review of staffing arrangements; (iii) a review of the flow of funds arrangements and disbursements methodology; (iv) a review of internal control mechanisms in place, including internal audit; (v) format and content of Interim Financial Reports (IFRs); and (vi) a review of the external audit arrangements.

92. Piaui's existing Public Financial Management System has satisfactory internal rules and controls, with a clear definition of responsibilities and institutional arrangements. SEPLAN is responsible for budget preparation; the State Treasury Department (*Superintendência do Tesouro do Estado do Piauí*, SUTESP) under SEFAZ takes responsibility for treasury management and accounting functions; the State Comptroller Secretariat (*Controladoria Geral do Estado*, CGE) is also under SEFAZ, and carries out internal audits overseeing the budget and is responsible for combating acts of corruption and enhancing transparency within the state public administration. In addition, the State Court of Accounts (*Tribunal de Contas do Estado*, TCE) (i.e., the subnational supreme audit institution) must audit all public expenditures. The TCE has sufficient autonomy, and its recommendations are generally implemented. However, the CGE was recently moved to the status of a department under the structure and supervision of the SEFAZ⁶⁷, significantly reducing its independence but maintaining its previous activities and attributions.

93. The conclusion is that SEPLAN, as the PCU, has sufficient capacity to fulfill its FM responsibilities, and with the implementation of the proposed mitigating measures and agreed actions to strengthen the FM system; the FM systems are adequate to provide reasonable assurance that the Project funds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. **The residual FM risk associated with the Project is rated as Substantial.**

94. The FMA identified the following risks to the achievement of the Project Development Objective: (i) although the State of Piaui, including SEPLAN, has recently implemented prior World Bank operations⁶⁸, the Projects faced issues related to weak internal control arrangements; (ii) the proposed Project has a complex design as it aims to support more than one sector of the State Public Administration and multiple implementing agencies (SEPLAN, INTERPI, SAF, SEMARH), and the State is involved in other two Projects⁶⁹; (iii) it is necessary to adjust budget lines in PPA and LOA in order to authorize expenditures for the execution of the Project and improve the budget execution capacity and reduce the risk of budget constraints; (iv) the State needs to improve its accounting and PFM arrangements; (v) the CGE, responsible for the internal auditing, does not have the necessary independence to fulfill its role and responsibilities accordingly, and it is necessary to improve its structure and arrangements; (vi) considering the complex design and multiple implementing agencies, it can be challenging to manage disbursements and resources for Project implementation; (vii) The financial resources transferred from SAF to private organizations with PIP/PN, carried out through the allocation of resources directly to the beneficiaries may give rise to attempts at fraud or misuse of project resources; (viii) the State FMIS does not have a functionality that matches the executed budget and financial resources with the Project design (components), and it does not allow the automatic generation of all IFRs; and (ix) the TCE has no experience on financial auditing, international organization operations procedures, accounting standards (MCASP, NBC TSP and IPSAS) and other Project's financial management matters.

95. Mitigation measures include: (i) direct access by the World Bank to the SIAFE-PI, State's FMIS; (ii) the POM will present detailed procedures on financial management and the Bank will provide close support; (iii) the CGE will provide guidance and training to the Internal Control Units (*Núcleos de Controle Interno*, NCIs⁷⁰) staff on each implementing agency; (iv) all

⁶⁷ By the Law 7,884, of December 8, 2022.

⁶⁸ Piaui: Pillars of Growth and Social Inclusion Project (P129342), closing date: December 31, 2021.

⁶⁹ Progestão Piaui: Public Sector Management Efficiency (P178663), in which SEPLAN is one of the implementing agencies; and Piauí Health And Social Protection Development Post-COVID-19 Project (P178567), in which SEPLAN is also the PCU.

⁷⁰ According to State Decree 17,526/2017, NCIs are internal control units of each State agency, responsible for examining procurement processes, execution of programs and expenditures, and other internal control functions. Note: This Decree is about to be extinguished with the publication of Law 7884/2022 (current situation on March 23, 2023).



implementation agencies' staff will participate in trainings offered by the World Bank; (v) at least two fully dedicated Financial Management staff on SEPLAN and at least one focal point in each implementing agency (under the coordination of SEPLAN) should be appointed/hired, as to be detailed on the POM; (vi) the State, through SEPLAN in coordination with SEFAZ, will create budget lines on PPA and LOA specifically to monitor the execution of Project components and the PCU will provide a comprehensive forecast of budget expenditures related to Project activities and liaise with the implementing agencies, identifying constraints; (vii) the State will provide support to strengthen and update the administrative and functional structure of the Accounting Office and PFM Systems; (viii) the State (directly from the proposed Project, or through other Projects, e.g. Progestão) will provide support to strengthen and update the administrative and functional structure of the CGE; (ix) payments will be made directly to the services' providers and beneficiaries' Bank accounts upon PCU authorization; (x) SEPLAN will create a report arrangement specifically for the disclosure through auditable BI panels or integration between SIAFE, SIGMA and SIGRP systems; (xi) SIAFE-PI (State's FMIS) will be customized and/or integrated with other systems to incorporate the Project activities and to automatically generate the IFRs; (xii) specific audit Terms of Reference (TOR) will be prepared by the PCU and will be approved by the Bank and the State must sign a technical cooperation agreement with the TCE, reflecting the TOR, so that it is the external auditor of the project.

(ii) Procurement

96. Procurement under the Project will be carried out in compliance with the “The World Bank Procurement Regulations for IPF Borrowers” dated September 2023. As this Project covers the procurement of a varied set of goods, works, consulting services, and non-consulting service contracts, specific training on the Bank's procurement regulations will be conducted early in Project implementation. Subprojects under Component 3 would finance very small contracts of goods, works, and non-consulting services which may be procured based on a community-driven development approach or designed procurement arrangements to be carried out by local communities. Commercial Practices or procurement arrangements for Community Participation should be outlined in the relevant Project Operations Manual (POM). Procurement arrangements shall follow all particularities and context described in the Project Procurement Strategy for Development (PPSD) document, which was approved in April 2023. The procurement of all activities will be carried out by SEPLAN through a dedicated procurement unit – Procurement Central Unit. During supervision, the World Bank will identify the relevant contracts to be subject to prior review procedures. Procurement post-review visits will be carried out by World Bank staff or independent consultants every 12 months during implementation. The Project's procurement arrangements shall be clearly reflected in the POM, taking into account the findings of the PPSD.

97. The procurement risk is considered Moderate. A procurement capacity assessment was completed in October 2022 and it focused on assessing the capacity of SEPLAN to implement procurement transactions and management contracts, in accordance with the World Bank's Procurement Regulations. The procurement assessment confirmed SEPLAN's capacity to implement and monitor the procurement transactions as per the World Bank's Procurement Regulations. Additionally, the assessment has identified the risks, and framed the mitigation measures to optimize the arrangements for fiduciary management under the proposed Project.

C. Legal Operational Policies

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

D. Environmental and Social



98. Environmental Risks and Impacts. This project is located within challenging poor rural areas in the State of Piauí where land conversion for farming has historically led to loss of habitats and land degradation. Project design tackles the root causes of land insecurity and land degradation and does not include any activity with potential to generate significant negative environmental impacts. Therefore, it has been categorized as Moderate. Land tenure regularization is widely recognized as a foundation for reducing illegal deforestation and degradation of rural landscapes and for maintaining vital ecosystems services by allowing the demarcation of legal reserves and permanent protection areas and enabling the identification of persons accountable for illegal deforestation. Although, legal deforestation and residual land conversion could eventually still take place as some farms within project's selected areas could still have their rights to convert natural habitats into agriculture land granted under the National Forest Code requirements (80 percent of the property can be legally converted to agriculture land outside the Amazon Biome), these risks will be mitigated by selecting only consolidated areas of agriculture (previously occupied) under Component 1 (as an ESMF selection criteria) and the overall balance of negative and positive impacts from land titling and environmental regularization measures under this project is expected to be positive historical deforestation process is expected to decrease and the state's land regularization and environmental management framework includes procedures in the preparation of the CAR to improve conservation and the preservation of ecological corridors, fragile ecosystems and areas with relevant biodiversity. Inherent and residual environmental risks from local family farmers agriculture production (such as interference with sensitive biodiversity areas, land use conversion for production increase, use of inadequate soil management and uncontrolled use of pesticides) will be avoided and mitigated through the adoption of sustainable and climate-smart agricultural practices, the technical assistance on agricultural production and the adoption of proper environmental management practices. Additionally, the implementing agency for Component 3 (SAF) has prior experience with the Bank environmental guidelines and the ESMF defines specific guidelines for these agricultural activities in accordance with WB Environmental Health and Safety Guidelines (EHSG). Finally, the Natural resources management – prevention of native vegetation fires (which are among the main environmental problems faced by Piauí, contributing to carbon emissions, acceleration of climate change, atmospheric pollution, desertification, and loss of biodiversity) and water resources management – will also contribute to mitigate the inherent adverse impacts from existing poor agricultural practices and result in positive impacts to the environment. The Project will encourage and promote techniques that allow the control, monitoring and reduction of vegetation fires. Improvements in water resource management may improve water quality throughout the State. In sum, the Project does not include any activity with potential to generate significant adverse environmental impacts. It is expected to have an overall positive impact on the environment as its activities can contribute to reduce illegal deforestation and degradation of rural landscapes, maintain vital ecosystems services, reduce greenhouse emissions, leading to a sustainable landscape management.

99. The social risk is rated as Substantial. The main social risks are those related with the inherent complexity of land regularization programs and the working in local contexts that are often ridden by land grabbing, land conflicts and social tension as a result of the expansion of the agrarian frontier (i.e., the *Cerrado Piauiense*). This risk has been reduced as: (i) the Project has been designed to allow for open, continuous and fluid communications with both affected and interested parties to avoid misunderstandings and minimize complaints; (ii) the proposed land regularization activities are neither expected to lead to permanent or temporary physical and economic displacement due to land acquisition or restrictions on land use, nor to compromise existing customary, collective or subsidiary land rights of traditional communities and family farmers, or to lead to the eviction of non-title holders; (iii) as an outcome of the support provided by the Pillars 1 Project to INTERPI, the State of Piauí has developed a robust legal and institutional framework to deal with land regularization issues in a manner that respects consuetudinary land rights of traditional communities (including those who claim and are recognized by the State Government as belonging to Indigenous Peoples on the basis of their self-identification); (iv) INTERPI has increased its capacity to carry out consultations with key stakeholders; and (v) the Project will continue to provide support for the institutional strengthening of INTERPI and its partners in the Judiciary. Additionally, potential social risks of a more eventual nature and smaller magnitude are those related with: (i) a potential need to resettle occupants of the quilombola territories to be regularized who do not self-identify as Quilombolas; (ii) the



exclusion of disadvantaged and vulnerable social groups on the selection of beneficiaries of the productive inclusion investments under Component 3; and (iii) the provision of community labor for some PIPs. Risks related with involuntary resettlement are considered minor because INTERPI will only regularize plots of land already peacefully occupied by non-titled family farmers, agrarian reform settlers and TPC and proper mitigation measures have been devised in the Project's Resettlement Policy Framework (RPF). The exclusion risk tends to be minor because priority will be given to organizations from agrarian reform settlements and TPC regularized by INTERPI as well as to organizations led by or with overall participation of TPC, women and youth and support will be provided for the development of 70 Agendas for ASD in INTERPI's agrarian reform settlements and PTCs. There are a few local communities in the state of Piauí that in recent years started a process of self-identification as members of a distinct indigenous social and cultural group and are recognized by the State Government as such (based only on the criterium of self-identification). Nevertheless, ESS7 was not considered relevant because there is no evidence that these groups cumulatively possess the characteristics set forth in ESS7⁷¹. Finally, the labor related risk is a moderate and the Project's Labor Management Procedures (LMP) has incorporated the proper measures to ensure the adoption of proper occupational health and safety measures as well as labor force protection measures.

100. Environmental and Social Instruments. The Project will finance a series of subprojects that will be selected during the implementation stage. The locations of these subprojects will not be defined before the beginning of the implementation and their risks and impacts cannot be fully determined until subprojects' details have been identified. Therefore, an ESMF, a SEP, a RPF and LMP were prepared. The scope and approach of the Project as well as the measures for management of E&S risks have been designed in a broadly participatory way, including meaningful consultation with key stakeholders and the four instruments have been publicly disclosed for information and consultation. Finally, an Environmental and Social Commitment Plan has been agreed with the Borrower and has been disclosed in SEPLAN's website⁷² and on the Bank's website on January 30, 2024. The SEP was disclosed on July 24, 2023.

V. GRIEVANCE REDRESS SERVICES

101. Grievance Redress. Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit <https://accountability.worldbank.org>.

VI. KEY RISKS

⁷¹ (i) collective attachment to geographically distinct habitats, ancestral territories, or areas of seasonal use or occupational or to the natural resources in these areas; and (ii) customary cultural, economic, social, or political institutions that are distinct or separate from those of the mainstream society or culture; and (iii) a distinct language or dialect different from the official language. There is also no evidence (so far) that (iv) the members of these groups have lost collective attachment to distinct habitats or ancestral territories during their lifetime or (v) have established distinct communities in or near urban areas but still possess the characteristics mentioned in (i), (ii) and (iii) above.

⁷² Available at: <http://www.seplan.pi.gov.br/documentos.php>



102. **The Project's overall risk to achieve the PDO has been assessed as Moderate.** The risks rated Substantial include the following:

103. **Fiduciary risk is rated as Susbtantial.** A FMA of SEPLAN was performed in accordance with the Bank Policy. The FMA identified the main risks to the achievement of the PDO, related to the PCU capacity, project complexity, internal control weaknesses, risk of budget constraints, necessary improvements on accounting, internal and external auditing and other PFM arrangements, and controls related to the flow of funds. Mitigation measures include: outlining detailed procedures in the POM; training of all FM staff involved in the project; budget lines created specifically to monitor the execution of Project components; payments upon PCU authorization; reporting arrangements specifically for disclosure through panels or integration between SIAFE, SIGMA and SIGRP systems.

104. **Social Risk.** Social risks are assessed as Substantial due to the inherent complexity of land regularization programs and working in local contexts that are often affected by land grabbing, land conflicts and social tension as a result of the expansion of the agrarian frontier (i.e., the Cerrado Piauiense). Mitigation measures to address these two risks include: (i) the Bank's Social specialists will maintain a continuous dialogue and support the PMU with training and technical assistance throughout project implementation; (ii) the Project's Environmental and Social Risk Management instruments will be incorporating stakeholder feedback collected through a consultation process and disclosed within 30 days of project effectiveness; and (iii) maintaining a highly participatory approach and establishing open, continuous and fluid communications with key stakeholders. The project will also strengthen INTERPI's institutional capacity and maintain a strategic partnership with the judiciary.



VII. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Period 1	Period 2	Period 3	Period 4	Closing Period
Increased land tenure security.					
Number of people who received land titles issued by INTERPI (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
23,200	24,700	27,700	33,700	41,200	45,700
➤ Women as beneficiaries or co-beneficiaries who received land titles issued by INTERPI (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
18,600	19,500	22,000	27,000	33,000	36,500
Increased sustainable natural resources management.					
Landholdings and Community Territories implementing sustainable natural resources management practices. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	1,500	4,000	8,000	13,000	16,000
Increased adoption of climate-smart agriculture.					
Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	0.00	1,600	3,400	4,400
➤ Women Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology - Female (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	0.00	800	1,700	2,200
➤ Men Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology - Male (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	0.00	800	1,700	2,200
➤ Family Farmers (members of supported organizations in TPC) adopting improved climate-smart agriculture practices and technology - QTPC. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	0.00	90	225	324

Intermediate Indicators by Components



Baseline	Period 1	Period 2	Period 3	Period 4	Closing Period
Land tenure regularization					
1.1.1 Teams in place to execute land tenure regularization activities through donation. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
13	14	15	17	17	17
1.1.2. INTERPI computer systems (REGINA, INTERPI MOBILE and e-titles) integrated. (Text)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
Implemented REGINA system, with the ability to register information pertaining to donation certificates immediately after issuance.	Regina System integrated with the SEI system (Electronic Process System), covering a continuous flow of processes	Access to information on donation processes, made possible through the Piauí platform (Gov.Pi Cidadão)	Management information panel (dashboards) for donation titles and maps implemented, with clear and easy visualization of data	User service through chat implemented, with support provided by Artificial Intelligence, available 24 hours a day	Maintenance of the Regina system and other post-implantation improvements and survey of systemic problems;" - information related to donation titles managed exclusively by Regina, ensuring complete and efficient management
1.1.3. Percentage of notary offices that receive regularization titles through REGINA (Extrajudicial Forum Indicator) (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	10	20	30	50	100
1.2.1 Number of land titles emitted for rural settlements by INTERPI (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
9,158	10,158	12,158	16,158	21,158	24,158
1.2.2 Number of land titles emitted for TPC by INTERPI (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
15	19	23	27	31	35
Environmental management and geospatial information management					
2.1.1 Integrated Fire Management Plans for selected priority areas drawn up and under implementation. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	2	10	12	12
2.1.2 Percentage of reduction of burned areas in selected areas. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	4	12	14	20	24
2.2.1 Number of water analyzes carried out at collection points implemented by the project in the Pillars II intervention area (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029



0	24	48	72	96	120
2.3.1. Rural properties beneficiaries of the project with analyzed CAR. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	0	70
2.3.2 Number of springs recovered. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	40	120	140
Climate-smart rural development					
3.1.1 Number of PIPs subprojects implemented. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	140	207
➤ Number of PIPs implemented where women are the majority of beneficiaries. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	56	80
➤ Number of PIPs implemented where men are the majority of beneficiaries. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	84	127
➤ Number of PIPs implemented in TPC. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	15	20
3.1.2. Percentage of formalized rural organizations that began to trade in a network as a result of the project's actions. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	10	15	20
3.1.3. Increased in the gross sales value of households in window 1 and 2. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	0	20
3.1.4. Percentage increase in net income of rural organizations participating in component 3 - window 3. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	0	0	20
3.2.1. Number of women who filled out agroecological booklets for at least 12 months. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	80	160	160
Farmers reached with agricultural assets or services (Number) <small>CRI</small>					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029



0	0	2500	5400	6900	6900
➤ Farmers reached with agricultural assets or services - Female (Number) CRI					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	1100.00	2500.00	3400.00	3400.00
➤ Farmers reached with agricultural assets or services - Male (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	1,400.00	2,900.00	3,500.00	3,500.00
➤ TPC farmers reached with agricultural assets or services (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0.00	0.00	100.00	250.00	360.00	360.00
3.2.3. Sustainable Development Agendas prepared for rural settlements and traditional communities entitled by Pillars II. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	30	70	70	70
3.2.4. Increase in the percentage of women working on the boards of directors, vice director or company treasurer of rural organizations served by the project. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	0	10	10	15
Project management					
4.1 Percentage of responses to complaints related to project implementation (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	100	100	100	100	100
4.2 Degree of satisfaction of beneficiaries, in percentage, with the training and services offered by the project. (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	80	80	80	80
➤ Degree of satisfaction of female beneficiaries, in percentage, with the training offered by the project (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	80	80	80	80
➤ Degree of satisfaction of beneficiaries belonging to traditional communities, in percentage, with the training offered by the project (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	80	80	80	80
➤ Degree of satisfaction of male beneficiaries, in percentage, with the training offered by the project (Percentage)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
0	0	80	80	80	80
4.3 Unified project implementation monitoring system in operation. (Number)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029



0	0	1	1	1	1
4.4 Intelligent platform for territorial, productive and environmental management containing information for decision-making by government sectors. (Text) (Text)					
Jan/2024	Mar/2025	Mar/2026	Mar/2027	Mar/2028	Mar/2029
Non-integrated systems.	Survey of information necessary for integration.	SIGA will be improved by SEMARH and o REGINA will be improved by INTERPI: SIGA and REGINA with API framework ready for interoperability of data with the Platform to be developed.	Platform Beta	Platform version 1.0	Geospatial Information Management Platform in operation.

CERC



Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Increased land tenure security.	
Number of people who received land titles issued by INTERPI (Number)	
Description	This indicator measures the number of people with their names on the titles issued by INTERPI in the Pillars I and II Project. A title can benefit one or several people (couples, communities, etc.). BID-IFAD beneficiaries (and any other operations) will be accounted for separately. Baseline Data: ICR - Pillars I (P129342) - PDO 4: 15,054 people titled in Pillars I + 4,479 people from settlements + 3,760 people QTPCs Pillars between January and July 2022 = 23,200. At the beginning of the project, assess the need to update the Baseline. Final goal: the goal regarding the number of people to be served by Pillars II was established considering the proportion of 1.5 people per title, therefore 22,500 people (1.5*15,000 titles)
Frequency	Biannual
Data source	Project Monitoring System.
Methodology for Data Collection	Number of people with their name on the titles issued by INTERPI considering the titles in communities, settlements and traditional communities.
Responsibility for Data Collection	INTERPI/SEPLAN
Women as beneficiaries or co-beneficiaries who received land titles issued by INTERPI (Number)	
Description	This indicator refers to the percentage of titles that have women as beneficiaries or co-beneficiaries. Baseline Data: ICR - In Pillars I (P129342) women were beneficiaries as owners or co-owners in 80.4% of the bonds issued. Final goal: to guarantee the same proportion. At least 80% of the titles will have women as beneficiaries. The targets continued to be in relation to the final target for the number of bonds to be issued (23200 = 9158 bonds before Pillars II and 15,000 bonds after Pillars II).
Frequency	Biannual
Data source	Project Monitoring System.
Methodology for Data Collection	Number of women with their name on the titles issued by INTERPI considering the titles in communities, settlements and traditional communities.
Responsibility for Data Collection	INTERPI/SEPLAN
Increased adoption of climate-smart agriculture.	
Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology. (Number)	
Description	This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by operations supported by the World Bank.
Frequency	Biannual
Data source	Project monitoring system, mid-term evaluation, and final evaluation
Methodology for Data Collection	Project beneficiary farmers who promote the use of climate-smart agricultural techniques from component 3.1 must be counted. Final goal: The goal was defined considering that the project must serve 200 PIP (windows 1 and 2) composed, on average, of 23 families and 7PIPs (window 3) composed of 50 families and that approximately 90% of families or PIPs will adopt the climate-smart agricultural techniques. Annual targets were established according to the pace of implementation of the PIPs. Year 1 and 2: 0 (preparation stage); Year 3: 1600 (in the RMT it will be possible to verify the implementation of the first PIPs), Year 4: 3400, Year 5: 4400. Climate-smart practices are: Climate tolerant crops, crop rotation, integrated pest and disease management, composting and nutrient cycling, efficient fertilization, use of biofertilizers and biopesticides, pest monitoring and control, land and water conservation, renewable energy, management of waste, agroforestry systems, improved animal husbandry, use of climate-adapted seeds, vegetation cover, use of soil cover and soil conservation techniques (eg no-tillage), water reuse, improving and promoting irrigation, precision farming techniques. The project must monitor and present in the progress report the number of farmers encouraged to use the technique and in the Mid-Term and Final Evaluations they must prove, through a survey, the number of beneficiaries who effectively adopted the practices. In the Result Matrix, the number of beneficiaries who effectively adopted the practice must be recorded.
Responsibility for Data Collection	SAF - SEPLAN



Women Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology - Female (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Men Family Farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology - Male (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Family Farmers (members of supported organizations in TPC) adopting improved climate-smart agriculture practices and technology - QTPC. (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Increased sustainable natural resources management.	
Landholdings and Community Territories implementing sustainable natural resources management practices. (Number)	
Description	This indicator will measure the number of landholdings and Community Territories for which new and/or improved sustainable natural resources practices have been introduced as a result of the project.
Frequency	Biannual
Data source	SICAR, Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	<p>This indicator will measure the number of landholdings and Community Territories for which new and/or improved sustainable natural resources practices have been introduced as a result of the project. Sustainable natural resources practices refer to technologies and approaches that ensure the sustainable use of natural resources, either by regenerating or protecting them. For example: rural environmental cadaster, natural vegetation restoration plans, fire prevention, control and management, and water monitoring and management.</p> <p>Properties: refers to titles issued in the name of women/men;</p> <p>Community Territories: refers to community titles for quilombolas and traditional communities issued by INTERPI.</p> <p>Rural Environmental Registry (CAR) - nationwide electronic public registry, mandatory for rural properties, with the purpose of integrating environmental information on rural properties and possessions, composing a database for control, monitoring, environmental and economic planning and combating deforestation (Forest Code)</p> <p>Description: refers to completing the registration steps; analysis and preparing PRADA, when necessary.</p> <p>Baseline Data: 0.</p> <p>Final goal: 15020 new CARs carried out through Pillars II. (15,000 titles in rural settlements and 20 titles in traditional communities) and 1450 titles that were issued after the closure of Pillars I (counted until June 2022). When starting the implementation, update with INTERPI the number of titles issued after June/2022. Annual targets: established in relation to the forecast of titles issued by INTERPI annually in Plares II (Year 1: 1000 titles for rural settlements and 4 in traditional communities; Year 2: 3000 titles for rural settlements and 4 in traditional communities, Year 3: 4000 titles for rural settlements and 4 in traditional communities, Year 4: 5000 titles for rural settlements and 4 in traditional communities</p>



	and Year 5: 3000 titles for rural settlements and 4 in traditional communities
Responsibility for Data Collection	SEMARH - SEPLAN.

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Land tenure regularization	
1.1.1 Teams in place to execute land tenure regularization activities through donation. (Number)	
Description	This indicator measures the number of the field team, according to the definition adopted in Pillars I, a field team comprises 4 people spending 35% of the time in the field. Do not account for team replacement. Baseline data refers to Pillars I (P129342).
Frequency	Biannual
Data source	INTERPI service and daily orders. Progress Report.
Methodology for Data Collection	The indicator refers to the average of teams in the field working annually.
Responsibility for Data Collection	INTERPI/SEPLAN
1.1.2. INTERPI computer systems (REGINA, INTERPI MOBILE and e-titles) integrated. (Text)	
Description	This indicator measures the ability of the project to integrate Register of Agrarian Information (<i>Sistema de Registro de Informações Agrárias – REGINA</i>), INTERPI MOBILE, and e-titles systems to improve work efficiency.
Frequency	Biannual
Data source	Progress Report
Methodology for Data Collection	Annual evaluation, by verifying the full use and integration of systems.
Responsibility for Data Collection	INTERPI/SEPLAN
1.1.3. Percentage of notary offices that receive regularization titles through REGINA (Extrajudicial Forum Indicator) (Percentage)	
Description	This indicator accounts for the percentage of notary offices that will receive land regularization titles issued by INTERPI from the REGINA system in an integrated manner with the automation system of property registration services.
Frequency	Biannual
Data source	Monitoring the integration with the REGINA system through the system itself
Methodology for Data Collection	Accounts for the percentage of notary offices that will receive land regularization titles issued by INTERPI from the REGINA system in an integrated manner with the automation system of property registration services.
Responsibility for Data Collection	INTERPI/SEPLAN
1.2.1 Number of land titles emitted for rural settlements by INTERPI (Number)	
Description	This indicator assesses the number of land titles emitted by Pillars I and II for rural settlements families. Securities issued under other programs and projects (e.g. IDB-IFAD) will be accounted for separately. Baseline: 9,158 (6,325 in Pillars I and 2833 after Pillars I until July 2022). Goal: issue over 15,000 titles in settlements in Pilares II. Annual Goals: Year 1: 1000 titles; Year 2: 2000 titles; Year 3: 4000 titles; Year 4: 5000 titles; Year 5: 3000 titles.
Frequency	Biannual
Data source	Project Monitoring System
Methodology for Data Collection	Integrated REGINA systems and e-titles. The number of bonds issued after the end of Pillars I and the start of Pillars II may increase, so the baseline may be revised at the start of the project.
Responsibility for Data Collection	INTERPI/SEPLAN
1.2.2 Number of land titles emitted for TPC by INTERPI (Number)	



Description	Traditional Peoples and Communities include Quilombo Remnant Communities, Traditional Communities and other Peoples from Traditional Communities (eg Coconut Breaker) (TPC). This indicator counts only titles issued under Pillars I and II. Bonds issued under other programs and projects (eg IDB-IFAD) will be accounted for separately. Baseline data: 15 bonds issued under Pillars I. Goal: 20 communities in Pilares II titled, 4 per year.
Frequency	Biannual
Data source	Project Monitoring System
Methodology for Data Collection	Integrated REGINA systems and e-titles. The number of bonds issued after the end of Pillars I and the start of Pillars II may increase, so the baseline may be revised at the start of the project.
Responsibility for Data Collection	INTERPI/SEPLAN
Environmental management and geospatial information management	
2.1.1 Integrated Fire Management Plans for selected priority areas drawn up and under implementation. (Number)	
Description	Integrated Fire Management plans: these are planning instruments that describe and prioritize the actions to be performed in the area, including the definition of partner agreements to be established; brigades to be put; environmental education activities, training; equipment. Priority areas are those with the highest incidence of heat foci in the period 2010-2020. The implementation of the Plans will be monitored for the implementation of the proposed activities; and the rate of occurrence of heat focus in the prioritized areas. This indicator should be evaluated considering the advances in the following sub-indicators: 1. Training on forest fire prevention (controlled burning, preparation, and maintenance of fire, etc.) (Skilled communities) baseline 0 - final target 24.2. Monitoring of heat foci through daily bulletins in the critical period (July to December) baseline 0 final targets 180. 3. Preparation and issuance of alerts of occurrences with high incidence and concentration of heat foci. Baseline 0 - final target 20.4. Preparation of contingency plans for settlements. Baseline 0 final targets 24. 5. Environmental surveillance campaigns in locations identified as critical, from the occurrence of forest fires and complaints of illegal hunting and deforestation in partnership with the Environmental Policing Battalion Baseline 4 final target 20.6. Controlled Burning Authorization Issuance Program (Number of controlled burning authorizations to be issued). Baseline 75. Final target 500.7 Study, preparation of action plan, and implementation of integrated fire management techniques in the target areas of the project. Baseline 0 final targets 2.8. Qualification of personnel in MIF practices and other techniques focused on the theme of prevention, control, and fight against forest fires; baseline 0 final targets 10.9. Training and training of volunteers for forest fire fighting actions. Baseline 30 final target 150.10. Create and equip firefighting brigades to support SEMARH's actions and groups formed by volunteers in settlements or rural communities at critical events. Baseline 0 final targets 10.
Frequency	Annual
Data source	Progress report
Methodology for Data Collection	Semiannual technical report including description of the progress of the preparation and implementation of the MIF plans – planned x performed activities; index of hot spots in the areas covered by the plans. Management Policy includes: Prevention, Control, Combat and prescriptive fire. The Indicator accounts for elaborate Integrated Fire Management Plans. The Mid-Term Evaluation and Final Evaluation should measure the implementation of the MIF.
Responsibility for Data Collection	SEMARH - SEPLAN
2.1.2 Percentage of reduction of burned areas in selected areas. (Percentage)	
Description	The measurement of the burned area was carried out using data from MapBiomas and the platforms Google Earth Engine and Google Cloud Storage. The classification model used was the Deep Neural Network. The burned area mapping algorithm consisted of two phases: training and prediction. The spectral bands used in the burned area classification model were: red (RED - 0.65 μm), near infrared (NIR - 0.86 μm) and shortwave infrared (SWIR 1 - 1.6 μm and SWIR 2 - 2.2 μm). In addition to these selected spectral bands, Landsat bands 2 to 7 and the NDVI (Normalized Difference Vegetation Index), NBR (Normalized Burning Index) and Delta NBR indices were tested. These Landsat spectral bands were chosen based on their sensitivity to fire events. The validation of the mapping of burned areas was carried out by biome, considering the years 2007, 2011 and 2019. Each of the biomes was divided into areas of 2 km by 2 km, spatially integrated with data on burned areas from FIRMS (Fire Information for Resource Management System -



	<p>https://firms.modaps.eosdis.nasa.gov/), for the same years, where the sample units were grouped into 4 categories: without occurrence of fire, with up to 32% of occurrence of fire, with occurrence of fire between 32% and 70% and with occurrence of fire above 70%. For samples, a Landsat image of minimum annual NBR was extracted. Then, the automatic segmentation of all images of the selected sample units was carried out. The segments were interpreted in order to explain which ones had occurrence of fires. After interpreting all segments, their centroids (validation points) were obtained. The validation points (fire and non-fire) were spatially integrated with the MapBiomas Fogo mappings, making it possible to evaluate the qualities of the mappings and obtain the accuracy of the classification Baseline Data: Average of the historical series between 2011 and 2020 through the MapBiomas revealed a trend towards a 12% reduction in the burned area in the State of Piauí. Final target: The reduction targets are established in relation to the previous year.</p>
Frequency	Annual
Data source	Burned area monitoring system, mid-term evaluation, final evaluation
Methodology for Data Collection	Update of the calculation procedure presented in the indicator description. Consider El Niño and La Niña climatic events in the analyses. Method of calculation: Present the area of the municipalities where the project operates, the area burned and record the percentage of area burned year by year. The burned area index will be released in March of the following year. The RMT and Final evaluation should compare the burning with a group of control municipalities.
Responsibility for Data Collection	SEMARH - SEPLAN
2.2.1 Number of water analyzes carried out at collection points implemented by the project in the Pillars II intervention area (Number)	
Description	This indicator monitors the number of annual water quality analyzes carried out in 6 micro-regions in the area covered by Pillars II. Those for which the project obtains two half-yearly analyzes will be counted as operating points. Baseline: there are no water collection points in the micro-regions served by Pilares II, so there is no analysis. The Baseline is zero. Annual and final targets, established estimating that the project will operationalize 6 water collection points per project year, totaling 30 operating points and each point will provide 4 analyzes per year (2 semiannual analyzes.)
Frequency	Biannual
Data source	Project Monitoring System
Methodology for Data Collection	Count the number of water analyzes carried out at the water collection points installed by Pillars II
Responsibility for Data Collection	SEMARH - SEPLAN
2.3.1. Rural properties beneficiaries of the project with analyzed CAR. (Percentage)	
Description	The indicator cumulatively classifies the number of community properties and Territories that have completed the CAR as a result of the Project. Properties: refers to securities issued in women/men's name; Community territories: refers to Community bonds for maroons issued by INTERPI. Rural environmental registry (CAR) - an electronic public record of national scope, mandatory for rural properties, with the purpose of integrating environmental information of rural properties and possessions, composing a database for control, monitoring, environmental and economic planning and combating deforestation (Forest Code) Description: Completing the CAR: refers to completing the registration steps; analysis; validation and preparing prada, when necessary CARs registered in SICAR through Pillars I: 7161 registrations, 7150 in individual properties and 11 in territories – to be analyzed and validated; Disaggregated by: Pillars I and Pillars II; individualized rural properties and community territories. Caution: This indicator depends on the INTERPI indicator (Number of beneficiaries who received property titles forwarded to the registry office). End Target: The sample of CARs that will be validated comprises the 7,161 CARs registered in Pillars I and the CARs to be registered in Pillars II (2833 between Pillars I and II and 15020 in Pillars II) = 25015
Frequency	Annual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	Reports generated by SICAR/CGEO with the status of entries validated in SICAR as a result of the project. The number of bonds issued after the end of Pillars I and the start of Pillars II may increase, so the target should be revised in the RMT. The monitoring depends on the external factor linked to the federal registration system



	and once it is implemented, the data will be made available in real time. Annual goals can be established when dependence on the deferal registration system is overcome.
Responsibility for Data Collection	SEMARH - SEPLAN
2.3.2 Number of springs recovered. (Number)	
Description	Number of springs isolated from degradation factors, in which all the requirements defined in the Environmental Recovery Plan for Degraded Areas (PRAD) were carried out
Frequency	Biannual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	The springs will be considered recovered when the activities foreseen for recovery in PRADA are carried out. The indicator counts the number of springs that received all interventions required in the PRAD.
Responsibility for Data Collection	SEMARH / SEPLAN
Climate-smart rural development	
3.1.1 Number of PIPs subprojects implemented. (Number)	
Description	This indicator presents the number of Productive Investment Plans (PIP) effectively implemented by the end of the project. Disaggregate by PIPs in which women are the main representatives and PIPs conducted in QTPCs communities. Number of Productive Investment Plans (PIP) implemented by the project. Final target: 207. Annual targets: defined according to the budget execution schedule..
Frequency	Biannual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	Account for all PIP's implemented in component 3.1. The PIPs will be accounted for in the Results Matrix when the accountability is finalized. In the Progress Report the project must present the degree of implementation of all PIPs.
Responsibility for Data Collection	SAF/SEPLAN
Number of PIPs implemented where women are the majority of beneficiaries. (Number)	
Description	Number of Productive Investment Plans (PIP) implemented by the project in which women are the majority of beneficiaries. (more than 50% of rural organization members). Final goal Pillars II - 40% of the total PIP = 80 PIP's.
Frequency	Indicator breakdown.
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Number of PIPs implemented where men are the majority of beneficiaries. (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Number of PIPs implemented in TPC. (Number)	
Description	This indicator presents the number of Productive Investment Plans (PIP) effectively implemented by the end by the project in QTPC. The traditional communities belong to the Development Territories of the Litoral Plain, Cocais, Carnaubais, Entre Rios, Alto Parnaíba and Chapada das Mangabeiras. Among the traditional communities to be served by the SAF in Pilares II, 8 were titled by Pilares I (905 families) and 16 should be titled by Pilares II (592 families)



Frequency	Indicator breakdown.
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
3.1.2. Percentage of formalized rural organizations that began to trade in a network as a result of the project's actions. (Percentage)	
Description	Collaboration networks with the aim of increasing economic dynamics between associations and cooperatives and improving market access. For example, collective sales organization. Rural organizations must be beneficiaries of component 3. To define the goal, it was estimated that it will be possible to add 4 rural organizations to each of the 7 subprojects supported by component 3.1 - window 3.
Frequency	Biannual
Data source	Baseline, mid-term evaluation, final evaluation, and project monitoring system
Methodology for Data Collection	Accounting for rural organizations that started selling or collaborating with other rural organizations and/or formal markets based on the project's actions. The initial diagnosis of organizations will provide Baseline data, existing partnerships between rural organizations that promote better access to the market, including: partnerships to organize production volume, purchase of raw materials, partnerships to generate income.
Responsibility for Data Collection	SAF/SEPLAN
3.1.3. Increased in the gross sales value of households in window 1 and 2. (Percentage)	
Description	Increase in the gross value of sales by families of beneficiary families in window 1 and 2.
Frequency	Annual
Data source	Baseline, mid-term evaluation, final evaluation, and project monitoring system
Methodology for Data Collection	An increase in the gross sales value will be measured in the families participating in the PIPs. It will be necessary to carry out a Baseline Study with the beneficiary families in order to know the gross value of sales before the PIPs. The survey must be repeated in the Mid-Term and Final Evaluation. The increase in sales volume should be measured after one production cycle after the PIP implementation is closed. The value must be adjusted for inflation (with the Extended National Consumer Price Index - IPCA)
Responsibility for Data Collection	SAF/SEPLAN
3.1.4. Percentage increase in net income of rural organizations participating in component 3 - window 3. (Percentage)	
Description	Net income must be adjusted for inflation (with the Extended National Consumer Price Index - IPCA) of Rural Organizations must be disaggregated by gender (disaggregated by gender, i.e. POs led by men and women)
Frequency	Annual
Data source	Baseline, mid-term evaluation, final evaluation, and project monitoring system
Methodology for Data Collection	Increase in net income will be measured in rural organizations of PIPs. It will be necessary to carry out a Baseline Study with the beneficiary families to know the net income value before the PIPs. The survey must be repeated in the Mid-Term and Final Evaluation. The amount must be adjusted for annual inflation (with the Extended National Consumer Price Index - IPCA)
Responsibility for Data Collection	SAF/SEPLAN
3.2.1. Number of women who filled out agroecological booklets for at least 12 months. (Number)	
Description	This indicator assess the number of women who use agroecological booklets and provides their data for the project for at least 12 months. Women must be included in other actions related to component 3, such as taking part in PIPs or receiving training. When women are replaced, it should not count. The final evaluation of the project should analyze the data obtained from the survey made through the booklets, such as the diversity of species cultivated in backyards and family agricultural income obtained by the woman's workdisaggregated by total income, self-consumption, sale, and donation. When women are replaced, it should not count.
Frequency	Biannual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for	Accounted for by SAF. The final evaluation should systematize the data collected by the agroecological



Data Collection	booklets and present a report in relation to them.
Responsibility for Data Collection	SAF/SEPLAN
Farmers reached with agricultural assets or services (Number) <small>CRI</small>	
Description	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, Information and Communication Technologies (ICT), inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.
Frequency	Biannual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	Accounted for by SAF. Target: 100% PIPs + 40% more outside of PIPs = 4950 + (40% *4950) = 6930. The annual targets were established according to the pace of implementation of component 3 as described in indicator 3.1.1
Responsibility for Data Collection	SAF/SEPLAN
Farmers reached with agricultural assets or services - Female (Number) <small>CRI</small>	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Farmers reached with agricultural assets or services - Male (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
TPC farmers reached with agricultural assets or services (Number)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
3.2.3. Sustainable Development Agendas prepared for rural settlements and traditional communities entitled by Pillars II. (Number)	
Description	Number of Sustainable Development Agendas (ADS) prepared in the settlements promoted by Pilares II. Sustainable Development Agenda is characterized as an instrument of participatory construction, the basis for agreements, contracts, implementation and monitoring of public policies within the scope of a territory of



	<p>action. This instrument enables agreements based on contractualization between the sectoral actors involved and brings subsidies about inherent and necessary aspects for sustainable development, in addition to defining which demands require interventions in the short, medium and long term with the appropriate responsible parties and necessary costs. The methodology for building the ADSs developed by SEPLAN and building the agenda consists of 3 stages: Participatory Diagnosis: A participatory diagnosis (DRP) will be used to collect data and information, where a set of techniques and tools can be used that allows communities to make their own diagnosis and allows self-management of their planning. During the activities, the aim is to involve the representative organizations in the various stages, as well as ensuring the participation of the community based on the families' work routine; Participatory Diagnosis: For the collection of data and information, a participatory diagnosis (DRP) will be used, where a set of techniques and tools can be used that allow communities to make their own diagnosis and allow self-management of their planning. During the carrying out of the activities, it is also sought to involve the representative organizations in the different stages, as well as to guarantee the participation of the community based on the work routine of the families. Workshop for building priorities: subsidized by the DRP which, after collecting the information, will be transcribed and systematized and the data/information obtained will be presented, and from the problematization, for a better definition of the problems, causes and effects, will allow the categorization of interventions in terms of congruence, the sphere to which the problem belongs (local, municipal, state or federal) and the time required to resolve the issue. In this workshop, it will be possible to analyze the potentialities, challenges to be faced in the community and perceive the inherent impacts, as well as the construction of the framework of congruence and the framework of responsibilities of each sphere, local (community, municipality), state and federal and contractualization and construction of the monitoring strategy: In this activity, the partners will participate together with representation of the community to build priorities, ensure the celebration of an agreement of commitments around priority deliveries and results and monitoring periods of actions to be carried out and results to be achieved. This moment may occur at the territory level, serving more than one community served at the same event.</p>
Frequency	Annual
Data source	Project monitoring system, mid-term evaluation, and final evaluation.
Methodology for Data Collection	The indicator must be counted when the 3 fundamental steps for building the Sustainable Development Agendas have been completed.
Responsibility for Data Collection	SAF/SEPLAN
3.2.4. Increase in the percentage of women working on the boards of directors, vice director or company treasurer of rural organizations served by the project. (Percentage)	
Description	The increase must be calculated against the Baseline (performed in the PIP diagnosis) among organizations that received PIPs. It should only be considered if the project is to carry out actions related to female empowerment. Goal: a 15% increase in the participation of women in the positions of president, vice president and treasurer.
Frequency	Annual
Data source	Project monitoring system, baseline, mid-term evaluation, and final evaluation.
Methodology for Data Collection	SIGMA registers 4 managers of rural organizations (president, vice president, treasurer and secretary). The objective of the nomination is to promote the participation of women in rural organizations in the positions of president, president and treasurer. The indicator must measure the increase in relation to any of these positions. (Must not count secretarial position as advancement). The initial diagnosis of the organizations will provide the Baseline data. The increase must be calculated against the baseline among organizations that received PIPs. End Target: Goal: a 15% increase in the participation of women in the positions of president, vice president and treasurer.
Responsibility for Data Collection	SAF/SEPLAN
Project management	
4.1 Percentage of responses to complaints related to project implementation (Percentage)	
Description	This indicator will measure the percentage of complaints and inquiries received through the project's Grievance Redress Mechanism that are logged and resolved in a professional and timely manner.



Frequency	Biannual
Data source	Project Grievance Redress Mechanism.
Methodology for Data Collection	Grievances will be received and logged through the project's Grievance Redress Mechanism. A qualitative assessment of the resolution of each grievance will be included in the project M&E.
Responsibility for Data Collection	SEPLAN
4.2 Degree of satisfaction of beneficiaries, in percentage, with the training and services offered by the project. (Percentage)	
Description	This indicator measures the satisfaction of beneficiaries. Satisfaction should be measured at the end of all training throughout the implementation of the project and captured in the Final Evaluation of Results for the beneficiaries of each component for a consolidated perception.
Frequency	Annual
Data source	Mid - term evaluation, and final evaluation.
Methodology for Data Collection	The satisfaction assessment must be applied to the different lines of action of the project by component.
Responsibility for Data Collection	SEPLAN
Degree of satisfaction of female beneficiaries, in percentage, with the training offered by the project (Percentage)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Degree of satisfaction of beneficiaries belonging to traditional communities, in percentage, with the training offered by the project (Percentage)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
Degree of satisfaction of male beneficiaries, in percentage, with the training offered by the project (Percentage)	
Description	Indicator breakdown.
Frequency	
Data source	
Methodology for Data Collection	
Responsibility for Data Collection	
4.3 Unified project implementation monitoring system in operation. (Number)	
Description	The unified monitoring system should be implemented in the first year of the project and ensure transparency regarding data overlap between the different project interventions. The system should be integrated with other systems supported by the project and used by government departments to facilitate and support implementation and minimize efforts and overlapping registrations.
Frequency	Annual
Data source	Progress report
Methodology for Data Collection	The system should be considered implemented when all secretariats are trained and operating the system.



Responsibility for Data Collection	SEPLAN
4.4 Intelligent platform for territorial, productive and environmental management containing information for decision-making by government sectors. (Text) (Text)	
Description	An intelligent platform is a set of tools and computational interfaces. The Intelligent Platform has interfaces with: (i) SICAR; (ii) REGINA-Web. In YEAR I, the planned activities are related to the diagnosis and cataloging of spatial data of the State (Environment, Land Management, and Rural Development); preparation of Regulations and Protocol for Geospatial Information Management in line with the main national and international references; Support the preparation of metadata, through the preparation of technical manuals to guide the standardization of geospatial information and its metadata.
Frequency	Annual
Data source	Project monitoring system, mid term evaluation, final evaluation.
Methodology for Data Collection	Biannual technical report on implementation with availability of a link to access the Platform and its tools. The Mid-Term and Final Evaluation must assess whether the systems integration met the expected objectives.
Responsibility for Data Collection	SEPLAN
CERC	

**ANNEX 1: Implementation Arrangements and Support Plan**

COUNTRY: Federative Republic of Brazil
Piauí Pillars of Growth and Social Inclusion Project 2

1. The Institutional and Implementation Arrangements consider a multi-sectoral approach and is based on the Project's scope and risk profile, as well as on the lessons learned from the implementation of previous operations with the State of Piauí, including Pillars 1 project. The arrangements consider the current physical and human resources available in SEPLAN, which will perform the role of project coordinator and oversight, as well as INTERPI, SEMARH and SAF that will be implementing part of the operation.⁷³

2. Borrower and implementing agency. The Government of Piauí, through the State Secretariat for Planning (*Secretariado Estadual do Planejamento - SEPLAN*) will be the Borrower for the proposed loan, with the Federative Republic of Brazil serving as Guarantor.

3. Project Management. SEPLAN will host a Project Management Unit (PCU) and will be responsible for overall management, planning, coordination, monitoring and evaluation of all project activities, as well as for project financial management, procurement, disbursements and accounting. SEPLAN will also be responsible for implementing the social and environmental risk management instruments, as well as for disseminating project results through a proactive communication strategy. In addition, SEPLAN will ensure that counterpart resources are foreseen in the State's budget. PCU's fiduciary and environmental and social risk management teams are being trained on the new World Bank Procurement Regulations for IPF Borrowers and Environmental and Social Standards, respectively. The PCU will be composed at the minimum of a general coordinator, under the responsibility of SUTEF, 1 specialist for monitoring and evaluation, 1 financial specialist, a procurement specialist, and social and environmental specialists. The PCU will be supported by specialized technical services, when necessary.

4. Project implementation. INTERPI, SEMARH and SAF will be responsible for formulating, implementing and monitoring the project's sectoral interventions and results of Component 1, 2 and 3 respectively. PIUs will be established in each Secretariats and INTERPI, no later than 90 days after loan effectiveness, and will include in each PIU an ESF focal point. PIU's the technical and operational roles and responsibilities within their units, including to (i) elaborate the annual operational plan; (ii) issue relevant technical or legal norms to support project's implementation; (iii) prepare technical specifications and terms of reference for the activities to be financed by the project; (iv) monitor project implementation and results; and (v) liaise with other governmental bodies to coordinate and implement intersectoral activities or for monitoring purposes. A cooperation agreement will be signed between SEPLAN and INTERPI for the implementation of Component 1, no later than 90 days after effectiveness.

5. The PCU will carry out a technical assessment review at the time of the project Mid-term Review (MTR). This mid-term review will analyze progress toward the PDO and results indicators, and will allow for methodological adjustments, if warranted. The SEPLAN will hire consultant services to carry out a final evaluation under the agreed terms of reference to support the borrower completion report (BCR) in accordance with rules established by the World Bank. The analysis will consider socio-economic variables, including gender and ethnicity and the overall level of beneficiaries' satisfaction

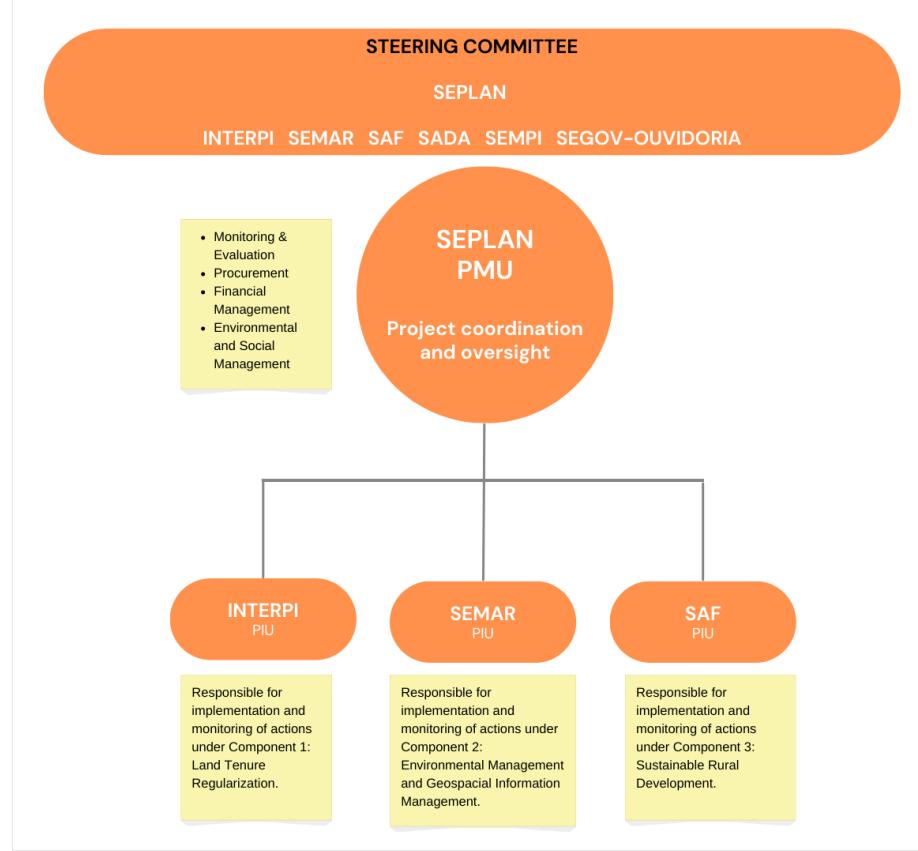
⁷³ Arrangements consider the current charts of SEPLAN, INTERPI, SEMARH and SAF. In case charts change, implementation arrangements will be updated in the Project Operations Manual, in form and substance satisfactory to the World Bank. Arrangements also take into account the need of coordinated efforts and aligned actions with the other World Bank-financed operation – Piauí Health and Social Protection Development project (P178567), to ensure that the proposed institutional arrangements are consistent.



with the Project.

6. Under Component 3, the PIP/PN that will receive project's support will be approved by the State Council for Rural Development and Agricultural Policy (*Conselho Estadual de Desenvolvimento Rural e Política Agrícola - CEDERPA*)⁷⁴ following priority criteria to be further defined in the POM. Priority will be given to organizations from agrarian reform settlements (regularized through Pillars I or II) and to TPC regularized by INTERPI, as well as to organizations led by or with overall participation of TPC, women, youth to foster inclusion of vulnerable groups. The PIP/PN will be required to include climate-smart practices and technologies and to ensure climate resilience of infrastructure to be build (selection criteria).

Figure 1.1: Implementation arrangements



7. Steering committee. To facilitate the dialogue and collaboration amongst the different agencies and ensure oversight over the implementation of the Project, a COGEP will be implemented. The COGEP will be created through a legal instrument no later than 90 days after loan effectiveness. It will be chaired by SEPLAN, who will retain the final decision, and include representatives of the various institutions involved in the implementation of the project (INTERPI, SEMARH,

⁷⁴ CEDERPA is a collegiate body linked to the SAF. It was created through Law 5,206 of August 22, 2001, and its purpose is to participate in State planning, formulate, articulate, and monitor policies, programs and projects aimed at development sustainable rural environment in the State of Piauí, with a focus on promoting the quality of life of rural populations. CEDERPA is a collegiate space that debates fundamental themes for the development of the rural environment: agrarian reform, rural credit, ATER, animal health inspection, provision of soil analysis services, among other policies. CEDERPA, in its current composition, has the participation of 16 entities/institutions, including State Secretariats, public companies, federal agencies and entities and social movements linked to the countryside.



SAF) as well as representatives of (i) SADA that will support implementation of PIPs in coordination with SAF under Component 3; (ii) the State Secretariat for Women (Secretaria das Mulheres do Piauí – SEMPI) in order to support implementation and monitoring of gender-related activities; and (c) the General State Ombudsman (*Ovidoria Geral do Estado*, GSO).

8. The institutional arrangements for the Project will be further detailed in the POM. The POM shall include at least the following information: (i) a detailed description of the activities and institutional arrangements for the Project, including Partnerships Agreements for the implementation of Components 1, 2 and 3, and for matching grants under Component 3; (ii) the eligibility criteria and selection procedures for the PIPs/PN to be financed under Component 3; (iii) a description of the monitoring and evaluation arrangements, including the indicators and expected results for each year of Project execution; (iv) the composition of the PCU and each PIU, including their obligation to comply with the Anti-Corruption Guidelines and follow-up on any related allegation; (v) the specific attributions of INTERPI, SEMARH and SAF, and coordination arrangements; (vi) the composition and functions of the Steering Committee, including relevant partners different from the PCU and PIU, and its role in Project monitoring; (vii) the Project Fiduciary, Environmental and Social Systems and requirements, including grievance redressing; (viii) the Project administrative, accounting, auditing, reporting, financial (including cash flow aspects in relation thereto), procurement (including particular procurement arrangement procedures) and disbursement procedures; (ix) the terms of reference for the financial audits and (x) conditions of use of the CERC component. The POM will be prepared in form and substance satisfactory to the World Bank as a condition of effectiveness.

Financial Management

9. A PCU will be established under the SEPLAN, the government agency responsible for the State's public policies implementation, planning, and budget execution. SEPLAN⁷⁵ is the Project Management Unit and will undertake the Project's fiduciary-related responsibilities, following the POM, satisfactory and approved by the Bank and setting forth FM and other arrangements as established by the Legal Agreement.

10. The Project execution will also be supported by the current SEPLAN functional and operational structure, and the agency will perform the role of Project Coordinator and oversight, as well as in the following agencies that are responsible for providing technical, financial, and legal inputs and benefiting from Project's activities:

- (a) **INTERPI**, it is a State agency aimed to identify, collect and record all rural properties in the State and formation of a general registry of rural properties in Piauí;
- (b) **SEMARH**, is a State agency, endowed with administrative, financial, and patrimonial autonomy, responsible for formulating and executing actions for the sustainable use of the environment and water resources, such as actions to fight forest fires, recovery of springs and other policies related to the State's water resources;
- (c) **SAF**, is a State agency endowed with administrative, financial, and patrimonial autonomy, aimed to plan and execute actions related to family farming, specifically support for productive projects.

11. The budget cycle includes the planning and implementing of all government activities, which are reflected in the PPA, LDO, and LOA⁷⁶. The State's budget process is clearly defined, follows Law 4.320/64, and the budget and financial accounting frameworks are aligned with Brazilian regulations. The entire process of preparation of the LOA, PPA, and LDO is carried out by SEPLAN with the participation of all state agencies and submitted to the State Governor's Office, which will prepare the final state budget proposal to be approved by the State Legislative Branch. The procedures in place to plan Project activities, prepare related budgets, and collect information from the other Project executors in charge of the

⁷⁵ In the organizational structure of SEPLAN, there are three Directors: (i) Strategic Planning Director; (ii) Project Director; (iii) Municipal Planning Support Director.

⁷⁶ PPA (Plano Plurianual), LDO (*Lei de Diretrizes Orçamentárias*), LOA (*Lei Orçamentária Annual*), which include the Government's goals and programs that are approved by State Legislative Branch every four years (PPA) and annually (LDO and LOA).



different components are working satisfactorily. However, to allow budget execution, SEPLAN will need to adjust the LOA by including the Project's activities in specific budget lines not later than three months after Loan effectiveness.

12. Based on previous years, there is a risk that the Project will face budgetary constraints throughout implementation. The average budget execution capacity (comparison between authorized amounts and paid expenditures) for CY 2020 was 23.0 percent, for CY 2021 was 13.7 percent, and partial execution for CY 2022 (until September) was 8.3 percent. The average implementation from 2020 to 2022 is 16.0 percent, representing a low execution capacity of the implementing agencies related to project budget lines.

13. Mitigation measures include: (i) the State, through SEPLAN, will create budget lines on PPA and LOA specifically to control the execution of Project components and activities and allocate necessary amounts; (ii) In the financial reports of the Project (IFRs), the PCU will provide a comprehensive forecast of budget expenditures related to Project activities and liaise with the implementing agencies, identifying constraints, informing the relevant parties (WB management, FM and procurement staff and CGE); (iii) the State will monitor the forecast and execution of budget by source of funds (*fones de recursos*) and report the current status in the financial reports of the Project (IFRs), providing inputs for corrective measures; and (iv) in addition to policy makers' expressing their commitment to the Program and its strategic relevance, monitoring by the task team with high-level and frequent interactions between the WB task team and State leadership will be undertaken, to ensure priority funding for the Program.

14. The state's financial and monitoring system (FMIS), SIAFE/PI can adequately account for and control all transactions and records in real-time and individually. It provides detailed information on the budgetary and financial execution of the Management Units, referring to revenue and expenditure position. The Federal Government published Decree n. 10,540/2020, which established additional mandatory guidelines for art. 48 of Complementary Law n. 101, of 2000, which dealt with minimum requirements for the accounting and control systems of budgetary and financial execution and established the need to elaborate and publish an action plan to migrate to the new standards by the year 2023, and SIAFE-PI fully complies with the requirements. The Project's documented financial reporting responsibilities are being fulfilled (that specify what reports are to be prepared, periodicity of preparation, and content). The accounting system maintains the standards acceptable according to the Bank guidelines. All transactions under the Project will be accounted for on a cash basis for disbursements, reporting, and auditing purposes.

15. The State of Piauí follows: (i) the NBC TSP, which represents the adoption of IPSAS in Brazil; (ii) Law N. 4,320/64, which establishes certain high-level accounting principles related to budget and accrual accounting; and (iii) the MCASP, issued under Law 10,180 of February 6, 2001.

16. Although SEPLAN will hold the primary fiduciary responsibilities for the Project and PCU staffing is appropriate to assure segregation of functions and reconciliations of accounts, all executing agencies will also need to ensure a proper FM and control environment.

17. All Project budgeting and accounting transactions will be processed through SIAFE-PI, which is used by all state institutions that receive/transfer government funds. A specific ledger of accounts is created in the SIAFE system under each executor for budget and financial reasons to identify the source of funds. The first stage of the expenditures is the commitment (*empenho*) which is approved by the PCU, acquisition, verification, and certification (*liquidação*); and final payment (*pagamento*) is made by SEFAZ. The budget preparation and expenses are fixed based on the revenue forecast, and the monitoring of budget execution is carried out by SEPLAN in coordination with SEFAZ. All executing agencies will execute their budget by observing the monthly fiscal budget limits determined by SEPLAN. No payments shall be made outside SIAFE. The approval and authorization controls are adequate to approve budget transfers/allocations and are currently described in State's regulations and will also be described in the POM. For Project purposes, they will be reconciled with budget and procurement reports monthly.

**18. In addition, the PCU will ensure that all the Projects' assets acquired with the Loan's funds will be accounted for.**

The PCU will ensure (for the whole time of Project implementation) that there is a control in place that guarantees all purchased assets by each implementing agency are: (i) used only for the Project's activities; (ii) listed in an inventory record; (iii) each asset is given an individual master record and number (i.e., recorded as an individual asset and depreciated according to its individual useful life); (iv) physical inventory control is performed annually for these assets and reconciled with the respective control accounts; and, (v) the asset is maintained in good condition. The Project's assets will be accounted for through the SIAFE system.

19. Actual expenditures are monthly compared to budgeted expenditures, and justifications are provided for variations relevant to the budget. Each executor will only have access to its budget and financial transactions per its Budget Management Unit (*Unidade Gestora, UG*). However, SEPLAN will have full access to the Program's executor's entity budget and financial transactions through the "read-only" access of the SIAFE-PI system. To better monitor the Project, the State will provide, within three months after Loan effectiveness, system access as "read-only", for Bank staff, Program's executing agencies and the PCU.

20. The CGE, a department under SEFAZ structure⁷⁷, is responsible for supporting the State's direct and indirect agencies on legal procedural compliance for contracting public expenditures and complying with the public information access law. CGE is also responsible for internal auditing related functions and specific aspects of internal control and for coordinating, executing, evaluating, supporting, and guiding the activities inherent to the internal control of the Executive Branch of the State, pursuant to the State's Constitution, which established the Integrated System of Internal Control of the Executive Branch of the State of Piauí. However, the CGE was recently moved to the status of a department under the structure and supervision of the SEFAZ, significantly reducing its independence, but maintaining its previous activities and attributions.

21. The State Government decided to transform the CGE in a Department under SEFAZ administrative structure, impacting its budgetary autonomy and independence. The Government attributed this change to the slowness in the procedural process of bidding and contracting by the CGE (prior and concomitant analysis and control through the Internal Control System - SINCIN, monitored by the CGE), and, according to them, the insertion in the structure of SEFAZ could streamline this issue. Another reason given by the representatives of the State is that there was a rework, since each agency carried out the price surveys for procurement processes and, at the same time, the CGE also did so as to allow a comparison and ensure the fairness of the contracts. The Bank team acknowledged that, even with the alleged reasons, **it is a considerable setback from the point of view of the internal control arrangements of the State as it is not consistent with any international best practice impacting on the risk assessment of the Project.**

22. The CGE will implement the Internal Audit Capability Model (IA-CM), issued by the Institute of Internal Auditors (IIA), to strengthen the internal audit functions in all entities that execute the State budget. IA-CM is a framework that identifies the fundamentals needed for effective internal auditing in the public sector and intends to ensure that the internal audit becomes an integral component of effective governance in the public sector and helps organizations achieve their objectives and account for their results. IA-CM consists of five levels, tied to leading practices, and level 3 (integrated) is where internal audit management and professional techniques are uniformly applied following international practices. Despite the recent institutional changes, the Bank will support CGE as to allow the achievement of most KPs of level 2 and 3 of IA-CM by the Project Closing Date, by financing some related implementing activities. It is expected that the internal audit department in the CGE evaluates the adequacy and effectiveness of internal control in the Project implementing agencies throughout Project implementation.

23. According to the State Decree that regulates SEFAZ activities and details the role of CGE, there is a mandatory statement that guidance opinions relating to foreign credit operations contracts with International Organizations, such

⁷⁷ After State Law 7,884/2022.



as the World Bank, shall be the exclusive and independent competence of the State Comptroller General (CGE). Although it does not ensure CGE's complete independence, it is a mitigation measure for any potential SEFAZ interference in internal control and internal audit project arrangements.

24. Other agreed additional mitigation measures regarding the independence of internal audit issues include: (i) a detailed annual report of the project procurement processes will be prepared and submitted to both the CGE and the TCE, strengthening the independence of audit findings and recommendations; (ii) CGE and TCE will have to carry out additional audit procedures in Project contracts, in order to ensure that there will be no interference in the internal control roles; (iii) any internal audit opinions related to the fairness of the procurement and financial management processes of international organizations would be the responsibility of the CGE, and not subject to the Secretary of Finance approval/concurrence; (iv) CGE must continue with the status of Managing/Executing Unit in the State budget, in order to be able to manage its own resources and mitigate some of the independence issues.

25. Additional recommended CGE institutional arrangements mitigation measures are: (i) implementation of the e-Aud system, managed by the CGU; (ii) no staff shortage during the project execution period; (iii) CGE team must participate in training offered by the Bank and by the Projects, in order to improve their knowledge on risk management, risk-based auditing and other essential aspects of internal controls and internal auditing. There must be a commitment from CGE/PI, SEFAZ, SEPLAN, and other agencies involved in the Projects to continue the internal audit reforms, so that the support provided by the Projects is effective and, contribute to future alignment with international standards. The CGE/PI must carry out a new self-assessment of the IA-CM and submit it to the CONACI Technical Chamber, in order to reflect the new structure of the State's internal audit.

26. Despite the above challenges resulted from the amendments to Law n. 7884/2022, the internal control and internal audit arrangements may be considered moderately satisfactory, provided that the mitigation measures are implemented as proposed. The financial management team will monitor the implementation of each mitigation measure throughout the execution of the Projects in the State of Piauí.

27. Anticorruption Arrangements. Borrower Actions to Prevent and Combat Fraud and Corruption in connection with the Use of Loan Proceeds. In furtherance of the above-stated purpose, the Borrower will:

- (i) take all appropriate measures to prevent Fraud and Corruption in connection with the use of Loan proceeds, including (but not limited to) (i) adopting appropriate fiduciary and administrative practices and institutional arrangements to ensure that the proceeds of the Loan are used only for the purposes for which the Loan was granted, and (ii) ensuring that all of its representatives involved with the Project, and all recipients of Loan proceeds with which it enters into an agreement related to the Project, receive a copy of the Bank's IPF Anti-Corruption Guidelines and are made aware of its contents;
- (ii) immediately report to the Bank any allegations of Fraud and Corruption in connection with the use of Loan proceeds that come to its attention;
- (iii) if the Bank determines that any person or entity referred to in (i) above has engaged in Fraud and Corruption in connection with the use of Loan proceeds, take timely and appropriate action, satisfactory to the Bank, to address such practices when they occur;
- (iv) include such provisions in its agreements with each recipient of Loan proceeds as the Bank may require giving full effect to the Bank's IPF Anti-Corruption Guidelines;
- (v) cooperate fully with representatives of the Bank in any investigation into allegations of Fraud and Corruption in connection with the use of Loan proceeds; and
- (vi) if the Bank declares any recipient of Loan proceeds ineligible take all necessary and appropriate action to give full effect to such declaration.



28. **The POM will reflect the detailed staff duties, procedures, and guidelines for disbursements, payments, approvals, commitments, and reporting, which draft should be forwarded to the Bank for Bank's review before Project effectiveness.**

29. **SIAFE-PI can adequately control, account for, report on, and manage the proposed Project.** The system can provide FM data to prepare the reports in local currency (BRL) for Bank's disbursements and monitoring purposes on a cash basis (although the State also follows accrual accounting). In addition, the PCU will ensure the timely production of semiannual Interim Financial Reports (IFRs) for further submission to the Bank within 60 days after the end of each semester. SEFAZ should submit for Bank's validation the IFRs format (automatically generated by SIAFE-PI) no later than one year after Loan effectiveness.

30. Accordingly, the format and content of the IFRs will cover the following items:

- (i) IFR 1 - Sources and Uses of Funds by disbursement category, with evidence of the World Bank's share in the financing of expenditures, cumulative (Project-to-date, year-to-date, and for the period) versus actual expenditures, including a variance analysis;
- (ii) IFR 2 - Uses of Funds by Project Activity or Component and Sub-component, cumulative (Project-to-date, year-to-date, and for the period) versus actual expenditures, including a variance analysis;
- (iii) IFR 3 - Designated Account Bank reconciliation and Bank statements
- (iv) IFR 4 – Disbursement Forecast

31. **The State will open a segregated Designated Account – DA, in the name of the State of Piauí, to receive loan funds and to process disbursements in U.S. Dollars in Banco do Brasil for further payments in local currency.** The frequency for reporting eligible expenditures paid from the DA will be semesterly through the IFRs. SEPLAN will authorize the State Treasury to make all payments once payment obligations have been incurred and adequately documented by SEPLAN and other implementing agencies. SIAFE requires that funds be committed by source, enabling the tracking of loan disbursements to Project expenditures. Such arrangements are considered appropriate, have the necessary segregation and level of approvals, and can speed up implementation. IFRs will be prepared directly from SIAFE and supported by the accounting records, Bank account statements, and respective reconciliation for disbursements.

32. **The disbursement of Project funds will be processed following Bank procedures stipulated in the Legal Agreement and the Disbursement and Financial Information Letter (DFIL).** During Project implementation, the following disbursement methods will be available: Reimbursement, Direct Payment, and Advances. The primary disbursement method will be Advances. The Designated Account will have a variable ceiling based on the submission of forecasts of expenditures to be paid in the next six months and recorded in the Disbursement Letter that will be prepared by the Bank's Loan Department.

33. **All payments from the Designated Account will be authorized by SEPLAN (PCU) once expenditures have been received, approved, and adequately documented through the SIAFE system.** Payments will be made directly from the Designated Account (in BRL) to service providers' and contractors' Bank accounts. To make payments, funds will be committed by source, making it possible to track loan disbursements/receipts to Project expenditures. These processes will be detailed in the POM and approved by the Bank.

34. **The disbursements will be made through the IFRs to be generated directly from the SIAFE system by category, and component (budget and actuals).** In addition, the documentation of the use of Advances and Reimbursement withdrawal applications will be through IFRs. SEFAZ will prepare and send withdrawal applications to the Bank only after they are paid and fully documented, ensuring that the loan proceeds were exclusively used for eligible expenditures. Direct payments will be documented by appropriate records.



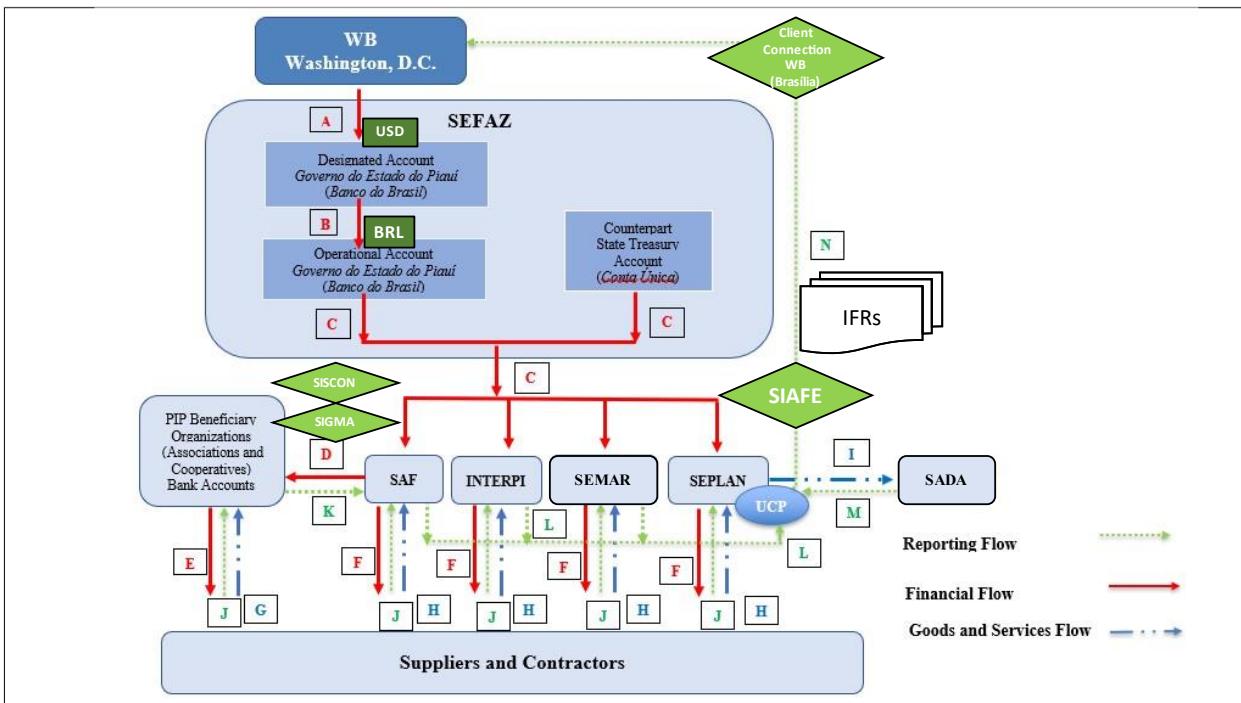
35. The state budget will earmark counterpart funds for Project activities. The State Treasury releases funds to implementing agencies based on the presentation of supporting documentation detailing the object of expenditure. The PCU is authorized to issue the disbursement plan and generate the payment invoices, together with its respective list that will be sent to the Bank.

36. The Project has a component related to transferring financial resources directly to private organizations beneficiaries (Component 3 - Climate-smart Rural Development). This activity aims at increasing the resilience of family farmers and rural communities by supporting sustainable and climate-smart productive investments through decentralizations for PIP/PN on Program for the Generation of Employment and Income in Rural Areas (*Programa de Geração de Emprego e Renda no Meio Rural, PROGERE*). The financial resources are provided in the PPA and transfers are made by State Development Territory (Território de Desenvolvimento do Estado). For the transfer of funds to implement PIPs, the private organizations need to pass by public call for the selection of 'Cartas Consultas' that, after validation, preparation of the investment plan and approval, publication of the collaboration term and insertion (term and project) in Integrated Transfer Management System of the State of Piauí (*Sistema Integrado de Gestão de Repasses, SIGRP*), have their resources provided in a bank account for the PIP. Another SIGMA, records the entire process of release, unlocking, bidding, reporting, and supervision of the implementation of the productive investment plan. The supporting documents are scanned and inserted in the system, as well as supervision reports and communication and approval inherent to the process. The original physical documents are delivered, analyzed, and attached to the process. The financial resources transferred from SAF to private organizations (with PIPs), carried out through allocating resources directly to the beneficiaries, may give rise to attempts at fraud or misuse of project resources. To mitigate financial management risks, SEPLAN will create a report arrangement specifically for the disclosure through BI panels or integration between SIAFE, SIGMA and SISCON systems, no later than one year after Loan effectiveness.

37. Retroactive financing is allowed for eligible expenditures up to an aggregate amount not to exceed twenty percent of the total loan amount to be made for payments up to 12 months before the signing date of the Project agreement.

38. The Minimum Application Size for Direct Payments and Reimbursements will be USD 1,000,000 equivalent. The Project will also have four months after the closing date to document expenditures incurred before the Closing Date.

39. The flow of funds will occur as per the following flowchart:



Financial Flow Description:

- (A) The State will open a segregated Designated Account - DA, in the name of the State of Piauí, to receive loan funds and to process disbursements in U.S. Dollars (US\$) in Banco do Brasil;
- (B) Funds will be transferred to an Operational Account in Banco do Brasil in Brazilian Reais (R\$), and the payments to suppliers and contractors will be processed by this account;
- (C) All Budget Executing Units (*Unidades Gestoras*, UGs) will directly use the State Government account in Reais (Pillars II/BIRD) through the SIAFE mechanism of “authorization for the use of funds” (*limites de saque*) of the designated account in Reais. The counterpart will also be released by this mechanism through State Treasury Account (*Conta Única*) for executors;
- (D) Decentralizations for PIPs on PROGERE Program. The financial resources are provided for in the PPA and transfers are made by State Development Territory (*Território de Desenvolvimento do Estado*). For the transfer of funds to implement PIPs, the private organizations need to pass by public call for selection of '*Cartas Consultas*' that, after validation, preparation of the investment plan and approval, publication of the collaboration term and insertion (term and project) in Transfer Management System of the State of Piauí (*Sistema de Gestão de Convênios do Estado do Piauí*, SISCON), have their resources provided in a bank account for the PIP. Another SIGMA, records the entire process of release, unlocking, bidding, reporting and supervision of the implementation of the productive investment plan. The supporting documents are scanned and also inserted in the system, as well as supervision reports and communication and approval inherent to the process. The original physical documents are delivered, analyzed and attached to the process.
- (E) As goods and services are provided (by suppliers and contractors) and private organizations (with PIP projects) make the reporting of use of financial resources for SAF, the financial resource is provided, and organizations make direct payment to suppliers and contractors upon the provision of goods and services; and
- (F) The implementing agencies are responsible for the commitment (*empenho*), settlement (*liquidação*), and payment of the services to suppliers and contractors upon the provision of goods and services.

Goods and Services Flow Description:

- (G) Goods and services are delivered by the suppliers and contractors directly to PIP beneficiary organizations, subject to internal controls and accountability rules (with SIAFE, SIGMA and SISCON systems);
- (H) Goods and services are delivered by the suppliers and contractors directly to the implementing agencies subject to internal controls and accountability rules (with SIAFE system);
- (I) The Project will provide resources to institutional strengthening of SADA to increase their capacity to deliver support to family farmers. SEPLAN will be responsible for hiring and supplying the goods and services necessary for the strengthening activities of SADA. SADA will support implementation of PIPs in coordination with SAF under Component 3. There will be no transfer of funds.

**Reporting Flow Description:**

- (J) Suppliers and contractors issue invoices after the delivery of goods and services for PIP beneficiary organizations and the implementing agencies that are archived for auditing purposes;
- (K) All documentation from private organizations with PIPs is supervised and submitted to internal and external audits, internal control analysis, and accounting sector. In case of non-compliance, the entity is initially notified to send clarifications. If the rendering of accounts is not be approved, the competent bodies are also informed in order to the organizations become unable to receive transfers;
- (L) Accounting and financial information (commitments, bank orders, etc.) are recorded by executors in the SIAFE. PCU/SEPLAN extracts from SIAFE the necessary financial information for the preparation of SOEs, financial reports and bank reconciliation of all executors, in the period. Bank statements will be made available by the holders of the accounts to PCU/SEPLAN;
- (M) SADA will be held accountable for goods and services received from SEPLAN, through SIAFE system;
- (N) PCU/SEPLAN prepares and sends the financial reports (IFRs) to IBRD, for fiduciary and financial management purposes.

40. The General Conditions require the Borrower/Recipient to retain all records (contracts, orders, invoices, bills, receipts, and other documents) evidencing eligible expenditures and to enable the Bank's representative to examine such records. They also require the records to be retained for at least one year following receipt by the World Bank of the final audited financial statement required in accordance with the Legal Agreement or two years after the closing date, whichever is later. The Borrower is responsible for ensuring that document retention beyond the period required by the Legal Agreement complies with its government's regulations.

41. For project purposes the project's annual financial statements will be audited by the Court of Accounts of the State of Piauí (*Tribunal de Contas do Estado do Piauí - TCE*), and the necessary arrangements and terms of reference needs to be approved by the Bank by six months after loan effectiveness, and acceptable to the World Bank and in accordance with International Standards on Auditing (ISAs) issued by The International Auditing and Assurance Standards Board (IAASB) of the International Federation of Accountants (IFAC) or national auditing standards if, as determined by the Bank, these do not significantly depart from international standards). The audited financial statements will be prepared in accordance with accounting standards acceptable to the Bank (i.e., IPSAS or national accounting standards where, as determined by the Bank, they do not significantly depart from international standards).

42. According to the World Bank's guidelines, the auditors will also have to prepare a Management Letter, where any internal control weaknesses will be identified, which will contribute to the strengthening of the control environment. The auditor's report will be submitted to the World Bank no later than nine months after the closing of the borrower's fiscal year, and the annual audit may be financed out of loan proceeds.

43. The State Court of Accounts (*Tribunal de Contas do Estado do Piauí – TCE/PI*) will have to carry out additional auditing procedures and additional assessments in Project contracts, in order to ensure that there will not be any type of interference of other government bodies (such as SEFAZ) in the internal control and internal auditing arrangements.

44. The Bank will review the audit reports and periodically determine whether the recommendations are satisfactorily implemented. The Bank also requires that the borrower disclose the audited financial statements in a manner acceptable to the Bank. The Bank will also make them available to the public in accordance with The World Bank Policy on Access to Information.

Procurement

45. Procurement will be carried out in accordance with the "World Bank Procurement Regulations for IPF Borrowers" dated September 2023. The Project entails the procurement of works, goods, non-consulting services, information systems, and consulting services contracts. The World Bank will provide specific training on World Bank's procurement regulations before the implementation starts. The Terms of Reference (ToR), technical specifications and Contract Management Plan for all relevant contracts will also be prepared before the start of implementation. The World Bank will review ToRs for the selection of consulting firms. Procurement arrangements will follow the Project Procurement Strategy



for Development (PPSD document). The Project's procurement arrangements will be included in the POM.

46. Procurement Central Unity (UNICEN). SEPLAN will be responsible for carrying out all Project procurement processes on behalf of the implementing agencies. To this end, SEPLAN will establish a Procurement Central Unit (UNICEN) properly staffed and equipped to meet the Project's procurement needs. The planning of procurement needs, design of technical specifications and terms of reference, and the technical execution of the contracts would be the responsibility of each implementing agency, including the role of evaluating the demands of procurement and deciding the suitable moment for their implementation.

47. Project's Procurement Staff. In addition to establishing the UNICEN, SEPLAN must be staffed with a seasoned procurement team at the PCU. The PIU's procurement team shall be exclusively dedicated to matters related to the Project's procurement. This team must be composed at least: one (1) procurement specialist, two (2) procurement analysts, one (1) contract management analyst, and one (1) ad-hoc individual consultant (with expertise in the World Bank's rules) to provide specific guidance on procurement matters and support the PCU's decision-making process. Additionally, each agency should also have focal points in procurement to dialogue with the SEPLAN and support the agile preparation of ToRs, technical specifications, and other bidding documents.

48. Mandatory use of the procurement planning and tracking tool (STEP System). The implementing agencies will use the World Bank's online procurement planning and tracking tool Systematic Tracking of Exchanges in Procurement (STEP) system to: (i) record all procurement actions under the proposed operation, including preparing, updating and clearing their Procurement Plans; and (ii) seek and receive the World Bank's review and no-objection to procurement actions as required.

49. Use of e-Reverse Auction procedures. Goods and non-consulting services estimated to cost up to US\$100,000 may be procured through e-reverse auction procedures, as an alternative to Request for Quotations (RfQ) method. Electronic reverse auctions will be open to the participation of any eligible bidder regardless of nationality. Participating bidders must be registered in the government supplier database.

50. Mandatory Procurement Bidding Documents. Standard Procurement Documents (SPDs) shall be used for all contracts subject to international competitive procurement and those contracts as specified in the Procurement Plan tables in STEP. For bidding processes with national market approach, bidding and request of quotations documents will be agreed with the World Bank and included in the POM.

51. Sustainable Procurement and Gender Equality in Project's Procurement. All implementing agencies, with support of SEPLAN, will put in place measures to support aspects of sustainable procurement and gender equality in all Project's procurement.

52. Operating Costs. Operating costs will include those recurrent costs that implementing agencies would not have incurred if not for the Project (for example, utilities, administrative and Project implementation staff, office maintenance, and so on) and will be procured following the World Bank's Procurement Regulations, including planning using the STEP System.

53. Procurement Capacity Assessment. A procurement capacity assessment was completed in April/2023 and it focused on assessing the overall capacity of SEPLAN to implement procurement transactions and manage contracts, in accordance with the World Bank's Procurement Regulations. The assessment also was focused on assessing the capacity of the PCU to implement procurement transactions and manage contracts, in accordance with the World Bank's Procurement Regulations. The Project risk rating has been assessed Moderate, and it was found on the basis of a sound procurement capacity assessment carried out in the coordinator agency, SEPLAN. The assessment reviewed SEPLAN's organizational structures and the current operating environment available for implementing procurement transactions expected by the Project. Most of the issues/risks have been identified and include: (i) weakness in capacity of the administrative staff; (ii)



lack of familiarity of SEPLAN's staff with procedures to select consultants, as well as with procurement of goods and non-consulting services in accordance the World Bank's Procurement Regulations governing the Project implementation; (iii) capacity constraints to prepare realistic procurement plans, (iv) lack of sufficient staff with the right skills and behaviors and a satisfactory track record in carrying out Procurement.

54. Mitigation measures were proposed on the basis of the major likelihood of occurrence of inherent risk on procurement. Most of the mitigation measures are overseen by SEPLAN. The set of proposed mitigation measures for the Project includes: (i) identify qualified staff with the expected skills and behaviors, and appoint them to be trained and guided on procurement aspects related to regulations and procedures that govern Project procurement; (ii) prepare an action plan considering measures to support and enforce regulations and systems related to procurement planning activities, including training on best planning practices; (iii) prepare a Contract Management Plan for each of the main contracts of the Project that are in execution; (iv) establish a centralized procurement unity at SEPLAN to be responsible for carrying out all Project's procurement processes; (v) prepare an action plan with the technical and contract management team aiming to improve existing measures and procedures to handle contract risk allocation, and strengthen the existing skills on risk allocation; (vi) preparation and adoption of a simplified bid/proposal evaluation flow that should be widely disseminated among involved staff and implementing agencies; (vii) training of procurement staff working at both implementing agencies involved in Project execution or with the responsibility in preparing procurement documents, and carry out procurement processes. The World Bank's team should be aware of monitoring the accomplishment of all recommended measures and propose additional mitigation measures during Project implementation or whenever needed.

55. PPSD and Procurement Plan Summary. The first Procurement Plan was prepared and approved in STEP in August 2023. The procurement plan defines contract category, contract description, estimated cost, appropriate procurement and selection methods, procurement approach, and evaluation method based on the PPSSD.

56. Procurement under Subprojects. Subprojects under Component 3 would finance very small contracts of goods, works, non-consulting services which may be procured on basis of a community-driven development approach or designed procurement arrangements to be carried out by local communities. Commercial Practices or procurement arrangements for Community Participation should be outlined in the relevant Project Operations Manual (POM) approved by the Bank and made publicly available by the Borrower.

Implementation Support

57. The World Bank biannual formal implementation support missions will be complemented by a continuous dialogue on Project progress and challenges. This interaction will cover technical and non-technical aspects of project implementation, including procurement, financial management, and safeguards. Close attention will be given to procurement capacity, as the Project includes a high volume of procurement processes – the procurement of all activities will be centralized at SEPLAN through a Procurement Central Unit (*Unidade Central de Licitações*, UNICEN). Terms of Reference (ToRs) will be prepared by the implementing agencies and reviewed by the World Bank team for technical quality, as well as compliance with relevant Environmental and Social Standards (ESS). The PCU will have to strengthen the team to include personnel who have experience with World Bank procurement and safeguards procedures. The World Bank will provide procurement and financial management training as needed.

58. The Implementation Support Plan (see Table 1.1) will be reviewed annually to ensure that it continues to meet the implementation support needs of the Project. At the halfway point of the operation, a midterm review will be undertaken to undertake a comprehensive assessment of progress in achieving the Project objectives laid out in the results framework and make any changes to the design and implementation arrangements, including any changes to the Loan Agreement that would require a restructuring to ensure satisfactory achievement of the Project objective. The World Bank task team will work with the PCU and PIUs and designated officials to clarify the requirements necessary to effect any changes. It is



understood that any changes to the Project that require amendments to the Loan Agreement will require a formal request from the Government's signatory, and approval by the Federal Government (Guarantor).

59. Six months before the Closing Date of the operation, the Government will commence preparation of its Implementation Completion and Results Report (ICR). The ICR author from the World Bank will participate in the final implementation review and gather the necessary information to prepare the World Bank ICR.

Table 1.1. Implementation support and resources requirements

Time	Focus	Skills Needed	Resources Estimate
Implementation kick-off (first 12 months)	Technical, implementation, fiduciary and safeguards	Project management; technical skills in land, environment and agriculture, operational (including M&E), fiduciary, E&S specialists	<ul style="list-style-type: none">• Training of PCU and PIU• Quarterly technical implementation support missions• Semiannual implementation support missions by procurement and FM specialists, unless Project design and challenges require quarterly missions• Technical expert support/visits on demand basis• Procurement expert support/visits on demand basis• Biannual monitoring of results framework
Implementation phase (12–48 months)	Technical, implementation, fiduciary and safeguards	Project management; technical skills in land, environment and agriculture, operational (including M&E), fiduciary, E&S specialists	<ul style="list-style-type: none">• Semiannual implementation support missions, including procurement and FM specialists• Technical expert support/visits on demand basis• Biannual monitoring of results framework
Completion	Technical, operational, fiduciary		<ul style="list-style-type: none">• One mission• ICR



ANNEX 2: Outcomes and lessons learned from Pillars 1

1. Under the Pillars of Growth and Social Inclusion 1 project (Pillars 1 project – P129342), the World Bank supported the State of Piauí from 2015 to 2021 with a USD 120 million loan through a multisectoral project. Amongst others, the project aimed at expanding the registration of groundwater users in rural areas (Subcomponent 1.3), expanding land tenure regularization (Subcomponent 1.4) and increasing the participation of rural family farmers in rural productive value-chains (Subcomponent 1.5). The project also strengthened the State of Piauí's capacity for water resources management, land management and rural development through the development of systems, processes, procedures and staff capacities.

Outcomes

2. **Water resources management.** Water Resources Management. At the end of the project, 8,537 groundwater users were registered in the State Water Resources Users Registry (*Cadastro Estadual de Usuários de Recursos Hídricos* – CERH) and verified by SEMARH, exceeding the increased target of 8,100. The Project supported the implementation of water user's registry (CERH) by carrying out nine information and communication campaigns to register groundwater users in the CERH. During implementation, SEMARH customized the CERH platform to simultaneously check all relevant databases. It also secured the support of the CGEO to help validate existing and register new information on water resources in CERH. The project also financed related equipment, including flow meters and global positioning systems necessary for the verification process.

3. **Strengthening real property rights.** At the end of the project, INTERPI had issued land titles through donation to 6,329 families, exceeding the end target of 5,000 beneficiaries. The Project supported a very successful effort to modernize INTERPI and make the institution more efficient, including supporting the creation of a new department in INTERPI (Traditional Peoples and Communities Unit - *Gerência de Povos e Comunidades Tradicionais* - GPCT-), the development of new land information systems allowing the agency to process land titles electronically: the Register of Agrarian Information - *Sistema de Registro de Informações Agrárias* (REGINA) and e-titles (e-títulos). These investments helped increase INTERPI's efficiency and transparency, with land titles being signed electronically in the new information system leading to faster and more accurate processes. These investments also contributed to significantly shortening the time required to issue land titles. As of December 2021, 16,497 requests of land tenure regularization through donation had been filed by small-scale farmers (target of 12,000) through the state Land Tenure Regularization Program. Under Pillars I, INTERPI encouraged women to register their land rights as beneficiaries or co-beneficiaries in land titles through donation. The project was successful as women were registered as owner or co-owners in 80.4 percent of the land titles issues. Land titles for nine quilombola communities, and the title for the *Queimada Grande* quilombola community were issued and submitted to the notary for registration. A new, operational integrated real estate registration system for notaries allows the Office of the Inspector General of the State Secretariat of Justice (*Corregedoria Geral de Justiça do Poder Judiciário do Estado do Piauí* - CGJ) to monitor notarial activities and offer online services to the public, professionals and public agencies such as INTERPI.

4. **Support of Productive Chains for Poor Farmers.** A total of 907 poor rural women and/or families from quilombola communities or traditional communities and/or from land regularization settlements participated in investment plans as direct beneficiaries, greatly exceeding the end target of 500 persons. The Project helped develop the SIGMA to manage real-time data on the performance and administration of PROGERE. Technical assistance was provided to the producer groups to disseminate the program and its requirements, improve their knowledge of SIGMA, provide access to other public offices (e.g., many of the neediest beneficiaries could not access financing since they did not have required civil identification). As of April 2022, 39 investment plans (target 36) had been proposed by women-led organizations and benefited mostly the women and/or families from Quilombola or traditional communities or from land regularization settlements. The project also supported a program of virtual green markets, across six territories, seven municipalities



and 28 producer groups. The program benefitted 278 families. The average value sold in each of these markets was R\$114,45 per family.

Lessons learned

5. The main lessons from Pillars 1 project to guide the design of the proposed operation are as follows:

(i) **Multisectoral design and project management.** In view of its multisectoral design, the Pillars 1 was implemented by 12 different agencies, understandably raising complexity. Some delays in implementation were encountered and staffing and capacity issues impacted the contracting of technical assistance. This alone placed a heavy burden upon SEPLAN to jump in and provide hands-on support, make timely decisions and propose needed course corrections when issues arose with any one of the implementing agencies. Nevertheless, the impact on disbursements was limited to Component 2, and about 40 percent of the loan was disbursed during the first 18 months of implementation. This experience shows the importance of explicitly addressing the risk that different implementing agencies may advance at a different pace, and that with so many agencies involved, the chances of implementation issues with any one or more of them could impact overall performance.

(ii) **M&E.** In view of its multisectoral design, increased complexity of monitoring and evaluation activities called for dedicated investments. The Project's design aimed at improving the State's capacity to monitor and evaluate its investments to support policymaking and practice, and specific activities were incorporated under the respective subcomponents. Specifically, monitoring and assessment systems were proposed for groundwater (water resources cadaster), property rights (real estate registration system), a computerized monitoring, information and management systems for PROGERE II and a new procurement information and contract management system and the State's Integrated Monitoring System, SIMO. The experience of Pillars 1 showed the need to adequately staff project management in M&E and to empower local teams responsible for M&E to ensure quality and avoid delays.

(iii) **Gender.** Pillars 1 was designed with a strong focus on women, establishing gender equity as a core development objective on its own right and central to enhancing productivity and economic efficiency. Project activities included support provided to the State Coordination of Policies for Women and Gender-Smart Public Policies. However, the results framework had a large gap in gender-disaggregated data that could have provided a glimpse of the progress made in the areas of groundwater and land tenure registration.

(iv) **Land disputes.** Intense land disputes arising from land tenure regularization programs can be minimized by close and continuous communications with all interested population groups. The project strengthened the capacity of the State Land Agency and judiciary mechanisms and started working with two groups (agrarian settlements and Quilombola communities). As a result, other groups felt that they were left out, triggering complaints. The lesson is to expand consultations and engagement by reaching out to all interested groups to seek their feedback and to clarify its approach to land regularization. In fact, when complainants were included in the discussions, they suggested preparatory work for other potential settlements, including anthropometric studies that were included and carried out under the restructured project. Another related lesson is to continue strengthening INTERPI's conflict resolution mechanisms put in place by Pillars 1 in articulation with stakeholders, NGOs and the Judiciary, to anticipate and mitigate land conflicts as a result of the mismatch or lack of information from civil society stakeholders involved in the State's land policy.

(v) **Land regularization.** Land regularization activities carried out throughout Pillars 1 highlighted the need to increase the number of permanent INTERPI staff to ensure greater involvement in implementation and thereby gradually reduce the dependence on the hiring of consultants, as well as ensure the definitive internalization of the information management and availability.



(vi) **Procurement.** Procurement functions faced several challenges and difficulties, including low capacity in most implementing agencies, lack of expertise for preparing technical specifications and specifically the large number of executing agencies, most of which lacked the staff for their own-financed procurement. Procurement functions were decentralized for agencies deemed to have adequate capacity, while SEPLAN carried out procurement for other agencies that did not have such capacity, and the Mid-Term Review agreed upon a series of actions to improve procurement. Although SEPLAN's performance was strong and proved to be instrumental in supporting other implementing agencies' procurement functions, these challenges show the need for early identification of procurement capacity in each implementing agency in order to detect and address potential deficiencies and to plan accordingly.

(vii) **Rural development.** The previous project highlighted the need to strengthen the teams' capacity in the use of systems developed for the management of the investment plans and to implement actions that will help potential beneficiaries in the development of organizational capacity.

(viii) **Environmental and social risk management.** Pillars 1 showed the need to strengthen the PIU team in this particular area, in order to allow a more efficient follow-up of the actions of the executing agencies and to act with greater forcefulness in collaboration with the State's environmental agency to sped environmental licenses. Another related lesson was the need to implement and/or customize a monitoring system to speed the availability of complaints related to the actions of the projects implemented in the State.

**ANNEX 3: Economic and Financial Analysis**

1. The proposed project will adopt a coordinated approach aiming to support small-scale farmers in targeted areas with (i) land tenure regularization, (ii) environmental regularization and natural resources sustainable management, while (iii) providing them with support (financial, technical assistance) to invest in sustainable productive agricultural activities. The project will strengthen inter-institutional coordination and operational capacity of implementing agencies for improved public services in rural areas. This will result in increased agriculture production, through increased land tenure security, increased access to credit and technical support public services, increased agricultural productivity and increased resilience to climate change through the increase adoption of climate smart agriculture practices. The project is also expected to generate climate and environmental benefits, such as a reduction in greenhouse gas emissions, through enhanced capacities to monitor, control and prevent natural vegetation fires, improved implementation and monitoring of the Forest Code, and improved water resources management and quality.

2. Accordingly, the project is expected to provide four economic benefits streams: the first being the positive returns generated by security of tenure, through improved access to government programs, as well as increase access to rural financial services, leading to increase investment and improved production. The second relates to economic benefits provided by targeted productive landscapes ecosystem services. The third stems from improved adoption of sustainable land management and good agriculture practices at farm level, leading to improved productivity, and sales. The fourth estimates the environmental benefit of reduced emissions (incremental analysis with/without project scenario), using the ExAct Carbon accounting tool.⁷⁸

3. The project will be targeting traditionally excluded groups (poor rural women, Indigenous Peoples and other Traditional People and Communities, agrarian reform settlers). The Project's direct beneficiaries are family farmers, as defined by the Brazilian law, and their families located in rural settlements and PIPCT communities. The number of these direct beneficiaries is estimated at approximately 24,000 farmers.

Methodology

4. This annex presents the Economic and Financial Analysis (EFA) of the project's interventions with indicative enterprise models (business plans). The Financial analysis is based on the recent ex-post financial and economic evaluation of the PVSA Project Closure Report.⁷⁹ A cash-flow analysis to present the "with" and "without" scenario analysis follows. Key-indicators used to carry out the analysis are Net Present Value (NPV), Financial and Economic Internal Rate of Return (FIRR), Benefit-cost ratio (B/C ratio).

Table 3.1. Main sources of data and assumptions

Item	Assumptions
Source of Data	The Financial analysis is based on the ex-post financial and economic evaluation of the Semi-arid Sustainable Development Project in the State of Piauí (Viva o Semiárido) Project Completion Report, implemented between 2010 and 2022. The PCR was completed in November 2022 (PCR equivalent to the Bank's ICRR).
Exchange rate	The exchange rate used in the analysis is fixed at 1 USD = 5.2 BRL, the exchange rate prevailing during the preparation, and used by the UGP to prepare the budget.

⁷⁸ see Annex 4

⁷⁹ IFAD. 2022. Semi-arid Sustainable Development Project in the State of Piauí (Viva o Semiárido) Project Completion Report.

<https://www.ifad.org/en/-/brazil-1100001486-viva-o-semi-%C3%81rido-project-completion-report>



Prices	The adopted numeraire is the domestic price level expressed in local currency unit. Financial prices were taken from the existing business plan model available from IFAD's PCR. Additional models were also taken from a similar WB financed project in neighboring Ceará. The analysis is done using nominal constant prices.
Opportunity cost of capital	A discount rate of 10% was applied in the financial analysis to assess the viability and robustness of the investments.

Financial Analysis

5. The primary objective of the financial analysis is to determine the financial viability and incentives for the target group as a result of their participation in project activities, and hence to examine project's estimated effects on family labour, cash flow and household incomes. These models, based on value-chains that are found in targeted areas and that were supported through previous projects⁸⁰, are used as building blocks for the economic analysis of the entire project once aggregated and up-scaled.

6. For each model, feasibility indicators include the Net Present Value (NPV) of net benefit flows for both the "with" and "without" project scenario, and the corresponding Internal Rate of Return (FIRR) for the same net benefit flows, as well as the Benefit/Cost ratio. Additional models covering fruticulture, cassava production and cashew nut production were taken from a WB financed project in the neighboring State of Ceará and added to the overall analysis.

Table 3.2: Summary of financial models (incremental analysis) - Source: PCR, PVSA (November 2022)						
Entreprise						
Item @10% d.r.	Unit	Poultry production	Sheep rearing (meat)	Goat rearing (meat)	Beekeeping (honey)	Productive backyard gardens
Investment	R\$	600.575,67	1.119.564,94	533.522,55	779.447,78	1.132.359,59
Situation without project						
Revenue	R\$	241.067,64	686.315,67	147.691,85	322.186,56	557.047,58
Cost	R\$	209.420,01	479.272,70	250.126,79	146.698,50	296.585,08
Margin	R\$	31.647,63	207.042,97	- 102.434,94	175.488,05	260.462,50
Situation with project						
Revenue	R\$	630.727,02	2.208.358,72	819.289,96	1.129.624,68	956.867,86
Cost	R\$	443.812,71	1.292.731,11	498.741,08	356.036,04	349.837,83
Margin	R\$	186.914,31	915.627,62	320.548,88	773.588,65	607.030,04
Incremental margin	R\$	155.266,68	708.584,65	422.983,82	598.100,59	346.567,53
Financial performance indicators						

⁸⁰ (i) beekeeping and honey production; (ii) poultry production; (iii) goat and/or sheep rearing for meat; (iv) productive backyard gardens.



IRR	%	15%	35%	50%	75%	17%
NPV	R\$	R\$ 133.259	R\$ 1.863.888	R\$ 1.372.827	R\$ 2.319.843	R\$ 400.489
BCR	#	1,25	1,49	1,37	2,71	2,38

7. Financial results: From the financial point of view, the analyzed project activities presented IRR ranging from negative to up to 89 percent, and NPV between - R\$ 266 thousand (Poultry) and R\$ 1.6 million (Beekeeping).

8. Overall, the program will benefit women, youth and men directly involved in farm and off-farm activities proposed by the project as well as indirect beneficiaries employed in the value adding activities. Direct beneficiaries' inclusion and phasing is described in Table 3.3 below.

Table 3.3: Beneficiaries and investment phasing (Component 3)

Models	# Hh	# hectares	Y1	Y2	Y3	Y4	Y5	TOTAL
Window 1 - CSA Productive support - PIP	3450	4950	0	60	60	30	0	150
Window 2 - CSA Commercial surplus - PIP	1150	1680	0	15	20	15	0	50
Window 3 - CSA in Selected Value Chains - PIP	420	n.a		2	4	1		7
Smallholders associations/cooperatives								
Apiculture and Honey	920	3200	0	10	20	10	0	40
Aviculture - free range chicken	690	30	0	15	15	0	0	30
Fruiticulture	690	600	0	15	15	0	0	30
Cassava production	460	600	0	0	10	10	0	20
Goat - meat	345	600	0	5	10	0	0	15
Sheep - meat	345	600	0	5	5	5	0	15
Backyard gardens	1150	1000	0	25	20	5	0	50
Value chain investments								
Cashewnut processing	120	n.a	0	1	1	0	0	2
Honey	180	n.a	0	1	1	1	0	3
Goat and sheep meat	120	n.a	0	0	2	0	0	2

Table 3.4: Land use areas under Pilares II (in ha) - Source: Estimates from INTERPI and SEMARH

LAND USE AREAS - PILARES II		2024	2025	2026	2027	2028	TOTAL
Area to be regularized	ha	32,020	25,469	20,923	34,979	25,900	139,291
Agriculture Area (estimate)	ha	9,642	7,670	6,301	10,533	7,799	41,945
Set aside area - environment protection (Reserva Legal)	ha	9,606	7,641	6,277	10,494	7,770	41,787
Permanently protected area (APP) - river banks	ha	3,447	2,742	2,253	3,766	2,788	14,996
Number of springs and sources subject to intervention	#	0	50	50	40	0	140
APP Area subject to intervention	ha	29	23	19	31	23	125
Area around springs and sources (50m radius)	ha	0	39.27	39.27	31.416	0	109.96
Area of avoided land use change due to fires (without project)	ha	28,196	24,812	21,835	18,778	15,022	108,643
Area of avoided land use change due to fires (with project)	ha	28,196	24,812	25,474	31,296	27,541	137,319
Incremental area	ha	-	-	3,639	12,519	12,519	28,676

Economic Analysis

9. The objectives of the economic analysis are: (i) to examine the overall project viability, and (ii) to assess its overall economic rate of return; and (iii) to perform sensitivity analyses upon variables affecting project's results. The analysis integrates three net benefit streams to assess the economic rate of return.

10. Land Tenure Regularization Stream: With respect to the economic analysis of the incremental benefits, assumptions made included that the Project achieves completing the titling of 95 percent of all plots included in targeted communities and in areas with Indigenous and Traditional People. In addition, the analysis also assumes that 75 percent of the landholders obtain a progressive increase annual rural income, which was calculated on the basis of a basket of crops,



corresponding to a 10 percent increase in the Value of Production.

11. Farm-Level Productive Investments Benefit Stream. The production model considered in the financial analysis was used as building block for determining the viability of the whole project. The incremental benefits stream comprises the economic net values of all the models developed in the financial analysis (with project scenario minus without project scenario). This includes removing taxes and transfers, using economic or social prices, rather than financial (or market) prices, using conversion factors and opportunity costs of production. These economic benefits are aggregated following the phasing foreseen. An adoption rate of about 85 percent as well as a failure rate of 10 percent were factored into the aggregation and upscaling of results.

12. Ecosystem services benefit stream. Healthy productive landscapes provide many ecosystem services that are necessary for social and economic well-being. These services include i.e. water filtration and storage, cleaning of air, habitat as well as recreation. Monetary values associated with ecosystem service have been taken from recognized studies that assess the incremental economic benefits of the ecosystem services. Two meta-analyses provide global estimates based on 127 and 665 analytical studies.

Table 3.5: Overview of Study Estimates on Economic Values of Ecosystem Services (per hectare)

Ecosystem Services (meta analysis)	Value in USD/ha Siikamaki et al (2015) ^{81⁸²}	Value in USD/ha De Groot (2012) ⁸³	Average value USD/ha
Recreation	28.1	26	
Habitat	3	53	
Water	86.4	60	
Total	117.5	139	128

13. Table 3.5 shows an estimation of the ecosystem services valuation, such as recreation (between USD 28.1 and 26/ha/year), habitat (between USD 3 and 53/ha/year), and water (between USD 60 and 86.4/ha/year), giving a total of between USD 117.5/ha/year and 139 USD /ha/year, with an average of 128 USD /ha/year.

14. In order to work out an incremental benefit stream, the analysis assumes a without situation where ecosystems are providing only 30 percent of their potential services, because of over-exploitation, weak regulation and poor landscape planning. In a with-project situation, the analysis assumes that ecosystems have recovered their capacity and are able to provide at least 80 percent of these benefits. An incremental net benefit stream is generated by multiplying this incremental value (50 percent) by the number of hectares recovered per year and extending the benefits over a twenty-year period.

15. Carbon Storage Benefit Stream. Total amounts sequestered were estimated using the Ex-Ante Carbon-balance Tool (see Annex 4). This value considers all the carbon emission reduction from avoided deforestation and protection of conservation areas (indirect contributions); as well as from sustainable grassland management associated with cattle ranching, agroforestry and silvo-pastoral system, and sustainable crop management in the case of soya (direct contributions) and compares it with a Business as Usual (BAU) scenario. An estimated incremental 4,213,519 tons of CO₂eq

⁸¹ Siikamäki, J., et al (2015), as quoted in World Bank. 2020. Project Appraisal Document Connecting Watershed Health with Sustainable Livestock and Agroforestry Production in Mexico (P172079).

⁸² Resende, F. M. et al. 2017. Economic valuation of the ecosystem services provided by a protected area in the Brazilian Cerrado: application of the contingent valuation method. Braz. J. Biol. vol.77 no.4.

⁸³ Global estimates of the value of ecosystems and their services in monetary units. Rudolf de Groot et al. Ecosystem Services 1 (2012) 50–61



will be avoided in the area intervened by the project over 20 years. Carbon social price was estimated ranging from the current price for carbon given to Brazil by the Green Climate Fund (USD 5/tCO₂)⁸⁴, to a higher social price of USD 55/tCO₂.⁸⁵

16. Project Economic Costs. The economic analysis includes the investment and incremental recurrent costs of project components. Project financial costs have been converted to economic values by removing taxes, duties and subsidies. In order to avoid double counting, the final aggregation considered only those costs that were not included in the financial models (investment values in selected productive chains). Specifically, the estimation of economic costs considered: (i) all investments and costs, without taxes; (ii) the recurrent costs of the program.

Table 3.6. Main assumptions

Item	Assumption
Project Life	Project life has been set at 20 years, considering investments lifecycles.
Discount Rate	An economic discount rate of 10% has been used. The opportunity cost of capital is currently slightly higher than that, with the Central Bank of Brazil deposit rate (SELIC) being around 11-12% per annum (https://www.bcb.gov.br/). Average over the last 10 years is between 9 and 10%.
Conversion Factor	Based on international trade data, the average Standard Conversion Factor over the last ten years has been estimated to be 0.965.
Opportunity Cost	The opportunity cost of unskilled labor was estimated considering the current long-term unemployment rate (12%) ⁸⁶ and a standard exchange rate factor (SERF) of 1.037 resulting in a shadow wage rate factor (SWRF) of 0.913.

Results of the Economic Analysis

17. Economic Viability. The economic analysis shows that the project is an economically viable investment for the economy as a whole. The program economic NPV of the net benefit stream, discounted at 10 percent, is USD 1.13 million, producing an EIRR of 10.21 percent for the base case scenario. A summary economic analysis is presented in table 3.7. Each component assessed on its own appears to be viable. The more modest results in the overall analysis stem from the fact that these include all project costs, including component 4 on project management, coordination, monitoring, etc.

Table 3.7: Economic NPV and IRR for Pilares II, by Component

@ 10% discount rate	EIRR	ENPV (m USD)	BCR
Comp 1 (only C1 investment and recurrent costs)	16%	2.74	1.15
Comp 2 (only C2 investment and recurrent costs)	37%	10.50	1.86
Comp 3 (only C3 investment and recurrent costs)	16%	11.34	1.90

⁸⁴ <https://www.greenclimate.fund/document/redd-results-based-payments-results-achieved-brazil-amazon-biome-2014-and-2015>, p. 69 (C.2.4)

⁸⁵ World Bank. 2023. Guidance note on shadow price of carbon in economic analysis.

⁸⁶ <https://www.ibge.gov.br/explica/desemprego.php>

**Table 3.8: Summary of the economic analysis results – base case**

USD Baseline	Total incremental bene (with - without situation)	Total costs		Net incremental benefits
		Investment	Recurrent	
Y1	(26,899,223)	14,193,506		14,203,698
Y2	(23,288,763)	10,719,478		14,188,139
Y3	(22,088,264)	9,968,850		14,256,654
Y4	(7,415,143)	8,115,207		14,209,275
Y5	2,753,101	6,046,397		14,255,163
Y6	13,526,194		497,683	14,261,937
Y7	13,706,014		497,683	14,246,924
Y8	13,690,455		12,834,971	14,310,042
Y9	13,758,971		13,086,637	14,202,716
Y10	13,711,592		13,338,303	14,272,595
Y11	13,757,480		13,841,636	14,258,240
Y12	13,764,253		14,093,302	14,258,240
Y13	13,749,241		14,344,968	14,258,174
Y14	13,812,358		14,596,634	14,258,174
Y15	13,705,033		15,099,966	2,119,387
Y16	13,774,912		15,351,632	497,683
Y17	13,760,557		15,854,964	73,977
Y18	13,760,557		16,106,630	13,760,491
Y19	13,760,491		16,358,297	-
Y20	13,760,491		16,861,629	-
	NPV @ 10% (m USD)			1.125
	NPV @ 10% (m BRL)			5.870
	EIRR			10.21%

18. The project's economic analysis indicators were estimated using a higher carbon price (HCP) assumption and a lower carbon price (LCP) assumption to estimate economic benefits from reducing GHG.⁸⁷ Under the HCP scenario, the economic rate of return (ERR) for the entire Project is 35.2 percent and the net present value (NPV) is approximately USD114.5 million. Under the LCP scenario, the ERR was 12.3 percent and the NPV was approximately USD 12.6 million.

19. **Sensitivity Analysis.** The robustness of these indicators was tested and confirmed with a sensitivity analysis that resulted in a switching value for cost increments of 280 percent, 30.7 percent and 2.75 percent under the HCP, LCP and baseline scenarios, respectively, and of 74 percent, 23.5 percent and 2.68 percent for reductions to economic benefits under the HCP, LCP and baseline scenarios, respectively. These indicators strongly suggest that the Project represents an economically worthwhile investment from the perspective of society (see table 3.9), particularly if mitigation potential benefits are added to the economic net benefit stream.

Table 3.9 Summary of sensitivity analysis

Indicator	Scenario 1	Scenario 2	Scenario 3
	Baseline	Baseline + LCP	Baseline + HCP
EIRR	10.2%	12.3%	35.2%
ENPV (m USD)	1.125	12.563	114.523
BCR	1.03	1.31	3.80
SVC	2.75%	30.7%	280%
SVB	-2.68%	-23.5%	-74%

⁸⁷ World Bank. 2023. Guidance note on shadow price of carbon in economic analysis.

**ANNEX 4: Greenhouse Gas Analysis****Background**

1. The objective of the project is to increase land tenure security, promote the adoption of climate-smart agriculture practices, and encourage sustainable natural resources management among smallholder farmers in select territories of the State of Piauí. With the achievement of these objectives, it is expected to improve food security, mitigate the effects of climate change, and promote sustainable development in the region. This will be accomplished through the promotion of innovative solutions accompanied by financial incentives. These actions are aimed to increase livelihood resilience and reduce risks to climate change while providing food security to vulnerable rural households.
2. The project will focus mainly on state agrarian reform settlements and territories of TPC targeting areas where economic, environmental and inclusion challenges overlap. Economic indicators include income level, access to markets and agriculture services, involvement in value-chains with significance for family farmers (cassava, cashew, goat and sheep breeding, poultry, beekeeping), environmental indicators include water resources, native vegetation fires, inclusion indicators include land regularization status, gender, identification as traditional people and communities. The project will also implement activities in agrarian reform settlements and communities where the Pillars I project intervened with regards to land regularization, in order to deliver on the two other aspects of the integrated approach (environmental regularization and agriculture development).
3. Component 1 Land Tenure Regularization. This component will support the efforts of the State Government to strengthen the land rights of thousands of small-scale farmers and members of TPCs who informally occupy state lands. Component 2 Environmental Management and Geospatial information management. The main objective of this Component is to contribute to improving the State's capacity to promote sustainable natural resources management (including natural vegetation cover and water resources), to promote the adoption of sustainable natural resources practices within family farmers. Component 3 Sustainable Rural Development. The main objective of this Component is to contribute to improving the State's capacity to promote sustainable natural resources management (including natural vegetation cover and water resources), to promote the adoption of sustainable natural resources practices within family farmers.

Methodology

4. GHG accounting has become a common practice for many international financial institutions as part of their project preparation. The Ex-Ante Carbon-balance Tool (Ex-ACT), developed by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the World Bank is widely used to assess the impact of agricultural, livestock and forestry projects on GHG emission and carbon sequestration. Ex-ACT allows the assessment of a project's net carbon-balance, defined as the net balance of CO₂ equivalent GHG that were emitted or sequestered because of project implementation actions compared to a without project scenario. This incremental benefit is what truly reflects whether a particular action taken mitigates or generates emission and thus makes the "GHG" bankable per se.
5. The Ex-ACT tool assesses how the impact of a planned intervention compares to the business-as-usual scenario. The calculator requires data for 3 specific points in time: initial situation, with project scenario, without project or BAU. In preparing this data a lot of work is required up front to determine the adequate modeling of activities/interventions in the tool. This takes into consideration technical specificities, conversations with national staff to determine current and future projections and literature reviews to improve the accuracy of the assessment. Once all this information is gathered based on technical expertise a plan on how to best model the intervention in the tool along with the assumptions made is generated. This is a crucial step as this is what really determines the measurement of the impact.

**Project Boundaries and Data sources**

6. Piaui where the project will mainly intervene has a tropical moist climate with a High Activity Clay (HAC) dominant soil type. The Piaui project will support the next activities with mitigation potential:

Table 4.1: Description of components activities with mitigation potential

Component		Activity
1. Legal Reserve Area	Land tenure	-Land tenure regularization. By law No. 244/2019 the private landholders must set aside an area called a Legal Reserve (RL). For Legal Reserves, the percentage of 30% was applied to the total regularized area (since the project focuses almost entirely on the Cerrado biome). The CAR is a potentially promising avenue to slow illegal deforestation on private properties as the implementation of environmental regularization.
	Assumption with mitigation potential	-The deforestation of 30% of the total areas that are planned to be regularized with the project is avoided
2. Environmental Management and Geospatial information management.	Fire reduction	-In 2022, 10,866 hotspots were registered by INPE in the Piaui State. In an annual ranking of the Brazilian states that have the highest number of hotspots, Piauí is always ranked among the first eight. This component is designed to strengthen fire risk prevention, control and response capacities, strengthen climate resilience, and mitigate net GHG emissions.
	Assumption with mitigation potential	With the implementation of preventive measures, the measures to control and combat vegetation fires and brigades, it is expected that the percentage of burned area will decrease in the project intervention area by an extra 10% at the final year of implementation.
	Environmental Regularization Program	The environmental regularization process involve different steps, one of them is the implementation and regulation of the PRA. This activity will support the recovery of degraded areas within private landholdings and recovery and conservation of springs, including inventory, analysis, design and implementation of a degraded area recovery plan (PRADA).
	Assumption with mitigation potential Reverse degradation	125.29 ha of APPs. Areas that are intended to be restored, isolating them to achieve natural regeneration.
	Assumption with mitigation potential Reforestation	110 ha that surround the water springs are intended to be restored by carrying out reforestation actions.
3. Sustainable Rural Development		This Component aims to increase the socio-economic inclusion and climate resilience of family farmers from land reform settlements and TPC, by granting access to climate-smart agricultural technologies and markets and strengthening the agriculture sector public services provided to farmers. This Component will contribute to improve net carbon balances through: (i) emission reductions from improved grasslands, livestock management and cropping systems; (ii) better agriculture management; and (iii) agroforestry systems.
	Assumption with mitigation potential beekeeping	3200 ha of flowers for beekeeping will be implemented, taking care of soil conditions.
	Assumption with mitigation potential Sheep-goat farming	1,200 ha of pastures will be taken care of and 10,000 head of cattle will be introduced (this is an emission but is part of the project so it is take it in to account)



	Assumption with mitigation potential Poultry farming	30 ha of pastures will be taken care of and 10,000 head of chickens will be introduced (this is an emission but is part of the project so it is take it in to account).
	Assumption with mitigation potential Agroforestry-orchard	600 ha of orchard will be planted.
	Assumption with mitigation potential Cassava production	600 ha of cassava will be planted.
	Assumption with mitigation potential Productive backyards	1000 ha of productive backyards will be supported.

Modeling in Ex-Act tool

7. Table 4.2 summarizes the modelling for each of the module for their accounting in Ex-Act. Furthermore, specific technical conditions with and without project are described for the project situations.

Table 4.2: Characterization of the analysis in the Ex-Act tool

Component and activity	Area (Ha)	Current situation	Assumptions Without project (BAU)	Assumptions With project	EXACT Module
1. Avoid deforestation	41,787.3	It is not a regularized area so it runs the risk of being deforested	The deforestation rate in the area could harm the total ha	The area will be protected so it is prevented from being deforested Deforestation rate: .84% for Piaui	LUC Deforestation: 2.1 Final land use after deforestation: grassland
2. Fire reduction	28,676.23	In an annual ranking of the Brazilian states that have the highest number of hotspots, Piauí is always ranked among the first eight. There is a tendency of decrease in the total number of burned ha per year of 12%.	Without project implementation there is a tendency of decrease in the total number of burned ha per year of 12%.	With the implementation of preventive measures to control and combat vegetation fires and brigades, it is expected that the percentage of burned area will decrease by an extra 10% at the final year of implementation.	Management 5 Forest degradation & management Fire impact 32% without project. Fire impact with project 10%.
2.Reverse degradation	125.29	At present they are degraded lands	Without the project they will remain degraded lands	The project seeks to reverse the situation and past from low degradation condition to no degradation.	Management 5 Forest degradation & management
2.Reforestation	110	Deforested area with some degree of degradation	Deforested area with some degree of degradation	Reforestation of the area surrounding the water springs	LUC Reforestation: 2.2 Initial use: degraded land



3.Beekeping	3,200	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of flower fields taking care of the soil condition	LUC 2.3 Grassland: 4.1.1 from other land use. Livestock:4.2
3. Sheep-goat farming	1,200 ha 10,000 heads	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of grasslands taking care of the soil condition	LUC 2.3 Grassland: 4.1.1 from other land use. Livestock:4.2
3. Poultry farming	30 ha 30,000 heads	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of grasslands taking care of the soil condition	LUC 2.3 Grassland: 4.1.1 from other land use. Livestock:4.2
3. Agroforestry-orchard	600ha	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of agroforestry orchard	LUC 2.3 Perennial systems from other LU or converted to other LU. Perennial fallow
3. Cassava production	600ha	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of perennial cropland	LUC 2.3 Perennial systems from other LU or converted to other LU. Perennial fallow
3. Productive backyards	1,000ha	Degraded grassland or other not forest use land	Degraded grassland or other not forest use land	Incorporation of productive backyards	LUC 2.3 Annual cropland from other land use change

8. Other relevant aspects are:

- **Greenhouse gases considered.** The estimation of emissions for this project considers the sequestration, reduction and or avoidance that result from the practices mentioned above. It considers sources and sinks from carbon dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O) gases which are presented as CO₂ equivalent. GWP for Methane is 25 and for Nitrous Oxide is 298.
- **Pools considered:** Assessment of carbon pool changes are based on above-ground biomass, below-ground biomass, soil, deadwood and litter.
- **Timeframe:** The EX-ACT differentiates between two time periods. First is the implementation phase, the period during which project activities are carried out and second is the capitalization phase, period where project benefits are still occurring because of the activities performed by the project. Given the typology of activities proposed under this project, the analysis considers a 20-year period, which is in line with IPCC recommendation for considering the timeframe between transitions states of natural systems and the period necessary to reach a new equilibrium for carbon stocks. Therefore, the physical implementation of the project consists of 5 years, the sequestration will continue to capitalize for 15 more years to reach the 20 year period. The analysis further assumes the dynamics of change (from without (BAU) to with project) to be linear over the duration of the project.

Entries in EXACT by activity

9. Component 1.

- **Legal Reserve Area**



Modeling details: The project will support the regularization of 139 291 ha as mentioned in Table 4.3. The land regularization will allow avoiding the deforestation of 30 percent of the total regularized hectares. Without project, it is assumed that these hectares will not be protected and that the rate of deforestation in the region may affect the total number of hectares.

Table 4.3. Land regularization area and Legal Reserve Area

	Units	Y1	Y2	Y3	Y4	Y5	TOTAL	Avoided deforestation LRA area 30%
		2024	2025	2026	2027	2028		
Land regularization area	ha	32,020	25,469	20,923	34,979	25,900	139,291	41,787.30

10. Component 2. This component is designed to strengthen fire risk prevention, control and response capacities, strengthen climate resilience, and mitigate net GHG emissions.

- **Fire Reduction**

Modeling details: The project will support preventive measures to control and combat vegetation fires and brigades, it is expected that the percentage of burned area will decrease by an extra 10 percent at the final year of implementation. Without project, it is assumed that this decrease of extra 10 percent will not happen.

Table 4.4. Area that is expected to not be affected by the fire, thanks to the intervention actions of the project

		Y1	Y2	Y3	Y4	Y5	TOTAL	Area not affected by the fire with project
		2024	2025	2026	2027	2028		
Unburned area with project	ha	28,196	24,812	25,474	31,296	27,541	137,319	
Unburned area without project	ha	28,196	24,812	21,835	18,778	15,022	108,643	28,676.23

- **Reverse degradation**

Modeling details: The project seeks to reverse the situation and past from low degradation condition to one with no degradation through natural regeneration. Without project, it is assumed that these hectares will not be intervened and they would remain in their initial condition.

Table 4.5. Area to be intervened for natural regeneration

		Y1	Y2	Y3	Y4	Y5	TOTAL
		2024	2025	2026	2027	2028	
Area APP natural regeneration	ha	28.80	22.91	18.82	31.46	23.30	125.29

- **Reforestation**

Modeling details: The project seeks to reverse the situation and past from low degradation condition to one with no degradation through natural regeneration. Without project, it is assumed that these hectares will not be intervened and they would remain in their initial condition.



Table 4.6. Area to be intervened for reforestation

		Y1	Y2	Y3	Y4	Y5	TOTAL
	2024	2025	2026	2027	2028		
Area to be reforested in water springs	ha	0.00	39.27	39.27	31.42	0.00	110

11. Component 3. This Component will contribute to improve climate resilience of family farmers and to improve net carbon balances through: (i) emission reductions from improved grasslands, livestock management and cropping systems; (ii) better agriculture management; and (iii) agroforestry systems. Without project, it is assumed that these hectares will not be intervened, and they would remain in their initial condition. The assessment was made using agricultural value-chains supported in previous projects.

- **Beekeeping:** The implementation of 3,200 floral hectares for beekeeping in degraded grassland or other not forest use land.
- **Sheep-goat farming:** The implementation of 1,200 hectares of grasslands in zones with degraded grassland or other not forest use land and 7 ha of Fodder palm and cassava, to complement and improve livestock feeding as a measure of adaptation to climate change to diversify food sources. 10,000 heads of livestock will be introduced.
- **Poultry farming:** The implementation of 30 hectares of grasslands in zones with degraded grassland or other not forest use land and 30,000 heads of chickens will be introduced.
- **Agroforestry- orchard:** The implementation of 600 hectares of agroforestry-orchard in zones with degraded grassland or other not forest use land.
- **Cassava production:** The implementation of 600 hectares of cassava in zones with degraded grassland or other not forest use land.
- **Productive backyards:** The implementation of 1,000 floral hectares of productive backyards in zones with degraded grassland or other not forest use land.

Table 4.7. Productive activities under component 3

Value Chain	2024	2025	2026	2027	2028	Total
Beekeeping						
PIPS		10	20	10		40
Number Ha		800	1600	800		3200
						12800
Sheep-goat farming						
PIPS		10	15	5		30
Number Ha		400	600	200		1200
						10000
Poultry farming						
PIPS		15	15	0		30
Number Ha		15	15	0		30
						30000
Agroforestry -orchard						
PIPS		15	0	15		30
Number Ha		300	0	300		600
Cassava production						
PIPS			10	10		20



	Number Ha			300	300		600
Productive backyards							
	PIPS		25	20	5		50
	Number Ha		500	400	100		1000
TOTAL							
	PIPS		75	80	45		200
	Number Ha		2015	2915	1700		6630

12. Inputs

- **Modeling details:** The project aims to support environmentally friendly technology. 140 solar pumps will be implemented during the project and 1,000 ha with small water reuse systems for production yards.

Table 4.8. Solar pumps implemented during project

Solar water bombs			
Units	Power (Kw/h)	Mw/h by year	
28	100	1022	
28	350	3577	
28	650	6643	
28	1000	10220	
28	13000	13286	

Results

13. Net carbon balance. The net carbon balance quantifies GHGs emitted or sequestered resulting from the project compared to the “without project” (BAU) scenario. In this case results indicate that the project constitutes a carbon sink of -1,053,380.00 tCO₂-eq in 5 years of project implementation and -4,213,519 tCO₂-eq in 20 years when ecosystem equilibrium is reached.

Table 4.9: Summary of GHG carbon balance

DETAILED RESULTS

Project name	Piaui	Project duration (in years)		Total area (ha)	92,331	Global warming potential			
Continent	South America	Implementation Phase	5	Mineral soil	92,331	CO ₂	1		
Country	Brazil	Capitalization Phase	15	Organic soil	0	CH ₄	28		
Climate	Tropical	Total Duration of Accounting	20	Waterbodies	0	N ₂ O	265		
Moisture	Moist								
GROSS FLUXES									
In tCO ₂ e over the whole period analysis									
PROJECT COMPONENTS	WITHOUT	WITH	BALANCE			Tier 2 Specific GHG fluxes	AVERAGE ANNUAL EMISSIONS		
						In tCO ₂ e/yr	In tCO ₂ e/yr		
Land use changes	Deforestation Afforestation Other land-use	756,140 0 -30,337 0 -38,086 -34,666 -34,666	0 -30,337 -38,086	-756,140 -20,879 -128,167 0 -44,737 10,071	0 0 0 0 0 0	0 0 0 0 0 0	WITHOUT	WITH	BALANCE
Cropland	Perennial Flooded rice	0 0	-114,196 0	-121,244 6,759 290	0 0 0	0 0 0	37,807 0 0 0 0 0	-1,517 -1,904 -1,733 -5,710 0 0	-37,807 -1,517 -1,904 -1,733 -5,710 0
Grasslands & Livestock	Grasslands Livestock	30,606 0	0 26,747	0 -30,606	0 0	0 0	1,530 0	0 1,337	-1,530 1,337
	Forest mngt. Inland wetlands Coastal wetlands	3,135,687 0 0	89,129 0 0	-3,046,559 -2,970,562 -16,548 -59,449	0 0 0 0	0 0 0 0	156,784 0 0 0	4,456 0 0	-152,328 0 0 0
Fisheries and aquaculture	Inputs & Invest.	0	0	0	0	0	10,844	1,360	-9,484
Total emissions, tCO ₂ e	4,139,309	-74,210	-4,213,519						
Total emissions, tCO ₂ /ha	44.8	-0.8	-45.6	-3,996,993	12,038	-4,513	-34,377	-189,676	
Total emissions, tCO ₂ /ha/yr	2.2	0.0	-2.3	-43.3	0.1	0.0	-0.4	-2.1	
	+ = Source / - = Sink			-2.2	0.0	0.0	0.0	-0.1	
Uncertainty level	WITHOUT	WITH	BALANCE	tCO ₂ /yr	Percent				
	200,865	-3,711	-219,676	33%	38%	34%			



14. **Sensitivity analysis.** This is an ex-ante analysis and was done under conservative assumptions to minimize the overestimation of benefits. It will be important to closely monitor the assumptions made during project implementation to truly assess the impact of the project on the ground.

**ANNEX 5: Contribution to climate mitigation and adaptation****Component 1: Land Tenure Regularization (Total cost: USD 20.08 million, of which IBRD loan 15.85 million)**

1. This component will support the efforts of the State Government to strengthen the land rights of thousands of small-scale farmers and members of Traditional Peoples and Communities who informally occupy state lands. Land Tenure Regularization has been seen to have a variety of social, economic and environmental co-benefits.⁴² The adoption of sustainable land management, soil conservation measures on croplands and an increased investment in climate-smart agriculture, can be facilitated by securing land tenure, which increases efficiency and reduces vulnerability to climate change.⁴³

Activity. Land tenure regularization in agrarian reform settlements (USD 14.32 million, of which IBRD loan USD 12.57 million) and for Traditional Peoples and Communities (USD 2.03 million, of which IBRD loan USD 1.65 million)

2. Land tenure legalization can have a number of climate co-benefits. For example, it can support the conservation and sustainable use of natural resources, including forests and wetlands. This can help to mitigate greenhouse gas emissions and promote climate resilience by maintaining carbon sinks and protecting biodiversity. Additionally, secure land tenure can provide a foundation for local communities to participate in climate change adaptation and mitigation efforts. With formal land rights, communities can have a stronger voice in decision-making processes and access to financing for climate-resilient and low-carbon development. As a result of this intervention, 30 percent of the total regularized areas is protected, avoiding deforestation on this land. With this, emissions into the atmosphere due to deforestation and loss of carbon stocks are avoided.

Component 2 – Environmental Management and Geospatial information management (Total Cost: USD 14.00 million, of which IBRD loan USD 12.24 million)

3. Environmental management and climate change resilience involve managing complex dimensions, such as land use changes, natural resources management, sustainable use, and environmental services assessment. The main objective of this Component is to contribute to improving the State's capacity to promote sustainable natural resources management and to provide accurate geospatial information for the elaboration of public policies in order to be prepared and respond to possible climatic events, which reinforces their ability to adapt to the effects of climate change.

Activity. Prevention, control, and management of natural vegetation fire (USD 2.40 million; IBRD loan USD 1.90 million)

4. This activity is designed to strengthen fire risk prevention, control and response capacities, strengthen climate resilience, and mitigate net GHG emissions. This will also contribute to conserving ecosystem services, biodiversity and existing carbon pools in forest vegetation and soil by controlling extreme wildfires. As a result of the preventive measures to control and combat vegetation fires and brigades, it is expected that the burned area will decrease in the project intervention area by 28,676.23 hectares at the final year of implementation.

Activity. Water resources management (Total Cost USD 5.40 million; IBRD loan USD 4.34 million)

5. This activity aims to monitor water quality and supply, by updating the monitoring network; modernizing the laboratories for water quality analysis; updating of the State Water Resources Plan, including climate-related data; reforestation of the area surrounding the water springs and implement activities to inspect and regulate potentially polluting activities. The State of Piauí is expected to see increased droughts in the face of climate change, reducing availability of water. This activity will help SEMARH have an improved monitoring of the water system in the State which will inform the State's Policy on water resources management. It will support measures to improve conservation of water



sources, and thus improve water availability. As a result of mitigation measures 110 ha are going to be reforested, contributing to carbon sequestration and soil and water conservation.

Activity. Landholdings and community territories environmental regularization (USD 6.20 million, of which IBRD loan USD 6.00 million)

6. Under this activity the project will support the landholding environmental regularization procedures through the definition and analyses of the rural environmental cadastre of the new landholdings and Community Territories supported for land tenure titling, which defines for each farm, the areas earmarked for alternative land use, APPs, and RLs as per the Brazilian Forest Code. Under this activity, landholders' adhesion to the PRA will also be supported to foster the recovery of degraded areas and water sources within private landholdings, as necessary. As a result of this intervention, the project seeks to reverse the situation in 125.29 ha and past from degradation conditions to no degradation. These activities help to recover the condition of the soil and therefore the carbon content, which contributes to the mitigation of GHG and climate change.

Component 3. Climate-smart Rural Development (Total Cost USD 25.24 million; of which IBRD loan USD 18.05 million)

7. All activities under this Component are designed to strengthen the climate resilience of the beneficiaries and to integrate climate change mitigation and adaptation strategies.

Activity. Climate-smart Productive Support for Family Farmers (USD 17.60 million, of which IBRD loan USD 14.65 million)

8. This project will provide matching grants for competitively selected Productive Investment Plans- Business Plans (PIP/PN) presented by farmers organizations and TPC associations to foster the adoption of CSA practices and technologies. The project aims to strengthen the climate resilience of the beneficiaries and to integrate climate change mitigation and adaptation strategies. The PIP/PN will be required to include climate-smart practices and technologies and to ensure climate resilience of infrastructure to be build (selection criteria). Investments under this Component will contribute to fostering farmers' climate resilience and improving net carbon balances through: (i) emission reductions from improve pasture conditions and livestock management; (ii) better agriculture management, incorporation of agroforestry orchards and perennial cropland; (iii) investments in Installation of Solar Modules for production support and (iv) Implementation of Water Reuse Systems in Productive Backyards.

Strengthening Agricultural Services for Farmers (USD 6.86 million, of which IBRD loan USD 3.40 million)

9. This activity aims to strengthen technical assistance and extension services to the OAFs, in order to promote the resilience and adaptation of family farmers and TPC agricultural production to climate change, as well as their inclusion in markets. The project will support training of the project's specialists as well as SAF and SADA technicians and the development of training material on climate-smart agriculture and sustainable agroecological practices to ensure institutionalization of capacity built throughout the project. Training will also be provided to family farmers, TPC and FFO on the transition to climate-smart agriculture to facilitate the transformation, reorientation and integration of agricultural systems to support food security and farmers' incomes under the new realities of climate change. The project will also support the development of ASD for agrarian reform settlements and TPC that will include actions needed to foster the resilience of the community to climate change.

Component 4. Project Management (USD 3.96 million, of which IBRD loan USD 3.86)

Activity. Territorial/Geospatial Information Management (USD 1.38 million, of which IBRD loan USD 1.29 million)

10. This activity aims to provide accurate geospatial information for the elaboration of public policies. The geospatial investments are essential to enhance resilience to climate change since the data can help to identify extreme weather



events risks, related to water scarcity, droughts and natural vegetation fires, enabling technical assistance and extension services to farmers to provide adequate services and to improve disaster risk management.

Table 5.1. Summary of Climate Adaptation and Mitigation actions to be implemented under the components of the project.

Action/ Practice	Budget	Contribution CCB
Component 1- Land Tenure Regularization	USD 20.08 million, of which IBRD loan USD 15.85 million	
Land regularization, as a result of this, 30% of the territory is protected, avoiding deforestation on this land.	USD 16.35 million, of which IBRD loan USD 14.22 million	Adaptation and Mitigation
Component 2 -Environmental Management and Geospatial information management	USD 14.00 million; IBRD loan USD 12.24 million	
<i>Fire management activities</i>	USD 2.40 million, of which IBRD loan USD 1.90 million	
Mobilization and awareness of communities on the issue of environmental preservation and conservation related to the issue of the use of fire		Adaptation
Conducting training on actions to prevent and control forest fires in settlements and communities benefiting from rural development actions		Adaptation and Mitigation
Elaboration of Contingency Plans for settlements and communities benefiting from rural development actions		Adaptation
Training of volunteer community/settlers and creation of groups to act in combat actions in the target areas of the project		Adaptation and Mitigation
Formation of volunteer brigades to support SEMARH actions and groups formed by volunteers in rural settlements		Adaptation and Mitigation
Carrying out inspection campaigns		Adaptation and Mitigation
Carrying out a study and training for the SEMARH team on the application of Integrated Fire Management - IFM		Adaptation and Mitigation
Elaboration of the State Policy for the Prevention, Control and Combat of Forest Fires		Adaptation
Studies and execution of forest fire prevention and combat actions		Adaptation and Mitigation
Acquisitions referring to Burnings and Forest Fires		Adaptation
<i>Water resources</i>	USD 5.40 loan USD 4.34 million	
Review of the mapping and updating of the network and monitoring		Adaptation
Modernization of laboratories for water quality analysis		Adaptation



Execution of inspection campaigns and regularization of potentially polluting activities		Adaptation
Carrying out studies and drawing up projects for the recovery of riparian forests		Mitigation
Training of the technical team to carry out monitoring activities		Adaptation
Update of the State Plan for Water Resources of Piauí (<i>Plano Estadual de Recursos Hídricos de Piauí – PERH</i>)		Adaptation
Studies, guidance and support for the recovery of springs and riparian forests		Mitigation
Specialized and continuous technical advice on water resources		Adaptation
Acquisitions related to Water Resources		Adaptation
<i>Landholdings and community territories environmental regularization</i>	USD 6.20 million, of which IBRD loan USD 6.00 million	
Support for rural environmental regularization of family farming properties benefited by the Project (CAR), support the recovery of degraded areas within private landholdings, as necessary and recovery and conservation of springs.		Mitigation
Component 3. Rural Development	USD 25.24 million; of which IBRD loan USD 18.05 million	
<i>Climate-smart Productive Support for Farmers</i>	USD 17.60 million, of which IBRD loan USD 14.65 million	
Elaboration and execution of investment plans, improving their productive activities (beekeeping, agroforestry, perennial cropland, backyards) and implementing climate-smart agriculture practices, including installation of Solar Modules for production support and water-reuse systems in productive backyards		Adaptation and Mitigation
<i>Strengthening Agricultural Services for Farmers</i>		
Support for the Implementation of the Methodology for the Use of Agroecological Booklets in Productive Backyards run by Women		Adaptation
Strengthening capacities at the farm and the institutional level on the transition to climate-smart agriculture to facilitate the transformation, reorientation and integration of agricultural systems to support food security and farmers' incomes under the new realities of climate change.	USD 6.86 million, of which IBRD loan USD 3.40 million	Adaptation
ASD for agrarian reform settlements and TPC that include actions needed to foster the resilience of the community to climate change.		Adaptation
Component 4. Project Management	USD 3.96 million, of which IBRD loan USD 3.86 million	



Territorial information management	USD 1.38 million, of which IBRD loan USD 1.29 million	
Interinstitutional intelligence platform for territorial and strategic data for integrated rural development, including monitoring of water resources		Adaptation



ANNEX 6: Gender Strategy and Gender Tag

General Country Context

1. Over the last decades, Brazil has experienced significant improvements along several dimensions of gender equality. Challenges remain in terms of women's access to opportunities particularly in rural settings. In the agriculture sector, women farmers face many disadvantages compared to men. They have lower access to land titles, tangible assets and rural credit. Because of traditional cultural norms and division of labor within the household, women have lower mobility and available time than men to participate in learning events and producer organizations. They have insufficient access to information, technical assistance and extension services, which hampers their ability to engage in innovative practices and productive practices. This environment is further aggravated by a very low representation of women in leadership positions in rural communities and farmers organizations, that could potentially advocate for change.

Institutional Gender Framework

2. In Brazil the Secretariat of Policies for Women (*Secretaria de Políticas para as Mulheres - SPM*), created in 2003, is located in the Ministry of Women, Family and Women rights and coordinates with governmental bodies at the federal, state, and municipal levels on developing public policies to reduce gender inequalities. Policies for women are the product of participatory processes within National Conferences on Policies for Women (*Conferência Nacional de Políticas para as Mulheres - CNPM*), that have taken place in 2004, 2007, 2011, 2016 and 2018.

3. At a regional level, the State Coordination of Policies for Women (*Coordenadora Estadual de Políticas para Mulheres do Piauí - CEPM*) was created by the Government of Piaui in 2013 with the objective of developing gender policies and implementing programs for women in the region, especially for those living in vulnerable situations. The three pillars of the CEPM actions and policies are: (i) Prevention and response to violence against women; (ii) Fostering women's financial empowerment and independence; and (iii) Structuring, modernizing and creating organizations and institutions at different levels that advocate for women's rights. Under Pillars I project, the CEPM established and strengthened Organizations for Women's Policies (*Organizações de Políticas para Mulheres - OPM*) in 19 of the State's municipalities and prepared the State Plan of Policies for Women (*Plano Estadual de Políticas para Mulheres - PEPM*)⁸⁸. The PEPM is based on the following pillars: (i) Work equality and economic autonomy; (ii) Education for equality and citizenship; (iii) Women's health, sexual and reproductive rights; (iv) Confronting all forms of violence against women; (v) Strengthening participation of women in spaces of power and decision-making; (vi) Women and Sustainable Development; (vii) Equal land rights, including rural, indigenous and quilombola women; (viii) Culture, sport, communication, and media; (ix) Confronting racism, sexism, and lesbophobia, and (x) Equality for young and older women and women with disabilities.

Gender Gaps Diagnostic

4. **Labor force participation and employment:** Gender inequality persists in the Brazilian labor market. Female labor force participation barely rose from 54 percent in 1995⁸⁹ to 55.1 percent in 2019, and it is still significantly concentrated in traditionally female roles. In recent years, men's labor force participation has been, on average, 20 percentage points higher than women's, with lower unemployment rates (about 5 percentage points less) and higher employment rates (about 20 percentage points higher). Working women are also paid less than working men: in 2016 there was still a 22 percent unexplained difference between women's and men's salaries. In Piaui, 63,5 percent of women and only 36.9 percent of men are registered as outside the labor force, and they earn an average of 9,8 percent less than men.⁹⁰ This

⁸⁸ Piauí CEPM. 2021. Plano Estadual de Políticas para Mulheres. <https://portal.pi.gov.br/cepm/anuario/>

⁸⁹ World Bank. 2016. A Snapshot of Gender in Brazil today. <http://hdl.handle.net/10986/25976>

⁹⁰ Piauí CEPM. 2021. Diagnóstico sobre o perfil da mulher piauiense no contexto atual. <https://portal.pi.gov.br/cepm/wp-content/uploads/sites/23/2022/03/Diagnóstico-da-Mulher-PI..pdf>



situation worsened during COVID-19, as women suffered a greater rise in unemployment and men found it easier to join the labor market as conditions improved.⁹¹

5. Time use: Women are significantly more involved in non-remunerated household and care-giving tasks than men. In 2019, women in Brazil spent almost twice as much time as men on caregiving or household chores.⁹² In Piaui, men 14 years and older spend an average of 4.4 hours a day on household and care-giving tasks, while women the same age spend 11.7 hours.⁹³ As with employment, COVID-19 also increased the burden of housework among women. In November 2020, the proportion of working-age women inactive because they were taking care of relatives or attending household works was 25 times higher than among men (one in ten women) in the country.

6. Women farmers, access to land and markets: Women are important actors in the agriculture sector, as 85% of women living in rural areas in Brazil regularly engage in agricultural activity at the household establishment. However, significant gender inequalities remain, particularly for smallholder women farmers in rural settings. Current challenges include: (i) lower remuneration than men (i) lower access to productive inputs, markets, land, and credit than men; (ii) insufficient access to information, technical assistance and extension services; and (iii) less available time to participate in learning events and producer organizations. Moreover, measuring female contribution to agriculture is a challenge, as data is often collected under the gender of the 'main farmer' at each household. In Piaui, women farmers in Piaui face several gender-based constraints in the sector. Only 22.1 percent of rural producers who run agricultural establishments are women in the region are women, and of those women, only 69.9 percent of these women have a land title to their name. A higher percentage of the above-mentioned male farmers have a land title (71 percent), which means 135,675 men who run agricultural establishments have a land title to their name, versus only 38,001 women. In a study done in 2020 with women from 70 municipalities in collaboration with the Government of the State of Piaui, 96.1 percent stated that they had no access to rural credit.⁹⁴

7. Illiteracy rate: Quality education is key promote gender equality and ensure equal access to opportunities and information. With 7.4 percent illiterate women and 7 percent illiterate men, women in Brazil have a higher illiteracy rate than men. On top if this, Piaui is the region with the second highest illiteracy rate in the country (17.2 percent), which means that there is not only a significant gap between men and women but between women in Piaui women in most of the regions in the country.⁹⁵ In the agriculture sector in Piaui, as in many other areas, literate women farmers have higher chances of running agricultural establishments than those who are not: 64.2 percent of women leading agricultural enterprises can read and write.⁹⁶

8. Gender-Based Violence (GBV): GBV is In Brazil, between 2007 and 2017 there was a 20.5 percent increase in the national rate of homicides of women, increasing from 3.9 to 4.7 women murdered per group of 100,000 women. In the same period in Piauí, the increase was of 45.5 percent. Between 2016-2017 there was an increase of 6.7 percent, in Piauí, and of 4.4 percent referent in Brazil. GBV is an important barrier for female inclusion in agricultural production and agribusiness processes, especially in rural areas that traditionality lack specialized institutions and services and were a higher number of cases of GBV are reported.

⁹¹ World Bank. 2021. Brazil Country Gender Scorecard.

⁹² IBGE. 2019. Estadísticas de Gênero. https://biblioteca.ibge.gov.br/visualizacao/livros/liv101784_informativo.pdf

⁹³ Piauí CEPM. 2021. Diagnóstico sobre o perfil da mulher piauiense no contexto atual. <https://portal.pi.gov.br/cepm/wp-content/uploads/sites/23/2022/03/Diagnóstico-da-Mulher-PI..pdf>

⁹⁴ Ibid

⁹⁵ IBGE. 2016. Pesquisa Nacional por Amostra de Domicílios: Educação. https://biblioteca.ibge.gov.br/visualizacao/livros/liv101434_informativo.pdf

⁹⁶ Piauí CEPM. 2021. Diagnóstico sobre o perfil da mulher piauiense no contexto atual. <https://portal.pi.gov.br/cepm/wp-content/uploads/sites/23/2022/03/Diagnóstico-da-Mulher-PI..pdf>



9. Leadership and decision-making: In 2019 in Brazil, 62.6 percent of managerial positions in public and private institutions were held by men and 37.4 percent by women.⁹⁷ In survey done by the Government of Piauí in 2020, 78 percent of women declared that the number of women leaders in their communities and municipalities was low. When asked about reasons, they mostly named household and care-taking tasks and cultural prejudices against women leaders.

Gender Related Actions and Expected Effects

10. Available data shows higher number for men for all the indicators above, revealing significant gender gaps. In this project, the Gender Strategy will include the following actions and activities:

- Processing of land titling in for family farmers in the targeted settlements will be carried out under the condition that all land titles will be issued in the name of the women of the family and/or of the married couple to enhance women ownership and control over land in the family farming sector. This land tenure gender gap will be monitored with the objective of ensuring that at least 80 percent of beneficiaries or co-beneficiaries of land titles issued by INTERPI are women.
- A series of trainings and workshops for both men and women addressing low female representation in decision-making roles. Trainings will: (i) follow gender sensitive approaches and address relevant assess gender-related issues; (ii) identify the economic contribution of women to family farming; and (iii) identify and address the barriers that may exclude women from participation and leadership in FFO. This training will contribute to lessening gender stereotypes and social norms, thus indirectly reducing GBV. The gender gap of female representation in leadership positions in FFO will be monitored with the objective of registering an increase in the percentage of women working on the Board of directors of FFO by the end of the project.
- Eligibility conditions for PIPs will incorporate beneficiary targeting criteria that explicitly promote gender equality objectives, benefitting female farmers and women-led organizations and associations. A minimum number of subprojects where women are the majority of beneficiaries (80 subprojects, 40 percent).
- Implementation of dedicated training on agroecological practices in 160 productive backyards and monitoring of the monetary and non-monetary income generated by women on productive backyards. This training will follow the Agroecological Handbooks methodology (*Cadernetas agroecológicas*) implemented by SAF in the State's Semi-arid territories. The Handbook methodology puts special emphasis on the monetary and non-monetary income generated by women on their productive backyards often dedicated to self-consumption, and thus making women's contribution mostly invisible.
- All trainings, studies and technical assistance activities provided to the staff of public institutions to better carry out their functions will support achievement of project activities with regard to gender.
- All training and capacity building activities offered for beneficiaries likewise will take into consideration the needs and topics relevant for women to foster their engagement and participation, including holding training events at convenient, safe location and times for women farmers. This action will prevent women from limiting their participation owing to concerns about security, their burden of work, and household chores. The proposed Project could also propose a childcare option and a small stipend to cover transportation costs.
- Training activities will rely as much as possible on non-written communication to compensate for lower literacy rates among women.

Gender-Sensitive Monitoring and Evaluation

11. M&E process will mostly rely on first-hand data collection at the local level on randomly sample-based surveys with beneficiaries. The survey will measure, but not be limited to the following concepts:

- Component 1: Women as beneficiaries or co-beneficiaries who received land titles issued by INTERPI.

⁹⁷ IBGE. 2019. Estadísticas de Género. https://biblioteca.ibge.gov.br/visualizacao/livros/liv101784_informativo.pdf



- Component 3: (i) number of family farmers (members of supported organizations) adopting improved climate-smart agriculture practices and technology - Female; (ii) Number of PIPs implemented where women are the majority of beneficiaries; (iii) Number of women who filled out agroecological booklets for at least 12 months; (iv) Farmers reached with agricultural assets or services – Female; (v) Increase in the percentage of women working on the boards of directors, vice director or company treasurer of rural organizations served by the project.
- Component 4: Degree of satisfaction of female beneficiaries, in percentage, with the training offered by the project.

12. The information will be collected on a sampling basis, disaggregated by gender, and analyzed three times during implementation: (i) in the first year of implementation, (ii) in the medium term and (iii) after completion of the investment. The baseline data will be confirmed in the baseline survey conducted in the first year of implementation of the Project. The M&E approach will include feedback loops to allow female beneficiaries to express their views and share their concerns. The table 6.1 below presents indicators to be used to measure and monitor targeted gender gaps are:

Table 6.1: Linkages from Gender Gaps to Actions to Monitoring and Strategic Priorities⁹⁸ and State Plan of Policies for Women (*Plano Estadual de Políticas para Mulheres* – PEPM) Pillars⁹⁹

Gender Gap	Action	Monitoring Indicator	World Bank Gender Strategic Objectives	PEMP Pillar
Access to land	Land titles will be issued in the name of the women of the family and/or of the married couple.	Women as beneficiaries or co-beneficiaries who received land titles issued by INTERPI. (End target: 80%)	<ul style="list-style-type: none">• Removing barriers to women's ownership of and control over assets• Removing barriers for more and better jobs	Equal land rights, including rural, indigenous and quilombola women
Leadership and decision-making	Trainings for both men and women addressing low female representation in decision-making roles, including: (i) follow gender sensitive approaches and address relevant assess gender-related issues; (ii) identify the economic contribution of women to family farming; and (iii) identify and address the barriers that may exclude women from participation and leadership in FFO.	Increase in the percentage of women working on the boards of directors, vice director or company treasurer of rural organizations served by the project. (End target:15%)	<ul style="list-style-type: none">• Enhancing women's voice and agency and engaging men and boys• Removing barriers for more and better jobs	Strengthening participation of women in spaces of power and decision-making

⁹⁸ See the World Bank Group Gender Strategy (FY16-23): Gender Equality, Poverty Reduction and Inclusive Growth.

<https://openknowledge.worldbank.org/handle/10986/23425>

⁹⁹ See the Piauí State Plan of Policies for Women (*Plano Estadual de Políticas para Mulheres*). <https://portal.pi.gov.br/cepm/anuario/>