IFAD
Investing in rural people

Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

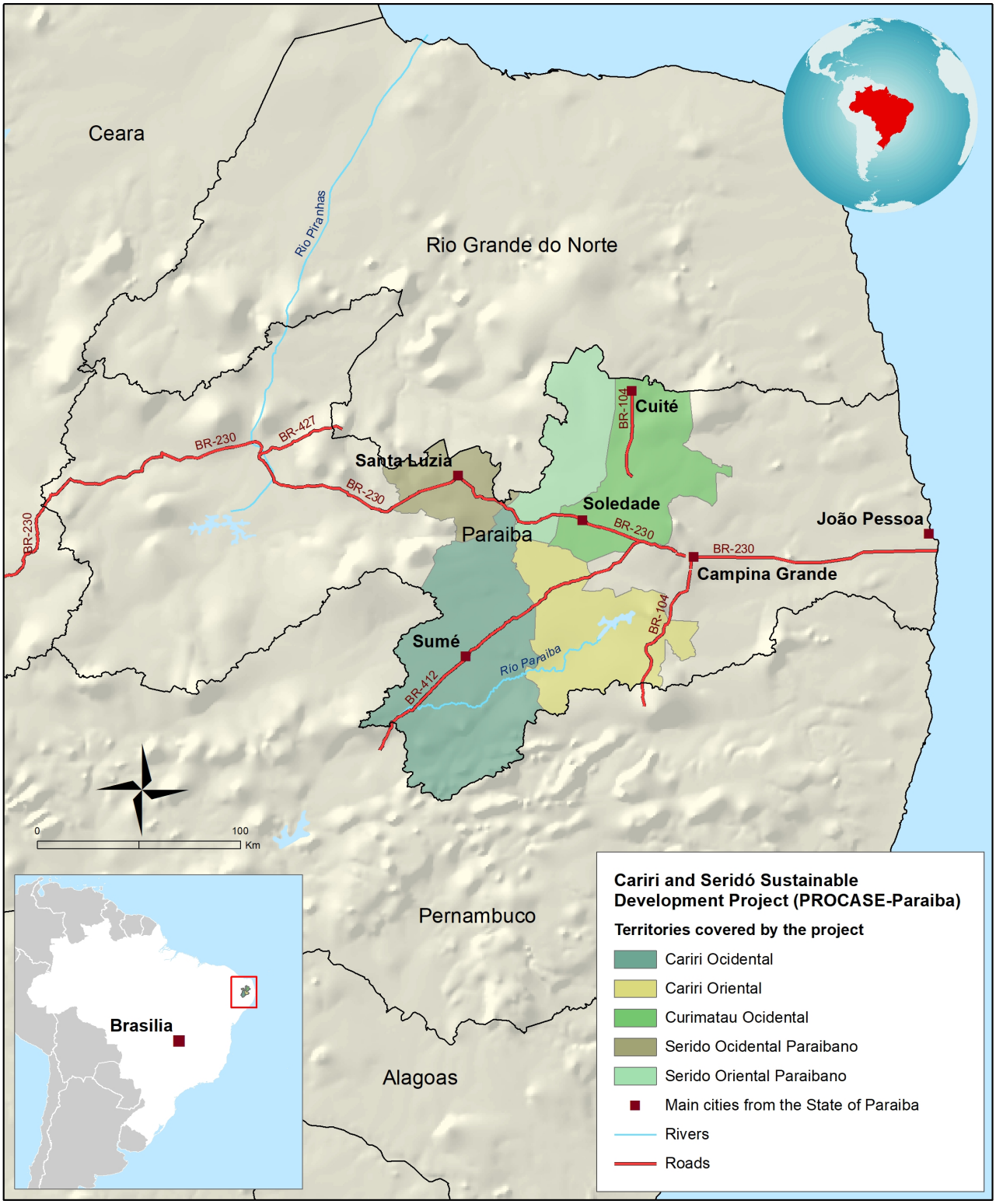
Project Completion Report

Main report and appendices

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Map of the Project Area



IFAD

Map compiled by IFAD | 23-04-2021

Currency Equivalents

Currency Unity	=	Real – R$
USD 1.00		R$ 5.58 (As of February 28th, 2021)
R$ 1.00	=	USD 0.18
USD 1.00		R$ 2.03 (As of December 05, 2012 – Effective date of the Project)
R$ 1.00	=	USD 0.49
USD 1.00		R$ 2.00 (As of July 13, 2010 – Project design date)
R$ 1.00	=	USD 0.50

Weights and measures

1 kilogram (kg)	=	1000 g
1 000 kg	=	2,204 pounds
1 kilometer (km)	=	0.62 miles
1 meter	=	1.09 yards
1 square meter	=	10.76 square feet
1 acre	=	0.405 hectares
1 hectare	=	2.47 acres

Abbreviations and Acronyms

Acronyms

AESA	Executive Water Management Agency
AKSAAM	Adapting Knowledge for Sustainable Agriculture and Access to Markets
AL	Agroecological Logbooks
AOP	Annual Operative Plan
AS	Agroforestry System
BC	Bidding Commission
CAISAN-PB	Intersecretarial Chamber of Food Security – Paraíba
CAR	Rural Environmental Registry
CEDRS	State Council for Sustainable Rural Development
CLFI	Crop-Livestock-Forest Integration
COI	Core Outcome Indicators
COSOP	Country Strategic Opportunity Program
ECPIM	Executive Committee for Productive Investment Management
EFA	Economic and Financial Analysis
EMPAER	Paraíba's Research, Rural Extension, and Land Regularization Company
EP	Emergency Plan
FAPESQ	Paraíba's Research Support Foundation
FNS	Food and Nutrition Security
HD&SC	Human Development and Social Capital
IBGE	Brazilian Institute of Geography and Statistics
IICA	Inter-American Institute for Cooperation on Agriculture
IFMS	Integrated Financial Management System
INNOVA-AF	Knowledge Management for Adaptation of Family Farming to Climate Change
INPE	National Institute for Space Research
INSA	National Institute for the Semi-Arid Region
IRPAA	Regional Institute for Appropriate Small Farming
IRR	Internal Rate of Return
LFM	Logical Framework Matrix
MAPA	Ministry of Agriculture, Livestock and Food Supply
M&E	Monitoring and Evaluation
MDA	Ministry of Agrarian Development
MIS	Management Information System
MTR	Midterm Review
MU	Management Unit
NPV	Net Present Value
ODE	State Democratic Budget
P1MC	One Million Cisterns Program

P1+2	One Land and Two Waters Program
PAA	Food Acquisition Program
PATAC	*Programa de Aplicação de Tecnologia Apropriada às Comunidades* (Program for Application of Technology Appropriate to Communities)
PCR	Project Completion Report
PN	Promissory Notes
PPL	Procurement and Purchasing Plan
PPROJ	Productive Project
PFZ	Zero Hunger Program
PMU	Project Management Unit
PNAE	National School Feeding Program
PNCF	National Land Credit Program
PNRA	National Agrarian Reform Program
PP	Procurement Plan
PROCASE	Cariri, Seridó and Curimataú Sustainable Development Project
PROCASUR	PROCASUR Corporation
PRODESZA	Development Project for Communities in Semi-Arid Areas - Mexico
PRONAF	National Program for Strengthening Family Farming
PSC	Project Steering Committee
RIMS	Results and Impact Management System
RO	Rural Organization
RPMU	Regional Project Management Unit
SDR	Special Drawing Rights
SEAFDS	State's Secretariat for the Development of Family Farming and the Semi-Arid Region
SEAIN-COFIEX	Secretariat for International Affairs - External Financing Commission
SECAP	Social, Environmental and Climate Assessment Procedures
SEDAP	State's Secretariat for the Development of Agriculture and Fisheries
SEDH	State's Secretariat for Human Development
SEIRHMA	State's Secretariat for Infrastructure, Water Resources, and the Environment
SEJEL	State's Secretariat for Youth, Sports, and Leisure
SEMDH	State's Secretariat for Women and Human Diversity
SEMEAR International Program	Building Capacities for Results-based Management and Scaling up for Innovations in Public Policies to Combat Rural Poverty in Northeast Brazil
SENAR	National Rural Learning Services
SEPLAG	State's Secretariat for Planning and Management
SERTA	Alternative Technology Service
SESAES	State's Executive Secretariat for Food Security and Solidary Economy
SIP	Semear International Program
SUDEMA	Superintendence of Environmental Administration
TA	Technical Assistance
TARE	Technical Assistance and Rural Extension

TCP	Technical Cooperation Project
TCT	Technical Cooperation Term
UNOSSC	United Nations Office for South-South Cooperation
WG	Work Group
WHO	World Health Organization

Project at a glance

Region Latin America and the Caribbean	**Project at Risk Status** Not at risk
Country Brazil	**Environmental and Social Category** Moderate
Project Name Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)	**Climate Risk Classification** not available yet
Project ID 1100001487	
Project Sector Rural Development	
CPM Claus Reiner	
Project Area not available yet	

Key Dates

IFAD Approval	**Signing**	**Entry into Force**	**Mid-Term Review**	**Original Completion**	**Actual Completion**
17/12/2009	17/10/2012	17/10/2012	28/11/2016	31/12/2018	31/12/2020
		Original Financial Closure	**Actual Financial Closure**		
		30/06/2021	not available yet		
Date of Last SIS Mission	**Number of SIS Missions**	**Number of extensions**	**Effectiveness lag**		
27/11/2020	22	2	34 months		

IFAD Financing
as at the time of PCR submission

Loan	**XDR Million**	16.1 Million	**% disbursed**	100.0

Actual Costs and Financing (USD '000)
as at the time of PCR submission

Component	IFAD	Cofinancing	Domestic	Total
	Actual	Actual	Actual	Actual
Social and Human Development	314		913	1 228
Sustainable Mgt. of Natural Resources	481		423	904
Project Management Unit	1 702		1 889	3 592
Production develop. & competitive market insertion	20 679		11 976	32 655
Institutional Development	0		0	0
Total	23 177	0	15 203	38 380
Remarks				

Outreach

Direct Beneficiaries	
Number of HH members	Number of persons receiving services

Estimated total: **97 652**	Total: **24 413**
	Males: **12 555**
	Females: **11 858**

Project Objectives

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Key project objectives:The project's overall goal is to contribute to the development of the rural economy and to reduce the extreme poverty levels of the rural population - men, women and youth - living in the semi-arid region of Paraíba. The purpose of the project is to improve, in a sustainable manner, farm and off-farm incomes, employment opportunities, productive assets, organizational capacities and environmental practices of project beneficiaries in Paraíba's semi-arid region.Specific objectives are to: (i) develop human and social capital; (ii) improve smallholder production and support their market competitiveness; (iii) combat desertification and promote sustainable management of the caatinga biome; and (iv) strengthen the institutional framework and extension system in the project area.

Country Partners

Executing Institution	not available yet
Implementing Institutions	not available yet

Project Completion Ratings Matrix

COUNTRY: Brazil	
PROJECT NAME: Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)	
PROJECT ID: 1100001487	
BOARD APPROVAL DATE: 17/12/2009	
ENTRY INTO FORCE: 17/10/2012	
PROJECT COMPLETION DATE: 31/12/2020	
LOAN CLOSING DATE: 30/06/2021	
IFAD LOAN AND GRANT (USD MILLION): $25,000,463	
TOTAL PROJECT FINANCING: $49,694,550	
IMPLEMENTING AGENCY: not available yet	
Criterion	**PCR Rating**
Project performance	
- Relevance	5
- Effectiveness	5
- Efficiency	5
- Sustainability	5
Rural poverty impact	**5**
- Households' incomes and assets	5
- Human and social capital	5
- Food security	5
- Agricultural productivity	5
- Institutions and policies	5
Additional evaluation criteria	
- Gender equality and women's empowerment	6
- Innovation	5
- Scaling up	4
- Environment and natural resource management	6
- Adaptation to climate change	5
- Targeting and outreach	5
- Access to markets	4
Partners performance	
- IFAD's performance	5
- Government performance	5
Overall project achievement	**5**

Executive Summary

The Cariri, Seridó, and Curimataú Sustainable Development Project (PROCASE) was a loan operation financed by the International Fund for Agricultural Development (IFAD), implemented between October 2012 and December 2020 in 56 poor municipalities of the semi-arid region of the Paraíba state, Northeast Brazil. It had a total budget of USD 50 million, of which USD 25 million of IFAD resources (at the SDR/USD conversion at the time of design), USD 12 million of counterpart resources from the Government of Paraíba, and the remainder composed by counterparts from the beneficiaries and access to other sources of public funds. The Project was carried out in the midst of two of the biggest crises that affected family farmers in Brazil's poorest and most arid region: the 'great drought' from 2012 to 2019, the most impactful of the last 100 years, and the COVID-19 pandemic of 2020/2021.

The Project benefitted **over 24 thousand family farmers, which corresponds to 132% of the original design number. It also significantly exceeded the targeting goals for priority groups, such as women (160%), young people (202%), and *quilombola* communities of Afro-Descendants (160%).** Regarding the Logical Framework Matrix results and development indicators (of which 4 are Core Outcome Indicators – COI, although 12 COIs were included in the impact assessment), the Project contributed to improving agricultural productivity, increasing income, enhancing access to water for production and consumption (desalination plants, irrigated fields with renewable energy, dams, and wells), The Project also fostered cross-cutting gender activities, supported milk, handicraft, fruit, and poultry cooperatives, preserved the *Caatinga* biome, implemented approximately 900 Crop-Livestock-Forest Integration (CLFI) systems with forage palm, agroforestry systems, productive yards, and aquaponics, among other sustainable techniques for the management of the *Caatinga* biome.

The impact survey indicated that **51% of the Project's beneficiary families had a positive variation in their productive assets index, with 24% exhibiting a positive percentage variation equal to or greater than 150%.** According to the impact assessment, between 2015 and 2019,**the average family income in the treatment communities increased by 21.9% (nominal terms), while the income in the control communities decreased by 0.61%**. On gender issues, the Project, through its continuous specialized gender services throughout implementation, incorporated constant and transversal activities in the overall Technical Assistance (TA) to improve the productive and social participation of women. **Specific activities leading to women empowerment increased by 43% amongst communities benefitted by the Project while they decreased by 6% in the control communities**, compared to the 2015 baseline.

In terms of poverty reduction impact, the Project had strong results. Food security, despite the 'great drought' of 2012-2019, has improved.**The proportion of families in the beneficiary communities that declare a diverse food diet is 44.8% higher than the proportion in the control group. In the impact survey, 65.1% of households have reported an increase in vegetable production, 56.8% an increase in production of animal-based products, 48.6% an increase in animal rearing, 22.8% an increase in production of vegetable-based products, and 9.1% an increase in non-agricultural activities (handicrafts).** In the aggregate analysis, 88% of households have stated that production has overall increased. Of interest, when comparing the baseline with the impact assessment points, i.e., between 2015 and 2019, there was a significant increase in volumes and the total values of sold products by communities that received the Project's support. This increase largely exceeded the design target of around 10% a year (target of R$ 498 - or approximately USD 100 - in 2019), reaching 15% a year in total values and 13% a year in total volumes traded by beneficiaries. Twenty percent of beneficiaries reported that they had gained access to markets exclusively through PROCASE, an overall satisfactory result.

Among the beneficiaries served by the desalination technology,**38% of the families reported a reduction in the scarcity of water used for production (COI 1.2.3), and 50% reported an increase in the availability of water for animal rearing, compared to 2015 (baseline). PROCASE activities for water access reduced the time to fetch drinking water by 53% (COI 3.3.2).** The desalination technology implemented by PROCASE, for example, has become an innovation in Brazil. The Project used a more efficient model compared to the standard one applied by the Fresh Water Program (a partnership between the state government and Federal Ministry of Environment of Brazil), reducing the area need (from 1,200 m2 to 225 m2) and reducing the overall cost per unit (40% lower).

Also, PROCASE implemented the optimal well management of natural resources in conjunction with a robust environmental and climate change mitigation effort, efficient and transversal to all productive investments. For example, the nearly 500 windmills lowered the energy cost of irrigation to zero and assured a stronger durability compared to other means. Another successful best practice was the implementation of agroforestry systems (AS), which, in addition to generating more income and food for families, turned PROCASE beneficiary farms into germplasm banks of native (creole) seeds decreasing the dependence on the hybrid seeds market. Furthermore, the solar energy installed in the cooperatives generated savings of approximately BRL 400 thousand (USD 80 thousand), reducing production costs in these units and increasing their overall financial profitability. CEPAL selected PROCASE's environmental and climate change activities as a leading sustainability best practice in Latin America. The Project was also a finalist in a recent national competition of Brazil's best public development project.

The Project has also had its setbacks, which deserve mentioning. Due to bureaucracy and lengthy procedures in the run-up to the financial agreements with associations, which lasted for several years, there was a delay in IFAD fund disbursement and physical-financial execution, which, at midterm, almost led to the cancellation of USD 10 million in the total amount of financing. Fortunately, the government's team promptly assembled a task force, with the Secretariat of Planning (SEPLAG) support, to accelerate and streamline implementation, ensuring that all Project interventions would be safe. Based on long-term contracts, specialized technical assistance reached only 11,141 families (73% of the target). Finally, some of PROCASE's most successful activities, such as desalination technology, were implemented only in the last three years of the Project life cycle. This context overstretched the PMU's technical staff capacity and the Regional Offices. In the final Project stages, the COVID-19 crisis aggravated these challenges.

Overall, the Project was an excellent example of a very well-coordinated program involving multiple Development Secretariats in the state of Paraíba, such as the State's Secretariat for the Development of Family Farming and the Semi-Arid Region (SEAFDS), the State's Secretariat for the Development of Agriculture and Fisheries (SEDAP), the State's Secretariat for Planning and Management (SEPLAG), the State's Secretariat for Infrastructure, Water Resources and the Environment (SEIRHMA), the State's Secretariat for Human Development (SEDH) and the State's Executive Secretariat for Food Security and Solidary Economy (SESAES). Despite the initial delays in implementation and the difficulties in aligning priorities between the different public entities and the technical assistance modus operandi format, the good consultation process established between the secretariats was a valuable ingredient for the sustainability of PROCASE's activities. This productive cooperation has ensured a safe place for PROCASE as one of the most successful interventions ever made for fostering the rural development oft he state of Paraíba.

A. Introduction

1. The Cariri, Seridó and Curimataú Sustainable Development Project (PROCASE) involved a USD 50 million external credit operation with USD 25 million financed by the International Fund for Agricultural Development (IFAD)(to the SDR/USD conversion at the time of its conception), USD 12 million in counterpart resources from the Government of Paraíba and the rest composed of beneficiaries counterparts and access to other public resources. It was a strong performance Project in terms of effectiveness and focus on rural development, emphasizing emergency activities to improve water access, environmental preservation, renewable energy alternatives, and climate change mitigation. The Project benefited more than 24,000 families in 56 municipalities of the semi-arid region of Paraíba, one of the regions with the most significant water deficits in Brazil, exceeding the design goal of 18,500 families. The Project implementation happened during two of the biggest crises affecting the Brazilian semi-arid region: the 'great drought' of 2012-2019, the biggest in the last 100 years, and the COVID-19 pandemic. The Project entered into effect in October 2012 and concluded in December 2020. It had a total duration of 8 years, after receiving two extensions of 12 months, the last of which was due to the COVID-19 crisis. PROCASE was carried out by the State's Secretariat for the Development of Family Farming and the Semi-Arid Region (SEAFDS), with the State's Secretariat for the Development of Agriculture and Fisheries (SEDAP) as its leading implementing agency. PROCASE was also closely monitored by the State's Secretariat for Planning and Management (SEPLAG) and had relevant partnerships in its execution, such as the State's Secretariat for Infrastructure, Water Resources and the Environment (SEIRHMA), the State's Secretariat for Human Development (SEDH) and the State's Executive Secretariat for Food Security and Solidary Economy (SESAES).

2. The PMU coordinated this Project Completion Report (PCR)preparation. The PCR elaboration is based on the participation of coordinators, managers, consultants, and an external expert. The IFAD team supervised the PMU work through missions in January, May, and November 2020 and in March 2021.

3. PROCASE started negotiations between the Government of Paraíba and IFAD during the COSOP updating process for Brazil in 2008. That same year, an Advisory Opinion letter was approved by SEAIN-COFIEX authorizing the elaboration of the Project. In June 2010, after extensive consultation with the stakeholders and in agreement with the Government of Paraíba, the PROCASE Final Design document was prepared with the guidelines for executing the Project. In October 2012, the financing contract was signed, and the Project went into effect in the same month.

4. The first phase of PROCASE focused on promoting the productive potential and developing the individual and collective capacities of the beneficiaries through the method of elaborating, financing, and implementing Productive Projects. The proposed model on the elaboration and implementation was bureaucratic and slow, difficult to operate, serving few beneficiaries.

5. In 2015, contextual circumstances forced the government to update and adjust planned Productive Projects to include new demands, mainly due to the worsening of the prolonged drought already afflicting the semi-arid, the most severe of the last 100 years. In this context, PROCASE started developing water access plans to beneficiary communities, expanding the role of the PMU and other bodies of the Government of Paraíba to act directly in the Project's operation. These changes were driven by the Midterm Review of December 2016, which found out a potential risk of non-execution of approximately USD 10 million of the financing agreement. As a result, in 2017, new lines of action were approved, following the new water access priority approach established by the state government and in line with the Project's development goals. Since then, there was an agreement with SEIRHMA to reorient the Project to mitigate the 'great drought' effects on its beneficiaries.

6. Before 2017, PROCASE's physical and financial performance was below expectations. In May 2017, a new coordination took office. Based on new alignments between the Governor, the IFAD team in Brazil and the IFAD Financial Division, the Project redefined the activities of its productive component to expand the scope and include water access and renewable energy actions (implementation of underground dams, desalination plants, wells, agroforestry systems, wind-powered irrigation, solar energy panels). State government's counterpart funds were used for building 3 conventional dams. Since then, the Project has thriven significantly, reaching record disbursement volumes in 2018 and 2019. Due to delays in the Project's first phase, in 2018, it received its first 12-month extension. The second and last year-long extension was granted in 2020 due to the COVID-19 pandemic. Table 1 includes the main milestones within the framework of the PROCASE execution.

7. **Table 1 – Milestones in the design and implementation of PROCASE**

Milestones	Dates
Sending of the Advisory Opinion Letter to Ministry of Planning	August 2008
Approval of the Advisory Opinion Letter by Ministry of Planning	September 29, 2008
Finalizing of the Project Design Document	August 2009
IFAD Contract Signing	October 17, 2012
Beginning of Field Activities	January 2013
First Withdrawal Application	February 27, 2013
Midterm Review Mission	December 2016
Approval of the 1st 12-month extension	April 18, 2018
Approval of the 2nd 12-month extension	June 15, 2020
Conclusion of Field Activities	December 31, 2020
Conclusion of PCR first draft	April 30, 2021
Financial closure	June 30, 2021

8. The purpose of this PCR is to summarize the main PROCASE results and impacts to beneficiaries, assess the Project's economic and financial returns, its achievements, and difficulties in execution, aiming to provide lessons learned for future projects by IFAD or other agencies working in rural development. The main objectives of this PCR are: (i) to assess the relevance of the Project at the time of design compared to completion; (ii) evaluate the effectiveness with which the Project was implemented and achieved its objectives; (iii) document immediate results, effects and impacts; (iv) record the Project's costs and benefits; (v) evaluate the efficiency of the Project's implementation process, including the performance of IFAD, the Government of Paraíba and partners; (vi) evaluate the prospects for sustainability of the Project's benefits; (vii) document the lessons learned in the implementation process for similar projects in the future, in Brazil, and other countries; and (viii) evaluate the potential for replication or expansion of the Project's best practices in other regions/countries.

9. The inputs for the preparation of this PCR are based on the Project's documentations, including technical progress reports, memoranda of IFAD's implementation support and supervision missions, meeting records, consultancies hired for impact assessment, internal rate of return, stakeholders' assessments, and management reports of PROCASE's PMU.

B. Project Description

B.1. Project context

10. **The state of Paraíba, PROCASE's area of operation and demographics** The state has an area[1] of 56,467 km². According to the 2010 Demographic Census, the state's total population was 3,766,528 inhabitants, 51.6% of whom were women. Of this total, 24.6% lived in the rural area, representing approximately 927,000 people. The population of Paraíba is relatively young; 44.1% of the population was under 25 years old[2]. Although there was an improvement in the Brazilian population's general economic and social conditions during the period from 1995 to 2010, the poverty prevalent in the state of Paraíba kept being quite significant. Thus, the 2010 data show that 22.3% of Paraíba's population was in poverty[3], while the same index at the national level was 10.4%[4]. The incidence of poverty is higher in rural areas. Considering only Praíba's rural households, the proportion of the population in poverty is 37.1%.

11. Furthermore, PROCASE operated in rural areas of the municipalities with the lowest Human Development Index (HDI) in the state. Its intervention area included 56 municipalities located in the state's central region, characterized by the lowest rainfall in the country (see Figure 1).

12. **Figure 1 - Location of PROCASE's operating area in the state of Paraíba**

13. **Environment and climate characteristics.** The Project area is typically semi-arid, with little and very irregular rainfall. This territory is known as 'Dry Diagonal' because it is the region with the lowest precipitation rate in the state, being lower even inferior to those of Alto Sertão of Paraíba, in the extreme west of the state. In PROCASE's operation area, annual rainfall averages vary from 330 to less than 700 mm, and evapotranspiration can reach 2,500 mm/year^{-1}.[5] PROCASE's coverage area is part of the northeastern semi-arid region, characterized by a rain shortage which takes on different shapes. Unlike the dry season or the annual period without rain, a drought event sets up when the rainfall in the rainy months is lower than the precipitation rates considered normal (i.e., close to the average annual rainfall recorded). The greater this deficit, the more severe the drought. When there are consecutive years of drought (as defined here), a 'great drought' is configurated. These droughts and 'great droughts' have been recurrent historically. However, stacking indications tell us that this phenomenon is happening more frequently, especially since 1970[6], and with more intensity, as reported below.

14. In addition to the climate and aridity, PROCASE's coverage area is characterized by the predominant presence of a vegetation type called *Caatinga*. Although diverse, the vegetation of this typical biome of the Brazilian semi-arid region has common traits: the *Caatinga* is formed by plants adapted to the semi-arid condition, capable of entering long periods of latency, efficiently taking advantage of the short and irregular rain periods for their reproductive cycles. Human occupation and the use of this vegetation in productive activities have provoked the *Caatinga* degradation in many regions, an impact exacerbated by climate change. However, the *Caatinga* is still an important resource for farming families. When sustainably managed, this vegetation, fully adapted to the semi-arid environment, can provide good quality fodder for livestock (goats, sheep, and cattle) and bee pasture for bees, in addition to other products.

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16. **Socioeconomic characteristics**. In 2010, the total population of the 56 municipalities in the PROCASE area of operation was 424,225 (11.3% the state's population). The rural population of these municipalities had 165,101 inhabitants (38.9% of the total, being significantly higher than the state average)[7].

17. The analysis of social indicators for the 56 municipalities in the Project's area of operation confirms, without exception, the situation of poverty and exclusion of the population in general and the rural people in particular. The rural population is poor in all the different poverty dimensions, such as income, personal resources, housing conditions, access to water, electricity, and essential public services[8].

18. As stated in the previous section, PROCASE's area of operation is a region where the rural population has a greater significance. The social group of Family Farming (FF) has considerable importance in this context. In general, agricultural and extractive activities represent the primary livelihood sources for the rural population in the country and, in particular, for family farmers. According to the 2006 Agricultural Census data, the 56 municipalities in the PROCASE's coverage area had 38,504 agricultural establishments, distributed between family units and non-family establishments, as shown in Table 2. These same data indicate that, in 2006, there were 33,402 establishments of FF, while the units defined as non-family farming totaled 5,102. It should be noted that, even though they are much more numerous, family establishments had access to less land (only 37% of the total) than non-family[9].

19. **Table 2 – Family Farming and Non-family Farming in Paraíba and PROCASE are, according to the 2006 Agricultural Census**

	Total number of establishments	Total Area (in ha.)	Family Farming				Non-family Farming			
			Number of establishments	%	Area (ha)	%	Number of establishments	%	Area (ha)	%
Paraíba	167.272	3.782.878	148.077	89	1.596.273	42	19.195	11	2.186.605	58
PROCASE area	**38.504**	**1.370.863**	**33.402**	**87**	**506.057**	**37**	**5.102**	**13**	**864.810**	**63**

20. Source: IBGE – 2006's Agricultural Census

21. It is also worth mentioning that the 38,504 establishments in this area are quite different regarding the available area. Almost all the 33,402 family establishments work in areas ranging up to 100 hectares. It is worth mentioning an extensive group, nearly 20,400 establishments, that has only 10 hectares or less.

22. In the Project baseline scenario, rural population's occupational activities were minimal. The main occupation was agricultural production. In this context, 88% of employed people had kinship ties with the producer. This unpaid work by the family members characterizes family farming establishments. Family farming, which includes production for self-consumption and sale, represents the main economic activity and provides livelihood for the vast majority of the impoverished rural population in the Project's intervention area.

23. **The agricultural productive systems**. Although there are some variants, in general, the family production units combine agricultural production (which may comprise plots of annual rainfed crops, mainly food crops, for self-consumption and sale, permanent crops in some cases, and, more rarely, small irrigation plots) with animal husbandry. They almost always incorporate a productive backyard in which horticultural production is associated with the creation of "free" animals (mainly poultry) and some fruit trees. The agricultural areas occupy part of the production unit, adding the forage production areas (cultivated pastures and forage production areas, mainly the forage palm). Generally, the properties also have an area of native vegetation (*Caatinga*), which is often a *capoeira* in reconstitution. *Caatinga* is always used for obtaining forage, but it is also a source of other extractive products, such as firewood, cuttings, and fruits. These different components - diverse types of fields, animal husbandry with its foraging areas, backyards - are usually present in (almost) all family production units. But it is worth remembering that the size/scale of each component is usually directly related to the available area. Larger establishments have larger herds and cultivate larger productive areas. Logically, the productive capacity of each family is strongly affected by this factor. This is an essential factor to consider when pondering the FF's ability to generate goods and income.

24. **Other regional economic activities**. In this characterization of the baseline context of PROCASE's area, implementation of two economic activities relevant to the region's rural population should be highlighted: mining (of pegmatites and quartzites) and handicrafts (mainly renaissance lace and leather work).

25. **Public policies for Family Farming**. Since the end of the last century, several public policies to support family farming have been created. These policies had the common objective of consolidating and, if possible, developing this socio-productive segment.. It is worth mentioning: the credit (costing and investment) of the National Program for Strengthening Family Farming (PRONAF), the Crop Insurance, the Food Acquisition Program (PAA), The National Agrarian Reform Program (PNRA), and programs to support the implementation of water collection and storage infrastructure - the One Million Cisterns Program (P1MC) and the One Land and Two Waters Program (P1 + 2).

26. **Social policies.** At the same time, it is important to note that social policies and public investments play an essential role in the Project's intervention area when it comes to lovelihoods. Although the quality and reach of social education, health, sanitation, and housing policies are far from perfect, they benefited the rural population to some extent. However, it is worth mentioning, above all, the various income transfer policies, among which retirement, pensions, and conditional cash transfer programs (mainly the well-known Bolsa-Família), as fundamental policies for Paraiba's rural population livelihood.

27. **The 'great drought' 2012 - 2019**. As the PROCASE implementation period went by, the most impacting event was the great drought, which lasted from 2012 to 2019. Taking this period as a reference, the last year of 'winter' considered good was in 2011. Across the region, the meager rains in 2012 were catastrophic - with numerous cases in which it rained less than 50% of the average. The following years were also critical. In 2018 and 2019, rains were somewhat better, but only a few cities reached the average rainfall in the region. It was only in 2020 that there was, finally, a good year of rain. With this, it is possible to affirm that this last 'great drought' lasted eight years (2012 to 2019).

28. Although a very recent event, the effects of this 'great drought' are beginning to be measured. A recent study recorded substantial impacts in several domains for the first six years of the event in agriculture, livestock, and water availability for the population. Given that the drought intensity is more acute on the region called 'Diagonal' (encompassed by the Project), PROCASE's operations were considerably impacted. Regarding rainfed agriculture, there was a very significant drop in the production of the main crops in the semi-arid region of Paraíba: maize, beans, and manioc. Considering the aggregate data, it appears that production has dropped significantly and remained at very low levels for six consecutive years. Total crop losses were extremely numerous in this region. This had a significantly negative impact on the food and the families' income, mainly of the social group of the FF. This drought also had a substantial impact on the herd. In the state of Paraíba, there was an estimated loss of approximately 40% of ruminant herds, registered mainly in the first two years of the event - 2012 and 2013[10]. It is legitimate to issue the hypothesis that these losses were more significant in the Borborema region, PROCASE's area of operation.

29. On the other hand, the impact of this drought was not limited to losses in agricultural production but began to affect the region's whole population. During this time, the secondary water sources, which generally supply families when the closest sources dry out, also run out. Domestic water supply for thousands of families became an enormous problem. Thus, the succession of several bad years of rain meant that it was impossible to recharge the strategic springs in the region (basically the larger reservoirs), which induce the stored water capacity into a critical situation from 2015 onwards. In December 2016, water storage systems in the region dropped to alarming levels, ranging from 1.1% to, in the best hypothesis, 14.4% of total water capacity[11]. According to

AESA, this problematic situation with critical water levels on the largest dams lasted until the end of 2019, after two years of 'reasonable' rains[12]. Even in mid-2020, after several months of adequate rainfall, in the region where PROCASE operates, there were still important dams whose reservoirs had not reached 30% of their capacity.

30. In addition to the enormous difficulties experienced in rural areas, there was a collapse in several urban water supply systems. It is worth noting that this impossibility of naturally recharging the springs had other effects, in addition to affecting the supply of rural homes. For example, in several municipalities, agricultural production irrigated from perennial rivers and weirs had to be banned.

31. **The post-2015 economic and political crisis and changes in public policies** In 2015, the occurrence of a critical economic crisis in Brazil became evident. There was a GDP drop of 2.2%, leaving the country in recession. This economic downturn had a significant impact on public accounts and drastically affected national economic activity, including the country's most remote regions. Concomitantly, an acute political crisis developed in the country, culminating in an abrupt change in the national government in 2016. This process had a significant impact on governmental priorities. The first effect of these changes was the extinction of the Ministry of Agrarian Development (MDA), responsible for most policies supporting family farming. The change in priorities associated with budget cuts resulted in a significant reduction in resource transfer to FF policies. PAA is an example of the consequences of the political changes mentioned. In 2014, this program executed R$ 752 million, while in 2018, this value dropped to only 232 million[13]. Regarding the cistern construction program, there was also a 94.5% drop in the number of cisterns built in 2020 compared to those installed in 2014[14].

32. **The COVID-19 pandemic**. Finally, a new contextual aspect arises in the final phase of PROCASE execution, with broad repercussions for FF in the semi-arid region of the Northeast and Paraíba. The COVID-19 pandemic, which has been plaguing the region since April 2020, led, in addition to the intense health crisis, to a major drop in the country's economic activity. This backdrop has been markedly felt in the Project's coverage area. This situation posed new challenges and demanded new Project initiatives to mitigate the socioeconomic impacts on the most vulnerable population assisted by PROCASE.

B.2. Project objectives

33. The overall objective of PROCASE was to contribute to the development of the local economy and reduce the levels of extreme poverty of the rural population - men, women, and young people - who live in the territories of the semi-arid region of Paraíba. To this end, the Project set out to improve, in a sustainable manner, agricultural and non-agricultural production, the organizational capacities and environmental practices of the Project's beneficiaries.

34. The **specific objectives** of PROCASE were: (a) developing human and social capital through technical and vocational training aimed at the insertion of women, youth, and*quilombolas* as agents and beneficiaries of development; (b) improving the production of family farmers with credit, technical assistance, and training to adopt best practices and access consumer markets with quality products; (c) promoting the sustainable management of natural resources - water, soil, and vegetation - and enabling coexistence with the semi-arid region and reducing the risks of desertification processes; (d) promoting the strengthening of institutions that operate in the semi-arid, public and private, with the training of human capital to foster local development and poverty reduction.

35. To guarantee the fulfillment of the PROCASE objectives, the Project organized activities into four components, as in Table 3.

36. **Table 3 – Objectives of the components and Strategic Action Lines of PROCASE**

Objectives of the components	**Strategic activity lines**
Component 1. Human and Social Capital Development (6% of the overall Project budget)	
Develop the personal, technical, and organizational capacities and skills of rural producers, with special attention to young people, women, and ethnic groups, particularly *quilombolas*, to develop agricultural and non-agricultural businesses and the better insertion in the labor markets. Support rural organizations to improve capacities to work with rural development initiatives.	- Training of beneficiaries through courses, technical exchanges. - Support to Technical Advisory teams with recycling and improvement initiatives; - Training of young people, with a scholarship program; - Articulation and training of strategic partners regarding institutional strengthening for sustainable development, productive inclusion, education on gender, youth, and ethnicity issues.
Component 2. Productive Development and Market Access (81% of the budget)	
Increase the production and productivity of small producers (agricultural and non-agricultural), improve the quality of their products and develop marketing capacities through access to technical assistance and financial resources.	-Support for producer organizations; -Technical assistance and rural extension, and training for technical teams; -Access to short-term credit; - -Research and technology transfer; -Productive investment fund
Component 3. Sustainable Management of Natural Resources and Combat Desertification (7% of the budget)	
Promote the sustainable management of natural resources, including techniques and knowledge to support the fight against desertification and support the sustainable development of the productive and value chains supported by the Project.	- Dissemination of best practices for the sustainable management of water resources, soils, native vegetation, and biodiversity, emphasizing the productive systems supported by the Project. - Environmental education initiatives
Component 4. Project Management (6% of the budget)	
Establish an effective Project Management Unit (PMU).	

37. The Gender equality, women empowerment (GEWE), and social inclusion approach has been incorporated as a cross-cutting themes in the whole of PROCASE's work through the coordination with the Gender, Youth, and Traditional Peoples Advisory Committee to guarantee equitable access to the Project's services and to promote the organizational strengthening of these population segments.

38. The Monitoring and Evaluation (M&E) Unit designed the instruments and implemented the activities of the M&E System to monitor, record, and report the physical achievements and results of the various project activities. The information compiled and conveyed by this unit supported the decision-making of the Project's managers.

39. Each component of PROCASE defined, around the lines of action mentioned above, a set of activities, products, results, and qualitative and quantitative indicators organized in a logical

framework, a reference for the monitoring and evaluation of the Project. The Logical Framework Matrix is in Appendix 1.

B.3. Implementation modalities

40. **Institutions responsible for implementing PROCASE**. In line with the Financing Agreement, the Project's institutional arrangement includes the State's Secretariat for the Development of Agriculture and Fisheries (SEDAP as the leading executing agency (EA), primary responsible for the Project management. In 2015, the Government of Paraíba included in this arrangement, , the State's Secretariat for the Development of Family Farming and the Semi-Arid Region (SEAFDS) as co-executing agencies. The latter was responsible for the Project Management Unit (PMU).

41. **Advisory and decision-making bodies**. The institutional structure of PROCASE includes a Project Steering Committee (PSC), which functions mainly as a forum for debates and strategic reflection on the Project. The PSC Plenary was chaired by the SEDAP chair and composed of more than 20 members. It includes representatives from various government agencies (State and Federal Agency representatives) and a substantial civil society representation. This Committee was the locus of the most general discussions, such as concerning the implementation method and the Project's role in the state government's emergency action in the face of the 'great drought'. This Committee analyzed and approved the AOPs. The Executive Committee for Productive Investment Management (ECPIM), chaired by the executive agencies and composed of representatives from other technical bodies, was responsible for analyzing and approving the various Project investments.

42. **Operational implementation instruments**. The PMU was the executive branch of PROCASE, acting throughout the Project cycle to promote articulation with other participants, implement strategic, budgetary, and financial planning, monitor and evaluate the Project. It was also up to the PMU to conduct the Project's relationship with the federal government and IFAD in the various tasks required by these relations. In the territories where PROCASE operates, five Regional Project Management Units (RPMUs) were created (Table 4), through which PROCASE was able to proceed with its activities and allowed a closer relationship with the beneficiary families.

43. **Table 4 - Territorial distribution of PROCASE Management Units**

Management Unit	Headquarters (municipality)	Number of municipalities benefited
PMU	João Pessoa	-
RPMU do Cariri Ocidental	Sumé	17
RPMU do Cariri Oriental	Campina Grande	14
RPMU do Curimataú	Cuité	12
RPMU do Seridó	Soledade	7
RPMU do Médio Sertão	São Mamede	6
		Total of 56 municipalities

44. **Partnerships**. Other instances of the Government of Paraíba were partners in the execution of PROCASE. It is worth mentioning the State's Secretariat for Planning and Management (SEPLAG), responsible for budget management, Paraiba Research, Rural Extension, and Land Regularization Company (EMPAER), TARE provider, State's Secretariat for Infrastructure, Water Resources and the Environment (SEIRHMA), which coordinated the Emergency Program for access to water resources and environmental management. There was also a partnership with the State's Secretariat for Women and Human Diversity (SEMDH), responsible for promoting training and insertion of women in projects and other state agencies. Each of these institutions worked in areas of interest to PROCASE, allowing the Project to expand the scope of tits work, adding efforts and synergies to achieve common goals and results.

45. At the level of the territories, PROCASE counted on the participation of the Territorial Collegiate, which played a key role in selecting and forwarding the Productive Projects proposals. Always at the territorial level, in several cases, the Municipal Governments joined the common effort.

46. A Technical Cooperation Project (TCP) signed between the Government of Paraíba(SEDAP) and the Inter-American Institute for Cooperation on Agriculture (IICA), in force since 2013, was a fundamental instrument for the management of the Project field consultancies. Finally, it should be noted that the various entities contracted to provide technical assistance to organizations and rural families with whom the Project worked contributed significantly to PROCASE's successful implementation.

47. **The implementation strategy** adopted by PROCASE, in general terms, followed the model of the cycle of rural development projects, having as reference the indicators of the Logical Framework Matrix. Conceived and designed to be implemented in a participatory manner and with a strong presence of beneficiaries in the Territories, the Project initially focused mainly on preparation, analysis, and implementation of PPs to guarantee production and increase the income of poor farmers of the semi-arid. The initial strategy adopted was making public calls to select projects led by potentially interested beneficiaries.

48. In 2016, when it became clear that this system of public call notices made it difficult for PROCASE to approach many potential beneficiaries, the Project changed the strategy . In its new format, public notices were launched, and the groups and organizations of the beneficiaries began to present their demands for Productive Projects through public hearings on the democratic budget of the Government of Paraíba. This simpler process allowed more direct contact with beneficiaries. On the other hand, direct agreements were also established with cooperatives and associations for improving the production system.

49. Finally, the gravity of the situation caused by the 'great drought' demanded an accelerated implementation of investments in the collection, storage, and access to water resources. To this end, in 2015, the Emergency Program model was created, in which most vulnerable communities were indicated by territorial collegiate bodies of municipal governments and other bodies with a strong presence in the territories. Then the Project was responsible for directly installing water sources and small irrigated areas to cultivate of forage palm. The beneficiaries' demands were converted into goods and services to be obtained and distributed to interested groups, associations, cooperatives, and their membersItem D.1. of this PCR, which deals with PROCASE's effectiveness evaluation, provides a more detailed view of the results achieved.

50.

51. **PROCASE budget and funding entities**. In the original design, the total PROCASE estimated cost was USD 49.7 million. IFAD financed USD 25.0 million, the Government of Paraíba provided USD 12.1 million, and USD 2.6 million were beneficiaries' counterpart. The originally scheduled duration was six years. However, to carry out the forecasted budget and fulfill the planned activities, two extensions to the PROCASE execution deadline were necessary. The Project was scheduled to end on December 31, 2018. Still, it was extended for one year until December 31, 2019, and again for another year, ending on December 31, 2020. Details of budgets and expenditures are in section E regarding the evaluation of the efficiency of PROCASE.

B.4. Target groups

52. According to the 2010 Demographic Census, the total rural population of the 56 municipalities in the PROCASE area of operation was 165,101 inhabitants (38,9% of the total[15]), with a rurality rate significantly higher than that of the state of Paraíba (24.6%). The diagnosis carried out to identify the Project's target public showed, without exception, the poverty and social, economic, and environmental vulnerability of the rural population in the Project area. The targeted population faced very challenging conditions for their development. Data from the 2010 Demographic Census (IBGE) shows that 22.3% of Paraíba's population was poor, while at the national level, the percentage of poor people was 10.4%. The proportion of poor in rural households of Paraíba

is higher, reaching 37.1%. Because of a long history of disproportionate male emigration, in Paraíba, there is a high proportion of women-headed households with low education and with children, who represent up to 30% of all families in the most impoverished rural areas, indicating the existence of a group of high social vulnerability.

53. The Project's target population comprises 18,500 poor rural families, including landless rural families dedicated to handicrafts, small-scale mining, and other activities. They are family farmers who occupy marginal land, often with up to 10 ha. Without access to rural credit, ATER, water for production, therefore, with low production and income below the extreme poverty line[16]. This social group has access to few job opportunities due to functional illiteracy, especially among young people.

54. This public was targeted in PROCASE's activities, which seeked to promote the social and economic insertion of poor families and the mitigation of environmental risks associated with prolonged periods of drought. Thus, PROCASE beneficiaries were family farmers in economic and social vulnerability, residing in the municipalities where the Project operates and who have accumulated experience in agricultural and non-agricultural activities associated with the Project's productive arrangements set as a priority with rural business potential.

55. In this group, the Project's planned activities focus on the insertion of women, youth, and*quilombolas*. The eligibility of the beneficiaries in the social group belonging to family farming already characterized the participants as family farmers with production, commercialization, purchasing, or processing activities carried out in an associative way or not

56. Other social groups identified by the PROCASE design document who received support from the Project were small miners and artisans, who have significant work in the semi-arid region of Paraíba. They acquired resources and training to improve their production processes and market insertion. in a much more limited manner than planned[17], teachers and students were also a target group of PROCASE through training activities, mainly receiving information on coexistence with the semi-arid region. The Logical Framework Matrix attached shows the number of beneficiaries per Project component.

57. Globally, the Project's activities directly benefited 24,413 families[18], 132% of the target of 18,500. Within this universe, 11,858 were women-headed households, corresponding to 160% of the target of 7,400. In 1,616 families, young people are beneficiaries, exceeding the target by 102%. The Project gained more dimension with the emergency activities of water access (wells with wind-powered system, desalination plants, dams, underground dams, solar energy), which exceeded the target, bringing enhanced water and food security for more than 17,000 families.

C. Assessment of project relevance

C.1. Relevance vis-à-vis the external context

58. The relevance of the external context is related to the alignment of PROCASE with national, regional, and state policies to foster rural development reducing extreme poverty.

59. The objectives and activities identified in the PROCASE design are consistent with the six strategic axes in which the Paraíba Strategic Development Plan - PARAÍBA 2020. This Plan is an articulated and long-term development strategy approved in 2008 to achieve a modern and competitive state, socially fair and environmentally sustainable. In particular, the main objective of PROCASE, that is, to improve the living conditions of poor rural families in the most disadvantaged areas of Paraíba, integrates perfectly with Strategic Axis I, focused on improving the quality of life and health conditions, as well as reducing poverty and inequality.

60. PROCASE's activities also fit in with other strategic lines of the Plan, such as those referring to increasing economic competitiveness and diversifying the economy (Strategic Axes II and III) and the expansion and democratization of education and knowledge (Axis IV). PROCASE's activities for valuing the local culture are part of the Paraíba Handicrafts Promotion Program and [19], as well as the activities to support the strengthening of sheep and goat production chains, which are the subject of specific Programs of the Strategic Development Plan. One of the strategic axes of PROCASE is also to invest in the direct qualification of producers, thus being part of Axis IV. Finally, the pilot activities performed in PROCASE for the recovery of the *Caatinga* areas and the sustainable integration of production and the environment (support for the intensive rearing of goat farming) fit with the objectives of Strategic Axis V, dedicated to the preservation and recovery of the natural environment through the integrated management of water resources and the conservation and recovery of degraded ecosystems and areas.

61. As a poor state with few government investments, the Paraíba government's strategy to fight rural poverty is associated with Federal Government policies or other sources, such as loans taken from multilateral credit agencies. In this sense, the state has benefited from the set of federal policies, from the Fome Zero (Zero Hunger) Program[20] to Luz para Todos, Bolsa Família[21], PRONAF (National Program for Strengthening Family Farming), PAA[22] (Food Acquisition Program), PNAE (National School Feeding Program), National Land Credit Program (PNCF), among others. This set of activities, programs, and policies compose the federal government's axis of action around the theme of human development in rural areas. PROCASE communicates with all these programs and, at the local level, expands the implementation of policies for farmers/poor in the Project area, being relevant activities for the reduction of rural poverty.

62. However, even with the policies and resources available, the most vulnerable populations have difficulties accessing these benefits, mainly due to technical and institutional weaknesses in the bodies responsible for implementing rural development policies. It is relevant to strengthen these institutions to perform their duties with quality. Thus, PROCASE was aligned to contribute, improve and strengthen these bodies, to show consistency and relevance enhancing the capacity of the Government of Paraíba to diagnose, evaluate and propose solutions to increase the participation of vulnerable groups in accessing the benefits of the projects financed with external resources and promote rural development to reduce poverty in the semi-arid region.

63. The needs identified in the Project's design concerning rural credit, training for market insertion, technical assistance, improved access to water, enhanced production infrastructure, and diversification of crops, considered relevant to reduce the high incidence of poverty in the semi-arid region of Paraíba, were all covered by PROCASE. These overarching effects are described in Part D2 of this report, which deals with the Project's rural poverty impacts.

64. The PROCASE approach is also consistent with the guidelines established in IFAD's Country Strategic Opportunities Program (COSOP) in Brazil during the period 2008-2013, and in particular with strategic objectives 1, 2, and 3 related, respectively, to the increase in the production of family farmers in connection with markets and value chains, improving the access of the rural poor to non-agricultural employment and activities in rural businesses, and the creation of capacities among the rural poor to generate employment. COSOP also indicated that projects within the cycle of activities planned for 2008-2013 should concentrate efforts on the Northeast Semi-Arid region, the region with the largest contingent of rural poor in the country. Therefore, the decision to focus PROCASE on the "backlands" of Cariri, Seridó, and Curimataú is a direct result of COSOP. The implementation of PROCASE also remained consistent with the reorientation raised by the new COSOP for the 2016-2021 period, in which greater emphasis was placed on: i) adaptation to climate change; ii) promotion of innovations and the search for their dissemination; iii) training of state management teams in rural development, strengthened through partnerships with the Semear International Program and governmental technical assistance entities, such as EMPAER.

65. The Project also aligns with the pillars of the IFAD Strategic Framework 2016-2025 concerning (i) access to natural resources; (ii) improved agricultural technologies and effective production services; (iii) opportunities for rural non-agricultural employment, and the development of diversified rural companies; (iv) environmental sustainability and (v) adaptation to climate change.

C.2. Internal Logic

66. PROCASE's design was based, on the one hand, on an in-depth analysis of the geographical context of the semi-arid region of Paraíba. On the other hand, the Project relies on an appreciation of the existing challenges in territorial socioeconomic development. The high incidence of rural poverty in the semi-arid region of Paraíba and the existence of untapped local economic potentials offered the primary justification for the Project. Despite the restrictive conditions for production, some agricultural and non-agricultural activities have become important sources of income for rural families and still have growth potential through increased productivity, improved quality, and access to new markets. In addition, there are opportunities to add value to the production of raw materials and create jobs, promoting small-scale agro-processing industries and other non-agricultural businesses, such as handicrafts, in areas where agricultural growth is minimal.

67. Also, the Paraíba semi-arid faces serious environmental problems, mainly related to water scarcity - a factor s significantly exacerbated by the "great drought" and by the degradation of environmental resources such as soils, natural vegetation (the *Caatinga*) and biodiversity. This degradation manifests itself in more extreme cases in the process of desertification. Climate change is proving to be a factor intensifying preexisting challenges.

68. In this context, it is evident that the development of agricultural and non-agricultural production must be complemented by the necessary measures to ensure that the expansion of the proposed production will only be possible with the comcomitant promotion of sustainable environmental practices. Thus, the central objective was built around the idea of poverty reduction through the promotion of sustainable growth in agricultural and non-agricultural income, family assets, organizational capacities, and the promotion of best environmental practices.

69. The Project's internal logic articulated the proposed activities around four interconnected components that cover all relevant aspects to transform the identified problem situation, combining economic opportunities and strengthening of the beneficiaries and organizations' capacities with the improvement of natural resources management. To this end, the Project implemented activities aimed at the development of human and social capital through technical and vocational training; improving the production of family farmers with credit, technical assistance, and training to access markets with quality products; the promotion of coexistence practices with the semi-arid region; and promoting the strengthening of institutions that operate in the semi-arid, public and private, with the training of human capital to favor local development.

70. **Logical Framework Matrix (LFM).** The Project's design formulation was focused on the LFM. This instrument articulates activities and results to achieve the objectives of PROCASE. In the LFM, the development objective and six expected results were defined, each with its respective measurement indicators. Because the Project's implementation has undergone several adjustments since its initial conception, the Midterm Mission recommended revising some indicators. The initial LFM indicators did not reflect the results obtained by the components anymore, particularly in relation to new activities carried out in the Emergency Plan. The LFM was revised after the Midterm Review - MTR and validated by the 2018 supervision mission. In total, only three indicators were entirely removed, and a few others had target adjustments. However, several new indicators were included in the LFM to express the new activities' depth.

71. In addition, PROCASE complied with IFAD's recommendations on the Main Indicators of the Results and Impact Management System - (RIMS) and included, in 2020, in its Logical Framework Matrix, 4 of which are Core Outcome Indicators - COI, a subset of production indicators and new and improved RIMS for use in LFMs and M&E systems. One must acknowledge that in the final Impact Evaluation a total of 12 COIs were included, even though only 4 of them had been included in the Project's Logical Framework and during implementation.

72. Table 5 compiles the Project's main expected results, mentioning the number of indicators intended to measure the achievement of these results.

73. **Table 5 - Main expected results and number of main indicators for their measurement**

Results	1. **Main indicators**
Result 1 - Strengthened capacities of beneficiaries (youth, men, women, and *quilombola* community) to develop more productive and profitable agricultural activities and non-agricultural businesses and a better insertion in the labor markets through access to training and professional education.	**3 Monitoring indicators, of which:** 1 indicator of the original LFM and 2 Indicators added in the MTR.
Result 2.1 - Poor rural producers supported so they can increase their production and productivity, improve the quality of their products, and develop marketing capacity.	**4 Monitoring indicators, of which:** 2 indicators from the original LFM and 2 indicators added in the MTR.
Result 2.2 - Small producers targeted by the Project have access to technical assistance and financial resources to improve agricultural and non-agricultural production**.**	**6 Monitoring indicators, of which:** 4 indicators from the original LFM and 2 indicators added in the MTR.
Result 3 - The dissemination and implementation of sustainable practices for managing natural resources (including techniques and knowledge related to combating desertification) are promoted.	**3 Monitoring indicators, of which:** 2 indicators of the original LFM and 1 Indicator added in the MTR
Result 4 - Rural organizations strengthened to improve their capacities to formulate, develop and implement rural development initiatives.	**4 Monitoring indicators, of which:** 8. 4 indicators of the original LFM
Result 5 - Established an effective Project Management Unit	**4 Monitoring indicators, of which:** 3 indicators of the original LFM and 1 Indicator added in the MTR

74. The implementation experience showed that the PROCASE design responded to the needs and priorities identified when the Project was formulated. The necessary adjustments were demand-based, not compromising PROCASE's original logic. The LFM, guided by these expected results, was designed to measure the scope of changes or transformations that can be detected with the target population and the rural sector, seeking to measure these changes from the initial situation until Project's completion. Consequently, the results listed in Table 5 converged allowing a broader effect or impact, defined by the development objective presented in Table 6.

75. **Table 6 - The development objective and the number of benchmarking indicators**

Effect – impact	**Benchmarking indicators**
Development objective. Project beneficiaries in the semi-arid region of Paraíba sustainably improve agricultural and non-agricultural income, productive assets, organizational capacities, and environmental practices	**11 Monitoring indicators, of which:** 7 indicators are from the original LFM, to which, in 2020, 4 COI were added.

76. In general terms, the activities included in the LFM were adequate to achieve the desired results, allowing the achievement of the Project's objectives. Following the Project's budget, the implementing agency allocated adequate resources during implementation.

C.3. Adequacy of design changes

77. During the implementation of PROCASE, it was necessary to adjust what was foreseen at design. Such changes were proposed mainly to provide better conditions for the full execution of the Project. At the same time, these adjustments allowed a better adaptation to important events in reality, among which it is worth mentioning the 'great drought' 2012 - 2019 and the COVID-19 pandemic.

78. **Extension of the deadline for the Project closing**. The Midterm Review carried out at the end of 2016 found a very significant delay in the implementation of the Project's activities and, consequently, in the application of financial resources. Although there was an improvement in implementation performance in the following year, it would be necessary to request an extension of one year in the closing deadline because the Project would not complete its execution until the originally scheduled completion date of December 31, 2018. In April 2018, the decision to extend PROCASE's completion date was formalized, with the new completion date set for December 31, 2019. Although execution ended on this date, to be able to respond to the pandemic, a new agreement extended the deadline for Project completion to December 31, 2020. This last extension had the objective of allowing the remodeling of the impact assessment research with beneficiaries, preparing and testing a new external audit methodology in the context of the pandemic. It also allowed the use of the budget from external financing sources for purchases destined to rural emergency aid, which was partially implemented due to administrative difficulties. These changes proved to be adequate, given the circumstances experienced by PROCASE during its implementation.

79. These postponements of the Project closing date did not lead to any significant change in the budget. There were only reallocations and adjustments between the categories of expenditures to redistribute the outstanding amounts, proposed by the PROCASE coordination to meet priorities defined by the Government of Paraíba, always in agreement with IFAD and the Federal Government (guarantor of the loan operation).

80. **Adjustments to the priorities for the Project's investments, with a greater focus on the theme of water resource**s. In its first years of operation, PROCASE gave absolute priority to financing Productive Projects (PPs) focused on investments (including assets and other services here) aimed at strengthening beneficiaries' productive activities. Although mentioned in the Design Report, there was no investments to collect, store and use water resources during this initial phase. However, as the drought prolonged for years, the worsening of this problem led the Government of Paraíba to issue a decree. In 2015, Paraíba declared state of emergency, and water resources became an absolute priority for government action. Within this framework, PROCASE redirected its investments to concentrate on this theme. Thus, from the end of 2015 onwards, the Project started to implement concrete activities in this area, grouped under the name of Emergency Plan (EP). Several initiatives followed. A wide-ranging action involved the implantation of a water source (mainly tubular wells) associated with an irrigated field of forage palm. Also included as part of the Project was the construction of three small dams designed to provide basic water support for a significative contingent of beneficiaries. In addition to representing an important benefit for a large group of target families, the inclusion of these dams, which were not previewed, also allowed rebalancing the Project's accounts, mainly within the scope of the state government's counterpart. This reorientation of priorities for the Project's investments did not affect the implementation of the PPs from the initial phase. Nevertheless, after 2016, no further initiatives of this type were financed. In general, the Project's reaction to contextual changes maintained the Project's relevance to the local population and the state government. The Government of Paraíba, as well as IFAD and other PROCASE partners, considered this reorientation of the Project's priorities correct.

81. **Adjustments to the intervention format**. Following what appears in the PROCASE Design Report, the preparing and implementing of Productive Projects (PP) involved an intense participation of beneficiaries. A characteristic element of this methodology was the agreements signed between the Project and the beneficiaries' associations, which implied a transfer of resources to these entities. Although it confirmed its potential to strengthen associations and develop their management capacities, this format was quite problematic in terms of operational efficiency. For several reasons, PPs proved to be challenging to design and execute. Thus, at the end of 2015, a very low execution of PROCASE was observed since the Project was still restricted to PPs. This situation, combined with the absolute urgency of reorienting investments towards the theme of water resources, led the Project to change th operational format of its intervention. In the new format, investments (always linked to the theme of water resources) started to be planned directly by the Project (PMU) and not by the community. These investments were highly standardized, and, in addition, the Project was responsible for acquisitions and contracting the necessary facilities. The beneficiaries had no responsibility in the acquisition process, participating, when relevant, in the execution of investments.

82. **The Technical Assistance.** In this case, it is not a question of a change in design, but an adjustment of the Project's implementation, which brought about a rapprochement to what was planned in the design. Although the original design provided for the provision of technical assistance,an important tool for improving and expanding the initiatives of beneficiary organizations and families. In its first years, PROCASE did not implement what was previewd for TA. IFAD insistently pointed out this gap in the missions carried out with the Project in the early years. Finally, in 2016, it was evident that problems accumulated in the implementation of the PPs. The EP initiatives also far exceeded the capacity of action of the Project's base team. That was how, in 2016, PROCASE first contracted a TA service, designed to serve the groups of beneficiaries that were benefitting from the Emergency Plan. As of 2017, TAactivities expanded to cover both the EP and the PPs. Both PROCASE's and IFAD's follow-up recognize the advances made in implementing these investments, in training, and results obtained since this TA service started to be implemented by the Project. Thus, this adjustment in implementation, which brought the Project's action closer to what was in the design, was very correct.

83. **Adjustments in the performance of the Human Development and Social Capital Component.**According to the PROCASE design report, the objective of the Human Development and Social Capital Component was to improve the capacities - personal, technical, and organizational - of rural producers, with special attention to young people, women-headed households, and ethnic groups (*quilombolas*). However, during implementation, when defining the activities to be carried out by PROCASE in this domain, the scope of the activities of this Component became much more modest, including almost exclusively activities for the training of young people (generally linked to the provision of scholarships). Its relative weight reaffirms the modesty of the original ambitions of this component in the budget, which is around 5% of the total value of the Project.

84. Understanding that beneficiary families' capacity development was a great need, PROCASE decided to expand the scope of its action in this area. Thus, the component started to carry out responsibilities in implementing various capacity-building activities of the beneficiaries. In this process, the HD&SC Component has also assumed the task of strengthening the organizations of the beneficiary public, the main objective of the Institutional Development Component, not implemented yet. This time, the DH&CS took over training activities for this Component. Other expenses for the purchase of cars and other equipment were deemed inopportune. These adjustments, which reorganized the action of the HD&SC Component and deactivated the Institutional Development component, were confirmed in the MTR. The implementation experience itself shows that these adjustments were perfectly adequate.

85. In general terms, it is possible to conclude that the original design was consistent with the needs of the target groups. It was also in line with IFAD's government policies and national priorities. The proposed interventions and implementation modalities were reasonably adequate. The problems PROCASE faced during implementation led to timely adjustments and tailored to the context, ensuring coherence with the Project's internal logic. The changes introduced during the execution helped to maintain the relevance of the Project until its completion. Therefore, the relevance of PROCASE is considered

D. Assessment of project effectiveness

86. The Effectiveness Assessment presents the degree of attainment of the products and results foreseen in the Project design to be able to meet the global objective of PROCASE, which aims to reduce poverty by improving the production of families and rural enterprises, strengthening organizations and the improvement of the environmental practices of the beneficiaries in the Project's coverage area (cf. section B.2). In the following section (D.1), the activities carried out and the results obtained are presented. In the subsequent sections (D.2 to D.8), the impacts achieved by the Project in its various dimensions discussed.

87. The presentation of these results and impacts considered the progress achieved in the logical framework, the impact survey, progress reports, management reports, and evaluative studies (some evaluation practices involved listening to beneficiaries) carried out by PROCASE.

D.1. Physical targets and output delivery

88. **Area of action:** PROCASE operated in the central region of the State of Paraíba, in 5 territories (Cariri Ocidental, Cariri Oriental, Curimataú, Médio Sertão, and Seridó) covering 56 municipalities and 792 rural communities, including 175 rural settlements and 14 *quilombola*

89. PROCASE implemented Project's components in an articulated and transversal way throughout the execution to meet its objectives. Thus, it was the joint work of all the components that allowed obtaining the results presented below.

90. The families directly benefited were linked to the Project mainly through productive and water development initiatives - the Productive Projects (PP) and Emergency Plans (EP) (result 2). The development of PP and EP was supported by human and social capital development, especially of target groups, strengthening of rural organizations, and activities related to climate change mitigation and environment. These activities correspond to results 1, 4, and 3, respectively, in the Logical Framework Matrix. In addition, the project technical assistance programme to families receiving PP and EP was solid, involving public and private agencies, as well as civil society and a Federal body (SENAR).

91. **Global outreach:** PROCASE benefited 24,413 families, 32% more than the global target. The families where women were the main beneficiaries exceeded the target by 60%, totaling 11,858 families, which corresponds to 48% of the general public. The families in which young people were the beneficiaries total 1,616, which corresponds to 102% of the established target. PROCASE also benefited 319 *quilombola* families, surpassing the target set by 59%. Despite constituting only 1.3% of the general public of the Project,*quilombolas* received a significantly higher

percentage of PP and PE, as shown below. Table 7 summarizes the general scope of PROCASE.

92. **Table 7 - PROCASE Outreach Indicators**

PROJECT OUTREACH				
Outreach Indicator	**Goal**	**Reach**	**% Goal**	**% General public**
Number of families directly benefited by the services of the Project	18,500	24,413	132%	
Women benefited in the family	7,400	11,858	160%	48.6%
Young people benefited in the family	800	1,616	202%	6.6%
Quilombolas	200	319	160%	1.3%

93. **Rural organizations:** 97 rural organizations,through Productive Projects were developed, were supported.

94. **Main lines of action.**The Project's main lines of action are Productive Projects (PP), Emergency Plans (EP), and technical assistance (TA).

95. These broad lines of action fully served PROCASE's target groups. It is noteworthy that, among the 97 Productive Projects, 23 provided specific support to a group of women, and 5 were directed to *quilombola* In EPs, women represent 62% of the total beneficiaries of the desalination technology. Table 8 shows the reach of the total number of families, in addition to the number of women, youth and *quilombolas* served by PROCASE activities and the investment destined to each of its main lines of action. It also provides an indication of the weight of each of these activities in terms of resources invested.

96. **Table 8 - Outreach and investments, by PROCASE line of action**

PROCASE main lines of action				
Productive Projects		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Number of projects		*97*		Investment.: USD 4.951.124 Technical Assistance (TA): USD 1.938.726 **Total: USD 6.889.850**
Total of beneficiaries		*2,930*	*100%*	
	Women	*1,267*	*43%*	
	Youth	*351*	*12%*	
	Quilombolas	*90*	*3%*	
Emergency Plan – Irrigated Fields		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Number of projects		*705*		Investment: USD 8.023.249 Technical Assistance: USD 1.994.418 **Total: USD 10.017.667**
Total of beneficiaries		*5,565*	*100%*	
	Women	*2,213*	*40%*	
	Youth	*870*	*16%*	
	Quilombolas	*126*	*2%*	
Emergency Plan – Desalination Technology		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Number of projects		*61*		Investment: USD 1.436.204 Technical Assistance: USD 232.416 **Total: USD 1.668.620**
Total of beneficiaries		*1,654*	*100%*	

	Women	*1,036*	*63%*	
	Youth	*193*	*12%*	
	Quilombolas	*103*	*6%*	
Emergency Plan – Mechanized patrol		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Number of patrols		*9*		**USD 497.374**
Total of beneficiaries		*1,681*	*100%*	
	Women	*370*	*22%*	
Emergency Plan – Dams		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Number of projects		*3*		**USD 7.231.295**
Total of beneficiaries		*10,022*	*100%*	
	Women	*5,505*	*55%*	
Training (others) – EMATER		**Outreach**	**% Outreach**	**Amount (USD) of services provided by PROCASE**
Total of beneficiaries		2,561	100%	**USD 1.398.850**
TOTAL		24,413	100%	**Inv.: USD 27.703.656**

97. **Achievement of the goals referred to in Result 1:** Strengthened capacities of beneficiaries (youth, men, and women) for the development of more productive and profitable agricultural activities and non-agricultural businesses and a better insertion in the labor markets, through access to training and professional education.

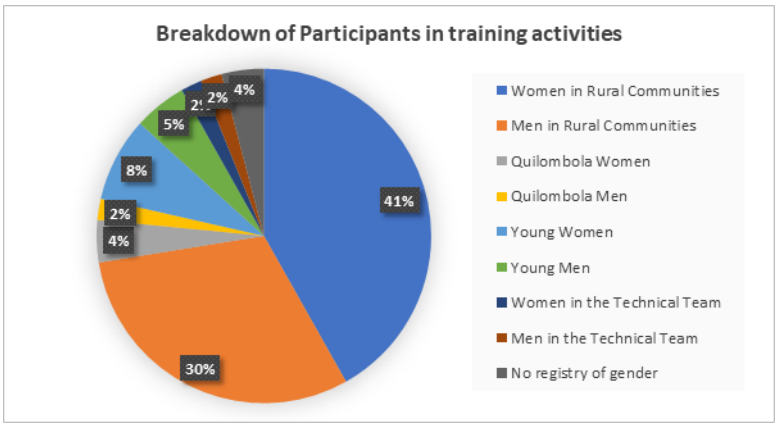
98. Human and social capital development work focused on carrying out training activities. Within this framework, an important number of events of this type were carried out, such as workshops, courses, meetings, and exchanges. In all, 7,591 people benefited from these activities, a number that exceeds the established goal of 4,500 people by 69%.

99. Young people were the main beneficiaries of this PROCASE line of action. 1,552 young people were trained in Rural Development, 771 in business plans, gender equity, and ethnicity, 431 benefited with an amount equivalent to USD 400 to develop their own business plans, and 206 received grants to act as multipliers in communities served by PROCASE. Despite the efforts made by the Project in this context, the scope of activities related to the training of young people was below expectations, reaching 46% of the goal established in the LFM.

100. **Outreach:** Participants in the activities developed to achieve Result 1 were systematized accordingthe target groups and gender. Women represented 56% of the participants in general. 41% of the participants were women from rural communities, 8% youth, 4% *quilombola*, and 2% technicians.

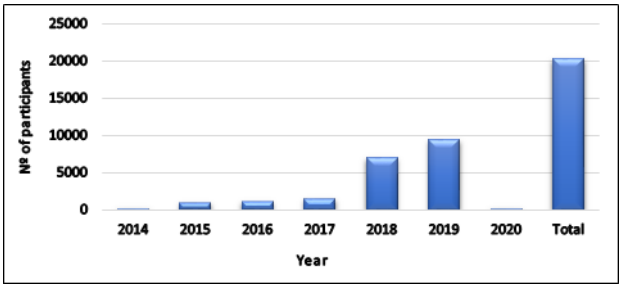
101. The participation of beneficiaries in general from rural communities represented 74% of the total participation. The remaining participants were divided between*quilombolas* (6%), young people (13%), technicians (4%), and 'other' (6%). Among the people from the communities, the participation of women was 36% higher than that of men. In the *quilombola* group, the participation of women was twice that of men. Regarding young women, women account for 60%. In the group corresponding to the technical teams covered, the proportion of men and women was the same (see Figure 2).

102. **Figure 2 - Gender distribution of participants in capacity building activities - Result 1**



103. The analysis of the participation of beneficiaries over the years of implementation shows that the years 2018 and 2019, the period of validity of the TA to the PP's, were truly relevant in the increase in the activities carried out and in the number of participations, given an expressive growth of offering training opportunities in this period - see Figure 3.

104. **Figure 3 - Training of beneficiaries, per year**



105. The main LFM indicators concerning the number of families benefited in the dimension of Result 1 related to capacity building are presented in Table 9.

106. **Table 9 - Main indicators of the Logical Framework Matrix**

Logical Framework Indicators - Result 1	Target	Outreach	Result (%)
Number of people benefited from workshops, meetings, exchanges, and other activities of the component.	4,500	7,591	168.7%
Young people (50% women) with training in Sustainable Rural Development (Agroecology, *Caatinga* Management, Localized Irrigation, Protection of APPs, Phytozoosanitary Management, Reproductive Management, Fodder Bank, Seedlings Management, and others)	3,700	1,552	41.9%
Granting of scholarships to young multipliers working in the communities with projects associated with PROCASE	300	206	68.7%

107. **Achievement of the goals referred to Result 2**

108. **Result 2.1** – *Poor rural producers supported so they can increase their production and productivity, improve the quality of their products and develop marketing capacity.*

109. **Result 2.2.** - *Small producers targeted by the Project have access to technical assistance and financial resources to improve agricultural and non-agricultural production.*

110. PROCASE's main line of work centered on providing services to families and, for some enterprises in communities/settlements, aiming to create/develop the productive activities of the beneficiaries. This action, led mainly by Component 2 of Productive Development and Market Insertion, accounted for 81% of the Project's budget. In a nutshell, it is possible to affirm that the 'services' provided to families/enterprises were: i) productive support in the form of provision of resources (material and/or financial) to make investments (from the Project's Productive Investment Fund, foreseen in the design); ii) training services in the technical and managerial domains, mainly provided through TA. Within the general framework of this project action format, results 2.1 and 2.2 refer to activities aimed at providing these services.

111. **Productive support**

112. Supporting producers thorough the provision of investment resources occurred with the development of 97 Productive Projects, 7% more than established in the LFM, with which 2,930 families were served, which corresponds to 73% of the original target.

113. Emergency Plans were also developed, which made 862 water access systems available in 792 communities, exceeding the target for both indicators. Through the Emergency Plans, 18,922 families were assisted.

114. Table 10 presents a summary of the results achieved by Component 2, measured with the corresponding main indicators of the Logical Framework Matrix.

115. **Table 10 - Main indicators of the Logical Framework Matrix on result 2.1.**

Logical Framework Indicators - Result 2.1	Target	Outreach	Result (%)
Result 2.1 – Poor rural producers supported so that they can increase their production and productivity, improve the quality of their products and develop marketing capacity			
Families served by Productive Projects	4,000	2,930	73.3%
Families served by Emergency Plans (irrigated fields, desalination technologies, mechanized patrols, and dams)	17,560	18,922	107.0%
Number of communities benefiting from water availability and forage fields	766	792	103.0%
Number of goats and sheep distributed (breeding and breeding) to improve the genetic pattern of the animals	1,000	3,936	393.6%

116. The details of the Productive Projects and Emergency Plans are as follows:

117. **Productive Projects (PP).** The PPs sought to promote an increase in the income of rural farmers through the development of a Business Plan conceived by rural organizations. A total of 97 PPs were implemented and received a total of direct investment resources of R$ 15.8 million.

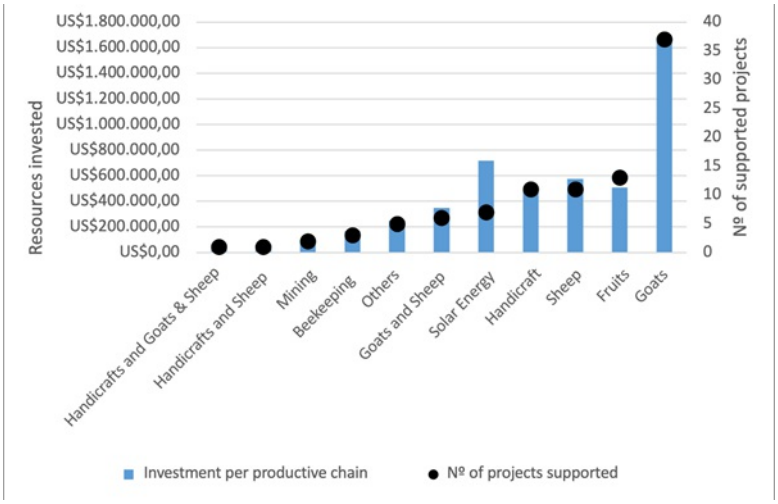
118. These PPs complemented the (direct) productive investments with TA provision by entities contracted by PROCASE. Among the productive assets provided by PROCASE, the following stand

out: strengthening and/or implantation of 15 agro-industries and 11 craft houses, installation of photovoltaic systems in 7 cooperative agro-industries, acquisition of forage processing equipment, and the distribution of 3,936 animals, among male sheep and goat breeders and breeders. Among the 97 PPs, 23 were managed by groups of women.

Picture 1 – Productive Projects. Raising of goats and sheep feeding on opuntia, a forage cactus. Paulo Freire Settlement (*Remígio* and *Algodão da Jandaíra* municipalities). Credit: Semear International Programme.

119. Figure 4 shows the number of PPs and the distribution of the total amount invested divided into the nine main production chains and solar energy installation. It allows observing, for example, that the PPs dedicated to the activity of raising small ruminants (goats and sheep) were the majority in the number of projects (55%) and in terms of invested resources (52%). This fact aligns with the importance of this activity for family farming in the PROCASE intervention area.

120. **Figure 4 - Number of Productive Projects (PPs) and volumes invested (in USD) by production chain**



121. **Emergency Plans**

122. The Emergency Plans were developed in 4 categories (described in details below). The three main activities sought to promote increased productivity and domestic water security by increasing access to water, while a forth worked with access to agricultural mechanization.

123. **Water source and irrigated fields**

124. The main strand of the Emergency Plans comprised initiatives that installed a water source and an irrigation kit in the communities. These investments made it possible to implement irrigated fields to produce fodder and/or agroecological mixed farming system and strengthen the water security of family units.

125. Access to water for irrigation was enabled by the installation of 222 underground dams (with their respective *cacimbão*) and 513 tubular wells[23]. The drip irrigation kits were implemented in 663 units (using tubular wells and underground dams as water sources), with 169 kits with solar energy and 494 kits with wind-powered system. 5,565 families were benefited, with women responsible for 2,213 families, which corresponds to 39.7% of the total. Young people were responsible for 870 families, corresponding to 15.6% of the total, and 126 families benefiting from this type of initiative belonging to the quilombola group, corresponding to 2.2%.

126. The beneficiaries of the Irrigated Fields started production by planting forage palm. Five million forage palm rackets, resistant to carmine cochineal, were distributed. Over time, these families have diversified the production of these fields, which have ceased to be monoculture areas to become consortium fields. In 2021, many plots cultivated palm, corn, and other forage species (such as elephant grass). The study on irrigated fields indicates that fodder production has doubled, and the storage capacity has grown 174%. It is also worth noting that PROCASE itself also boosted this diversification, supporting the installation of AS in some of these fields. Similarly, it stimulated the introduction of salt grass (*Atriplex sp.*), With the distribution of 5,000 seedlings to the irrigated areas presented a higher risk of salinization. The implementation of irrigated fields improved soil management, environmental awareness and contributed to techniques for coexistance with the semiarid.

127. **Desalination plants**

128. The Emergency Plans associated with the construction of desalination plants installed 61 equipment for the desalination of water intended primarily for human consumption, benefiting a total of 1,654 families with this action. At the time of completion of the Project, all desalination plants were in operation. On average, each beneficiary family receives 13 liters of water per day, and 94.6% of beneficiaries consider this amount sufficient for their drinking water needs. The waste from desalination plants is used by 23.7% of families, mainly as a water source for animals and for cleaning the house. Among the beneficiaries of the desalination plants, 91% of those interviewed stated that this technology represented an important relief in women's work. 76.9% stated that after the implantation of the desalination plant, there was a decrease in the number diarrhea among children and the elderly. Regarding the management of the desalination plant in the community, 78.6% of the interviewees said they knew the rules for the use of desalination water, and 80% recognize and support the existence of a Reserve Fund destined to purchase materials for maintenance, purchase of filters, and others. The reserve fund is obtained from pay-as-you-go contributions by each community member when using the facility.

Picture 2 - Desalination plant next to a field irrigated by wind power. Riacho de Santo Antônio (PB). Credit: PROCASE's Institutional folder, 2019.

129. **Mechanized patrols**

130. Mechanized patrols are composed of a set of agricultural implements, including a tractor, tipper wagon, harvester, harrow, thresher, and furrower. PROCASE constituted 9 of these patrols, which were lended to each of the nine participating municipal governments . The purpose of these patrols is to offer farming families (PROCASE public) a series of agricultural mechanization services on time and at the lowest possible cost. The main uses of these patrols were for preparing the soil for planting and forage conservation. By the end of the Project, this equipment had at least 3,700 hours worked, in 2,100 hectares, focusing on planting gardens, processing fodder for feeding herds, and processing grains. 1,681 families were served, with women responsible for 370 families, which corresponds to 22% of the total.

Picture 3 - Tractor and harvester of a mechanized patrol preparing silage in the*Cariri Oriental*. Source: Institutional Folder of PROCASE.

131. **Dams**

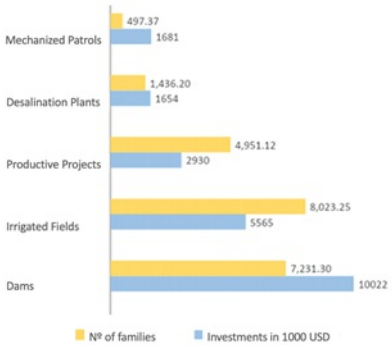
132. When the state government decreed a state of emergency in 2015, PROCASE adjusted its priorities, emphasizyng water resources. It was at this point that the Project incorporated the construction of four medium-sized dams into its agenda. The construction process took some time, and during this process, it was necessary to discontinue the work in one of the cases due to flaws in the technical project. Thus, three dams were delivered: Riacho Fundo (in the municipality of Tenório), Cacimbinha (municipality of São Vicente do Seridó) and Coronel Jueca (municipality of Livramento). It is estimated that, together, they can capture and storing approximately 7.5 million m3 of water, which is a considerable volume. These reservoirs started to integrate territorial water systems at their installation sites. Since dams are large enough not to 'dry out', the ultimate function of these dams is to provide water for human consumption and the watering of herds for a wide range of families. These three medium-sized dams served 10,022 beneficiary families, of which 5,055 were female.

133. **Emergency action to combat the COVID-19 pandemic: food purchase**

134. At the beginning of 2020, the first cases of people infected with the new coronavirus appeared in Brazil. In March, the outbreak of COVID-19 was declared a pandemic by the World Health Organization (WHO). The Government of Brazil and the Government of Paraíba soon declared a state of public calamity and they began to implement a series of emergency measures that affected the population. In addition to the health crisis caused by the disease, the necessary restrictions imposed by the circumstances had, and continue to have until today, a very drastic economic effect for all the population. The low-income population, particularly the public of PROCASE, has been greatly affected by the negative economic effects of the pandemic. As part of the Project's implementation extension process until December 2020, there was a request to use the balance of IFAD resources, of approximately USD 400,000, for activities to mitigate the effects of COVID-19 with the beneficiaries, i.e.: i) Purchase and distribution of food to 5,600 rural families living in poverty in the municipalities in the area where the project operates; ii) purchase of masks produced by artisans in the area of implementation of the Project for distribution to the general public; iii) purchase and distribution of personal protective equipment (PPE) for farmers working in agroecological fairs. It was anticipated that this initiative would be implemented through a Decentralized Execution Term with the State's Executive Secretariat for Food Security and Solidary Economy (SESAES)/State's Secretariat for Human Development (SEDH), which is a body of the Government of Paraíba with experience of activities in the field of food and nutrition security for vulnerable populations. Despite being a timely initiative, its implementation faced some challenges. At the end of 2020, PROCASE successfully completed the process related to PPE, including the effective delivery of equipment. As for the food purchase process carried out with SEDH, the Project opted for cancellation due to the impossibility of fulfilling the execution requirements within the PROCASE financial closing deadline. A lesson learned from this initiative is that it takes twice or triple the time to complete an initiative shared between different state departments than an activity carried out by a single Secretariat.

135. Figure 5 below shows the proportion between the resources invested and the families served in the main lines of action of PROCASE.

136. **Figure 5 - Families benefited and investments made in Productive Projects (PPs) and main Emergency Plans (EPs) (in 1,000 USD)**



137. PROCASE's activities have had a major effect on increasing access to water (COI 1.2.1). About the control group, the impact assessment shows a 680% increase in the number of underground dams per family in the beneficiary group between 2015 and 2019. In 2015 there were 0.12 dams per family, and, in 2019, there are 0.94 dams in the treatment group. The total number of beneficiary families with access to water is 22,948. This assessment did not discriminate whether the water was destined for human consumption or production, but in any case, it is a relevant increase in access to water. Regarding access to drinking water, 86% of households say they use safe-managed drinking water services. Among the beneficiaries served by the desalination plants, 38% of the families reported a reduction in the scarcity of water for production (COI 1.2.3). 50% stated an increase in water availability for the animals after the installation of the desalination plants, compared to what was observed in 2016.

138. **PROCASE activities related to increased access to water were reduced by 53% the time to fetch drinking water spent by beneficiaries of desalination plants** (COI 3.3.2). Before installing desalination plants, 43.7% of people took between 20 and 60 minutes a day to fetch water. After installing desalination plants, 60% of people take less than 10 minutes, and only 1.7% take between 20 and 60 minutes to fetch water.

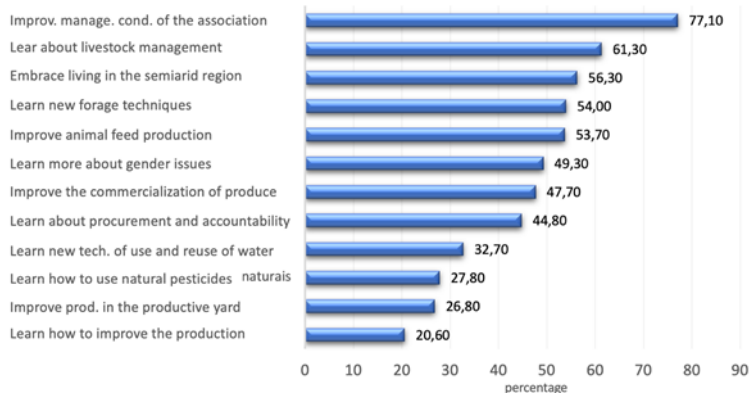
139. **Technical, economic, and managerial training services (technical assistance):**

140. PROCASE supported the development of productive activities through the provision of technical assistance. To this end, several entities were hired, including EMPAER, SENAR, and several NGOs, to serve the families benefited by the PPs, the EPs in irrigated fields, and desalination plants. EMPAER also served a group of families that had not been awarded PPs or PEs. In total, 9,250 families were served with this service (representing 79.7% of the total number foreseen in the original design).

141. This Advisory Action Committee, which was fundamental for the achievement of results, dealt with topics highly valued by the beneficiaries of Productive Projects and Emergency Plans such as improving the association's management, the operation of water equipment and the management of irrigated fields, various techniques for improving animal husbandry, and more broadly, develop their skills to live better with the semiarid. This advisory also worked to favor better access to the markets for the products of the families served.

142. At different times and circumstances, this TA held different types of events (training, technical exchanges, and others) that aimed to address different themes, such as gender and ethnicity issues and the organizational strengthening of the communities served - see Figure 6). This type of activity benefited 9,250 families, including family farmers, artisans, and miners.

143. **Figure 6 - Training themes most valued by the beneficiaries of PPs**



144. For calculating the beneficiaries' adoption of new practices, an Index that mixes activities was used. The index relates productive, climate resilience and environmental sustainability activities, including: i) use of haystack to promote pest control and decrease the loss of water in the soil through evaporation, ii) proper disposal of agrochemical packaging and correct destination of the waste, iii) increase the diversity in the cultivated areas, promoting the expansion of the cultivated areas in the mixed farming system; therefore, the result of this index meets the indicators COI 1.2.2 and COI 3.2.2. The result was that 75% of beneficiaries declared that they adopt new techniques.

145. **Access to credit**

146. The original design foresaw that the Project would facilitate the access of beneficiary families to available agricultural credit (basically PRONAF credits) to enhance their various productive activities. In this case, PROCASE beneficiaries accessed very significant PRONAF values, for a total of the equivalent of USD 1.4 million. However, the results of this activity represent only 43% of the original target.

147. The main results recorded in the Logical Framework for result 2.2 are found in the Table below.

148. **Table 11 - Main indicators of the Logical Framework Matrix on result 2.2.**

Logical Framework Indicators - Result 2.1	**Target**	**Outreach**	**Result (%)**
Families benefited from technical assistance for agricultural production and organizational strengthening	11,600	9,250	79.7%
Number of communities served with technical assistance.	766	707	92.3%
Beneficiary families receive training in agricultural and non-agricultural production practices.	14,000	10,076	72.0 %
Number of agricultural and non-agricultural businesses supported for better access to markets	36	36	100.0%
Number of artisans receive technical assistance and financial resources to develop businesses, 50% of which are women	446	432	96.9%
Amount accessed (in millions of USD) of short-term credit (including PRONAF)	3.25 million	1.40 million	43.1%

149. **Achievement of the goals referred to in Result 3:** The dissemination and implementation of sustainable practices for managing natural resources (including techniques and knowledge related to the fight against desertification) were promoted.

150. The activities carried out to achieveResult 3 contributed significantly to fostering a more sustainable management of natural resources inPROCASE's operation area.

151. The performance of this component had a 'cross-sectional' format. It provided guidance and support for Emergency Plans and Productive Projects with activities related to the mitigation of environmental impacts and desertification by supporting the improvement of 699 hectares of good practices and management of *Caatinga* (local vegetation), including irrigated fields for cultivation of palm and other species, as well as the implementation of 31 agroforestry systems, with an average size of 0.5 ha, containing arrangements of tree and shrub plants and herbaceous for food and fodder production. 11 seedling nurseries were also implemented, with the capacity to produce 4,000 seedlings per nursery, enabling the creation of a network of seedling producers in the semi-arid and training in soil management. These agricultural techniques improved coexistence and productivity in the semi-arid and provided technical support necessary for implementing 7 solar energy systems. For accomplishing this task, a total of 120 people were trained, including technicians from the entities that provided the TA service in the various activities of the Project and several young people.

152. The main results recorded in the Logical Framework are in the Table below.

153. **Table 12 - Main indicators of the Logical Framework Matrix on result 3.**

Logical Framework Indicators - Result 3	Goal	Outreach	Result (%)
Number of Crop - Livestock - Forest Integration Systems (ILPF) implemented, in the form of intercropped palm fields, AS, productive yards, aquaponics system, among others	480	899	187%
Number of families benefited by the implementation of a Solar Energy Production Unit for cooperatives and associations that work with the processing of milk, handicrafts, fruit, and poultry.	400	881	220%
Number of technicians from the institutions contracted for TA and local development agents trained in natural resource management techniques (50% women)	120	120	100%

154. **Achievement of the goals referred to in Result 4** *Rural organizations strengthened to improve their capacities to formulate, develop and implement rural development initiatives*

155. The subjects of rural development and the strengthening of rural organizations were developed through training and workshops, implemented mainly under the responsibility of the Human Development and Social Capital Component. 34 work meetings and training sessions were held on issues related to local and territorial development methodologies, local governance, and social participation. 50 representatives of small groups were trained in rural development, among which 50% were women. Other events worked directly with the heads of local organizations on topics related to project management and the smooth running of local associations. The impact assessment report shows that there has been a significant increase in associative participation in the communities worked by PROCASE (for more details, see section D.2 – [ii] Human and Social Capital). Both the beneficiaries and the PROCASE technical team assessed that investment in the institutional strengthening of rural organizations is essential for strengthening the rural economy.

156. **Table 13 – Main indicators of the Logical Framework Matrix on result 4.**

Logical Framework Indicators – Result 4	Target	Outreach	Result (%)
Number of work meetings and training sessions on issues related to local and territorial development methodologies, local governance, and social participation	27	34	126%
Number of successful development experiences systematized	5	5	100%
Number of representatives of small producers trained on issues of associative management and rural development projects.	50	50	100%
Number of women representatives of small producers trained on rural development issues.	25	25	100%

157. **Achievement of the goals referred to in Result 5:** *Established an effective Project Management Unit*

158. Result 5 sought to provide support so that PROCASE executors can effectively manage the Project and monitor activities through a structure for operationalizing activities and monitoring and evaluation.

159. The Table below shows the main indicators of Result 5.

160. **Table 14 - Main indicators of the Logical Framework Matrix on result 5.**

Logical Framework Indicators - Result 5	Target	Outreach	Result (%)
Number of regional offices created and installed.	5	5	100%
Percentage of women working on the Project team	28	31	110%
Number of IFAD missions that positively assessed the Project's M&E system	1	1	100%
Number of territorial monitoring and evaluation meetings carried out to identify progress and obstacles in the execution of the Project	5	6	120%

161. **The beneficiaries' opinion on the services offered by PROCASE**

162. There was no provision in the LFM for an indicator to measure the satisfaction of beneficiaries with the services provided by the Project. However, one of the COI indicators brought to PROCASE in 2020 addresses this issue. Therefore, a question on this topic was included in the impact survey.

163. The answer obtained to the question referring to the evaluation of the beneficiaries regarding the services offered by the Project (COI SF 2.1) indicates a high level of satisfaction: 80% of the beneficiaries declare to be satisfied or very satisfied with the beneficiaries' work performed by the Project. Regarding the accessibility of the services offered, 43% of the beneficiaries found it easy to access the services, 5% very easy, and 52% difficult or very difficult. This indicator result shows that, despite the high satisfaction of the beneficiaries, many of them found it difficult to access the Project's services. This result, at first, can be assessed as bad. However, some more complete interviews with beneficiaries indicate that this 'difficulty' has a relationship with the very intense engagement requested by PROCASE to the beneficiaries to ensure the most significant possible participation of them in the implementation of their activities. This option for the participatory method, where the beneficiary's role is essential to refute a relationship of assistance to rural populations, benefited those involved. Still, it also had a certain cost, as indicated in this answer about the 'difficulty of access' mentioned here.

164. From what was said in this section, it is concluded that the physical goals of PROCASE were mostly achieved. Most of the products led to the desired results. Although there were some delays with regards to deadlines at the beginning, the performance in recent years ended up compensating for these small problems. That is why the effectiveness of the Project is considered satisfactory.

D.2. Rural Poverty impact

165. PROCASE's good performance in terms of the activities carried out, and the results thus obtained, reported in the previous section, directly contributed to the achievement of the objectives set out in the Project: (1) human and social capital were developed; (2) the production of farming families grew and diversified; (3) more sustainable management of environmental resources was promoted, to enable a more harmonious coexistence with the intrinsic characteristics of the semi-arid region; (4) rural population organizations were developed, in addition to other institutions in the region, thus expanding the institutional base for regional development.

166. The results and effects indicated that PROCASE had, as shown below, a very significant impact on the lives of the beneficiary families*providing a sustainable improvement in agricultural and non-agricultural income, productive assets, organizational capacities, and environmental practices (development objective)*. The Project's work also fostered greater gender equality, food security, the productivity of productive systems, and access to markets. Therefore, PROCASE's work is considered to have had an overall positive impact on the economy of the population served, allowing a reduction in their levels of poverty.

167. The Impact Evaluation concluded that PROCASE activities mitigated the significant negative impact of the great drought that reached the project region between 2012 and 2019. Whist at the baseline in 2015 the income gap between the beneficiary and the control group was only 6%, this rose to 20% at the impact evaluation in 2019. Income generated by family farming increased by twice as much among the beneficiary families compared to the control group. The median earnings by families in the control group reduced by 21% (largely as a result of the drought), whilst they increased by 1% in the treatment group – project beneficiaries (in spite of the drought). Therefore, it is believed that PROCASE's performance in this dimension is satisfactory.

168. This report's quantitative and qualitative information on the results, effects, and impact of PROCASE comes from several sources. Were consulted: the databases created and fed by the Project's M&E sector and its various institutional reports and the systematization of experiences. These sources were complemented by several studies that the Project carried out during its last two years of operation. These works sought to reveal quantifiable evidence about the results, effects, and impacts of PROCASE's work. Among these[24], it is worth highlighting the impact survey. This study, elaborated by an independent company in 2020, worked with a broad set of indicators, many of which were extracted from the LFM. The analysis contained therein relied on the information provided by the Baseline study carried out in 2015. Both studies covered 'treatment' (beneficiaries of the Project's action) and 'control' (non-beneficiary) communities.

169. The information collected in these various studies served to work on the impacts on rural poverty in the following dimensions: (i) Income and domestic assets, (ii) Human and social capital, (iii) Food security, (iv) Agricultural productivity, (v) Institutions and policies, (vi) Access to markets. The impact of the Project will also be discussed in terms of gender equality and women's empowerment, Adaptation to climate change, and Management of the environment and natural resources.

i) Household income and assets

170. The increase in household income is a major element of impact on the lives of the beneficiary families of the Project. At the same time, it directly influences the ownership index of domestic and productive assets. Therefore, this development dimension was included in the Logical Framework by indicators that address the increase in family income, the increase in business income, and the improvement in the asset ownership index. The advances in these indicators can be seen in the table below:

171. **Table 15 - Main impact indicators of the Logical Framework for the theme**

Income and Assets of the Households			
Impact Indicator	**Goal**	**Outreach**	**Result (%)**
Beneficiary families with a 20% increase in agricultural and non-agricultural income.	**75%**	**67%**	**89%**
Beneficiary families with improvements in the index of ownership of productive assets	**20%**	**51%**	**255%**
Increase in net income from **agricultural and non-agricultural rural businesses** reaches at least 20%	**20%**	**166%**	**830%**
Rural businesses **operating profitably** after three years	**80%**	**68%**	**86%**

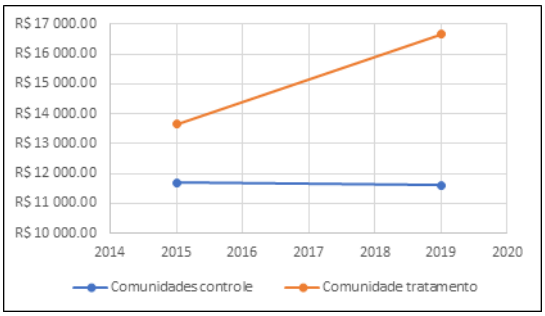
172. **Household income**, analyzed against the average, indicates a positive effect of PROCASE 22.6%. According to the impact survey, between 2015 and 2019, the median family income in the treatment communities grew by 21.9% in nominal terms, while the income in the control communities decreased by 0.61%. Table 16 and Figure 7 presented below show that PROCASE contributed to the increase in income of beneficiaries.

173. **Table 16 - Evolution of annual family income 2015 - 2019, with and without PROCASE**

Year	**Treatment communities**	**Control communities**
2015	R$ 13.658,00	R$ 11.680,00
2019	R$ 16.654,00	R$ 11.608,00

Variation	+ 21,9%	- 0,6%

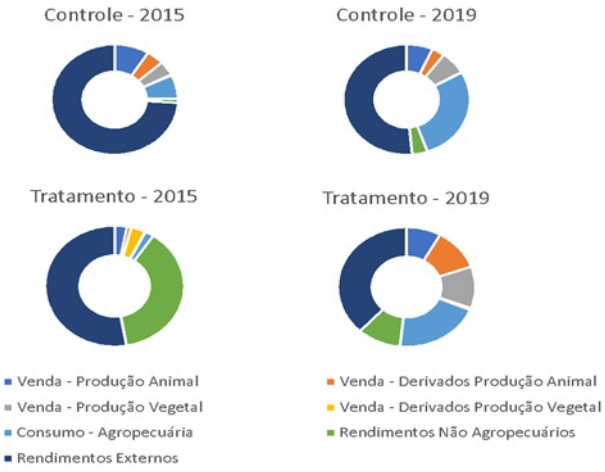
174. **Figure 7 - Evolution of annual family income, in nominal terms, between 2015 and 2019 for communities served by PROCASE and control communities (amounts in R$)**



175. **Family income was broken down into domestic and external income Domestic income**, which originates from the sale of agricultural and handicraft products and self-consumption, increased 166% in beneficiary families, while in control communities, the increase was 87% %. The growth of the internal component reveals an impact due to PROCASE of 41.7% (which means an increase of 9.1% per year). **External sources of income** originating from work outside the property and from public policies decreased by 30.1% in the control group and 35.7% in the treatment group between 2015 and 2019. These data show that the effect of PROCASE support was concentrated, as expected, in stimulating the growth of production and income from activities carried out in the family unit itself. In parallel, there are indications that the significant drop in external sources of income may be related to the crises experienced in Brazil after 2015, with emphasis on the discontinuities in the scope of public policies.

176. Figure 8 below illustrates the evolution of the more detailed composition of total family income. Note that the value of production used for self-consumption increased significantly between 2015 and 2019, demonstrating increased household food security.

177. **Figure 8 - Detailed composition of households' internal and external sources of income, in the treatment and control communities, for the years 2015 and 2019**



178. The Logical Framework defines as one of the indicators of the development objectives that the **increase in agricultural and non-agricultural income should be at least 20% in 75% of the beneficiary families**. Table 16 below shows the proportion of households that reached the target of a 20% increase in disaggregated agricultural and non-agricultural income. The data show that 66.7% of families attested an increase of 20% or more in agricultural or non-agricultural income, but only 35% attested increases of more than 20% in the two components of income (agricultural and non-agricultural). The result obtained for this indicator, which is below expectations, strongly reflects the fall in non-agricultural (external) incomes experienced by the rural population in the period indicated.

179. **Table 17 - Proportion of households that obtained an increase of 20% or more in income**

Increase of 20% or more in income:	**Percentage of Families**
Agricultural	63,2 %
Non-Agricultural	14,1 %
Agricultural and Non-Agricultural	35,0 %
Agricultural or Non-Agricultural	66,7 %

180. The **income from rural businesses** was analyzed within the six main productive chains of the Project in a generalized and disaggregated way. The aggregate analysis shows that the overall increase in average net income from rural businesses was 166%.

181. The **creation of new jobs is also classified as an effect of the activities** in PROCASE in its area of operation (COI 2.2.1) and aimed to create 4,300 new jobs within the development objectives of the Logic Framework. The evaluation of new jobs created within the Productive Projects action line indicated the creation of 1,560 jobs. The Productive Project that most created new jobs benefited from the installation of solar energy panels. The resource for electricity costs saved was used to expand the business and promoted 446 new jobs.

182. **Ownership of productive assets** is part of the set of indicators that represent the PROCASE goal. **The LFM establishes the goal that 20% of the beneficiary families must increase their productive assets by 20%. The impact assessment found that 51% of the families benefited by the Project had a positive variation in the index of productive assets, with 24% having a positive percentage variation in the index of productive assets equal to or greater than 150%, showing a significant improvement**. The main assets reached by the families served by PROCASE presented in the Impact Assessment were weirs, goats, sheep, cattle, horses, fish, and plows.

183. Among households that accessed productive assets, it was observed that in 84.9% of cases, there was also an increase in agricultural income, while 19% also increased non-agricultural income. These data coincide with those obtained in other evaluative studies (based on listening practices) carried out by PROCASE, where the beneficiaries stated that their income improved after the activities of the Project and indicate a set of factors of cause and effect relationship, among them: increase in the herd and quality of the herd, greater milk production, more access to information, knowledge, and incentives; technical assistance, increased production, support for management and organization, optimization and reduction of production costs and better access to marketing.

184. The Impact Assessment measured the number of families **living in poverty and extreme poverty** in the PROCASE area. The data show that between 2015 and 2019, there was a 7.7 % increase (from 39.1% to 46.8%) of families in the control group living below the poverty line. In the communities benefited from PROCASE, there was a growth of 1.7 points (from 29.8% to 31.5%) in the percentage of families in this group. In both cases, the effect of inflation was offset. The brake on the increase in extreme poverty was 7.3 percentage points, exceeding the brake on the increase in poverty by 6.0 percentage points. PROCASE prevented a significantly higher increase in poverty.

185. The results presented here show that PROCASE contributed considerably to generate an increase in assets and family income, which allowed to mitigate the negative effects of the 'great drought' in the region. It also provided a strengthening of agricultural production while helping to diversify this same production. From this, it is concluded that the performance of the project in this criterion of income and assets was satisfactory.

ii) Human and social capital

186. PROCASE worked hard to develop human and social capital. The Project was committed to developing the individual skills of beneficiaries in various fields and invested in strengthening the organizations of the beneficiaries and other institutions working in the rural environment. Many training and exchange activities have been implemented to this end. Many of these activities aimed at specific targeting groups - such as women, youth, and *quilombola* communities to ensure they had access to the services offered. All this effort had substantial beneficial effects in this area, as explained below. Technical assistance was provided to all PP and EP and combined a good mix of private and public sector services, with specific activities tailormade for all 5 territories involved. The gender capacity-building events were instrumental in ensuring gender transformation in agricultural and non-agricultural activities and connected women beneficiaries to state-level decision-making agencies, The selection of PP through the Democratic Budgeting Platform ensured beneficiaries had an active say in investment plan decisions, guaranteeing a high level of engagement throughout. The Democractic Budgeting Platform consisted of monthly territory assemblies to brainstorm communities on their most pressing needs and incentivize them to submit investment applications. The Impact Evaluation concluded that PROCASE **significantly contributed to integrate women in food processing activities. It has also integrated young into community activities.**

187. The Project's impact evaluation on human and social capital development took into account several indicators, among which it is worth highlighting the index that measures the integration of the family in community activities, the participation of women and young people, the empowerment of families in comparison to agents outside the community and the strengthening of social organizations.

188. The **associative index** (which measures the extent to which families participate in territory assemblies and locally organized social movements) reflects the families' participation in community activities. In the beneficiary families, there was no change in this index between the baseline and impact studies. However, there was a decrease in the index in the quartile of the 25% less engaged families in the control communities. PROCASE activities resulted in a 33% positive impact for the group of the 25% less engaged households. Regarding the participation curve behavior, in the beneficiary communities, all families that in 2015 did not participate in associative activities were participating at the impact assessment (2020. In the communities benefited by PROCASE, 21.6% of the families had a very high engagement, while in the control community, there were no families with a very high engagement. Due to PROCASE, there has been a 123% increase in families engagement from 2015 to 2019.

189. Regarding the **participation of young people** in community activities, the number of families that have young people participating in control communities fell by 24%. It decreased only 1% in treatment communities, indicating a 31% effect of PROCASE, preventing a more significant reduction in youth participation.. In this specific item, the rural exodus may have been a factor that affected the reduction of youth participation in community activities. This result shows the importance of projects combating rural poverty for mitigating the tendency of youth participation decrease in rural community activities.

190. Although young people did not increase their community participation, the situation was different regarding the participation of young people in agricultural production. This dedication to agricultural activities increased by 61.3% in the beneficiary community and 24% in the control communities. A 30% increase effect in the participation of young people in agricultural activities can be attributed to PROCASE.

191. Concerning the occupation of boards of rural organizations, the participation of young people has a 57% higher proportion in the 'treatment' communities than in the 'control' communities.

192. Regarding **women'sparticipation**, the Impact survey indicated that there had no significant change in the overall participation of women in collective community activities. However, a relevant change occurred regarding the occupation of women. **There was an increase of 18% in women engaged in agricultural activities in the beneficiary communities and 8% in the control community. In activities related to processing, the participation of women increased 43% in the beneficiary communities and decreased 6% in control communities. This difference expresses the positive effect of PROCASE in this item**. In handicrafts, an activity essentially carried out by women, the drop in the number of employed people was 79% in the control group and 38% in the treatment group. . In this particular context, PROCASE's action helped mitigate the existing crisis in the craft activity itself crisis for the groups of artisans with whom it worked.

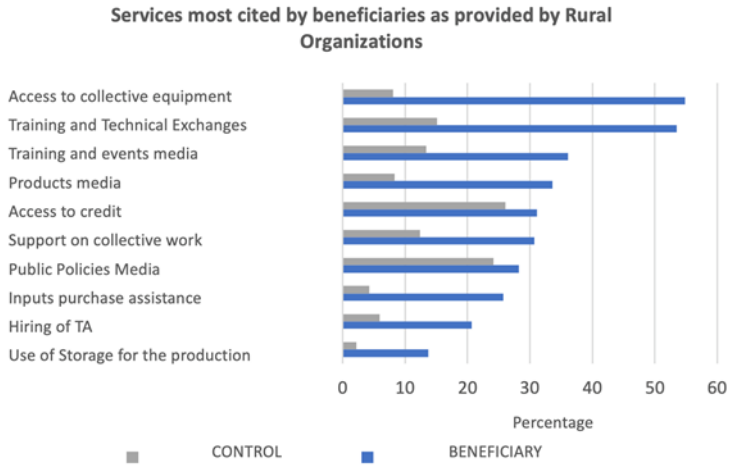
193. **Women's empowerment (COI - I.E.2.1)**, considered an effect of PROCASE's activities, was measured in a simplified way. Empowerment was measured by the representation of women leaders in rural organizations. The data collected referring to this indicator in the Impact Assessment demonstrates that, in the beneficiary communities, the participation of women as leaders was a 168% higher than in the control communities.

194. The beneficiaries' **empowerment** was an effect of Project activities **(COI - S.F.2.2)**. Regarding the influence that the beneficiaries believe they can exercise in the decision of the group's decision in which they participates, the proportion of interviewees who said that believed in their power of influence was 75% higher in the beneficiary communities than in the control communities.

195. Rural organizations' (ROs) strengthening could be measured by the **amount of services provided by ROs to their members (COI - 2.2.4)** This indicator was raised in the Impact Assessment and pointed out that 88% of the beneficiaries declared to access services through the RO. In the LFM, the pre-established target was 30%.

196. The services offered by the ORs most cited by the beneficiaries were: access to equipment for collective use, courses, training, events, and meetings. Figure 9 shows the percentage of respondents who mentioned the different types of services offered by ROs. In general terms, the ROs attended by PROCASE offered a wider range of services, and that these were accessed with much more assiduity by families.

197. **Figure 9 - Services provided by rural organizations most mentioned by beneficiaries**



198. The strengthening of ROs could be measured by the proportion of rural producer organizations involved in formal partnerships/agreements or contracts with public or private entities (COI - 2.2.3). The impact survey showed that 39% of the ROs benefited were involved in partnerships or formal agreements with public or private entities, a value that was below the target, which was 50%.

199. The **institutional empowerment of rural organizations** could also be represented by the perception of members about the influence of RO in decision-making by institutions and service providers (COI - S.F.2.2). The proportion of respondents who claimed to believe that ROs have much influence was 85% higher in beneficiary communities than control communities. The proportion of responses in which the interviewee did not feel that ROs influenced other institutions was 140% higher in control communities than in the beneficiary communities.

200. PROCASE's work has enabled women and men in the target public to receive support to develop their capacities and to strengthen their organizations. This has allowed for greater empowerment of these people. At the same time, this work has also boosted the development of local institutions. For these reasons, it is believed that the performance is satisfactory.

iii) Food security

201. With initiatives to strengthen the productive activities of families and the effort around the issue of access to water, the Project also promotedfood security strengthening.

202. Food security was analyzed in the impact assessment through the**Food Security Index**. This index was built from information contained in the databases that influence food acquisition or deprivation by the family. Diverse data were included, for instance, about hunger, per capita income range, job precarity, retirement, animal husbandry, plantation, participation in cooperative organizations, and effect of drought.

203. The data collected on the food security index show that there has been a general shift, both in beneficiary and control communities, towards greater food security. The Impact Survey showed that PROCASE interventions significantly contributed to a better and more diversified diet among beneficiaries. **The number of beneficiaries that reported a medium or high level of food security increased by 300% between 2015 and 2019, compared to an increase of only 140% in the control group.**

204. On the other hand, the Impact survey, based on the collection interviewees' weight and height, showed significant tendency towards overweight, especially in children up to 5 years old[25]. The BMI (body mass index) of 60% of children who were part of the control and treatment groups were above healthy weight levels. The study also collected height data from all respondents. The height data indicated that the parameters are perfectly adjusted to the WHO curves.

205. In this dimension of food security, PROCASE's contribution focused more on increasing the supply of high-quality nutritional food and seeking an increase in income that should allow the beneficiaries to choose the food that they access.

206. A study carried out by the PMU with the beneficiaries of the Productive Projects tracked the percentage of production destined for self-consumption and identified that agricultural production is of great importance in this context, as can be seen in Table 18 with the total value of production.

207. **Table 18 - Share of production intended for self-consumption by type of productive activities**

Type of productive activity	**Production value (%) destined for self-consumption**
Vegetable's production	71 %
Processed from agricultural production	9 %
Animal production	15 %
Processed animal production	15 %

208. Source: Descriptive, economic, and financial analysis of 27 Productive Projects, 2020.

209. These data indicate that household production is very important for self-consumption. It was observed that 71% of the total value of agricultural production and 15% of livestock production and processed livestock production have this destination. It is worth emphasizing that the self-consumption of livestock production is more important than it may seem compared to the self-consumption of plant production, as the global value of animal production, in general, is much higher than that of agricultural production. And, in addition, the importance of animal products for the families is very high as they are directly related to access to protein. The perception of the families of the control and beneficiary communities about the quality of the food accessed in 2019 indicated that 68% of the beneficiary communities families had better or much better food than in 2015. This value was slightly higher than that of the control communities

210. In the period between 2015 and 2019, food security, according to the index used, showed a very general improvement, and families left the situation of low food security to medium food security. The general analysis also indicated that children gained weight. In short, families are accessing food, although many are probably not of the best nutritional quality.

211. The origin of the food can indicate its quality since food grown on the property is often of greater nutritional value than those of more accessible value on the market. The main sources for accessing food were family production and purchase in markets or neighbors. There was a significant increase in the consumption of self-produced food in the control and beneficiary communities. Still, it is more impacting in the beneficiary families, where almost 20% of the families consume production from productive yards, which are usually very diversified. **Regarding the frequency of diversity in the diet, the proportion of families in the beneficiary communities that declared always to have diversity in the diet is 19 percentage points higher than the proportion in the control group.**

212. Finally, concerning Food Security, it is also worth mentioning access to water. As already discussed, PROCASE did, through the line of action of the Emergency Plans, a comprehensive work to promote greater water security for families. Although the effort around this theme was multipurpose, the first dimension for fostering water security was ensuring the supply of water for domestic consumption throughout the year and seeking to extend this guarantee to the driest years. PROCASE's work on this topic has significantly improved water security for more than 17,000 families. For most of these families, the more perennial nature of the installed water sources allows access to the water needed for the home, even in times of drought.

213. PROCASE has improved food and nutrition security by strengthening agricultural and animal production, the growth of self-consumption, and, mainly, the results obtained in water security. The performance of the Project in this item is considered satisfactory.

iv) Agricultural productivity

214. Increasing household production was one of the main objectives of PROCASE. In the impact survey, 88% of interviewees from the communities benefited by PROCASE declared to have improved the productivity of their family production unit, which resulted in an increase in their production in one or more of one type of product.

215. The increase in agricultural and non-agricultural production is an effect of PROCASE activities (COI - 1.2.4)**In the Impact Survey, 88% of households stated that production increased, mainly in plant production and animal derivatives production (see Table 19)**. This Indicator is also part of the development objectives, and, in this case, the target was 60%. Therefore, PROCASE exceeded the target.

216. **Table 19 - Proportion of beneficiary families who claim to have increased production**

Production	**Percentage of those who experienced an increase**
Vegetable production	65.1%
Animal production	48.6%
Derivatives - Vegetable production	22.8%
Derivatives – animal production	56.8%
Non-agricultural production	9.0%
General production of the family unit	88.0%

217. Another indicator that measures the performance of agricultural production units is that of the**proportion of total family income** that comes from the agricultural production unit in comparison with external income. As shown in the previous section (cf. section D.1), there was, in the communities served by PROCASE, a significant increase in the percentage of income from the family production unit. This tendency indicates there was an improvement in the performance of this unit.

218. Considering the effect of PROCASE as an inducer of growth in agricultural production and productivity, it is estimated that it is satisfactory in this dimension.

v) Institutions and policies

219. Regarding the impact on institutions and policies, despite the significant reduction in federal government investments in activities to support family farming from 2018 onwards, several institutions providing technical assistance and rural extension, both public and private, state and federal-owned (such as SENAR) that participated in the implementation of the work, came out strengthened with the work of PROCASE. Of note, the project cooperated actively with several state and federal government agencies. It also contributed to the creation of a new **state-level Women Farm Council -** Intermunicipal Reference Center for Assistance to Women in Cariri – to ensure gender-transformative activities are embedded in local rural development. The project has also contributed to policy dialogue between Brazil and Mexico in the field of agroforestry (exemplified by the First Workshop on Agroforestry systems run in 2019). Furthermore, several of the project staff have been recently **recruited to coordinate major rural development programs** across the Northeast and beyond, ensuring continuity in policy engagement and cross-fertilization among different development institutions.

220. It is worth highlighting the participation of PROCASE in various spaces for public policy discussions aimed at the priority public in the Project area, such as in the State Council for Sustainable Rural Development - CEDRS to create a Working Group to monitor the activities developed with women, youth and traditional communities. CEDRS aims to promote the strengthening of family farming, access to land, and the diversification of rural economies, focusing on social inclusion and promotion of quality of life in the rural world. It is also important to highlight the presence of PROCASE in the Inter Secretarial Chamber of Food Security – Paraíba (CAISAN-PB), which ensured special emphasis on key issues such as agroecology and productive backyards. Other examples are the Working Group (WG) - on Rural Youth, an organization coordinated by the State's Secretariat for Youth, Sports and Leisure (SEJEL) that discusses policies for rural youth, and the Forum of Rural Women coordinated by the State's Secretariat for Women and Human Diversity (SEMDH),bringing together governmental and non-governmental organizations to discuss the reality of rural women and propose public policies for this segment.

221. The severity of the 'great drought', a subject already mentioned in this document, led the Government of Paraíba to institute an Emergency Program for Access to Water Resources under the coordination of the State's Secretariat for Infrastructure, Water Resources and the Environment (SEIRHMA). The adjustments made in the implementation of PROCASE investments meant an important contribution to this initiative. SEIRHMA itself played an important role in the well drilling and equipment initiatives and the installation of desalination plants. The new desalination plan model introduced by PROCASE, in cooperation with the state SEIRHMA and the Federal Program "Fresh Water", shifted the efficiency curve of water extraction from the semiarid. Not only were they cheaper to build, but they were also easier to run and occupied a smaller area. They will now be a reference for future state and national public policymaking at both national and subnational level. SEIRHMA also led the construction of the three medium-sized dams. Thus, the close collaboration established between PROCASE/SEAFDS and SEIRHMA strengthened this Access to Water Program. This initiative should continue to operate after the closing of the Project.

222. The positive results achieved by working with productive backyards and agroecological logbooks have consolidated themselves as important lines of action within different public bodies, emphasizing EMPAER, the state entity for the rural extension. The logbooks were included in the execution of the PROCASE Individual and Equity Collective Action Plan for IFAD projects, which contributed to reinforcing the teams' training, favoring the beneficiary public, and allowing PROCASE to leave a practical instrument a legacy that encourages adoption of the gender, generation, race, and ethnicity approach in other interventions in the rural domain. On the other hand, the training work in regularization and certification processes (nurseries and production of sweets) generated a positive impact not only for the beneficiaries but also for the inspection bodies involved (such as SUDEMA, for example, which is the state's key authority for environmental

issues).

223. In addition to the governmental bodies, already mentioned in section B.3 of this report, which participated in the PROCASE execution, it is noteworthy that nine municipal government [26] from the Paraíba River riverside region (in the Project area) received mechanized patrols to better meet the beneficiaries' agricultural mechanization services demand. These patrols began to provide services of this type in the last two years of PROCASE and are expected to continue to do so after the Project completion. It is hoped that the example will allow this initiative to consolidate, being the embryo of a more permanent service offering this type of service, on the part of the prefectures, for the farming families of their municipalities. At the same time, the patrols and services offered by them were a factor in strengthening the nine prefectures involved in this action.

224. PROCASE also had an important impact in terms of strengthening organizations of the beneficiary population. More than 90 associations and cooperatives of family farming and rural agricultural and non-agricultural enterprises were the main managers of Productive Projects (PP). They were responsible for carrying out the investments in an effort to articulate and seek complementarity with the Project's activities. The associations and cooperatives supported by the Project increased the participation of their members - with emphasis on the increase inclusion of women and young people in the participative management of activities. This process also favored the expansion of the role of organizations in communities. The experience acquired in the management of these PPs for strengthening these organizations of the local population was significant.

225. The technical exchanges and articulations promoted by PROCASE had the effect of significantly strengthening the associations of the 14*quilombola* communities with which it worked. An indicator of this strengthening was that, in several cases, they were able to proceed with the process of recognizing these communities as being 'remnant territories of quilombos communities' by the competent bodies. PROCASE was the only IFAD project in Brazil to formally obtain a quilombola seal for its communities from Federal agency Fundação Palmares, showing strong interlocution with the Federal Government.

226. Considering the results obtained from the beneficiaries' organizations and other institutions, such as city halls, and other entities that work in the rural environment in favor of sustainable development, PROCASE's performance in this dimension is considered satisfactory.

vi) Access to markets

227. The goal defined in the logical framework of supporting 36 agricultural and non-agricultural businesses in the search for better access to markets was achieved by carrying out activities to support productive investments, providing technical assistance, supporting preparation, and formulation of the social, economic, and environmental dynamism plans, and a follow-up and supervision of activities related to the strengthening or implementation of productive activities. At the Stakeholder's Workshop (see appendix 9), 73% of beneficiaries reported an increase in market access as a result of project activities.

228. But better access to markets was not restricted to these 36 businesses. The Project's activities in the supported production chains - goat, cattle, apiculture, fruit, forage, and handicrafts - presented important results with an impact on the commercialization of products, generally carried out by family units. **Comparing data from 2015 and 2019, it is possible to affirm that there was a significant increase in the volumes and values of the products sold that were supported by the Project**. In this case, we have the Logical Framework for the Project, which set a 10% annual increase in the volumes and values produced as a target. The aggregate analysis indicates (see Table 20) that the volume of products sold in 2015 was 93,930 units, and in 2019, it was 155,406. At an annual rate of increase of 10% per year, the expected volume for 2019 would be 137,522, so the target was exceeded by just over 25%. The aggregate analysis in relation to the values indicates that in 2015 products were sold for an equivalent amount of R$ 340,462.00, while in 2019, R $ 573,867.00 were sold. Considering the growth rate of 10% per year, it was expected that in 2019, R $ 498,470.00 would be traded. Therefore, this target was exceeded by 15%.

229. As shown in Table 20, the progression of the businesses supported by PROCASE was positive, except in handicrafts, where there was a very sharp drop in the volume produced and a drop of 28% in the revenue handled. Concerning other businesses, beekeeping stands out, having moved 23.5 times more in 2019 than in 2015. Fruit growing had an important growth, of 130%. The case of goat farming is important because it is the chain that represents the biggest source of income for PROCASE beneficiary families. In this production chain, there was a very significant increase in the volume of production, but the increase in the marketed value, although it was significant (114%), did not keep up with the growth in production. In this case, the Project's action does not seem to have impacted on better access to the market.

230. **Table 20 – Evolution of the value and volume of the products sold supported by the Project, in the beneficiary communities, by the production chain**

Productive Chain	**Value***		**Volume**		**Result**	
	2015	**2019**	**2015**	**2019**	**Value**	**Volume**
Craftsmanship	121,779	104,920	61,498	2,442	-28**%**	-96**%**
Goats	133,331	342,774	8,322	106,591	114**%**	1,181**%**
Forage	-	1,223	-	214	-	-
Beekeeping	2,110	51,700	116	2,306	2,230**%**	1,888**%**
Fruticulture	26,499	73,250	23,994	43,853	130**%**	83**%**
TOTAL	**283,719**	**573,867**	**93,930**	**155,206**	**102%**	**302%**

231. Fonte: Impact Survey of the PROCASE Project. 05/01/2021.

232. *see Impact Survey for units

233. In addition, it is worth noting that through the Technical Advisory service offered by the Project, a market access plan was developed for all the assisted projects, providing orientation on positioning and marketing. As a result, of the 241 families interviewed, **6% reported that they had access to markets through PROCASE's activities, a satisfactory percentage for the Project, considering that several supported production chains were strengthened and restructured through investment and then went on to access markets**.

234. Commercialization improved so it was also possible to reach other markets, such as the Casa da Economia Solidária (House of Solidarity Economy) in the municipality of Soledade. This space involves several productive groups in the territories of Cariri Oriental and Seridó with the support of the Government of Paraíba, through the SEDH. The second example of this type is the House of Solidarity Economy in Sumé, in the Territory of Cariri Ocidental, which represents another space where PROCASE productive groups are inserted. The Project, in partnership with the State's Secretariat for Human Development (*SEDH*), also organized, in 2019, the 1st Family Agriculture Exhibition for government purchases in João Pessoa, creating an opportunity for family agriculture producers, associations, and cooperatives to increase the visibility of its products and to access marketing alternatives such as direct sales without intermediaries to various government agencies (such as hospitals and educational institutes). PROCASE also worked to strengthen a set of thirty-eight 'agroecological fairs' in its area of activity, in which farmers sell their products directly to end consumers.

235. It is also worth highlighting the results of PROCASE in accessing families served by institutional markets, PAA and PNAE. For PAA, PROCASE had a positive impact of 59%. In partnership with the Semear International Program (financed by IFAD), PROCASE participated in the training of Market Advisors and carried out activities involving the presentation of family farming products.

Such work enabled the sale of milk and goat cheese to the Brazilian Army, also enabling the first acquisition of goat milk by the state's health system. It was also important for the elaboration of public calls for purchases of food from family farming. However, at the end of the Project, it was also verified that several of the farmers' organizations with which he worked had not been able to structure themselves properly, and that is why they have not been able to access these markets. This deficiency also makes it difficult to access other markets.

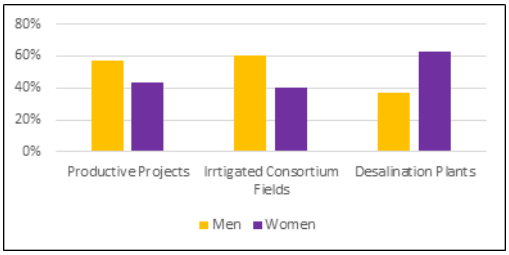
236. The Project allowed beneficiaries to improve market access. It also developed the capacities of the groups/organizations of the beneficiaries in this area, although it was found that thisdevelopment of the organizations should have been better. Stylized facts and the beneficiary responses at the Stakeholders' Workshop make us believe that the real impact of project activities may have gone far beyond those reported by beneficiaries at the Impact Evaluation Exercise. However, there has not been enough time and data to ascertain the extent to which this impact has been fully satisfactory or not. It is then assessed that the Project's performance in this dimension is moderately satisfactory.

D.3. Gender equality and women's empowerment

237. PROCASE's gender strategy, recorded in the Project document Methodological Framework on Gender, Youth, Race, and Ethnicity, which aimed to guarantee the transversality of gender, generation, race, and ethnicity, in all Project interventions, was built in conjunction with the I State Plan for Public Policies for Women (2015). Of the 10 axes contained in this Plan, PROCASE dialogues mainly with (i) equality in the world of work and economic autonomy, (iv) confronting all forms of violence against women, (v) strengthening and participation of women in the spaces of power and decision, (vi) sustainable development with economic and social equality and, (ix) confronting racism, sexism, and lesbophobia. The set of activities implemented along the PROCASE path were also linked to the objectives of IFAD's gender policy, mainly driving (i) economic empowerment, (ii) the influence of women in rural institutions, and (iii) redistribution of the workload. In addition, robust technical and didactic investments were made to develop methodologies and training in gender, race, and ethnicity equity with the Project teams, the technical consultants hired, and the beneficiary public. The project promoted real gender transformation through all of its activities. It had a full-time gender specialist/officer overseeing the implementation of all PP and EP from project outset to conclusion (7 years). The gender activities contributed to the creation of a **state-level Women Farm Council -** Intermunicipal Reference Center for Assistance to Women in Cariri, which since the mid-term review has become a reference for women beneficiaries. All result surveys were conducted with a gender focus, and gender-sensitive technical assistance was included throughout. The Project Capacity Development component manager, who was a woman, ensured a clear adoption of gender cross-cutting milestones for the implementation of all PP and EP.

238. As a result of this cross-cutting and intersectional decision, PROCASE reached, from the total of 24,413 families served, a percentage of 49% of families formed by women holding investments, responsible for financing, processing units, animal husbandry, productive backyards, solidarity revolving funds, and handicrafts. Of the 97 PPs, 24% were requested and implemented by groups of women. Of the total of 2,930 families benefiting from this PROCASE action, 43% of women are the projects' owners. In the intercropped fields of irrigated palm, which use underground dams or wells, 5,565 families are contemplated: 40% of these women are the owners of these investments (that is, in 2,213 families). The initiative for the implantation of desalination plants, which covers a universe of 1,654 families. 1,036 of them are led by women, equivalent to a percentage of 63% as beneficiaries of the installed equipment. Figure 10 summarizes this data.

239. **Figure 10 - Productive Investments of PROCASE by gender**



240. Regarding water resource management, PROCASE's activities also allowed reinforcing the role of women. In the semi-arid region, the arduous task of transporting and storing water in drought situations has always been theirs. However, when investments facilitated water access, women lost their role water managers' role. This equipment brought several benefits to the families. **According to an evaluative study on desalination plants, in 2016, 36.8% of the beneficiary public had drinking water available throughout the year. After the investments of the Project, this amount increased to 94.6% (2021)**. Data on time spent with the water supply show that the desalination plants allowed a reduction of time to fetch water of the order of 53%, considering that, in 2016, 58% of this work was carried out by women and 5.4% by their daughters. In addition, 98.9% stated that they obtained financial gains for not buying water. For 91% of the sample, changes in access to water provided relief to the work carried out by women, including the redistribution of household chores, facilitating the preparation of food, and reducing the incidence of diseases (76.9% of the people consulted stated that there was reduction diarrhea in children and the elderly). Finally, the study found that 86% of beneficiaries use safe-managed drinking water.

241. In addition to increasing the participation of women in rural investments, PROCASE acted, through technical training, exchanges, and workshops, for training in gender equity for women and mixed groups (men and women), seeking to enhance the self-recognition of women as an important part of the livelihood of their families and community and the recognition of men regarding their insufficient participation in domestic chores.

Picture 4 – Women lacemakers (*mulheres rendeiras*) showing the renaissance lace they produced. Community of *Cacimbinha* (São João do Tigre municipality). Source: IFAD/Semear International Programme.

242. **Within the scope of the training activities of various types promoted by the Project, women correspond to 58% of the presence in the activities carried out, exceeding the goal of 50% established in the gender strategy.** The training and qualifications carried out with the technical teams and with women and men farmers and youths covered different themes, among which the following stand out: (i) the valorization of reproductive work; (ii) the fair division of domestic work in rural areas; (iii) the various forms of violence against women (patrimonial, psychological, physical, sexual, among others); (iv) the theme of overcoming, autonomy and empowerment of rural women; (v) cultural, political and organizational exchanges for *quilombolas*; (vi) exchanges of women cultivating spaces for life and production, encouraging the participation of women farmers in decision-making spaces; (vii) the strengthening of black self-esteem, through the course for the professionalization of young people in Identity and Hair; (viii) creation of a network called Youth Weaving Living with the Semi-Arid; among other interventions, guided by the principles of feminism, agroecology, feminist economy, racial equity and equality, gender and generation, the sustainability of development and the strengthening of the culture of coexistence with the semi-arid region.

243. In training aimed at professional qualification and specific skills, technical training emphasized strengthening livestock, dealing with animal management (reproductive, health, and food), production of biofertilizers and natural pesticides, and the production and storage of essential fodder resources to cope with periods of drought. In this case, PROCASE took special care to ensure broad participation of women in these capacities. In addition to reinforcing the project's management capacities and the equipment obtained from the projects, these courses boosted food production and processing capacity. Thus, the expansion of the skills of the farmers favored the increase of their insertion in the production. The impact assessment shows an increase of 18% in the insertion of women in agricultural activity in the Treatment Group. In comparison, it was 8%, in the control group, showing a PROCASE effect of 9%. **Another aspect that this study indicates is that in the processing of products, the participation of women in the control group fell 6%, while there was growth in the 'Treatment Group' in the proportion of 43%, showing a PROCASE effect of 49 percentage points.** This increase in the processing activity allows to expand the opportunities to add value to the products, and these results reinforce women's economic empowerment. With the young audience, it was verified that young women correspond to 65% of beneficiaries of the PPs who accessed credit, an amount of R$ 515.000,00 (data from LFM).

244. After the publication of the Gender Diagnosis[27] the interventions of the IFAD gender AND TARGETING SPECIALIST, a meeting was organized to discuss the diagnosis, in which a Gender Working Group (WG) was formed. PROCASE used the integrated planning carried out by this WG to implement training, workshops, and discussions with the PMU, RPMU, and TA entities' teams on the adoption of Agroecological Logbooks (AL). This methodological tool, conceived based on the principles of feminism and agroecology, helps to create a counterpoint with the conventional economic view, which does not measure the non-market economic contribution of women.

245. The use of AL allowed to keep an excellent record of the farmers' work results, quantifying what they intended for consumption, donation, exchange, and sale, and giving greater visibility to the production of wealth they generate. With this methodology, the 55 women targeted by PROCASE[28] expanded their ability to identify and give visibility the importance of their work. The evaluations on the agroecological logbooks highlighted that by emphasizing the valuable contribution they make to family's food and nutrition security. As guardians of agrobiodiversity, they are an instrument of empowerment for women.

246. It is opportune to emphasize the change achieved on women's quality of life. At the beginning of the Project women indicated they had difficulties to leave their homes and participate in activities outside their communities, either due to the lack of trust of their partners or because of the macho culture. However, Project's interventions, methodologies introduced and after the achievements in the training paths and experiences, they found themselves recognized and empowered. They also started to delegate the household chores to men while they could be gone for a day or two to participate in activities outside their territories. This change in roles generated transformation in the relationship between women and men, which reflected a more equitable distribution of the workload in households among family members.

247. The role played by women in the bidding commissions created to manage the resources of productive projects and their incorporation in the marketing initiatives was also important. The inclusion of black women in the foundation and direction of the new associations of *quilombola* remnants, reinforcing a set of activities that instigated greater participation of women, lead many of them to engage in the political aspects of communities, representing community associations and groups, strengthening their role in decision-making and focusing on their territories. In this context, it is significant that it was identified that an evaluative study of the project identified that 34% of the associations/cooperatives had a woman as president. The Impact Survey shows that the empowerment of women in PROCASE can be measured through the perception of influence, both personal and the influence of the association in decision-making by authorities when compared to the 'Control Group'. For men, the responses are similar in both groups. However, for 66.2% of women in the control group, there is a perception that they exercise their personal influence, and in the 'Treatment Group', this understanding reaches the rate of 83.8%. In view f the influence of the association, in the control group, 58.4% of women understand themselves to be influential. In the 'Treatment Group', this proportion is higher, in the order of 85.4%.

248. Another important PROCESE result was a partnership with the State's Secretariat for Women and Human Diversity - SEMDH, aiming to insert the beneficiary public and other Project partners in the realization of the "Weaving Networks strategy, which is an initiative for training representatives of public authorities and society to tackle violence against women. As a result of this partnership, PROCASE contributed to materialize the implementation of the Intermunicipal Reference Center for Assistance to Women in Cariri (which is maintained by the consortium of 17 city halls in the region), which, among other activities, is intended to support them in situations of prevention and to cope with domestic violence. It is also worth highlighting the dialogues with EMPAER and Paraíba Rural Sustentável - Cooperar, aligning the continuity of PROCASE activities with the adoption of AL, aiming at the sustainability of the interventions carried out by the Project.

249. As explained above, data showed that there had been changes in personal and family dynamics achieved by rural women because of Project's interventions. It is also worth mentioning their strong presence in activities in the community, especially abroad, which indicates that they have started to guarantee the means to enjoy the opportunities to acquire new learning and experiences. PROCASE has contributed significantly to boosting gender equality and women's empowerment by strengthening their personal and technical capacities, resulting in significant changes in their lives. In addition, women represented significant number among the beneficiaries of the Project's activities. For these reasons, it is considered to evaluate the Project as highly satisfactory.

D.4. Adaptation to climate change

250. Several current studies on climate change predict warming across the continent. Simulations for the Northeast region predicted a temperature increase that could reach from 2,up to 9°C until the end of the 21st century, depending on the simulation scenario[29]. In these various scenarios, the predictions for rainfall are quite bleak, which could significantly worsen arid conditions in the region[30]. In the area of precipitation, the projections announce an important reduction for the Brazilian semi-arid region, with an increase in the number of dry days and wide and increasing variability in these precipitations. In more concrete terms, recent data show that some changes are already happening in the climate of the semi-arid Northeast, confirming these predictions. For example, for the period 1989 - 2016, there was an increase in the average temperature in the region of approximately 1°C[31]. There was also a reduction in average annual rainfall in the region[32]. Thus, the expected climate changes include an increase in temperature, a decrease in rainfall, and a higher frequency of 'extreme events', which - in the region - translates into the occurrence of more pronounced and prolonged droughts. As a consequence of these scenarios, climate change is also expected to reduce surface and groundwater availability.

251. The theme of water resource management has been an essential issue for semi-arid inhabitants since time immemorial. But the trends announced by the current climate changes reinforce the seriousness of the problem. This process puts the population's water supply at risk, in addition to putting production in check, both for crops and livestock. In this context, PROCASE chose as its main initiative, in the scope of seeking greater adaptation to climate change, that of working to reinforce water security in its area of intervention, investing in the implementation of diversified systems for capturing, storing, and using of water. To this end, it supported the implementation of an important set of 'technologies'/structures of proven efficiency in this field (Table 21). At the same time, the technical assistance provided by PROCASE to the families benefiting from these investments worked to disseminate good practices for adapting to climate change, centered on the good use of the equipment and facilities for capturing/accessing water and the better management of this precious resource.

252. **Table 21 – Units of water collection, storage, and use systems implanted during the execution of PROCASE**

Investment/structure	**Type of water use**	**Nº**	**Families served**
Tubular wells	Human consumption, agricultural production (irrigation), and livestock.	513[33]	4,003
Underground dams + *cacimbão*[34]	Agricultural production, livestock, possibly human consumption	222	1,562
Dams (medium-sized)	Herd, support for human consumption.	3	10,022
Desalination	'Produces' water for human consumption from brackish/saltwater, usually from a tubular well. The waste water can be used to feed the herd.	61	1,654
Total			**17,241**

253. As previously suggested, most rural families in the Project's intervention area had no guarantee of domestic water security, defined as having access to sufficient water for the various needs of the 'home' (drinking water and hygiene)[35] daily, during the 12 months of the year. The most common situation is that in which domestic water is guaranteed for a period of between 7 and 9 months a year, which leads families to make important sacrifices (in time and/or money) to provide water in the famine The investments/structures for the collection, storage and use of water implemented by PROCASE ensured domestic water security - defined in this way - for 17,241 families. As the tubular wells, desalination units and medium-sized dams are water sources capable of remaining active even in drought years; families served by these sources - approximately 89% of this group - now enjoy security full domestic water supply, as defined.

Picture 5 - Emergency Plan - Irrigated fields: Installing the water well, water tank and solar panel of the irrigation kit. Source: Semear International Programme.

254. Strengthening water systems also has an important impact on livestock farming, a vital agricultural activity for the vast majority of rural families in the region. In this regard, the provision of water for herds is a function that is, at the same time, barely visible or noticed, but of vital importance. Taking the case of the tubular wells implanted by PROCASE, it is estimated that, on average, they can supply around 5,000 liters/day of good quality water. Discounting the water for guaranteeing the water security of the houses served by the well and that intended for irrigation of the palm, it is estimated that each well could provide approximately 1,500 liters/day of water for the animals. With this, each installed tubular well can provide enough water to feed a herd of between 250 and 300 adult goats or sheep heads.

255. In addition to this broad action around the harvesting/use of water resources, the Project also implemented other activities focused on equipment using and good practices in the managing of environmental resources. These could also be considered measures of adaptation to changes climate change. An example of this type of action is the installation of irrigated fields of forage production. Becoming important parts in a strategy of intensifying forage production, these fields enable the accumulation of greater food reserves for herds. These reserves, in turn, constitute a key element in making animal husbandry systems more resilient in the face of the main local consequence of climate change, which is, as we have seen, the worsening of the drought problem. Other good practices in environmental management, especially in the area of *Caatinga* management, worked on by the Project, also have good potential in terms of adapting to climate change. These activities are further discussed in the section dealing with the management of natural resources.

256. Although adaptation to climate change was not an explicit objective of the Project, it appears that it had an important role in this dimension of adaptation to climate change. As a result, it is possible to conclude that PROCASE's activities to adapt to climate change have strengthened the families/communities served, providing greater resilience in the face of the main climate-related stress. Therefore, the Project's performance in this item is evaluated as satisfactory.

D.5. Environment and natural resource management

257. The Brazilian semi-arid, a domain of the *Caatinga* biome, presents an original combination of environmental resources. This biome is characterized mainly by its semi-arid climate (of scarce and irregular rainfall), an important diversity of soils, and its specific vegetation - the *Caatinga* - specially adapted to the semi-arid climate and the soils found in the region. Human occupation is ancient in the *Caatinga*. But, for centuries, the use of these resources by humans has not significantly altered the functioning of the biome. However, colonization introduced forms of occupation and use of the environment - based mainly on livestock - that was more intensive and potentially more damaging than predecessor systems. Agrarian systems inherited from colonial times have spread widely across the region. At the same time, the demand for the use of resources was increasing. Thus, the current anthropic action, with its characteristic practices, which combines agriculture and animal husbandry on a large scale, puts enormous pressure on environmental resources. This is manifested through degradation (mainly by overgrazing) or suppression (by deforestation) of the Caatinga on a large scale, which also causes loss of biodiversity. This pressure is also expressed in the degradation of soils (using harmful practices of different types) and by the waste and misuse of the scarce resource - water. On the other hand, environmental laws, and norms created to stop this degradation process, are rarely followed. In this context, PROCASE environment and natural resources management were transformational and outstanding. Efficient water access plants, such as the desalinators, were less costly than the standard model, more environmentally sustainable, and easier to run. The 900 or so Integrated Livestock-Crop Systems provided a paradigm shift in terms of combining high agricultural productivity with cutting-edge resilient agriculture. The small dams, the hundreds of underground dams, and wells provided water access to thousands of families in Brazil's driest region, enhancing food security and reverting desertification in the caatinga biome. The hundreds of renewable activities, through wind or solar power, cut energy costs and increased production resilience in a region of high climate vulnerability.

258. Against this background, PROCASE acted on several fronts, both in the more educational domain and in the dissemination and implementation of innovative good practices, to face the abovementioned environmental resources management problems. These are presented in the next section, seeking to highlight the results obtained.

259. **Awareness raising and normative adjustment activities** The first set of activities in this area, of a more didactic character, seeks to raise public awareness of environmental problems and promote an action to help family units and associative enterprises in normative adequacy. Three awareness-raising events were held on the topic of environmental problems, with the participation of 300 people. In the field of normative adequacy, the training of 15 young people was promoted for the elaboration of the Rural Environmental Registry (CAR)[36] family farms served by the Project. These young people prepared the CAR for 351 properties, benefiting the same number of families. In what concerns the projects supported by PROCASE, the environmental and sanitary licensing processes were sent to the 35 cases that needed to make this normative adjustment. Ten projects have obtained their licenses, and in other cases, the processes are in progress, and the exit strategy provided that the SUDEMA and AESA bodies can follow up until completion. The creation and registration of the CAR have as immediate most important result families' access to several public policies (such as the PRONAF credit). CAR is a requirement for accessing such policies.

Picture 6 - Field planted with forage *cactus* and irrigated by wind power. Settlement *Zé Marcolino* (municipality of Prata). Source: Semear International Programme.

260. **Activities for the dissemination and implementation of 'best practices' in the management of environmental resources in cultivated areas** 663 irrigated fields were implemented, mainly to produce forage palm (*Opuntia ficus indica*) to make more efficient and more sustainable use of the water available for agricultural use (mainly from tubular wells and *cacimbões* fed by an underground dam). These irrigated palm fields, which reached 389 hectares, had two outstanding characteristics in terms of good sustainability practices. The first was installing irrigation systems, which were of the localized type, by drip, moved, whenever possible, with sources of 'clean' energy (solar or wind). These systems allow better control of the irrigation water, preventing excessive wetting;,' which, in turn, saves water and reduces the possibility of soil salinization. The second important innovation in these palm fields was introducing varieties resistant to the scale of carmine. This pest had practically eliminated the forage palm in the region at the beginning of the 21st century. Others practices were added to these initial ones aiming at fostering productivity while preserving natural resources. Thus, the idea of the productive diversification of these spaces was fostered introducing other species. The Evaluation Study of Irrigated Fields pointed out that 57% of these fields had diversified the planting and production of these fields. Many of them incorporated corn; other species mentioned were cutting grasses (such as elephant grass) or sorghum, in addition to other native plants. There were also cases of planting vegetables and roots (manioc and sweet potatoes). In some irrigated fields where there was a greater risk of salinization, the project encouraged the planting of saltgrass (*Atriplex*) .

261. In 31 of these irrigated fields (totaling 15.5 ha), the project went beyond simple palm planting, promoting the implantation of agroforestry systems (AS), adding to the original planting of several

species, including forage, fruit, and timber species. Finally, it is worth mentioning that the technical consultancy had active participation in the introduction of other agroecological practices for managing these cultivated areas - including the use of mulch, the supply of manure for fertilization, the use of biofertilizer and pest control. Since the first year of installation, these fields had a good productive performance.

262. The first of the products obtained in this broad set of 663 irrigated fields was the reproduction of cochineal-resistant palm seedlings that were (and continue to be) used to expand the planting of this culture in the communities served, even if these new fields are mostly grown in rainfed conditions (which is the traditional way of growing palm in the region). In some cases, the beneficiaries themselves confirmed that they had expanded the palm areas on their properties. But seedlings/seed donations were also made to other families. Information collected in the aforementioned study, conducted in 2019, recorded the donation of approximately 70,000 palm rackets. Adding the information collected from various sources on this topic, it is possible to notice that the new palm areas planted from the seed produced in the irrigated fields reach 39 ha. But the main product of these irrigated fields has been palm for animal consumption. The productivity of a hectare of palm depends on several variables. It is realistic to estimate this productivity at approximately 250 tons/hectare of green matter. This forage would be enough to feed a herd of 80 heads of goats throughout the year. Thus, the 389 ha of palm in the irrigated fields would provide forage support for a goat herd of approximately 31,000 animals. Through TA action with the beneficiary families, PROCASE encouraged the use of good practices in the other gardens (usually rainfed) of the beneficiary families, highlighting the strong decrease in fires for preparing planting and using natural preparations for pest control. In LFM, **PROCASE had the target of implementing 480 ILPF systems**[37] **in several modalities: considering all these forms of sustainable cultivation mentioned here, such as CLFI systems, we have that the Project was able to implement almost 900 of these systems, far exceeding the target of the LFM.** Another practice that grew thanks to the PROCASE action was the processing of forage, mainly by silage preparation. **One of the evaluation studies pointed to a 174% increase in the family's silage production after the Project's intervention.** It should be noted that the practice of forage processing works mainly with material from the cultivated areas. In addition to being a factor that increases the safety and resilience of the livestock activity itself, the processing of forage is a factor that helps to reduce the pressure on the areas of 'natural pastures', which are, in fact, *Caatinga*

263. There was a single exception regarding the relationship between the technologies and practices promoted by the Project and sustainability in terms of the management of environmental resources. These are agricultural mechanization services offered to families with mechanized patrols. In this case, the format in which this proposal was put into operation does not allow to guarantee that the soil preparation works with the tractors, plowing harrows, and other equipment, are done in such a way as to prevent soil degradation.

264. **The intensification of goat breeding systems as a measure to protect** *Caatinga areas*. Of the 97 Productive Projects financed, 37 were directed to goat farming activities. In all these cases, PROCASE support was oriented towards a conversion or the implantation of goat milk production. The differential of this intervention was in its approach since the investments included not only animals for the formation of a herd, but technologies and practices that guaranteed the production and conservation of food, and technical assistance based on agroecology, allowing a change important in the format of the management of the herd. The dairy orientation required the development of production (in cultivated areas) and forage conservation to keep the animals trapped longer, fed in the trough. This, in turn, decreased the grazing time of the animals in the *Caatinga*, with significant periods when the animals are not released in these areas. The installed systems managed to function satisfactorily in terms of production and, from the point of view of environmental resources management, allowed to drastically reduce the pressure of grazing in the *Caatinga* areas of the family units. With this proposal for more conservationist management, it was possible to preserve a total area of at least 350 hectares. **Considering the irrigated fields as management areas for native/adapted vegetation, the Project managed to promote good practice management of more than 700 ha of *Caatinga*, largely exceeding the original target on this topic in the LFM.**

265. **Investments in photovoltaic and wind energy** Seeking to expand the use of 'clean' energies, PROCASE financed the installation of electric energy production units with solar energy. They were installed in the manufacturing units of six cooperative agribusinesses in the Project's area of operation. In terms of families served, these investments benefited the 881 member families of these cooperatives. **Until the Project's conclusion, the permanent monitoring showed that the set of panels installed in the cooperatives generated, from the moment they started their operation, a total of 485,376 kWh. From the point of view of practical results, the cooperatives' energy generated and used has generated an estimated savings of R$ 360,180, thus reducing these units' production costs, and increasing the cooperatives' financial results**. From an environmental point of view, it is reported that the carbon that avoided being released into the atmosphere reaches 204 tons, which is equivalent to the planting of approximately 4,940 trees[38]. These results show that a change in the energy matrix generates significant environmental gains while reducing the production costs of the beneficiary agro-industries. On the other hand, when installing irrigated palm fields, the Project decided to invest in renewable energy to carry out pumping in these areas. Initially, the option was to install solar panels. But this alternative was not satisfactory, for several reasons. Thus, in a second step, the Project chose to install pinwheels to perform this pumping. Thus, 498 of these devices were installed in other communities. In the assessment of the various social actors involved, pinwheels are perfectly adapted to the needs and capabilities of users.

266. From what was argued in this section, it is possible to infer that PROCASE had a robust performance in the field of protection and the appropriate use of environmental resources. This action, which included the dissemination of good practices for the conservation and use of water, soil, native vegetation, thus contributed to the protection and even the recovery of these resources. The Project has also successfully invested in renewable energy. The various studies carried out show a very significant adherence by the beneficiary families to the use of these good practices. The Project also sought to follow high standards of environmental standards in most of its activities. From this, it is concluded that the performance of the Project, in this scope, can be considered highly satisfactory.

D.6. Targeting and outreach

267. At design, it was defined that the targeting of PROCASE would be composed of poor farming families in their area of operation considering the general objective of seeking to reduce poverty in the intervention area. The beneficiaries of the Project's activities would be determined according to the activities and services to be implemented, following eligibility criteria that would guarantee the inclusion of beneficiaries' belonging to target groups: (i) be a family farmer, ii) live in the Project coverage area, and iii) develop agricultural or non-agricultural activities, preferentially linked to the prioritized productive arrangements.

268. PROCASE used several instruments to approach its priority target groups, applying the mentioned criteria. In the early years, the public call notice was used. Then, this instrument was improved, launching public calls in the Plenaries of the State Democratic Budget, which gave greater transparency to the process. With the launch of the Emergency Plans phase, the Project started to select communities according to their localities and the water vulnerability 'water' situation, prioritizing those locations where the water crisis was most severe. Territorial collegiate bodies, state agencies with a presence in the field, city halls, advisory bodies, and other engaged social actors collaborated in this process. Evaluating PROCASE's targeting, it is possible to say that it was successful, as it is estimated that the majority of its more than 24,000 beneficiary families belonged to the original target groups.

269. PROCASE complemented this more general approach with a set of specific targeting strategies aimed at reaching priority groups: women, *quilombolas*, and young people. These segments have historically been most vulnerable in the rural context. In the operationalization of the targeting, the Project promoted an intersectional approach, carrying out a set of initiatives to promote the inclusion of these audiences. Thus, several types of events were held, including training, exchanges, and other activities, with the technical teams, partner entities and managers seeking to ensure that priority groups were included in interventions and technical assistance services.

270. For assuring that as many opportunities as possible were offered to women, PROCASE has taken several initiatives. An important instrument in this dimension as was the gender equity workshops held in all communities, led by TA focal points and some participation from the Unified Social Assistance System, coordinated by the local government. Several exchanges were also carried out. Finally, it is worth mentioning the creation of the Targeting Working Group that undertook a systematic work of monitoring and monitoring activities in this search to incorporate the priority audiences.

271. As a result of understanding the importance of ensuring the inclusion of this public in direct Project's services, a total of 11,858 women-headed families were reached as indicated by the LFM, This amount corresponds to 160% of the established target. In section D.3, which deals with the gender approach, other results are listed that confirm that women had a crucial participation in the Project's activities.

272. In the intervention with *quilombolas*, within the five PROCASE territories, 14 communities were incorporated into the race and ethnicity equity activities promoted by the Project, covering a total of 319 families, equivalent to 159.5% of the programmed. In 2014, there were four certified areas (corresponding to 6 communities). Another eight communities were incorporated, among which 5 won the *quilombola* certificate (125% increase in the total number of certifications). One community is in the process of recognition with the *Palmares* Foundation, the federal government, and two others have already started the path of self-recognition.

273. **Table 22 - *Quilombolas* benefited from PROCASE activities**

PROCASE's activities	***Quilombola* Families**	**Women**	**Men**

	Number	%	Number	%	Number	%
Productive Projects - PPs	90	3%	67	74%	23	26%
Irrigated palm fields	126	2%	69	55%	57	45%
Desalination plants	103	6%	76	74%	27	26%
TOTAL	**319**	**3%**	**212**	**66%**	**107**	**34%**

274. It is worth highlighting the place of power exercised by *quilombola* Of the 12 associations already constituted by remaining *quilombolas*, 64% are led by women, and 14% have young men in the presidency. At the beginning of PROCASE interventions, only the Talhado Community was chaired by a woman.

275. In order to assure the effectiveness of activities involving youth, the Project counted with several partners. These partnerships were celebrated through terms of cooperation, agreements, and contracts with different organizations, among them FAPESQ, SUDEMA, Escola Técnica Redentorista, beneficiary associations and cooperatives, labor unions, rural workers in the municipalities, and municipal governments. Semear International, PROCASUR and IICA also provided support, in addition to SEJEL, including the creation, in 2015, of the Intersectoral Committee on Public Policies for Youth, where a young woman, representing PROCASE, has a seat. **As a result of these and other specific targeting initiatives, PROCASE obtained that the beneficiary families of young holders totaled 1,616, reaching 202% of the defined target.**

276. **Table 23 – Young People in PROCASE**

PROCASE's activities	Total Young people		Young women		Young men	
	Number	%	Number	%	Number	%
Productive Projects - PPs	351	22%	183	52%	168	48%
Irrigated palm fields	870	54%	409	47%	461	53%
Desalination plants	193	12%	149	77%	44	23%
Young holders	202	12%	115	57%	89	43%
Total	**1.616**	100%	**856**	**53%**	**762**	**47%**

277. Youth were included in the various types of investment of the Project. In action with intercropped irrigated fields, 5,565 families are contemplated, young people represent 16% (47% women and 53% men). This very balanced distribution, points to the female audience's inclusion and the opportunity generated for these young women. Furthermore, the Projeto Juventudes Tecendo a Convivência com o Seminário (Youth Weaving the Coexistence with the Seminary Project), a scholarship program, was fundamentally important for the inclusion of youth. One of the main results of this participation was the reduction of discrimination and greater access to education. In addition, in the context of Productive Projects, PROCASE stimulated the creation of groups of young people in some of the communities served, which formed a Solidarity Rotating Fund for Animals, which organize the transfer of goats and sheep from productive projects to children from beneficiary families to start their economic activities in livestock.

278. M&E has guaranteed the gender breakdown of data produced on the execution of PROCASE. On the other hand, an explicit effort was made to collect the perceptions of women in the assessment tapes and other evaluative instruments. In the evaluation meetings by territory, the orientation was to have at least 50% of the public composed by women. The M&E team, from 2017, started to incorporate the transversality of gender in its activities, studies, listening methodology, disaggregating information by gender, generation, race, and ethnicity, materializing the transversality in the visibility of the PROCASE results. In this dimension of monitoring, when analyzing the income obtained, the impact survey indicates that in the total annual income per capita of the families of the Treatment Group, the impact of PROCASE in the median, in the period 2015-2019, reached the percentages of 2.8 % and 16.4% in the youth and women subgroups, respectively.

279. The Project's targeting strategy was very effective in reaching the various target groups identified in the design. In addition, it is worth highlighting the thorough and effective work to reach the target priority groups- women, young people, and *quilombola* communities - which resulted in excellent participation of these among the beneficiaries of the Project's activities. For these reasons, performance on focus and scope is considered satisfactory.

D.7. Innovation

280. The Project tested several innovations for strengthening the capacity of beneficiary groups to coexist with the semiarid conditions. Among them, relevant experimented innovations included the desalination plants, and underground dams to promote water security. For instance, t**he desalination plants implemented by PROCASE used a different and more efficient model than the one widely used by the Água Doce (Fresh Water) Program (a partnership between the state government and the MoE), reducing the area necessary for the implantation of each unit (of 1,200 m^2 to 225 m^2) and decreasing the amount to be invested per unit (40% lower)** On the other hand, underground dams, with their waterproof structures built in the beds of streams, allowed the capture of runoff water. Together with *cacimbões*wells or *cacimbõe*s for capturing shallow groundwater, stored thanks to the underground dam enable the implantation of forage fields. The use of forage palm intercropped with other species adapted to the region increase soil coverage, in addition to reducing the pressure of herds on vegetation from the increased food supply[39]. In this case, experimentation showed the usefulness of this technology in years of less regular rainfall and showed that it has strong limitations in very dry years.

281. Another innovative action was implementing units for capturing and using solar energy to feed the pumping systems in a subset of the installed irrigated forage fields (known as Emergency Plans). This energy source is also being used experimentally in vertical desalination plants, representing an innovative action in the brackish water treatment process. In addition, the Project made innovative investments in the installation of electricity production systems from sunlight in the productive plants of 7 cooperative agro-industries that move important production chains in the region (such as, for example, milk and fruit pulp). Given a significant reduction (minimum 80%) in electricity costs, this system allows saving and mobilizing resources for new investments in the production system, increasing the competitiveness of cooperatives.

282. The pioneering work of Petersen and colleagues[40] showed that the 'productive enhancement of limited spaces with high productivity' is a principle of agro-ecosystem management of crucial importance for the sustainability of family production systems in the Brazilian semi-arid region. Based on this premise, the implementation of this type of space in family units has increased importance in recent years. Thus, small irrigated productive subsystems in family units in the region have become more and more frequent. The PROCASE action that enabled the installation of 663 irrigated fields is fully part of this process that aims to multiply 'spaces of high productive potential' in the establishments of the beneficiary families. The installation of irrigated fields (initially to enhance forage production) in family units in itself already represents an innovation, as there were practically no such production areas in the Project's intervention area. However, it is worth highlighting a second innovative aspect in this initiative: PROCASE, as a development project, has installed these irrigated fields on a wide scale. Thus, the experience with this technological good practice the Project would promote represents an important advance. It prepares the possibility of this technological innovative practice becoming part of new 'development

projects' options.

283. The innovative matrix of the agroforestry systems (AS) units implemented by the Project is a model of agricultural production that combines fruit and/or timber species with agricultural crops and/or animal husbandry, simultaneously or in temporal sequence. In addition to promoting a significant impact on the local environment, through the recovery of native vegetation and the increase in biodiversity, the AS's experience had a positive impact on water and food security, but also positive economic impact for beneficiary families, through a drastic reduction in costs in conducting these crops.

284. The PROCASE design proposed an interesting innovation in the dimension of the intervention methodology. The Project started its work by adopting a participatory process of identification, elaboration, and implementation of investment plans or projects in the productive activities (the PPs or Productive Projects), designed mainly to become an instrument of capacity development and being the tool to implement investments. It was used in the Project's first three years of operation. Although progress was made in some parts of the method at this time - such as, for example, when the selection process of proposals replaced the conventional bidding process via the plenaries of the State Democratic Budget (SDB) - the Project assessed that this method was not meeting their needs in terms of the pace of delivery of products (PPs), and decided to replace it with a more conventional method by which the definition of investments and the implementation itself started to be carried out directly by the PMU.

285. Finally, an institutional innovation that should be highlighted is the creation of the Working Group (WG) on Targeting, which brought together people from all partner entities that provided assistance and PROCASE's gender advice and others Project's technicians/managers. The WG was so important for strengthening priority audiences (women, youth, and *Quilombolas*) that the topic is being discussed at the State Council for Sustainable Rural Development and the Gender Equality, Generations, Race, Ethnicity and Traditional Peoples WG was created, of CEDRS/PB, approved as an advisory body that has the task of monitoring the activities developed with these groups. These innovative experiences for Paraíba, as well as the training of women and young people to implement agricultural and non-agricultural activities through investment plans, represented a window of opportunity for the empowerment and economic independence of these groups, historically excluded from the development processes.

286. When considering the technological and practical dimensions, it is observed that the Project was successful with several innovations. Regarding the methods, successes were recorded, despite some problems. The Project's innovation performance can be considered satisfactory.

D.8. Scaling up

287. Evaluating the effectiveness (impact) of activities is fundamental to expand the scale of any program, project, or public policy. An assessment is necessary to identify the results of greatest relevance and impact. In PROCASE, these results were associated with the activities of the Productive Projects and the Emergency Plan. The first generated income, the second promoted access to water by increasing the water security of the beneficiary populations.

288. Productive investments, investments in access to water, and capacity-building activities for women and young people have an excellent replication potential in the State of Paraíba or other states in the Northeast region Brazil. The experience of the Emergency Plan implemented by the Government of Paraiba to face the effects of the 'great drought', which had a prominent intervention by PROCASE, showed that artesian wells could be important aspects to compose more resilient 'water systems'. Similarly, the 'vertical' desalination plants installed by PROCASE can also be an interesting model for these 'resilient water systems', with potential for replication. In the latter case, the Fresh Water Program implemented by SEIRHMA, should ensure the dissemination of these desalination plants to other regions of the semi-arid region of Paraíba. This same Secretariat should continue to implement tubular wells, with the possibility of financing through the new Paraíba Rural Sustainable Project.

289. On the other hand, in this dimension of 'scaling up', an initiative of the State's Secretariat for the Development of Agriculture and Fisheries (SEDAP), in partnership with the Ministry of Agriculture, Livestock and Supply (MAPA), which is proposed to work to revitalize the culture of forage palm in 169 municipalities in the semi-arid region of Paraíba, with an approach inspired by the work of PROCASE. This initiative proposes to implement fields of multiplication of irrigated forage palm with technology transfer and training in the 169 municipalities mentioned. The target public of this initiative also coincides with that of PROCASE, being composed of small farmers with a family farming focus.

290. **An experience that presents concrete opportunities for replication is that of agroforestry systems (AS), which generate additional income and food for families and are becoming small germplasm banks for Creole seeds decreasing the dependence on the hybrid seed market.** The AS implemented by PROCASE in the context of the Emergency Plan of the State of Paraíba formed the basis of an exchange program between Brazil and Mexico[41] and gained prominence as a good practice in the UNOSSC annual publication of 2020[42]. In addition, there is a project working with rural youth in the *Agreste Paraibano*, which is working with agroforestry systems. This project, implemented by the NGOSERTA, is supported by the INNOVA – Family Farming Project financed by IFAD. Similarly, the Project implemented by IRPAA and financed by the AKSAAM project (with IFAD resources) is developing technical and educational work around AS in the Escola Família Agrícola (EFA) context in Bahia and Sergipe.

291. Finally, there is a certain potential for disseminating some 'good practices' in the field of crop management and livestock systems that have been worked on by PROCASE and have achieved excellent results. We allude to some agroecological cultural practices fostered by the Project - such as the use of mulch, organic fertilizer, and alternative methods for pest control - continue to spread in the region, thanks to the efforts of the families themselves, and also from partner entities, such as EMPAER, PATAC, and others. About animal husbandry systems, the practices of forage conservation (mainly through silage) is a key element in disseminating more resilient and more productive breeding systems. PROCASE-funded mechanized patrols should play an important role in this process.

292. Seeking to assess the extent to which the Project may have some of its approaches and/or innovations implemented on a larger scale or replicated elsewhere by the government or other partners, some partners have shown an interest in selected project initiatives and there is some potential for scaling up or replication in the semi-arid region. For this reason, the Project's performance is considered moderately satisfactory.

E. Assessment of project efficiency

293. At the Project's conclusion, PROCASE's efficiency assessment is satisfactory (5). PROCASE responded well to the initial delays (and the challenges of the great drought) with the introduction of another more direct implementation modality, which led to improved efficiency in the process of validating the sub-projects with the Project Committee and the State Procurement Authorities. This modality also allowed responding more adequately to the climate challenge, improving the outreach in water access activities and in the environment component, and created efficient planning for all subsequent drought response measures. At the same time, a template was developed to accelerate the PIP design and approval process, taking advantage of the already well set-up Democratic Budget Mechanism, so that the factors responsible for the initial delays were all well addressed. The project was prompt to respond to all IFAD mid-term review agreements and created a multi-secretariat task force which resolved all bottlenecks within 6 months. At project restructuring, the Governor personally supervised the task force to ensure that all design targets would be met to significantly accelerate project implementation, with strong support from the Secretariat of Planning. IFAD fund disbursement maintained regularity at record levels for over 2 years running, reflecting the well functioning project implementation structure. The water access and environment activities were innovative and state-of-the art, bringing significant efficiency gains (in terms of community management and expenses) vis-à-vis existing public policies (e.g. desalinators and renewable energy in food cooperatives). Finally, the ex-post IRR is clearly within the range of projects that produce adequate returns to the investment (thus efficient), and thus commensurate with the ex-ante IRR, that also demonstrated that.

294. The good operational functioning in the final period (after MTR) allowed the extensions granted to be fully used.

E.1. Project costs and financing

295. Project costs. At formulation, the total Project cost was estimated at US$ 49.7 million, US$ 25.0 million from IFAD (equivalent to SDR 16.1 million), US$ 12.1 million from the Government of Paraíba, and beneficiary contributions and access to other sources have been estimated at approximately $ 12.6 million. At an exchange rate at the end of the project of 1 USD = 0.693598 SDR, the financing becomes equivalent to approximately USD 22.7 million, with depreciation of USD 2.3 million due to exchange rate fluctuations. Details are shown in Table 24.

296. **Table 24 - Total project cost allocations by financier**

Component	IFAD	Government	Beneficiary	Other sources	TOTAL

1. Human and social capital development	923.684	650.000	-		1.573.684
2. Productive development and market access;	18.105.302	7.500.000	9.190.000	3.400.000	38.195.302
3. Sustainable Management of Natural Resources	1.406.156	330.000	-		1.736.156
4. Institutional Development	707.487	65.000	-		772.487
5. Project Management	1.557.667	3.556.000	-		5.113.667
Total	**22.700.296**	**12.101.000**	**9.190.000**	**3.400.000**	**47.391.296**

297. **General disbursement rate.** PROCASE had difficulties in the early years with the implementation and, consequently, with the disbursements rate. From 2017 onwards, with the change of the Project management, the strengthening of the financial team, as well as the support from the State's Secretariat for Planning and Management, the disbursements improved considerably.

298. The Project disbursed 100% of the IFAD financing. The contributions of the Government of Paraíba were 109%, and the contributions of beneficiaries and access to other sources were 6% and 37%, respectively. The disbursement of IFAD funds amounted to SDR 16.06 million, equivalent to approximately USD 22.7 million.

299. **Financial execution.** The Project faced adversities in terms of the state's financial contribution as well as the availability of a budget for the effectiveness of the activities provided for in the POA and PAC of the initial years. IFAD has reached the point of making it easier to break the "link" regarding production plans (agreements with associations). This situation also changed in mid-2017, with the change in the management of the Project, the strengthening of the financial team, as well as the performance of the State's Secretariat for Planning and Management.

300. The final result of the general financial execution is in table 25 below.

301. **Table 25 - Overall financial execution of PROCASE (in USD)**

Funding source	**Approved budget**	**Current budget**	**Execution**	**Balance**	**Execution (%)**
IFAD loan	25.000.000	22.700.296	23.101.876 x	- 401.580	102
Counterpart Paraíba government	12.101.000	12.101.000	12.952.023	- 851.023	107
Beneficiaries	9.190.000	9.190.000	648.411	8.541.589	7
Other sources	3.400.000	3.400.000	1.271.665	2.128.335	37
TOTAL	**49.691.000**	**47.391.296**	**37.973.975**	**9.417.321**	**80**

302. As mentioned earlier, PROCASE experienced several problems in its initial implementation. The corrective measures taken from the MTR allowed these to be overcome. The good operational functioning in this final period allowed the extensions granted to be fully used. The commitment of the PMU, the political will of the Government of Paraíba, as well as the support of IFAD were factors that contributed to this recovery. In general, there were significant advances in the implementation and financial execution of the Project, providing the satisfactory achievement of the financial goals that were agreed upon throughout the Project.

303. The counterpart of the beneficiaries, estimated at USD 9.2 million, was only USD 648.4 thousand. Value well below expectations. The accounted value was of funds accessed, per action of the project, to PRONAF or other public policies, and contributions in the implementation of the PIPs. The significant modification in the investment arrangements, the methodology of estimating the family's work in the implementation of the PIPs, which are difficult to determine, and the exchange rate variation are factors that affected the desired contribution.

E.2. Quality of project management

i) Procurement

304. Overall, PROCASE's procurement processes were satisfactory and in compliance with applicable national standards and IFAD Guidelines. From a retrospective analysis of the PROCASE implementation, development, and execution process, it is possible to see a clear maturation of the Project as a whole and the important role of the procurement and contracting area in this evolution.

305. Procurement planning was carried out in a decentralized manner and with indirect participation of the procurement area. Initially, this model provided a low degree of interaction between the different areas involved, which sometimes reflected on an ineffective planning. Throughout the Project, adjustments were made to allow a more-organized planning, with the adoption of more realistic deadlines

306. The procurement processes had clearly defined phases. The majority of the procedures from the evaluation of the proposals to the award of the contracts met the necessary requirements. However, the adoption of pre-qualification procedures could have been used more frequently and due due diligence surveys, regarding suppliers of goods and services, should have been incorporated into the process more comprehensively

307. As for the management and filling system of procurement dossiers, PROCASE adopted measures that maintained the custody and conservation of documents at adequate levels.

308. From a retrospective analysis of PROCASE's implementation process, development and execution, it is possible to perceive a clear maturity of the Project and the important role the procurement and contracting area had in this evolution.

309. During the initial PROCASE period (2013-2014), the Project faced significant challenges, notably regarding the procurement and contracting planning process. At this stage, the Project did not have its own procurement team, and all activities were carried out through the Bidding Commission of the State's Secretariat for the Development of Agriculture and Fisheries (BC/SEDAP), which had no expertise using IFAD procurement methods. In addition, the BC/SEDAP also had to meet several other demands of the state government, causing some delays in the Project's procurement activities.

310. From an early stage, the Project coordination identified a risk in the composition of the teams and in the insufficient number of collaborator, which could present an obstacle to The Project start-up and implementation. Therefore, in 2014 the Project carried out a comprehensive selection of consultants through the supporting Technical Cooperation Project signed with IICA. The UGP Procurement Team was created in this context, with a specialist in international procurement and contracting standards, as well as consultants with general experience in bidding. This team was crucial, not only for an adequate and efficient project procurement, but also for the operational support to cooperatives and community associations, contributing significantly to the speed up and sound implementation of agreements with the beneficiary communities.

311. Although it was able to alleviate the difficulties related to the composition of the team, the efficiency gain in the implementation of the Project, especially regarding delays in signing the agreements, caused PROCASE also to face, in its initial implementation period, some challenges within the scope of the acquisitions made in the field with the beneficiary communities. Throughout the Project, there were problems related to the choice of companies to participate in bidding processes: lack of supplier in the domestic market of Paraíba; delivery logistics constraints in the rural area; work plans designed outside the bidding methodology; between others. The lack of infrastructure in the Community and Cooperative Associations was also added to the obstacles faced. It is not uncommon for these entities to still suffer from logistical, administrative, and accounting problems at the local level.

312. Despite the setbacks, the PROCASE team acted so that the problems that presented themselves did not compromise the Project's development, adopting strategies to face each identified obstacle, including the creation of task forces to work on the accumulated liabilities and avoid delays in the planning of purposive areas.

313. Still regarding the weaknesses detected, it is important to highlight the lack of integration between the procurement and financial system that would make possible some activities such as the digital archiving of bidding documents, registration of Companies, and their performance with Associations/Cooperatives, analysis of documentation by electronic means, the release of payments, among others. This system could avoid inconsistencies in the information, integrate and streamline the respective activities, in addition to providing greater uniformity, security, and reliability to the data treated by the fiduciary area.

314. Even in the face of the difficulties pointed out here, the Project has always managed to meet the standards and guidelines of IFAD and the state government, following and complying with the legislation, and seeking to act with the planning carried out through the Procurement Plans. Weaknesses in processes and procedures, in general, did not impact the Project's results

315. **Procurement within the community and cooperative associations.** Due to the nature and objective of the Project, initially, the PROCASE procurement and contract area focused on procedures carried out within the scope of final activities, especially those linked to agreements with Community and Cooperative Associations. Due to the circumstances, such procedures had a simpler character regarding the objects, values, and methods used.

316. In this scenario, it is worth mentioning satisfactory performance of the hired consultants who provided advice, trained and guided those responsible for the procedures so that they acted with compliance, safety, and efficiency even in the face of the limitations involved. More than that, the role of public tenders at the community level is highlighted as a training and strengthening tool for Associations and Cooperatives that were at the forefront of the processes and the empowerment offered to people in the community involved in the community procurement activities.

317. **Larger acquisitions/contracts carried out by the Central Procurement branch of the Government of Paraíba and directly by the PMU** If, on the one hand, acquisitions at the community level were important due to the empowerment generated, on the other hand, the bidding procedures aiming at larger acquisitions and contracts, carried out under the supervision and coordination of the PMU, allowed a definitive boost to the Project.

318. Here, the reliability of the Procurement Management System of the State of Paraíba stands out positively, through which purchases were made whose activities were linked to the State's costing expenses. It is worth remembering that the centralized procurement procedures of the State should respect a whole flow of information and controls, which were assessed as acceptable by IFAD and were able to deliver integrity, security, and transparency to the data and procedures inserted in them. The negative point, in this case, is due to the bureaucracy inherent in public systems that demand longer terms and sometimes end up overlapping and making the execution of the planning impossible.

319. The procurement/contracting activities carried out by the Project Management Unit (PMU) involved, as a rule, objects of higher values and, often, the use of IFAD methods. Such procedures also helped to achieve relevant milestones for PROCASE based on complex and highly impactful activities in the execution of the Project, such as: hiring companies to develop dams and supply irrigation kits (Emergency Plan), hiring companies to provide technical assistance to beneficiaries, acquisition of mechanized patrols, and many other.

320. **Procurement/Contracts conducted by IICA.** The signature of Technical Cooperation Project (PCT) signed between SEDAP and the Inter-American Institute for Cooperation on Agriculture (IICA) helped PROCASE's procurement/contracting activities. One of the main functions performed by IICA was to carry out the procedure for hiring consultants and fellowship holders to compose the PROCASE team since the state Government did not have enough staff and with the necessary expertise to provide a qualitative and quantitatively satisfactory framework. Another crucial task assigned to IICA was to conduct the procedures for contracting the Independent Audit.

321. Although the amount made in acquisitions by IICA in the same period was much lower than that of the PMU, it should be noted that IICA's performance in part of PROCASE's contracting meant an important gain in speed and efficiency. IICA adopted international standards of procurement and contracting acceptable to IFAD, respecting the legislation in force and do not need to face the state's procedures that often come up against excessive bureaucracy. IICA's performance proved to be solid and stable.

322. However, the models and references used by IICA were not always adequate to the needs of PROCASE, sometimes generating the need for adjustments. In addition, communication with IICA, which has its headquarters in Brasilia, presented weaknesses, mainly due to the need for documentary monitoring of contracts through the system of that international institution.

323. **Procurement/contracts carried out by other government secretariats.** The Project carried out several joint activities involving other government secretariats. The aim was to decentralize resources to a given State Secretariat to conduct the procurement / contracting procedures related to the themes/activities in its specific area of expertise.

324. To do so, they used the Technical Cooperation Term (TCT), which defined the object, responsibilities, obligations, rights, and budgetary and financial decentralization rules.

325. In these cases, the cooperating state's secretariat was responsible for the entire bidding process, contracting and/or adjudicating and executing the contracts. PROCASE is responsible for monitoring, monitoring, and paying upon presentation of the appropriate measurements and documents. After the execution of the contract, all relevant documentation was forwarded to PROCASE for accountability with the Audit.

326. Experience with the TCTs has shown that flows involving more than one government body end up generating overlapping levels of authority and opinions that require more planning and execution time. Another sensitive point of this type of partnership is the delay in sending the documents or even failure in the composition of the information, which can generate inconsistencies and even result in future disallowances. The challenge of these partnerships was spelled out in the second purchase of emergency food by the Executive Secretariat for Food Security and Solidarity Economy at the end of 2020. The administrative difficulties led to the withdrawal of the purchase at the end of the Project.

327. The positive side of TCT is the possibility of working with more specific technical knowledge (wells, desalination plants, and others), on a larger scale and with good quality of execution; something that due to the little capillarity and reduced team the Project alone would have difficulties to reach.

328. **Main strengths identified**. In addition to the positive aspects already indicated, other strengths observed in the PROCASE acquisitions and contracts were: i) good reorganization capacity to face the difficulties endured in the processes; ii) team engagement in improving results; iii) quality and integrity of bidding processes and documents.

329. **Main weaknesses identified.** In addition to the weaknesses already indicated, other points that deserve attention in the procurement and contracting part of PROCASE: i) absence of exclusive management for the area of acquisitions and contracts, including due to the deficiency in the design of the project management structure; ii) absence of an integrated computerized system for the fiduciary area; iii) difficulty in accessing information recorded and managed by co-executors and partners; iv) the still fragile use of the PAC as an effective planning tool and; v) absence of a proper system or channel for receiving and handling complaints and/or accusations.

330. **Main lessons learned and recommendations.** In addition to the lessons already mentioned above, the following lessons are also recorded for use in any future projects: i) the procurement area, due to its transversal nature, must have a priority planning from the beginning of the Project, as well as rely on communication and interaction conditions with all other Project areas; ii) the procurement team must be established within its own and exclusive management that guarantees access to the different decision-making levels, promotes integration with the requesting units and carries out permanent assessment of procurement risks and contract monitoring; iii) purchasing and contracting procedures must be carried out in a planned manner, adopting clear descriptions, viable objects, and realistic deadlines. Therefore, the Project managers and must be involved in the planning from the very beginning; iv) the procurement team must count with a computerized and integrated information system. The lack of a procurement digital system generates numerous negative consequences for the Project, including inconsistency and insecurity in data, difficulty in accessing information, gaps in communication between the areas involved, delays in the execution of procedures, and difficulties related to custody and document management; v) when forming teams, the selection of a key nucleus capable of guaranteeing the continuity of the Project's processes and information must be observed, even in cases of team renewal; vi) the Project must structure a minimum compliance core to implement a channel or system for receiving and handling complaints related to the Project's actions and guide teams and managers on the best practices involving their performance, including the hiring and performance of the third parties.

ii) M&E and KM

331. It was up to the M&E management to implement and operationalize the system for collecting and recording the information necessary for the effective monitoring of the PROCASE execution.

332. The data on the execution of the Project as was organized in Excel spreadsheets for the activities carried out and the advances in the Logical Framework registered in the single system for recording physical advances, made available by IFAD since 2016, which allows the automatic download of the mandatory tables for the supervision reports, as well as real-time monitoring of the performance of the indicators concerning the AOP and the design goals.

333. The M&E sector was responsible for preparing routine reporting documents. Among them, the Semiannual Progress Reports of the Project and the annual descriptive AOP deserve emphasis. These documents that systematized and summarized the information from the system mentioned above were of great value so that Project managers and IFAD could monitor the Project's implementation.

334. This system produced important information, which managers used in their decision-making. It allowed, for example, the monitoring of the commitments assumed by the managements and subsidized the sharing of information about the progress and performance of PROCASE for several stakeholders and for a wider public. The set of systematized information associated with the work routine of IFAD and PROCASE supported the readjustment and improvement in the execution of PROCASE to obtain the expected results.

335. PROCASE started using the single M&E system for IFAD projects as of April 2016. This system allowed the automatic extraction of the project's logical framework and the advancement of indicators about the annual AOPs and design goals. In January 2020, the new Unified Project Management and Monitoring System, Data FIDA, was made available by the Semear International Program to all FIDA Brazil projects, which in addition to the practices already carried out by the previous system, allows for the disaggregation of projects' data for gender and youth, the registration of all activities related to the different lines of action of the project, including productive components, human development, and fiduciary management. It also allowed the registration of evaluative studies (Baseline and Impact Assessment) and the financial management of the Project in a georeferenced database. PROCASE started the process of uploading the information to Data FIDA. But, unfortunately, the closure activities and, mainly, the Covid pandemic 19 hindered the conclusion of this stage since part of the documentation was in the physical facilities of the state departments that remained closed for long months in the year 2020. Experience has shown that the new system has an excellent potential, but it was not possible to reach its full functioning.

336. The M&E sector was also responsible for preparing and hiring consultants to generate important documents for registering activities, progress, and the legacy left by PROCASE. Among them, the following stand out: the Baseline Study (2016), the Impact Survey (2020). Technical and evaluative reports were also prepared on Productive Projects, irrigated fields, desalination plants, and mechanized patrols, as well as evaluative wiretaps. The material produced supported the follow-up of the Project by IFAD and was important to systematize information for the writing of this report.

337. IFAD provided the opportunity to improve the Projects, technical M&E team through the Global Training and Certification Program in Rural Development M&E – PriME and the Center for Learning on Evaluation and Results/Mexico, , with training and certification for a member of the team. In the field of integrating M&E activities with other IFAD projects in Brazil, the Monitoring and Evaluation WG was created, which enabled better communication and exchange of experiences between projects, generating new learning, seeking to strengthen the M&E areas of the projects.

Picture 7 – The participants of the Technical Exchange Brazil – Mexico visit the Community of Palma, November 2019. Source: Semear International Programme.

338. It was up to M&E management to conduct PROCASE's 'Knowledge Management' work. In this case, the main task of the sector was to systematize the knowledge generated by the Project through its work, to ensure then that this knowledge 'circulates' as widely as possible, reaching the different stakeholders of the project. To this end, the most interesting experiences and innovations in agricultural and non-agricultural production chains and renewable energies were identified. Experiences related to work to promote gender equality and work with youth were also selected. Once the experiences were selected, systematization work was carried out in partnership with the Semear International and PROCASUR programs. The products thus obtained (in the form of logbooks, booklets, audiovisual products, among others) were made available to different audiences. The main publications referring to this systematization of PROCASE experiences are: "Riches of the Semi-Arid", "Agroecological Books and Women in the Semi-Arid", "Seeds of Hope: good practices of living with the semi-arid", "Tourism and rural youth", "Women who flourish in the Northeastern Semi-arid", "Pulsar young in the semi-arid" and "Systematization of Best Practices of PROCASE activities".

E.3. Quality of financial management

339. The quality of financial management was moderately satisfactory and the fiduciary risk was assessed as moderate. The major weaknesses was related to the accounting system. The auxiliary accounting system implemented by PROCASE was unable to generate complete and reliable reports by categories and components, and was used only for disbursements. However, the government system *SIAF* (Integrated Financial Administration System) generally provided sufficient assurance for the use of funds. Financial reports were prepared in Excel with high risk of errors. This deficiency was reported by both IFAD and the auditors. Another area of weaknesses wasfinancial team. During the initial phase of the project was incomplete, the financial team was composed of only two professionals who fulfilled the responsibilities of budget, accounting, disbursements, treasury and support to procurement. The absence of a Financial Manager during the initial phase of the Project affected the performance of PROCASE. Also, there was no full segregation of duties also during the end of the project.

340. **Project Financial Manual.** The Project had financial administrative manual based on local legislation, IFAD's procedures and requirement and the clauses established in the Financing Agreement No. I-798-BR. The manual was used regularly by the team but it was not updated on an annual basis.

341. IFAD's anti-corruption policy was widely disseminated to Project staff, suppliers/service providers, and beneficiaries, and was included in all contracts and agreements.

342. **Project asset transfer plan**. Project assets have been recorded and updated electronically. When acquired and checked, they receive the patrimony plaque (public inventory) and were inserted in the *SIGBP* system (Integrated System for the Management of Public Goods) of the State of Paraíba.

343. In the system, it is necessary to inform the name of the Management Unit (MU), the number of the Promissory Note (PN), the number of the Invoice and the Supplier's data, in addition to the description of the goods being inserted. Once the Invoice and the assets incorporated into the equity are settled, they are transferred to the responsible Secretary at the end of the Project, thereby generating an internal transfer term.

344. **Archiving Project Records.** Following IFAD's requirements, all Project financial records are maintained for at least ten years after the closure. Currently, the archiving of Project records is still paper based.

345. **Ineligible expenses.** There were no ineligible expenses during the Project execution as of the date of the drafting of this report. The Final Audit Report provides information on the eligibility of expenditure during last phase of the Project.

E.4. Project internal rate of return

346. A cost-benefit analysis of the resources used by the Project (costs) and the expected impacts based on the benefits generated by the Project was performed to verify the economic and financial profitability. The profitability indicators chosen are: Net Present Value (NPV - financial and economic); (ii) the internal rate of return (IRR - Economic and Financial); and (iii) the Benefit/Cost Rate (B/C). The hypotheses were made with a life span of 25 years based on the average period to analyze investments in water access infrastructures.

347. The exercise was carried out based on a series of previous studies carried out by PROCASE for each activity, and consultations with specialists for each thematic area. However, there was no possibility of collecting specific information for the EFA due to the delay registered in particular consultancy studies and because of the COVID 19 pandemic, which did not allow a field mission to be carried out in Paraíba.

348. The pandemic has also affected the expected results of the models, at least for the years 2020 and 2021, and most investments are not yet mature enough to allow them to express the full expected benefits. The results must be considered with caution as they depend on the evolution of these investments and on overcoming the pandemic's effects in the Project's intervention area.

349. At the end of the execution of the Project, a diversification of the sources of benefit was verified in comparison with those identified in the design. This is mainly due to the impacts of the emergency plans that were not considered in the design. In addition to the increase and diversification of sources of income for the families served by the Project, other quantifiable benefits integrated into the analysis are: (i) greater availability of water for human and productive use (dams); (ii) savings for families in time to access water (desalination plants); (iii) savings for families in expenses with hiring agricultural mechanization services from mechanized patrols, and (iv) increasing the availability of forage for livestock from the implantation of irrigated fields.

350. In addition, a specific exercise was done to quantify the benefits of PROCASE's environmental activities. Here, agroforestry systems (AS) were considered, the savings obtained by cooperatives in energy expenditure from investments in solar energy, and an estimate of the incomes of the nurseries.

351. Other positive environmental benefits resulting from PROCASE action are hard to quantify, such as reducing the pressure of cattle on the *Caatinga* from investments in irrigated fields or improving the resilience of families based on the increase in the availability of water. There are also benefits for biodiversity from agroforestry systems, but they have not been quantified. Therefore, these other benefits were not included in the analysis.

352. In estimating the incremental benefits of the 97 productive projects, five typical models were developed: a) goat sheep, b) dairy goat, c) handicrafts; d) fruit growing with a high level of activity; e) fruit growing with a low level of activity. In a complementary way, two financial models were elaborated for the investments made in the AS and the Seedling Nurseries.

353. The choice of the distribution of typical projects was made based on the Monitoring and Evaluation data and their effective implementation. The PROCASE projects of the activities selected for this exercise are representative of 86% of the total Productive Projects (PPs) financed and involve 91% of all families benefited by PPs (over a total of 2,930 families benefited by this type of investment).

354. From a financial point of view, most of the models analyzed have a positive rate of return. The models have an IRR that varies between 10.9% and 38.0%, with a NPV between R$ 311 (goat models) and R$ 583.015 (for intensified production fruit models), considering 10% of the factor financial discount. Not all projects achieved the desired impacts. In certain cases (in fruit production, for example), the rates of financial profitability were negative since the expected sales did not always materialize, especially in the current context, marked by the impacts of COVID-19.

355. Regarding the issue of family income, the various studies prepared by the Project in its last phase show the following partial results: a) 51% of the benefited families had a 20% increase in productive assets, with 24% of the families reached 150%; b) 66% of the families had an increase in agricultural or non-agricultural income; c) a 166% increase in net income was recorded in a sample of beneficiaries, considering the activities of goats and cattle (milk/meat), fruit growing, handicrafts, beekeeping and forage production; d) 68% of the projects studied were considered profitable; e) 75% of families reported increased production.

356. From the point of view of the ex-post economic profitability analysis, the Project's internal rate of return (IRR) was estimated at 12.4%, exceeding the economic discount rate defined at the time of drawing PROCASE, which was 4.2% below the IRR that was initially expected in the design (21.5%). The Project's total NPV was estimated at USD 12 million, with a benefit/cost (B/C) ratio of 1.75, which means that for each USD invested by the project, USD 1.75 of benefits are generated which is positive, although it is below the NPV estimated at USD 68 million in the PROCASE design. To obtain the total investment benefits, 70% and 80% rates of realization of the benefits were applied, and the calendar was adjusted following the annual physical realization of PROCASE. Economic profitability was also calculated for environmental actions. In this case, the economic IRR was estimated at 14.4%, and the calculated NPV of these shares was USD 1.34 million, with a benefit/cost (B/C) ratio of 3.6. The benefits of investments in solar energy, nurseries, and AS have been integrated here.

357. The overall results are less than the results obtained in the preliminary calculation of the Project design (done in 2010). Some of the causes of this are a) delays in the execution of the Project (which generated a delay in the realization of benefits), b) the smaller number of hectares and affected family and agro-industrial systems (which, in turn, may reflect an over-dimensioning of the design and also be a consequence of changes in strategy and investments during implementation); c) more significant investment in issues with less possibility of directly quantifying benefits (such as Emergency Plans that have an impact on water and fodder availability); d) the occurrence of the 'great drought', which accompanied the Project during most of its execution (which reduced the possibilities for rapid capitalization of benefits); e) changes in public policy priorities, including a significant decrease in the activities of the *PAA* and *PNAE* programs, restricted the possibilities of access to the market and the valorization of family farming products.

358. In addition, the Project sought to reach the poorest and most vulnerable families, prioritizing the social gain of the intervention without using the issue of profitability as an eligibility criterion. This may also have caused lower-than-expected economic returns. It was also necessary to dedicate considerable time to organize groups, which may have been the cause of the delay in the launch of the public notices and delayed implementation. The methodological tools (AS spreadsheets, training in economic results) arrived with the implementation process of the productive projects in progress. As a general criterion, PROCASE's priority was to execute, and it took advantage of IFAD's facilitation instances to analyze partial economic results based on the impact on

incomes. The use of results information was limited as it arrived after the major decisions had already been made.

359. So, in addition to the merit of reaching a larger than expected number of families with direct benefits and the diversification of sources of benefits, the previous elements add up to delays in realizing benefits today and the crisis (with a strong reduction in sales opportunities for agricultural products) caused by COVID 19 (in the years 2020 and 2021) resulting in the impossibility of valuing benefits over the Project´s lifetime. Details of this analysis are in Appendix 4. Project's internal ex-post rate of return.

360. Finally, other key indicators of the Project's efficiency were calculated. The first of these is the average cost per family, calculated at USD 1,490 (45% less than the design estimate). This general cost per family can be broken down into several costs according to the groups of beneficiaries, as shown in Table 26.

361. **Table 26 – Cost per beneficiary family for the main PROCASE activities**

Activity	**Cost per family (in USD)**
Productive Projects (PP)	1,001
Emergency Plan - Irrigated fields	878
Desalination technologies	540
Mechanized patrol	179
Dams (counterpart)	163
Technical Assistance (TA)	593
Solar energy (cooperatives)	1,292
Agroforestry systems (AS)	149

362. Two other Project efficiency indicators were also calculated. This is the management cost over total cost, calculated at 10% (which is above the estimate in the design, which was 6%); and c) Administrative cost per beneficiary, calculated at USD 146 (even lower than the estimated amount in the design at USD 537). Table 27 below provides a summary of the set of calculations for these other Project efficiency indicators.

363. **Table 27 – Other PROCASE efficiency indicators**

Indicator	**Design (PDR)**	**Completion (PCR)**	**Variation %**
Management costs/Total costs	6 %	10 %	+ 4 %
Operating costs/Total costs	20 %	10 %	- 10 %
Cost (general) per beneficiary family	USD 2,686	USD 1,490	- 45 %
Administrative cost per beneficiary family	USD 537	USD 146	- 73 %
IFAD cost per beneficiary family	USD 1,351	USD 930	- 31 %

364. The main lessons learned in the area of profitability and economic returns are a) the need to integrate the issue of profitability and financial and economic viability in the investment decision criteria (with studies, pre-investment plans, among others), especially when they have to do with the infrastructure; b) the need to improve M&E mechanisms with methodologies that allow the recording of information and the valuation and reporting of benefits (especially in the case of environmental and resilience benefits, together with activities to access water and forage and analyze the chains productive); c) the need to integrate the issue of profitability, the efficiency of interventions and the economic and financial returns (along with other data produced by the M&E system) when making decisions with real-time data, using the information generated in the planning of investments and implementing changes. Unfortunately, the use of this type of information was very low until 2018/19, and when the systems were implemented, they were no longer able to inform decision-making.

F. Partners' performance

F.1. IFAD's performance (Quality of supervision and implementation support)

365. IFAD performed satisfactorily throughout the PROCASE Project's cycle.

366. With PROCASE approved in October 2012, IFAD was assiduous in the processes of supervision and technical support, promoting systematic visits to the Project, discussing problems, limitations, weaknesses, and offering options for adjustments. During the execution of the Project, 20 missions were carried out, of which 12 were for support, seven for supervision, and one for completion, all between the years 2013 and 2021. Reports and memos demonstrate the search for understanding and reflect the harmony of between IFAD and the executors. IFAD provided the training of Project technicians in several areas and integrated PROCASE with other projects and programs supported in the Northeastern semi-arid region, with emphasis on the Semear Program and the Semear International Program.

367. After the Project's Midterm Review Mission, which took place in 2016, adaptations, budget adjustments, and schedule changes were made, supported by IFAD, and recorded in documents and meeting reports. In 2017 Missions were carried out to incorporate the activities of conventional dams within the scope of the Project's counterpart and the landmark meeting of IFAD, PROCASE, and the Governor to define the strategic activities for redirecting the USD 10 million IFAD resources in water infrastructure works. Support missions were important for reorienting the Project, such as the preparation of SECAP linked to investment in conventional dams in February 2017, in consultation with SEIMARH. The negotiation of new goals and indicators in the restructuring of

the Project in consultation with the Governor in June 2017 was also relevant. The oversight missions contributed to the systematization of the Project's good practices, the results of the water access programs, and the lessons learned regarding the different technical assistance approaches used by the Project.

368. IFAD understood the difficulties resulting from the context that resulted in the delay in the execution of PROCASE, and requests for extension of the closing deadline were extended to December 31, 2019, and then to December 31, 2020, with the Fund approval.

369. The preparation of this PCR had the technical support of IFAD, and the effort in closing the Project reflects the understanding and harmony that occurred during the entire execution phase.

F.2. Government's performance

370. The PCR concluded that the Government of Paraíba performed its work satisfactorily in the execution of PROCASE. Through the various secretariats involved in the Project implementation - SEDAP, SEAFDS, SEPLAG, SEIMARH, the Government of Paraíba was committed to the execution of PROCASE during all stages of the Project and contributed more than the agreed counterpart. The Project also innovated in the use of the Democractic Budgeting Platform, which consisted of monthly territory assemblies to brainstorm communities on their most pressing needs and incentivize them to submit investment applications. Surprised by a context of extreme gravity due to the prolonged drought that hit the semi-arid region during the execution, the Project new how to seek alternatives so that the implementation was not compromised by a lack of human and financial resources. Political instability with the change in the federal government initiated in 2014 had a negative influence on state finances. Still, in 2017 the state Government proposed a plan to accelerate the implementation of PROCASE by forming a task force together with SEPLAG and SEIRHMA, after a series of negotiations with IFAD to avoid the cancellation of part of the agreement.

371. Since the beginning of PROCASE, the state government has established five regional project management units, which strengthened the link with city halls and beneficiary organizations, achieving the integration of all key actors in the execution of the Project. The decentralized management of PROCASE, with the support of territorial collegiate bodies and city halls, was essential for fulfilling the goals.

372. PROCASE governance and social control bodies, such as the Project Steering Committee - PSC and the Executive Committee for Productive Investment Management - ECPIM, acted freely and independently, bringing transparency in the execution of the Project.

373. The State's control structure was always available to support the budgetary and financial execution of PROCASE and guarantee quality in the acquisitions and contracts made.

374. State institutions such as the Secretariat of Infrastructure and EMPAER played an outstanding role in obtaining the expected results, the first supporting the demands of the Emergency Program for water supply in the communities, the second providing technical assistance to beneficiaries, notably to the executors of the projects. Productive Projects and guaranteeing the participation of women, youth, and *quilombolas* in the Project. It is worth mentioning the support of the Secretariat of Water Resources to accelerate the execution of the Project through the conventional dams offered as a counterpart, which marked several IFAD missions throughout 2017.

375. The State's Secretariat for Planning and Management - SEPLAG, the Paraiba Research, Rural Extension, and Land Regularization Company - EMPAER, the State's Secretariat for Infrastructure, Water Resources, and the Environment - *SEIRHMA*, were partners in the execution of PROCASE. State's Secretariat for Women and Human Diversity - SEMDH, State's Secretariat for Youth, Sports and Leisure - SEJEL, and State's Secretariat for Human Development - SEDH.

376. The lead agency, first *SEDAP* and then *SEAFDS*, acted mainly through the Project Management Unit - PMU, altogether with the support of technical cooperation with IICA. The PMU was very efficient in using the PROCASE management tools for the Project's planning, execution, monitoring, and evaluation dimensions. In the planning, participatory methodologies were used with the collaboration of the beneficiaries and the insertion of the demands that served as a basis for the elaboration of the annual operational plans and the annual procurement plans. With the guidance of the AOP and APP, the execution made it possible to carry out the public notices, the hiring, and the management of the contracts, following the rules of the Government of Brazil, the Government of Paraíba, and IFAD recommendations. The PMU also celebrated agreements, prepared progress reports, studies, backed research, supported training, and prepared this PCR.

F.3. Other partners' performance (including co-financiers)

377. In the case of PROCASE, there were no co-financiers. However, the implementation of the Project counted on the contribution of several other partners. The main highlight on this point was the contribution of IICA, made possible through a technical cooperation contract, which facilitated the installation and implantation of the PMU and made it possible to carry out the hiring processes of technical personnel and goods and services to support the execution of the project. Project. This partnership was important, as it added IICA's experience with the management of international cooperation projects and enabled several studies necessary to guide the execution of PROCASE. It is also worth mentioning several other partners' technical and management contributions, which PROCASE can count on during its execution. As discussed in section D.2 (v), several state government agencies stand out (with SEIRHMA, EMPAER, SEPLAG, SEMDH, SEJEL, SEDH, and other Secretariats), several city halls, in addition to other initiatives and organizations (many of which have already been mentioned in this report) such as the Semear e Semear International Programs, INNOVA-AF, PROCASUR, INSA, Universities and Federal Institutes of Education.

G. Assessment of sustainability

378. The present Sustainability Assessment of the Project's activities and results seeks to observe whether the results obtained by the Project are sustainable. Thus, the Sustainability Assessment requires examining, among other factors, whether the results achieved will be consolidated, whether the infrastructure created will be maintained and keep functioning/producing, and whether the institutional capacity, which was built, will be preserved. Globally, the results of PROCASE must be analyzed in the various dimensions that can affect its sustainability. Considering that sustainability has several facets, it will be accessed from the following dimensions: social, technical, economic, environmental, political, and institutional. Overall, the project has built the foundation for a satisfactory level of sustainability by agreeing to: i) maintain core staff at SEAFDs to work as focal points for the PP and EP for 12 months after project completion; ii) promote linkages between the PP and the new World Banksupported project Cooperar, so that market access and product certification are strengthened after its completion; iii) take advantage of post-project activities with PROCASUR, INNOVA-AF, AKSAAM to strengthen support to beneficiaries; iv) maintain a high-level collaboration with the Secretariat of Water Resources to guarantee good maintenance of all water access infrastructure works.

379. The **political sustainability** of the activities supported by PROCASE is related to the state government's commitment to public activities/policies to support family farming in the productive, environmental, and social dimensions. In the implementation of its exit strategy, PROCASE articulated the continued support of several institutions that work with sustainable rural development for families, cooperative associations benefited by the Project. Among these, the governmental Rural Extension agency, some research institutions, and the Paraiba Sustainable Rural Development Project[43]. In the agreements made through this strategy, technical support is guaranteed for several groups that have benefited from PROCASE so that the initiatives implemented can be consolidated. In the case of the negotiations carried out with the Paraíba Rural Susainable Project, there is the prospect of directing some complementary investments aimed at the cooperatives with which the Project worked. Regarding public policies within the scope of the Federal Government, albeit to a lesser extent, several policies to support family farming remain in force. Among them, public purchases (PAA and PNAE) already cover several groups of PROCASE beneficiaries already . PRONAF's credit policies, as well as the national technical assistance policy and initiatives to support agricultural production by the Government of Paraíba, also remain in force, albeit diminished in their volume and dynamism. It is expected that the experience already acquired in this domain, the families served, and the agents that implement these policies will undertake activities aimed at the continuity and even the expansion of these families' access to policies. On the other hand, recognizing the success of several PROCASE activities may stimulate the agents that implement these and other policies to implement initiatives to disseminate PROCASE's most successful initiatives to other semi-arid areas. In this area, it is worth mentioning an initiative of this type by SEDAP, which formulated and obtained financing to revitalize the planting of forage palm, inspired by the work of PROCASE, to be implemented in 169 municipalities in the semi-arid region of Paraíba.

380. Seeking to strengthen the **institutional sustainability** of rural development and poverty reduction activities, PROCASE sought to develop the human resources capacities of state agencies, city halls, TA service providers, associations, cooperatives, and other key actors working in promoting rural development and reducing rural poverty in the semi-arid region. The level of capacity in the management of public policies, programs, and projects has grown, with more managers and technicians applying the knowledge acquired through the training and exchanges organized by PROCASE. These managers and technicians continue to work in their different institutions, strengthening their capacity for action in this area. Still in this dimension of broader institutional sustainability, the recent creation, by CEDRS, of the Gender Equality, Generations, Race, Ethnicity and Traditional Peoples Working Group, inspired by PROCASE's experience with its Targeting Working Group. This CEDRS's WG, responsible for monitoring and advising on the formulation and implementation of state public policies aimed at these audiences, is also an element of sustainability for sustainable development and poverty reduction activities. The Project also produced a series of documents, including systematizations of successful experiences, which should contribute to the strengthening and sustainability of existing experiences. Although simple knowledge about good practice is not always enough, it is hoped that these instruments can be a vector to disseminate good practices accumulated by the PROCASE experience. In another dimension of institutional sustainability, it should be noted that PROCASE worked hard to strengthen rural organizations (RO) in its area of operation. This allowed, in most ROs supported by PROCASE, an increase in associative members. As seen in section D.2 - ii (Human and

Social Capital), PROCASE's action also allowed more women and young people to be included in the management of activities, and the role of organizations in communities expanded. The participatory methodology for the elaboration and implementation of PPs was an interesting instrument in this sense of strengthening associations. It is possible to say that PROCASE leaves many organizations of the rural population more strengthened. However, it is also worth pointing out some weaknesses in this work. Assessments and 'listening to beneficiaries' during the final period of project implementation have shown a risk of sustainability for some organizations - especially associative ventures - that have failed to reach the end of their institutionalization process and need follow-up. It was also evidenced that the change in the methodology of participatory execution of the PPs to a direct execution in the activities of the Emergency Plans resulted in a smaller capacity of the ROs to manage their development. As mentioned above, PROCASE negotiated, with several agencies that work in the intervention region, as part of its exit strategy, a technical follow-up of several organizations seeking to make up for deficiencies that may appear.

381. Regarding **technical and social sustainability**, the participation of more than 30 thousand people and different social organizations in the different capacity development activities implemented by PROCASE allowed the beneficiary families to strengthen their technical skills and, in many cases, their management skills. At the same time, the technologies and new practices promoted by the Project are adapted both to the social reality and to the environment in which they are being used. Thus, the activities of Productive Projects and Emergency Plans were fully appropriated by families and communities. The activities, equipment, and knowledge referred to these initiatives came to belong to the communities, which assumed the different aspects of the management of these initiatives, benefiting from the product of these activities that guaranteed access to water and stimulated the generation of local income.

382. **Economic sustainability**. A particularly important part of the project's material investments and training activities were used to strengthen the productive capacity of the benefited peasant farming units. Thus, these resources made it possible to recover, stabilize and even expand production, as well as the volume and sales value, of these families in the areas of animal husbandry, fruit growing, beekeeping. In these cases, the studies carried out show the development of the production of these families. The specific effort to significantly increase access to water for these families is a very important risk mitigation factor, especially in the face of drought events that will surely occur in the future. However, risk mitigation does not mean its elimination. Therefore, in the future, there may be times when agricultural production in the PROCASE intervention area will be affected by the 'drought' factor. On the other hand, in some cases, investments were channeled to associative and cooperative ventures. The information gathered about the operation of these ventures at the time of the closing of the Project authorizes a prudent optimism regarding the sustainability of these businesses. As far as markets are concerned, for those producers who work with traditional markets (of animals, meat, fruit), there are no problems other than those that happen commonly (for example, seasonal price fluctuations) in the short and medium terms deadlines. Another part of these families has been able to sell their production in institutional markets (mainly PAA and PNAE). In this case, the prognosis is not so promising, as these programs have suffered in recent years with budget cuts and increasing bureaucratic obstacles that hinder the access of the neediest farmers.

383. PROCASE sought to ensure that the technologies and practices it promoted avoided degradation and, when possible, helped restore the environmental resources available in its region of operation, revealing the Project's concern with the environmental sustainability of its activities. A very important part of the investments made was directed to the collection, storage, and use of water, seeking to reduce the main environmental risk, which is drought. Although it is not possible to affim this risk was overcome, after the PROCASE intervention, the beneficiary families are in a situation of greater sustainability in this area. Another example is that of the technologies and practices sponsored to strengthen animal husbandry activities, which sought to reduce pressure on natural resources, especially the *Caatinga* vegetation, due to the increased productivity of crops and forages, with greater capacity for producers to feed their herds with the use of forage palm in an irrigated system. The support provided to the more intensive systems of raising goats and sheep has improved productivity with greater forage production, which has allowed to reduce the pressure of grazing on the *Caatinga* despite the greater number of animals per area. On the other hand, territorial planning studies were carried out around the medium-sized dams implanted to enable better planning in land use, mitigating impacts, and conserving natural resources over time. Monitoring and evaluating areas for the recovery of springs, legal reserves, and permanent preservation of the *Caatinga* may indicate the degree of commitment of the population to the maintenance of natural resources and confirm the environmental sustainability promoted by PROCASE. Another action that contributes to environmental sustainability was the spread of the use of solar and wind energy for irrigation and production of electric energy, and although it has no direct relationship with the decrease in the use of firewood, access to this form of renewable energy induces other coexistence activities with the semi-arid, such as the rational use of water, and the reduction of the consumption of 'conventional' electricity.

384. From what has been uncovered here, it is estimated that the benefits achieved by PROCASE will continue in most cases, mainly because of the good observed appropriation by the beneficiaries. However, there are factors or conditions (economic, environmental, governance) that may impose limitations for some of the initiatives in the future. Given this, the sustainability criterion is assessed as satisfactory.

H. Lessons learned and knowledge generated

385. **The change from execution by the ROs to a direct execution enabled the efficient implementation of the Project** but decreased the strengthening of human and social capital. Strengthening the human and social capital of the rural population has always been an important objective of PROCASE. In this sense, the choice to work with a participative process of identification, elaboration, and implementation of investment plans or projects in the productive activities (the PPs or Productive Projects) was initially constituted as the main pedagogical instrument for the development of the Project's capacities, mainly within the scope of strengthening the organizations of the population served. However, at the time of the Midterm Review, it was found that PROCASE had a long delay in implementation. At the time, it was assessed that the participatory method adopted in the PPs was 'slow' in implementation. Thus, the Project was led to abandon this form of action (of the PPs) to adopt a format that was called the Emergency Plan (EP). In this other format, investments started to be defined (in a top-down way) by the Project (PMU) and not by the community, and, in addition, the beneficiaries had little participation in the installation of the investments. The change in method had more than one consequence. On the one hand, these changes have positively affected the implementation (and disbursement) of PROCASE. On the other hand, it was found that the Emergency Plan method offered little space to work on the dimension of strengthening human and social capital. So, as a lesson, to highlight that the PROCASE experience shows that the methodological changes mentioned here certainly had a positive effect on the projects physical and financial implementation. Still, they were made at the cost of sacrificing processes that favor the strengthening of human and social capital. The (late) hiring of TA to work on the Emergency Plans mitigated, to some extent, this effect without being able to recover all the 'loss'.

386. **The importance of technical assistance for the successful implementation of a rural development project such as PROCASE.** Technical Assistance (TA) has been a highlight of sustainable development projects supported by IFAD in Northeast Brazil, being an element that should characterize their intervention strategy. PROCASE, in its original design, was fully aligned with this principle or guideline. However, for several reasons, the implementation of PROCASE took place, for a long time, without an AT service being put in the field. Indeed, the work with the PP started in the first year of implementation of the Project in 2013, but the TA for this line of work was only contracted in 2017. In the case of Emergency Plans, which started in 2015, there was the initial contracting, very insufficient, which lasted from February to December 2016. It was only in 2018 that the AT service for these initiatives was again contracted, this time in an appropriate format. In both cases, the project's own teams (PMU - RPMU) covered the initial advisory work to the extent of their reduced possibilities. All those involved in the implementation of PROCASE were able to verify thata satisfactory TA service fostered outstanding progress in the implementation of PPs and PEs, both in quantitative and qualitative terms (in execution). These improvements have led to results in terms of more production, more training, and more water security. Thus, PROCASE's experience with this TA matter is a confirmation of the correctness of the original guideline, which attributed a very important role to the provision of this service in a sustainable rural development project. At the same time, it serves as a warning to managers that failing to provide this service can lead to very important losses for the implementation of a project of this type.

387. **The integration of water activities with productive projects** (mainly for a region such as the Brazilian semi-arid region). The 2012-2019 'great drought' crisis made it very clear what could be considered underestimating the 'water issue' in the Project's design. In the original document, the theme was mentioned, but it was a sub-component of a subcomponent with a very small budget. PROCASE's response to the crisis was an important readjustment of the design, which significantly expanded the budget dedicated to the issue and also incorporated a series of technologies/investments that had not been initially foreseen, such as tubular wells (as a proposal for wide application) small, irrigated areas (with appropriate irrigation systems), medium-sized dams. The work done by PROCASE in the context of the 'water issue' has shown that this type of investment can have a very important impact not only on 'quality of life' (providing more water for human consumption, for example) but also on the productive activities of families served (with more water for herds and the possibility of installing small, irrigated areas, citing another example). For a public of policy/project managers and formulators, this PROCASE experience had a repercussion on two levels. Firstly, it provoked a review of the way of analyzing the 'water problem' when thinking about 'projects' for contexts like the northeastern hinterland. Concomitantly, it also modified the range of 'available' responses for inclusion in policies/projects. The conclusion of this 'changeround' has been the recognition that it is indispensable and technically and economically possible to make more investments in terms of harvesting, storing, accessing, and sustainably using water resources in this type of project.

388. **The establishment of women's groups as a methodological strategy for the strengthening of a collective identity of female farmer-entrepreneurs and female farmer-activists** In the communities supported by PROCASE, where groups of women exist, they become more active social and political subjects and are involved in organizational processes. When women's groups are articulated, they strengthen and expand organizational capacities in several aspects: self-organization, training, marketing, and the conquest of public policies and social rights. The results are visible: women can have more democracy in community associations and take up decision-making positions, such as the presidency and treasury of associations. In the PP of groups of women, they manage to be protagonists participating in the production and commercialization, while in mixed PPs where these groups do not exist, the participation of women-only occurs in an adjuvant way. In the public policy domain, these groups of women are more active in the demands for their community, such as health center and regular doctors, schools and school transportation for children, community participation in the Orçamento Cidadão (Participatory Budget), among others. In this perspective, the lesson to highlight here is that developing a strategy of forming groups in the communities that are intended to support, to discuss specific issues of women, such as health, violence, democratic participation in the management of associations, and productive project for women, is of paramount importance as a tool for women's empowerment. After the constitution of the group in the community, it is necessary to prolong this line of work, seeking to articulate the groups created with the civil society present in the region where the project operates and connecting with other women's organizations existing in the territory. This process favors the formation of a collective identity of female farmer-activists and female farmer-activists.

389. **Project management can become mechanisms for the transversality of rural development policies**. In 2017 PROCASE created its Targeting Working Group (WG), composed of representatives of the PMU and the territorial coordinators of the project (RPMUs), and also made up of representatives of contracted technical assistance organizations and with the participation of farmers and young people[44], to support and monitor the gender activities carried out by the TA and, at the same time, developing strategies and instruments to ensure the mainstreaming of the gender focus in the set of the Project's activities. This Targeting WG, with systematic meetings, reflective and operative, served as a space for learning and analyzing practices related to the execution of productive projects and the level of inclusion of priority groups, that is, women, *quilombolas,* and youths, in the interventions carried out. Based on the successful experience of the PROCASE Targeting WG, in March 2021, the State's Council for Sustainable Rural Development (CEDRS) permanently instituted the Gender Equality, Generations, Race, Ethnicity, and Peoples Working Group (WG). This new WG, with a broader scope, has as its main competencies the follow-up to the formulation and the monitoring of the implementation of official programs for these groups, the promotion of studies and debates on relevant themes for the implementation of activities aimed at these groups, and propose guidelines for monitoring policies for gender equity, generations, race, ethnicity and for traditional peoples, in the sustainable rural development of the State, among others, enriched by the participation of technical teams and later expanded with the presence of multiplying farmers and young scholarship holders, it is no longer a merely operative instrument to transform itself into a strategic mechanism for the transversality of gender activities in the State's rural development policies.

390. **A single M&E system as an alignment platform and comparison tool between IFAD projects** The Data FIDA system was developed after a formal expression of interest by representatives of the Government of Brazil through the Forum of Secretaries of Northeast Brazil in 2016. It consists of an integrated system for monitoring and managing projects, developed by the Semear International Program, in partnership with projects supported by IFAD in Brazil, able to aggregate and process information related to the physical and financial execution of the projects, including baseline data, midterm assessment, and impact assessment, serving as an important operationalization tool, monitoring, and evaluation of the activities taken. The Data

391. IFAD structure allows the interfaces of the six projects currently underway in Brazil to be aggregated, allowing a global view of the IFAD portfolio, which can be accessed in real-time. In addition, it allows the import of several files, including good practices, with access to the general public. In PROCASE, Data FIDA was implemented from 2020 after the training received by the PMU, resulting in the storage of all the data of beneficiaries interviewed both in the baseline. The impact assessment data is expected to be loaded soon. The Data FIDA system facilitates information sharing with partner institutions, internal and external, for example, to facilitate analysis by IFAD's RIA (Division of Research and Impact Assessment), to do comparative exercises with databases of other projects. Based on Brazil's pioneering experience, the DataFIDA application will be used as the main MIS (or Information Management System) for the Malawian portfolio, to be applied in 10 more countries.

I. Conclusions and recommendations

392. **During its implementation period, PROCASE acted in the context of an economic crisis in the country, an environmental crisis in the semi-arid region, and a general health crisis (from COVID 19) in its last year**. Firstly, there was the 'great drought' that lasted from 2012 until the end of 2019. On the other hand, from 2015 onwards, Brazil entered a period of economic and political turbulence, which manifested itself in an important fall in economic activity. The concomitant political crisis led to a change in the Presidency and promoted a turnaround in the scope of public policies aimed at supporting Family Farming and poverty reduction. Finally, at the beginning of 2020, the COVID 19 pandemic took place, which created all sorts of difficulties for the Project and for beneficiary. The combination of these crises - environmental, economic, political, and sanitary - had an extremely negative effect, particularly in the region where the Project operates. However, this PCR showed that the impact of PROCASE was strong enough to mitigate a good part of these negative effects, promote an increase in the production, volume, and value of the product sold, and access to markets for its beneficiaries.

393. **PROCASE experienced setbacks in its initial management, which had an impact on its implementation** In its first four years of life, the Project dealt with numerous management difficulties. The result of this was a considerable delay in implementation. As a result of this lateness, at the time of the MTR in December 2016, there were relatively few PPs identified and insured, and the execution of those insured was slow. This delay, in itself, has already affected the economic results of the projects since many of the financed productive initiatives are only beginning their productive cycle in the final moments of the Project.

394. **The 'big drought' crisis caused alterations in PROCASE's priorities and way of performing** When PROCASE joined the state government's Emergency Plan, it changed its profile in two aspects. On the one hand, it concentrated its services (investments and TA) around the theme of the collection, storage, access, and use of water. Although these investments are not disconnected from production, the strengthening of productive activities was secondary. At the same time, the Project modified its implementation methodology, replacing decentralized execution with direct execution.

395. **The alterations had a beneficial effect, allowing for a recovery in the implementation of PROCASE, and meeting the higher demand of the target population** The problems faced by the Project caused changes in its implementation. On the one hand, there was a change in the Project's coordination team. On the other hand, the adhesion to the Emergency Plan caused a concentration of investments in the water theme and brought with it a centralized execution of investments. These changes had a very positive effect on the pace of implementation, which accelerated significantly from 2017.

396. **PROCASE achieved positive economic results.** The impact assessment showed that rural agricultural and non-agricultural businesses had a 166% increase in income, compared to the 20% expected in the design. About 20% of the beneficiaries had access to new markets through the Project, and the value of the products sold grew at rates above 10% per year. A more detailed analysis of the main production models supported by the project showed that most of the models analyzed have positive profitability (IRR between 10 and 38%). But the cost-benefit analysis carried out at the close showed that most of the investments had not reached a level of maturity that would allow the full expression of the expected benefits. Thus, the overall results in this item are somewhat less than the expected results (compared to the preliminary design calculation, mainly due to delays in the execution and realization of benefits). In this assessment, it must be considered that there were already delays in implementation and a decrease in economic activity caused by the COVID 19 in 2020 and 2021, resulting in the impossibility of valuing rapid benefits over the life of the project.

397. The results that were presented in this PCR show that PROCASE obtained increases in production, volume, and sales value, and consequently, in income for the beneficiary families. The impact survey showed that households achieved significant increases in production on the most important products. These gains were translated into an increase in the agricultural economic activity of the families. This growth allowed a gain in family income (a variation, in nominal terms, of + 22% comparing the year of 2019 with 2015). On the other hand, this same study says that in the communities worked by PROCASE, the number of families living in conditions of poverty fell by almost 6% in the same period.

398. **The prioritization of the water issue in the PROCASE action led to a certain change in the profile of the investments made and the results obtained** The increase of water sources in the communities served made it possible to meet an urgent need for families, which is not directly related to the increase in production and income, which had not been taken into account in the Project's design. In the meantime, it has contributed decisively to the water and food security of a significant number of beneficiaries. This result is the one that is most aligned with the purpose of supporting families in the process of adapting to climate change.

399. **Although the primary intention is to guarantee domestic supply, Project's water theme investments were not dissociated from the productive issue** In the case of PROCASE activities, all installed water sources (wells, dams, desalination plants, and others) are related, for example, to the watering of herds. Having safe water source for your animals is an element that increases the resilience of this productive system.

400. In this dimension of the relationship between the new water sources and the production domain of the families, we will highlight here the work of implanting the irrigated fields, which initially were to produce forage palm, but which quickly diversified. In this case, it is quite easy to identify the relationship between this 'technology/practice' installed thanks to the Project, and its important productive potential, whether with fodder or with food crops (grains, fruits) and even with wood species. As already mentioned, the scale on which this proposal was worked (more than 660 'fields', covering approximately 390 hectares) was an innovative fact. These fields have already produced a significant amount of forage, enough to maintain a herd of more than 30 thousand small ruminants, in addition to the other products of which there is no precise measure.

401. **PROCASE's adoptions in terms of technologies - good practices in the different dimensions of its intervention were the main instruments used to preserve environmental resources**. This means that the implementation of sustainable productive systems was the main instrument of action in preserving and restoring these resources. Whenever possible, PROCASE relied on the principles of agroecology to better choose the technologies - good practices with which it worked. Other instruments, such as environmental training and normative adaptation activities, were also used. Investments in photovoltaic energy were also part of this list of instruments for the good management of environmental resources.

402. **The quality of the work carried out and the results obtained by PROCASE in the scope of the search for gender equity and women's empowerment is an outstanding point** The Project carried out intensive work of raising awareness and training on the topic, involving its team, the teams of several partner entities, and the beneficiary public (including women and men

here). A first concrete result of this effort can be seen in the importance that women have as direct beneficiaries of the services offered by the Project, whether they are training, exchanges, and investments. As an example of this, the 2,930 families benefiting from the PPs' line of action, in 1,260 cases (43%), women are the projects' owners. Of the 97 PPs approved and implemented, 23 went to groups formed exclusively by women. In terms of training, the Project took special care to ensure the broad participation of women in these events. This constant effort in terms of guaranteeing access to opportunities has had important effects improving women's quality of life. Thus, women who did not leave home before started to participate in community activities or outside the community. Reports were collected on families in which there was a more equitable redistribution of domestic work. From this, it is possible to conclude that PROCASE contributed significantly to boost gender equity and women's empowerment by strengthening their personal and technical capacities, translating into significant changes in their lives.

403. The recommendations that follow are based on the PROCASE experience and refer to aspects of action methodology, operational capacity, and focus.

- The strengthening of the productive systems of the families to be served was and will continue to be, a pertinent starting point to guide the action of sustainable development projects in a context such as that of the Brazilian semi-arid region.
- The provision of resources for investment and training/technical assistance to obtain this strengthening of the productive systems, which were the activities that guided the PROCASE intervention, continues to be a necessity.
- Within the framework of this provision of resources and TA, in a context such as the Brazilian semi-arid, it is important to give ample space to strengthen the water systems of families, communities, and even territories, when necessary.
- It is crucial to think about the process of strengthening productive systems from a sustainability perspective. This means that the sustainable management of environmental resources begins with the sustainability of productive systems.
- The participatory method of identifying, elaborating, and implementing Productive Projects, which allow more accurate identification of the needs and potential of the families and communities served, has interesting advantages. But, on the other hand, it presents operational challenges. Therefore, it is recommended to seek an action format that ensures greater participation by the beneficiary public and, at the same time, allows for a smooth execution.
- PROCASE experience has shown how important it is to count on a qualified TA service in the execution of a project of this type. It is necessary to allocate resources in an appropriate amount already in the design phase and ensure the provision of this service during the execution of the project.
- Greater gender equity will not be achieved spontaneously. Therefore, future projects should develop an active promotion of equity within the framework of the project, providing the necessary human and financial resources for this.
- Serving audiences who need support but who spontaneously find it more difficult to be benefited - such as women, 'traditional communities' or young people - requires that a development project has specific instruments and acting methods that allow it to arrive at these audiences. PROCASE's work with women and *quilombolas* and the results obtained from these audiences point in this direction.
- Effective and efficient implementation of a project like PROCASE requires a qualified team (PMU). Within this framework, it is necessary to structure an administration sector that understands the various management dimensions (acquisitions, financial management, and others).Furthermore, it is also important to structure a sector dedicated to monitoring and evaluation and ensuring a computerized M&E system since the beginning of the Project's operationalization.

Footnotes

[1] Source: https://www.ibge.gov.br/cidades-e-estados/pb/.html

[2] Source: IBGE. **Censo Demográfico 2010. Características da população e dos domicílios**. Rio de Janeiro: IBGE, 2011.

[3] The definition poverty used in the 2010 Census is equivalent to a per capita income of R$ 128.00 per month (or USD 2.40/day, based on the exchange rate at the time). This 'poor' social group also includes the subgroup of 'extreme poverty' families, which are those who have a monthly per capita income of half the previous figure.

[4] Source : https://sidra.ibge.gov.br/tabela/1161

[5] MONTENEGRO, A. A.; MONTENEGRO, S. M. G. Olhares sobre as políticas públicas de recursos hídricos para o semiárido*In*: GHEYI, H. R; SILVA PAZ, V. P, *et al* (Ed.). **Recursos hídricos em regiões semiáridas**. Campina Grande, PB e Cruz das Almas, BA: Instituto Nacional do Semiárido e Universidade Federal do Recôncavo da Bahia, 2012. p. 2 – 27.

[6] MARENGO, J. A. **Mudanças climáticas globais e seus efeitos sobre a biodiversidade: caracterização do clima atual e definição das alterações climáticas para o território brasileiro ao longo do século XXI** Brasília: MMA, 2007. 212 p. (Série Biodiversidade).

[7] IBGE. ***Censo Demográfico 2010. Características da população e dos domicílios*** Rio de Janeiro: IBGE, 2011.

[8] IFAD; GOVERNO-DA-PARAÍBA. Working Paper 1 - Rural Poverty in Paraíba (*Contexto Geral, Análise da Pobreza Rural e Foco do Projeto*). SI: IFAD 2009.

[9] IBGE. ***Censo Agropecuário 2006. Agricultura familiar. Primeiros Resultados***. Rio de Janeiro: IBGE, 2009. 267 p.

[10] MEDEIROS, A. M. T. d.; BRITO, A. C. d. A seca no Estado da Paraíba – Impactos e ações de resiliência. **Parcerias Estratégicas**, 22, n. 44, p. 139 - 154, 2017.

[11] *Idem*.

[12] Source: http://www.aesa.pb.gov.br/aesa-website/monitoramento/volume-diario/?tipo=atual

[13] SAMBUICHI, R. H. R.; ALMEIDA, A. F. C. d.; PERIN, G.; SPÍNOLA, P. A. C*et al.* O Programa de Aquisição de Alimentos (PAA) como estratégia de enfrentamento aos desafios da COVID-19. **Revista de Administração Pública**, 54, n. 4, p. 1079 - 1096, 2020.

[14] Source: https://noticias.uol.com.br/cotidiano/ultimas-noticias/2021/02/04/cisternas-sertao-nordeste-queda.htm#:~:text=Cotidiano-,Maior%20programa%20para%20armazenar%20%C3%A1gua%20no%20sert%C3%A3o,de%2094%25%20em%20seis%20anos&text=O%20n%C3%BAmero%20de%20cisternas%20constru%C3%A

[15] The total population of the 56 municipalities in the PROCASE area was 424,225.

[16] The (official) delimitation of poverty used in the 2010 Census is as follows: 'poor' is a family that has a monthly per capita income of less than ¼ of the Minimum Wage (R$ 510.00). Thus, this threshold was a per capita income of R$ 128.00 per month. For the value of the US dollar at the time, this amount corresponded to USD 73.00/month or USD 2.40/day. This definition of poverty also includes families in extreme poverty, who are those who have a monthly per capita income of up to 1/8 of the Minimum Wage.

[17] The target was 10,000 children (from rural families living in the Project area) benefited from "environmental education" programs and 150 teachers would be trained for this purpose.

[18] Data updated on March 4, 2021.

[19] The Paraíba Handicraft Program - PAP - created by government decree in 2003 is an initiative to promote Paraíba's handicrafts, as an economic segment for generating opportunity, work and income, as well as a strategy for cultural preservation of the typical and traditional work of our artisans. state. Source: https://pap.pb.gov.br/.

[20] The Fome Zero (Zero Hunger) Program (PFZ), launched by the federal government in 2003, gives priority to reducing hunger, malnutrition, and extreme poverty. PFZ adds a multisectoral approach to fighting hunger and systematically seeks ways to reduce the vulnerability of the rural population and ensure access to food.

[21] Bolsa Família is an instrumental tool of the Zero Hunger Program and consists of direct income transfers to families registered in the federal government's Single Registry for Social Programs. The initiative is aimed at poor or extremely poor families, who occupy a monthly income range of up to R$ 178 per person.

[22] PAA and PNAE are two government programs for public procurement. In both cases, purchases are made locally, and have a positive effect on household income and on the development of family farming.

[23] In fact, PROCASE drilled 576 tubular wells. But unfortunately, 161 of these wells were dry or with insufficient flow. On the other hand, the Project recovered and equipped another 98 tubular wells. Thus, a total of 513 tube wells in full operation were delivered to the communities.

[24] In addition to the impact assessment, the following studies were also carried out:*"Análise descritiva, econômica e financeira de 27 (vinte e sete) Projetos Produtivos" (2020); "Relatório da sistematização e análise das entrevistas realizadas com os beneficiários dos Dessalinizadores" (2020); "Avaliação dos Campos Irrigados" (2020)*.

[25] Data on child obesity are corroborated by nutritional data from the Ministry of Health's Primary Health Care Secretariat.

[26] The municipalities of Monteiro, Camalaú, Sumé, Congo, Caraúbas, Barra de São Miguel, São Domingos do Cariri, Cabaceiras, and Boqueirão were contemplated.

[27] WEITZMAN, R. Resultados do diagnóstico em gênero dos projetos apoiados pelo FIDA no Brasil. Brasília: Fundo Internacional de Desenvolvimento Agrícola (FIDA), 2017.

[28] Source: https://www.procase.pb.gov.br/single-post/2020/08/27/semin%C3%A1rio-estadual-apresenta-os-resultados-das-cadernetas-agroecol%C3%B3gicas-na-para%C3%ADba

[29] The National Institute for Space Research (INPE) has regularly provided the Brazilian government with regional climate scenarios based on global climate models..

[30] CONFALONIERI, U. E. C.; LIMA, A. C. L.; BRITO, I. F. Social, environmental and health vulnerability to climate change in the Brazilian Northeastern Region. **Climatic Change**, 127, p. 123 - 137, 2014

[31] Source: https://www.ecmwf.int/sites/default/files/elibrary/2017/17547-annual-report-2016.pdf.

[32] Source: https://www.chc.ucsb.edu/data.

[33] This number includes 415 viable wells dug by PROCASE and more 98 pre-existing wells that were equipped by the Project.

[34] *Cacimbões* (also called *Amazon* wells) are shallow wells that explore surface water tables, often alluvial.

[35] It is estimated that, on average, 150 liters of water are needed per day to meet the most pressing needs of a home in terms of consumption and basic hygiene.

[36] The Rural Environmental Registry (CAR) is a public register of the Ministry of the Environment, whose purpose is to relate environmental information on rural properties and possessions to monitor and carry out environmental planning.

[37] Crop-Livestock-Forest Integration (CLFI).

[38] The companies that installed the solar panels monitor online the performance of the equipment installed in the cooperatives. Using specific software, this monitoring calculates the equivalence between kWh generated, carbon footprint and the number of trees planted. As. <https://www.solarweb.com/> and also <https://monitoramento.sicessolar.com.br>.

[39] Source: “Aumentando a resiliência climática e combate à pobreza rural por meio de ações emergenciais de combate à seca: o caso dos sistemas agroflorestais no Procase”. Leonardo Bichara Rocha, Thiago César Farias da Silva, Donivaldo Martins. CEPAL. 2020.

[40] PETERSEN, P.; SILVEIRA, L. M. d.; ALMEIDA, P. Ecossistemas naturais e agroecossistemas tradicionais no Agreste da Paraíba: uma analogia socialmente construída e uma oportunidade para a conversão agroecológica. *In*: PETERSEN, P.; SILVEIRA, L. M. d, *et al* (Ed.). **Agricultura familiar e agroecologia no semiárido: avanços a partir do Agreste da paraíba**. Rio de Janeiro: AS-PTA, 2002. p. 13 - 122.

[41] Sustainable Development Project for Communities in Semiarid Areas (PRODESZA).

[42] UNOSCC. Good Practices in South-South and Triangular Cooperation for Sustainable Development - Volume 3. September 2020.

[43] The Paraiba Sustainable Rural Development Project is co-financed by the World Bank to support sustainable rural development, bearing certain similarities with PROCASE.

[44] In the last year of the Project, the WG was expanded to include 4 female farmers leaders and 5 young scholarship holders.

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Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 1: Project logical framework

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Logical Framework

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
Outreach	1 Persons receiving services promoted or supported by the project							Project M&E System	Annual	Project M&E Unit	
	Females	0		9 250	**699**	**11 858**	**128.195**				
	Males	0		9 250	**902**	**12 555**	**135.73**				
	Total number of persons receiving services	0		18 500	**1 601**	**24 413**	**131.962**				
	1.a Corresponding number of households reached							Project M&E System	Annual	Project M&E Unit	
	Households	0		18 500	**1 601**	**24 413**	**132**				
	1.b Estimated corresponding total number of households members							Project M&E System	Annual	Project M&E Unit	
	Household members	0		74 000	**6 404**	**97 652**	**132**				
	Groups that receive services promoted or supported by the project							Project M&E System	Annual	Project M&E Unit	
	Groups	0		766	**85**	**792**	**103.4**				
	Communities that receive services promoted or supported by the project							Project M&E System	Annual	Project M&E Unit	
	Communities	0		766	**85**	**792**	**103.4**				
Project Goal Development of rural economy of the semi-arid region of Paraiba and a poverty reduction of the poor rural families	Households with improvements in household assets ownership index (00.00.01.01)							Project Baseline Survey; · Mid-term and final results and impact evaluation; · National statistical data (IBGE)	End of Project	RIA	
	Increase in household assets ownership index	0		20	**51**	**51**	**255**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Reduction in the prevalence of child malnutrition, by gender (h/a, w/a, w/h) (00.00.02)							Project Baseline Survey; · Mid-term and final results and impact evaluation; · National statistical data (IBGE)	End of Project	RIA	
	Reduction of child malnutrition	0		10	**0**	**0**	**0**				
Development Objective Project beneficiaries in Paraíba's semi-arid region sustainably improved their farm and off-farm income, productive assets, organizational capacities and environmental practices	Beneficiary households increased farm and off-farm income by 20% (75%) (00.00.04)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	Land access and tenancy facilitated by GOB; Social infrastructure continue to be provided by the GOB; Targeted markets absorb incremental production; Policies to strengthen public extension services maintained.
	Households	0		13 875	**16 283**	**16 283**	**117.355**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Annual volumes and sales of marketed products supported by the project (00.00.05)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	
	Increase of annual volumes and sales	0		10	**13**	**13**	**130**				
	Increase in net revenues of the small agricultural and non-agricultural businesses supported by the project (00.00.06)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	
	Increase of net revenues	0		20	**166**	**166**	**830**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Small agricultural and non-agricultural businesses supported by the project are operational and profitable after three years (00.00.08)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	
	Small businesses	0		72	**67**	**70**	**97.2**				
	2.2.1 New Jobs created from economic activities supported by the Project (00.00.11)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	
	Jobs	0		4 300	**1 560**	**1 560**	**36.3**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Benefited producers' organizations participate in territorial forums and councils (00.00.12)							Local business register; Project Baseline Survey; Mid-term and final evaluation; Project's Management Information System; Co-executing agencies' reports; Systematizations of experiences; Specific studies on local economic activities; Participative beneficiaries' evaluations; National statistical data (IBGE); Labour information system	Annual	Project M&E Unit	
	Producers' Organizations	0		72	**0**	**55**	**76.4**				
Outcome C1. Project beneficiaries and their organizations receive continuous and specialized technical assistance.	People trained through workshops, seminars and exchanges and similar activities (01.01.04)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Householders	0		4 500	**0**	**7 591**	**168.689**				
	1.2.1 Households reporting improved access to land, forests, water or water bodies for production purposes							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households reporting improved access to water			60	**0**	**680**	**1 133.3**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	1.2.2 Households reporting adoption of new/improved inputs, technologies or practices							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households			60	**75**	**75**	**125**				
	1.2.3 Households reporting reduced water shortage vis-à-vis production needs							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households			30	**0**	**38**	**126.7**				
	1.2.4 Households reporting an increase in production							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households	0		60	**88**	**88**	**146.7**				
Outcome C2. Productive Development and Access to Markets. Small producers access to technical assistance and financial resources to improve agricultural and no-agricultural production	Productive projects supported (02.01.03)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Productive projects	0		90	**0**	**97**	**107.778**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Communities benefitted with water access and forage plans (02.01.04)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Communities	0		766	**0**	**792**	**103.4**				
	Families benefitted with emergency drought plans (02.01.01.03)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households			6 760	**495**	**5 565**	**82.3**				
	2.2.3 - Percentage of rural producers' organizations engaged in formal partnerships/agreements or contracts with public or private entities							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households	0		50	**39**	**39**	**78**				
	2.2.4 - Percentage of supported rural producers' organization members reporting new or improved services provided by their organization							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households	0		30	**88**	**88**	**293.3**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
Outcome C4. Institutional Strengthening. Rural institutions supported to strengthen their capacities regarding provision of technical assistance and implementation of rural development policies in the semi-arid region	SF.2.1 Households satisfied with project-supported services							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households (%)			60		**80**	**133.333**				
	SF.2.2 Households reporting they can influence decision-making of local authorities and project-supported service providers							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households (%)			60		**75**	**125**				
Outcome C5. Project management, monitoring and evaluation. Effective project management unit established and operational	Satisfactory M&E system for both physical and financial supervision							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Satisfactory M&E system	0		7	**0**	**7**	**100**				
Output C1. Project beneficiaries and their organizations receive continuous and specialized technical assistance	Young rural people (50% women) receive scholarships (US$ 400) to participate in technical and business trainings (01.01.01)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	SECTA establishes the necessary partnerships to implement the programme; programmes of technical assistance respond to the needs of the market.
	Young	0		1 200	**0**	**431**	**35.917**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Young people (at least 25%) are trained to develop Business Plans (01.01.01)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Anualn	Project M&E Unit	
	Young	0		1 200	**340**	**771**	**64.3**				
	Women Young rural people receive incentives (US$ 400) to develop business plans (01.01.01)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Young	0		600	**0**	**215**	**35.8**				
	1.1.4 Persons trained in production practices and/or technologies							M&E System	Annual	Project M&E Unit	
	Men trained in crop			8 100	**5 406**	**5 406**	**66.7**				
	Women trained in crop			5 400	**2 185**	**2 185**	**40.5**				
	Young people trained in crop			675	**58**	**58**	**8.6**				
	Total persons trained in crop	0		13 500	**7 591**	**15 182**	**112.5**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
Output C2. Productive Development and Access to Markets. Small producers supported to increase their production and productivity, improve the quality of their products and their commercialization capabilities	Farmers, miners and artisans (organized in associations and cooperatives) are benefited by technical assistance and training to strengthen their organizations (02.01.01)							M&E System	Annual	Project M&E Unit	SECTA establishes the necessary partnerships to implement the programme; programmes of technical assistance respond to the needs of the market.
	Producers	0		11 600	**1 642**	**9 250**	**79.741**				
	Associations and Cooperatives develop two cooperatives to provide marketing services and technical assistance to their members (02.01.02)							M&E System	Annual	Project M&E Unit	
	Cooperatives	0		2	**0**	**0**	**0**				
	2.1.3 Rural producers' organizations supported							M&E System	Annual	Project M&E Unit	
	Rural POs supported	0		90	**7**	**97**	**107.8**				
	Total size of POs	0		4 000	**929**	**2 930**	**73.3**				
	Females	0		2 000	**1 465**	**1 465**	**73.3**				
	2.1.4 Supported rural producers that are members of a rural producers' organization							M&E System	Annual	Project M&E Unit	
	Total number of persons	0		4 000	**929**	**2 930**	**73.3**				
	Males	0		2 000	**465**	**1 465**	**73.3**				
	Females	0		2 000	**464**	**1 465**	**73.3**				
Output C2. Productive Development and Access to Markets. Small producers access to technical assistance and financial resources to improve agricultural and no-agricultural production	Local Development Agents supervised by technical assistants							M&E System	Annual	Project M&E Unit	SECTA establishes the necessary partnerships to implement the programme; programmes of technical assistance respond to the needs of the market.
	ADL	0		200	**0**	**0**	**0**				
	Artisans receive technical assistance and financial resources to develop their businesses (02.02.06)							M&E System	Annual	Project M&E Unit	
	Women	0		446	**0**	**432**	**96.9**				
	Rain-Water Storage facilities built or restored (02.02.07)							M&E System	Annual	Project M&E Unit	

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Facilities	0		860	**45**	**862**	**100.2**				
	Farm and off-farm businesses supported with better access to markets (02.02.05)							M&E System	Annual	Project M&E Unit	
	Businesses	0		36	**0**	**36**	**100**				
	Small producers trained in production practices and/or technologies (02.02.01)							M&E System	Annual	Project M&E Unit	
	Producers	0		14 000	**1 304**	**10 076**	**72**				
	Females	0		40	**0**	**48.8**	**122**				
	Females - Head of Household	0		20	**0**	**20**	**100**				
	Families Benefited by the construction of dams for human supply and production. (02.02.09)							M&E System	Annual	Project M&E Unit	
	Males	0		3 500	**0**	**4 517**	**129.1**				
	Females	0		3 500	**0**	**5 505**	**157.3**				
	Total	0		7 000	**0**	**10 022**	**143.2**				
Output C3. Natural resources management and mitigation of desertification. Sustainable management of natural resources promoted, including techniques and knowledge to mitigate desertification process	3.1.4 Land brought under climate-resilient practices							M&E System (00.00.09)	Annual	Project M&E Unit	Government keeps policies of participation and legislation.
	Hectares of land	0		225	**254**	**706**	**313.778**				
	Public servants and agents of local development (80%) are trained in techniques and natural resources management (03.01.03)							M&E System	Annual	Project M&E Unit	
	Men	0		60	**0**	**60**	**100**				
	Women	0		60	**0**	**60**	**100**				
	Producers trained and financed to establish 450 ILPF systems (03.01.01)							M&E System	Annual	Project M&E Unit	
	Producers	0		450	**331**	**899**	**199.8**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Agroforestry systems installed							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Agroforestry systems	0		480	**75**	**568**	**118.3**				
	Families benefiting by accessing solar energy generation systems installed in the production beneficiation units (03.01.02.02)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Households	0		400	**383**	**881**	**220.3**				
	Childrens and Teachers from rural area are benefited by the "environmental education" programme							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Young	0		10 000	**300**	**355**	**3.6**				
	Young rural people trained in sustainable rural development (01.01.01.02)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Young	0		3 700	**0**	**1 552**	**41.9**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
Outcome C3. Environmental Sustainability	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices										
	Households			60		**75**	**125**				
	3.2.3 Households reporting a significant reduction in the time spent for collecting water or fuel										
	Households			50		**53**	**106**				
Output C4. Institutional Strengthening. Rural institutions supported to strengthen their capacities regarding provision of technical assistance and implementation of rural development policies in the semi-arid region	Families receive technical assistance from institutions (04.01.02)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	Government keeps policies of participation and legislation.
	Families	0		15 200	**1 181**	**11 750**	**77.303**				
	Development experiences systematized (04.01.03)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Experiencies	0		5	**1**	**5**	**100**				
	Workshops organized (04.01.04)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Workshops	0		6	**3**	**5**	**83.3**				

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Small producers representatives are trained in issues of rural development (04.01.05)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Representatives	0		50	**0**	**50**	**100**				
	1.1.3 Rural producers accessing production inputs and/or technological packages							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Females	0		7 600	**286**	**11 293**	**148.6**				
	Males	0		7 600	**286**	**11 290**	**148.6**				
	Total rural producers	0		15 200	**572**	**22 583**	**148.6**				
	Animals distributed to improve the genetic patterns (goats and sheep) (02.02.08)							Mid-term and final evaluation; Project's MIS; Co-executing agencies' reports; Systematization of cases; Documents produced; Participative beneficiaries' evaluations	Annual	Project M&E Unit	
	Animals	0		1 000	**0**	**3 936**	**393.6**				
Output C5. Project management, monitoring and evaluation. Effective project management unit established and operational	Regional Desks created and working (URGPs) (05.01.01)							M&E System	Annual	Project M&E Unit	Government keeps policies of participation and legislation.
	Regional Desks	0		5	**0**	**5**	**100**				
	Interventions and activities are effectively executed as planned in AWPB (05.01.03)							M&E System	Annual	Project M&E Unit	
	Interventions and Activities	0		70	**35**	**89**	**127.1**				
	Project officers are women (05.01.04)							M&E System	Annual	Project M&E Unit	

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2020)	Cumulative Result (2020)	Cumulative Result % (2020)	Source	Frequency	Responsibility	
	Women officers	0		40	**0**	**44**	**110**				
	Management Information System and M&E System working (05.01.06)							M&E System	Annual	Project M&E Unit	
	System	0		8	**0**	**5**	**62.5**				

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Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 2: Summary of amendments to the financing agreement

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
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Appendix 2: Summary of changes made to the Loan Agreement

ITEM	OBJECTO	CHANGE	ANNEX
1st Change	Extension of the closing period	Amends clause C, item 3 of the Loan Agreement (page 64)	*Resolução nº 02/0290*
2nd Change	Resource reallocation between expense categories	Amends Annex 2, Distribution table of the financing contract (pages 70 to 72)	*Resolução nº 05/291*; According to IFAD
3rd Change	Extension of the closing period	Amends clause C, item 3 of the Loan Agreement (page 64)	*Resolução nº 03/0309*

PROCASE sent a formal request forwarded to SEAIN/COFIEX from the Ministry of Planning, Budget and Management, the first being a request for extension of the closing deadline from December 31, 2018, to December 31, 2019, approved at the 290th COFIEX Meeting, through RESOLUTION No. **02/0290**, of April 18, 2018.

Another claim, which relates to the reallocation of resources between categories of expenses, was made due to the need for adjustments in the POA to adapt to the new limits proposed during the IFAD Mission. The same was approved by the Brazilian Government, guarantor of the credit operation, at the 291st Meeting, by RESOLUTION No. **05/0291**, of June 13, 2018. Both requests were also approved by IFAD.

In addition to the resource adjustments between the components, according to the new needs of the Project, there was also the distribution of unallocated amounts, a kind of technical reserve, in the amount of SDR 1,574,876, among the disbursement categories. The reallocation between the categories of expenses, carried out as shown, did not change the percentages of the sources of funds. It should be noted that the IFAD value of the Loan agreement, when converted to BRL, changes in relation to the Dollar and SDR.

At the Support Mission held from May 11 to 15, 2020, due to the halt in activities due to the pandemic caused by the new coronavirus, IFAD was formally requested to extend the Project's deadline in order to conclude actions still in progress. progress, as well as carrying out concluding activities such as impact assessment studies, systematization of results and the Final Report.

The request was sent to SEAIN/COFIEX, requesting authorization to extend the deadline for the execution of the Project until 12/31/2020, with financial closing in June / 2021, being met through Recommendation No. **03/0309**, of June 15, 2020.

Investing in rural people

Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 3: Actual project costs

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Appendix 3: Actual project costs

APPENDIX 3.1 SUMMARY OF THE BUDGET,

PROJECT DISBURSEMENTS AND EXECUTION (in

USD)

FINANCING SOURCE	APPROVED BUDGET	CURRENT BUDGET	DISBURSEMENTS	% DISBURSMENT APPROVED BUDGET	% DISBURSMENT CURRENT BUDGET
IFAD loan	25.000.000	22.700.296	22.700.015	91	100
GOV PB counterpart	12.101.000	12.101.000	12.952.023	107	107
Beneficiaries	9.190.000	9.190.000	648.411	7	7
Other Sources	3.400.000	3.400.000	1.271.665	37	37
TOTAL	**49.691.000**	**47.391.296**	**37.572.113**	**76**	**79**

DISBURSEMENTS AND IFAD EXECUTION (in SDR)

FINANCING SOURCE	CURRENT BUDGET	DISBURSEMENTS	EXECUTION	% EXECUTION	% DISBURSED
IFAD loan	**16.064.876**	**16.064.681**	**15.906.832**	**99**	**100**

FINANCIAL EXECUTION OF THE PROJECT (in USD)

FINANCING SOURCE	APPROVED BUDGET	CURRENT BUDGET	EXECUTION	AVAILABILITY	% EXECUTION
IFAD loan	25.000.000	22.700.296	23.101.876	- 401.580	102
GOV PB counterpart	12.101.000	12.101.000	12.952.023	- 851.023	107
Beneficiaries	9.190.000	9.190.000	648.411	8.541.589	7
Other Sources	3.400.000	3.400.000	1.271.665	2.128.335	37
TOTAL	**49.691.000**	**47.391.296**	**37.973.975**	**9.417.321**	**80**

APPENDIX 3.2 EXECUTION BY FUNDING SOURCE AND COMPONENT PER YEAR (in USD)

	FINANCING SOURCE AND COMPONENT	2013	2014	2015	2016	2017	2018	2019	2020	EXECUTION	Percentage	
		EXECUTION	EXECUTION	EXECUTION	EXECUTION	EXECUTION	EXECUTION	EXECUTION	EXECUTION		EXECUTION	By source
	IFAD											
1	Social and Human Development	-	16.119	46.505	43.105	7.867	17.609	133.756	8.339	273.301	1,2%	
2	Production develop. & competitive market insertion	194.447	753.351	1.517.844	2.272.612	2.593.035	6.209.129	6.063.990	1.395.364	20.999.773	90,9%	
2	(-) Clearing of Returns	-	-	-	-	-	-	-	- 336.168	- 336.168	- 1,5%	
3	Sustainable Mgt. of Natural Resources	46.921	14.203	30.094	32.111	70.753	100.249	172.008	12.190	478.528	2,1%	
4	Institutional Development	-	-	-	-	-	-	-	-	-	0%	
5	Project Management	286.546	141.549	318.933	296.845	194.562	101.439	92.476	254.095	1.686.443	7,3%	
	Subtotal IFAD	**527.914**	**925.222**	**1.913.376**	**2.644.673**	**2.866.217**	**6.428.426**	**6.462.230**	**1.333.819**	**23.101.876**	**100%**	**64,1%**
	GOV PB											
1	Social and Human Development	-	21.125	61.487	363.941	372.566	41.557	36.949	11.975	909.599	7%	
2	Production develop. & competitive market insertion	-	228.288	431.677	2.899.657	4.113.514	1.760.860	282.733	25.030	9.741.759	75,2%	
3	Sustainable Mgt. of Natural Resources	-	45.510	66.673	67.887	121.127	67.576	39.921	12.693	421.387	3,3%	
4	Institutional Development	-	-	-	-	-	-	-	-	-	0%	
5	Project Management	74.583	372.308	324.649	196.432	241.241	290.033	305.512	74.519	1.879.278	14,5%	
	Subtotal GOV PB	**74.583**	**667.231**	**884.486**	**3.527.917**	**4.848.449**	**2.160.025**	**665.114**	**124.217**	**12.952.023**	**100%**	**35,9%**
	TOTAL	**602.497**	**1.592.453**	**2.792.862**	**6.172.590**	**7.714.666**	**8.588.451**	**7.127.344**	**1.458.036**	**36.053.899**	**100%**	

	RESUMO										
1	Social and Human Development	-	37.244	107.992	407.046	380.433	59.166	170.705	20.314	1.182.900	3,3%
2	Production develop. & competitive market insertion	194.447	981.640	1.949.520	5.172.270	6.706.549	7.969.989	6.346.723	1.420.394	30.948.411	85,3%
2	(-) Clearing of Returns	-	-	-	-	-	-	-	- 336.168	- 336.168	- 0,9%
3	Sustainable Mgt. of Natural Resources	46.921	59.713	96.767	99.998	191.880	167.825	211.928	24.883	899.915	2,5%
4	Institutional Development	-	-	-	-	-	-	-	-	-	0%
5	Project Management	361.129	513.857	643.582	493.276	435.803	391.472	397.987	328.614	3.565.721	9,9%
	TOTAL	**602.497**	**1.592.453**	**2.792.862**	**6.172.590**	**7.714.666**	**8.588.451**	**7.127.344**	**1.458.036**	**36.053.899**	**100%**
	Execution rate per year (%)	1,7%	4,4%	7,7%	17,1%	21,4%	23,8%	19,8%	4,0%		
	Accumulated execution rate (%)	1,7%	6,1%	13,8%	31,0%	52,4%	76,2%	96,0%	100,0%		

APPENDIX 3.3 EXECUTION BY SOURCE OF FINANCING AND EXPENDITURE CATEGORY BY YEAR (em USD)

FONTE DE FINANCIAMENTO E CATEGORIA DE DESPESA	BUDGET	2013	2014	2015	2016	2017	2018	2019	2020	TOTAL	% EXEC.	% Categ.	% SOURCE
IFAD													
I - Equipment and Vehicles	157.717	-	18.728	124.688	-	-	-	11.318	125.068	279.802	177,4%	1,2%	
II - Training - Courses and Workshops	708.966	89.143	51.995	90.674	59.852	43.044	6.740	2.576	5.913	349.938	49,4%	1,5%	
IIIa - Technical Services Agreements and Contracts	556.861	60.652	52.336	87.517	313.607	2.163	197.672	340.663	226.225	1.280.835	230,0%	5,5%	
IVa - Productive Investment Funds	13.626.596	-	617.877	1.242.169	1.796.660	1.867.043	4.105.480	3.211.819	756.253	13.597.299	99,8%	58,9%	
(-) Clearing of Returns	-	-	-	-	-	-	-	-	- 336.168	- 336.168	0,0%	-1,5%	
IVb - Environmental Investment Funds	1.535.459	-	-	-	-	823.076	51.691	733.217	-	1.607.985	104,7%	7,0%	
Va - Recurring Costs / PMU Allowances, LDA, Extensionists	5.082.477	212.686	115.389	211.850	263.855	130.891	1.986.409	2.093.549	459.854	5.474.483	107,7%	23,7%	
Vb - Recurring Costs / Operating Costs	1.014.804	165.432	68.897	156.478	210.700	-	80.433	69.087	96.675	847.703	83,5%	3,7%	
VI - Unallocated	17.417	-	-	-	-	-	-	-	-	-	0,0%	0,0%	
Subtotal IFAD	**22.700.296**	**527.914**	**925.222**	**1.913.376**	**2.644.673**	**2.866.217**	**6.428.426**	**6.462.230**	**1.333.819**	**23.101.876**	**101,8%**	**100,0%**	**64,1%**
GOV PB													
I - Equipment and Vehicles	156.283	-	3.836	25.538	-	-	-	2.523	-	31.897	20%	0,2%	
II - Training - Courses and Workshops	2.755.390	-	77.993	121.806	18.997	64.567	9.691	6.459	-	299.511	11%	2,3%	
IIIa - Technical Services Agreements and Contracts	200.584	-	7.820	11.811	29.878	323	28.622	41.022	-	119.477	60%	0,9%	
IVa - Productive Investment Funds	2.344.252	-	126.553	236.288	-	1.020.040	1.582.969	55.128	-	3.020.977	129%	23,3%	
(-) Clearing of Returns	555.115	-	28.418	35.030	49.162	25.376	30.540	-	-	168.526	30%	1,3%	
IVb - Environmental Investment Funds	3.231.107	57.232	331.485	250.548	3.273.097	3.571.987	277.953	374.955	102.642	8.239.900	255%	63,6%	
Va - Recurring Costs / PMU Allowances, LDA, Extensionists	678.250	17.351	91.126	203.465	156.783	166.156	230.251	185.026	21.576	1.071.734	158%	8,3%	
Vb - Recurring Costs / Operating Costs	2.180.018	-	-	-	-	-	-	-	-	-	0%	0,0%	
Subtotal GOV PB	**12.101.000**	**74.583**	**667.231**	**884.486**	**3.527.917**	**4.848.449**	**2.160.025**	**665.114**	**124.218**	**12.952.023**	**107,03%**	**100,0%**	**35,9%**
TOTAL	**34.801.296**	**602.497**	**1.592.453**	**2.797.862**	**6.172.590**	**7.714.666**	**8.588.451**	**7.127.344**	**1.458.036**	**36.053.899**	**103,6%**	**100,0%**	

APPENDIX 3.4 ALLOCATION AND RELOCATION OF THE IFAD LOAN

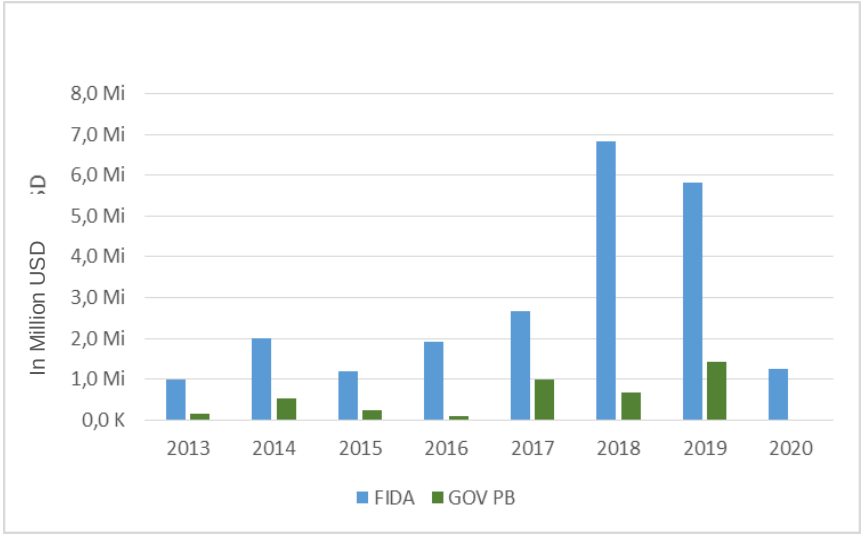
Category	Original Allocation		Current Allocation		Adjustments in USD
	(in SDR)	USD	(in SDR)	USD	
I - Equipment and Vehicles	540.000,00	171.182,00	110.000,00	157.717,09	- 13.464,91
II - Training - Courses and Workshops	1.300.000,00	778.100,00	500.000,00	708.965,65	- 69.134,35
IIIa - Technical Services Agreements and Contracts	950.000,00	622.480,00	400.000,00	556.860,88	- 65.619,12
IVa - Productive Investment Funds	8.100.000,00	15.040.320,03	9.664.876,00	13.626.595,52	- 1.413.724,51
IVb - Environmental Investment Funds	500.000,00	1.665.134,00	1.070.000,00	1.535.458,92	- 129.675,08
Va - Recurring Costs / PMU Allowances, LDA, Extensionists	2.380.000,00	5.602.320,00	3.600.000,00	5.082.477,03	- 519.842,97
Vb - Recurring Costs / Operating Costs	720.000,00	1.120.464,00	720.000,00	1.014.803,92	- 105.660,08
VI - Unallocated	1.574.876,00		110.000,00		
Initial Deposit				17.416,96	17.416,96
TOTAL	**16.064.876,00**	**25.000.000,03**	**16.064.876,00**	**22.700.295,97**	**- 2.299.704,06**

APPENDIX 3.5 ALLOCATION AND RELOCATION OF THE IFAD LOAN

Component	Original Allocation (in USD)	Allocation after 1st. Review (in USD)	Current Allocation (in USD)
1. Social and Human Development	1.017.260	690.000	923.684
2. Production develop. & competitive market insertion	19.939.500	19.600.000	18.105.302
3. Sustainable Mgt. of Natural Resources	1.548.610	1.690.000	1.406.156
4. Institutional Development	779.160	135.000	707.487
5. Project Management	1.715.470	1.077.008	1.557.667
TOTAL	**25.000.000**	**23.192.008**	**22.700.296**

APPENDIX 3.6 DISBURSEMENTS BY FINANCING SOURCE PER YEAR (in USD)

YEAR	IFAD	GOV PB	TOTAL Disbursed	% YEAR
2013	1.000.000,00	155.871,15	1.155.871,15	4%
2014	2.000.000,00	511.943,40	2.511.943,40	9%
2015	1.195.046,78	234.697,38	1.429.744,16	5%
2016	1.913.375,81	93.642,04	2.007.017,85	8%
2017	2.675.080,43	993.805,25	3.668.885,68	14%
2018	6.840.042,39	668.361,48	7.508.403,87	28%
2019	5.815.420,76	1.435.939,88	7.251.360,64	27%
2020	1.261.048,96		1.261.048,96	5%
TOTAL	**22.700.015,13**	**4.094.260,58**	**26.794.275,71**	**100%**
% of the cost	**85%**	**15%**		



Disbursements by Funding Source per Year

APPENDIX 3.7 IFAD LOAN DISBURSEMENT I-798-BR RECORDS (in USD e SDR)

No. DISBURSEMENT	DATA	YEAR	AMOUNT IN USD			AMOUNT IN SDR			SDR EXCHANGE RATE
			AMOUNT DISBURSED	ACCUMULATED AMOUNT	AVAILABLE BALANCE	AMOUNT DISBURSED	ACCUMULATED AMOUNT	AVAILABLE BALANCE	
LOAN AMOUNT					**25.000.000,03**			**16.064.876,00**	**1.5562**
EFFECTIVE AMOUNT					**22.700.295,97**			**16.064.876,00**	**1.5562**
1 (Advancement)	17/01/2013	2013	1.000.000,00	1.000.000,00	21.700.295,97	649.937,27	649.937,27	15.414.938,73	1.53861
2 (Advancement)	28/02/2014	2014	2.000.000,00	3.000.000,00	19.700.295,97	1.292.490,63	1.942.427,90	14.122.448,10	1.54740
3	29/06/2015	2015	1.195.046,78	4.195.046,78	18.505.249,19	851.639,99	2.794.067,89	13.270.808,11	1.40323
4	25/05/2016	2016	1.913.375,81	6.108.422,59	16.591.873,38	1.362.871,23	4.156.939,12	11.907.936,88	1.40393
5	28/12/2016	2016	1.338.070,87	7.446.493,46	15.253.802,51	1.000.389,42	5.157.328,54	10.907.547,46	1.33755
6	30/10/2017	2017	1.337.009,56	8.783.503,02	13.916.792,95	952.611,69	6.109.940,23	9.954.935,77	1.40352
7	26/12/2017	2017	789.701,66	9.573.204,68	13.127.091,29	557.262,08	6.667.202,31	9.397.673,69	1.41711
8	21/03/2018	2018	1.671.705,90	11.244.910,58	11.455.385,39	1.152.304,60	7.819.506,91	8.245.369,09	1.45075
9	15/06/2018	2018	1.041.786,22	12.286.696,80	10.413.599,17	738.305,67	8.557.812,58	7.507.063,42	1.41105
10	20/08/2018	2018	1.490.479,62	13.777.176,42	8.923.119,55	1.072.889,55	9.630.702,13	6.434.173,87	1.38922
11	19/09/2018	2018	876.668,26	14.653.844,68	8.046.451,29	625.200,23	10.255.902,36	5.808.973,64	1.40222
12	09/11/2018	2018	969.700,73	15.623.545,41	7.076.750,56	700.337,08	10.956.239,44	5.108.636,56	1.38462
13	01/02/2019	2019	1.527.954,22	17.151.499,63	5.548.796,34	1.092.605,54	12.048.844,98	4.016.031,02	1.39845
14	11/03/2019	2019	671.283,56	17.822.783,19	4.877.512,78	483.828,89	12.532.673,87	3.532.202,13	1.38744
15	03/05/2019	2019	1.161.220,80	18.984.003,99	3.716.291,98	839.584,41	13.372.258,28	2.692.617,72	1.38310
16	13/09/2019	2019	1.010.349,45	19.994.353,44	2.705.942,53	735.778,85	14.108.037,13	1.956.838,87	1.37317
17	29/10/2019	2019	472.858,59	20.467.212,03	2.233.083,94	343.917,17	14.451.954,30	1.612.921,70	1.37492
18	02/12/2019	2019	971.754,14	21.438.966,17	1.261.329,80	708.115,62	15.160.069,92	904.806,08	1.37231
19	15/01/2020	2020	645.795,32	22.084.761,49	615.534,48	467.473,05	15.627.542,97	437.333,03	1.38146
20	15/07/2020	2020	385.401,87	22.470.163,36	230.132,61	277.191,75	15.904.734,72	160.141,28	1.39038
21	21/12/2020	2020	229.851,77	22.700.015,13	280,84	159.945,84	16.064.680,56	195,44	1.43706
Total Disbursed			**22.700.015,13**			**16.064.680,56**			
Percentage Disbursed			**100%**			**100%**			

APPENDIX 3.8 IFAD LOAN DISBURSEMENT I-798-BR RECORDS (in USD)

No. DISBURSEMENT	DATA	YEAR	DISBURSED	BALANCE
LOAN AMOUNT				**22.700.295,97**
1 (Advancement)	17/01/2013	2013	1.000.000,00	21.700.295,97
2 (Advancement)	28/02/2014	2014	2.000.000,00	19.700.295,97
3	29/06/2015	2015	1.195.046,78	18.505.249,19
4	25/05/2016	2016	1.913.375,81	16.591.873,38
5	28/12/2016	2016	1.338.070,87	15.253.802,51
6	30/10/2017	2017	1.337.009,56	13.916.792,95
7	26/12/2017	2017	789.701,66	13.127.091,29
8	21/03/2018	2018	1.671.705,90	11.455.385,39
9	15/06/2018	2018	1.041.786,22	10.413.599,17
10	20/08/2018	2018	1.490.479,62	8.923.119,55
11	19/09/2018	2018	876.668,26	8.046.451,29
12	09/11/2018	2018	969.700,73	7.076.750,56
13	01/02/2019	2019	1.527.954,22	5.548.796,34
14	11/03/2019	2019	671.283,56	4.877.512,78
15	03/05/2019	2019	1.161.220,80	3.716.291,98
16	13/09/2019	2019	1.010.349,45	2 705.942,53
17	29/10/2019	2019	472.858,59	2.233.083,94
18	02/12/2019	2019	971.754,14	1.261.329,80
19	15/01/2020	2020	645.795,32	615.534,48
20	15/07/2020	2020	385.401,87	230.132,61
21	21/12/2020	2020	229.851,77	280,84
TOTAL ACCUMULATED DISBURSEMENTS			**22.700.015,13**	
Percentage disbursed			**100%**	

APPENDIX 3.9 EXECUTION BY SOURCE OF FINANCING AND EXPENDITURE CATEGORY (in USD)

SOURCE OF FINANCING AND EXPENDITURE CATEGORY	TOTAL			%	
	ORIGINAL BUDGET	CURRENT BUDGET	EXECUTION	ORIGINAL EXECUTION	CURRENT EXECUTION
IFAD					
I - Equipment and Vehicles	171.182,00	157.717,09	279.802,02	163%	177%
II - Training - Courses and Workshops	778.100,00	708.965,65	349.938,03	45%	49%
IIIa - Technical Services Agreements and Contracts	622.480,00	556.860,88	1.280.834,95	206%	230%
IVa - Productive Investment Funds	15.040.320,03	13.626.595,52	13.261.130,98	88%	97%
IVb - Environmental Investment Funds	1.665.134,00	1.535.458,92	784.908,64	47%	51%
Va - Recurring Costs / PMU Allowances, LDA, Extensionists	5.602.320,00	5.082.477,03	6.166.668,73	110%	121%
Vb - Recurring Costs / Operating Costs	1.120.464,00	1.014.803,92	978.593,11	87%	96%
VI - Unallocated		17.416,96		0%	0%
Subtotal IFAD	**25.000.000,03**	**22.700.295,97**	**23.101.876,46**	**92%**	**101%**
GOV PB					
I - Equipment and Vehicles	156.283,48	156.283,48	31.897,05	20%	20%
II - Training - Courses and Workshops	2.755.390,08	2.755.390,08	299.511,42	11%	11%
IIIa - Technical Services Agreements and Contracts	200.583,95	200.583,95	119.476,81	60%	60%
IVa - Productive Investment Funds	2.344.252,17	2.344.252,17	3.020.977,45	129%	129%
IVb - Environmental Investment Funds	555.115,22	555.115,22	168.526,41	30%	30%
Va - Recurring Costs / PMU Allowances, LDA, Extensionists	3.231.107,00	3.231.107,00	8.239.899,90	255%	255%
Vb - Recurring Costs / Operating Costs	678.249,87	678.249,87	1.071.733,70	158%	158%
VI - Unallocated	2.180.018,23	2.180.018,23	31.897,05	1%	1%
Subtotal GOV PB	**12.101.000,00**	**12.101.000,00**	**12.952.022,74**	**107%**	**107%**
TOTAL	**37.101.000,03**	**34.801.295,97**	**36.053.899,20**	**97%**	**104%**

Investing in rural people

Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 4: Project internal rate of return (detailed analysis)

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Appendix 4: Project's Internal Rate of Return (detailed analysis)

Ex-post economic and financial analysis

Project Completion Report (PCR) - April 2021

Introduction

1. The purpose of this appendix is to make an analysis of the resources used by the project (costs) and the desired impacts based on the quantifiable benefits generated on the basis of the investments. For this, the analysis is made, on the one hand, from the perspective of the beneficiaries (financial analysis), and on the other, from the aggregation of the same, with the impact on the economy of Brazil and Paraíba as a whole (economic analysis).

2. The document is divided into three chapters: (i) the ex post financial analysis, with the estimated profitability results for the participants and the main calculation hypotheses; (ii) ex post economic analysis, on the overall profitability of the project; and (iii) the other key efficiency indicators, where the overall results are compared to the results calculated in the PROCASE design. The profitability indicators chosen for the analysis are: Net Present Value (NPV- financial and economic); (ii) the Internal Rate of Return (IRR - Economic and Financial); and (iii) the Benefit/Cost Rate (B/C). The assumptions were made with a life span of 25 years on the basis of the standard period to analyze investments in water access infrastructures.

3. It should be noted that the present study is only part of the overall analysis and evaluation of the project. Its reading must be done in conjunction with other technical, environmental, social and institutional aspects involved. Not all the effects of the project had the possibility to be quantified and only a few are presented in the economic and financial study. The project has key qualitative impacts not quantified in terms of social inclusion and targeting vulnerable groups (issues of capacity development, technical advice, living conditions and promotion of environmentally sustainable actions). Therefore, the analysis accounts for the benefits of the project in a realistic and conservative way. The cash flow analysis "with" and "without" the project is always presented, considering the productive margins of the families that would have been without the intervention of the project and the opportunity costs in the use of time for the families (if it is a new activity promoted).

4. The work itself was carried out on the basis of a series of previous PROCASE studies for each of the activities and consultation with specialists for each thematic area. However, there was no possibility of collecting specific information for the EFA, due to the delay in specific consultancy studies and because of the pandemic of COVID 19, which did not allow a field mission to be carried out in Paraíba. The pandemic has also affected the expected results of the models, at least in the years 2020 and 2021, and most investments are not yet mature enough to allow them to express the full expected benefits. The results should be considered with caution as they will depend on the evolution of these investments and on overcoming the effects of the pandemic in the project intervention area..

5. At the end of the execution of the project, a diversification of the sources of benefit was verified in comparison to those identified in the drawing. This is mainly due to the impacts of the emergency plans that were not taken into account in the design. In addition to the increase and diversification of income sources for small farmers and rural families, other quantifiable benefits integrated in the analysis are: (i) greater availability of water for human and productive use (dams); (ii) household savings in time for access to water (desalinizers); (iii) household savings in labor costs and agricultural services in production from mechanized patrols; and (iv) the increase in the availability of forage for livestock from the implantation of irrigated fields. In addition, a specific exercise was done to quantify the benefits of the environmental component of PROCASE. Here, agroforestry systems (SAFs) were considered, the savings of the cooperatives in energy expenditures from investments in solar energy and an estimate of the incomes of the seedling nurseries.

6. Other positive environmental benefits, resulting from the PROCASE action, are difficult to quantify, such as reducing the pressure of cattle on the *Caatinga* from investments in irrigated fields (estimated in 16,000 hectares of the *Caatinga* with a risk of avoided overgrazing) or improving household resilience on the basis of increased

water availability. There are also benefits to biodiversity from agroforestry systems, but they have not been quantified. Therefore, they were not included in the analysis.

The diagram in Figure 1 presents a logical outline of the approach taken by the analysis.

Picture 01 - Logical outline of the ex post economic and financial analysis

Ex post financial analysis

7. **Assumptions about prices and technical parameters**. All technical parameters and prices chosen in the analysis were validated with the technical experts during the completion mission on the basis of the reality of productive projects and rural families. Family work was assessed in both financial and economic analysis. Agricultural labor is always supplied by families and is valued at R$ 40/day. The contracted (specialized) work has a price of R$ 60/day.

8. **Opportunity cost of capital**. A discount rate of 10% was used in this analysis to assess the viability of the investments. The amount was selected following the financial rate used in the design, which averages passive interest rates in savings accounts.

9. **Exchange rate**. The exchange rate used in the analysis is fixed at 1 US$ = 5.6 R$ calculated as an average of the exchange rate in force during the completion mission.

10. **Chosen models**. In estimating the incremental benefits of productive projects (97), five typical models were developed: a) goat sheep, b) milk goat, c) handicrafts; d) fruit growing with a high level of activity; e) fruit growing with a low level of activity. In addition, two financial models were developed for investments in AS and Seedling Nurseries.

11. The choice of the distribution of typical projects was made on the basis of the data from the Monitoring and Evaluation area and their effective implementation. PROCASE's productive projects in the selected activities are representative of 86% of the total financed projects and for 91% of the families benefited from them (over the total of 2959 families benefited from productive projects).

Table 1 - Representativeness of financial models

Type	% Projects	% Families	% Projects	# Projects
Goats	60%	72%	70%	68
Fruit Production	14%	9%	17%	16
Craftsmanship	11%	10%	13%	13
Representativeness	86%	91%		97

12. The assumptions are made around the following elements: the gross product (the value of the total production in the productive projects), the operating costs of the models (expenses made by the families in the acquisition of inputs, seeds, fertilizers and equipment), the margin gross: calculated on the basis of the value of production without the operating costs of the models and the family labor: which was quantified and valued after the results of the budgets.

13. **Financial Results.** From a financial point of view, most of the models analyzed have a positive rate of return. They have an IRR between 10.9% and 38% with a NPV between R$ 311 (goat milk and meat Models) and R$ 583,015 (for intensified production fruit models), with 10% of the financial discount factor.

14. Not all projects had the desired impacts. There is a percentage of models with negative financial profitability rates (in fruit for example), as expected sales were not always foreseen, especially in the current context with the impacts of COVID 19. The project did not apply profitability analysis tools and methodologies in the design of investments (productive projects) and decisions were based only on the criteria for focusing and rapid execution. There are also negative impacts from the general context of the drought in Paraíba during the implementation of the project and the change in public policies with less support for the *PAA/PNAE* lines. In the case of Fruticulture, two models with different results were integrated. The model with positive results resulted in the project with the highest profitability.

The main results of the financial models are presented in the following table:

Table 2 - Results of ex-post financial models (I)

MODEL	IRR	NPV	Ratio B/C
Item	**%**	**R$**	**N°**
Handicrafts Productive Project	33.0%	72,905	1.38
Goat Milk Productive Project	14.3%	1,255	1.04
Goat Meat Productive Project	10.9%	311	1.42
Fruit Productive Project I	n/d	-299,358	0.99
Fruit Productive Project II	37.9%	583,015	3.19

Table 3 - Results of ex-post financial models (II)

Item	Unity	Models				
		Handicrafts Productive Project	Goat Milk Productive Project	Goat Meat Productive Project	Fruit Productive Project I	Fruit Productive Project II
Without project						
Costs	R$	669	9,067	6,329	13,093	53,214
Revenue	R$	1,360	9,345	10,650	14,520	102,282
Margin	R$	***691***	***278***	***4,321***	***1,427***	***49,067***
With project	R$					
Costs	R$	59,176	38,102	13,260	18,777	96,406
Revenue	R$	64,890	39,786	18,610	21,105	185,300
Margin	R$	***5,714***	***1,683***	***5,350***	***2,328***	***88,894***
Incremental margin	R$	5,024	1,406	1,029	901	39,826
IRR	%	33.0%	14.3%	10.9%	n/d	38%
NPV	R$	72,905	1,255	311	-299,358	583,015
Ratio B/C	N°	1.38	1.0	1.42	0.99	3.19

15. The results of the PROCASE business studies are presented in the Annex.

16. **Impacts on household income**. For the time being, after 2018 the Project began monitoring some partial economic results with a focus on household incomes. This was strengthened with the impact assessment and other studies and research prepared by the project that present the following partial results data (PROCASE; 2021):

- 51% of the benefited families had a 20% increase in productive assets, with 24% of the families reaching 150%.

- 66% of the families had an increase in agricultural or non-agricultural income; c) a 166% increase in net income was registered in the sample of beneficiaries, considering the activities of goats and cattle (milk / meat), fruit growing, handicrafts, beekeeping and forage;
- 68% of the projects studied were considered profitable;
- and 75% of families reported increased production

Ex-post economic analysis

17. **Economic Results.** From an economic point of view, the economic IRR was estimated at 12.4%, exceeding the economic discount rate defined by 4.2% at the time of PROCASE design. The project's global NPV was estimated at US$ 12 million, with a benefit / cost (B/C) ratio of 1.75, which means that for every US$ invested in the project, US$ 1.75 of benefits are generated. In order to obtain the total benefits of the investments, rates of realization of the benefits between 70% and 80% were applied and the calendar was adjusted following the physical realization of PROCASE year by year. A diagram is presented in the Annex with the overall results of the analysis (Figure 2). The financial values were converted into economic values, following conversion factors for labor and products and inputs (export and import).

18. **Economic results of emergency plans.** An economic profitability analysis was made for investments in desalination plants, dams, irrigated fields and mechanized patrols. Investments in emergency plans accounted for most of the project's investments and are also responsible for 66% of the total benefits. In addition to the absence of previous studies with selection criteria on the basis of profitability, all lines of investment were economically justified with positive economic profitability rates between 17% of *Cacimbinha* and *Riacho Fundo* Dams, including 18% of desalination plants and 19% of the irrigated fields, up to 35% of mechanized patrols and the economic IRR of 43% of the *Coronel Jueca* dam.

19. In general, they were investments that have evidence of key impacts in increasing the availability of water for human consumption and for productive use (which is especially valued in periods of drought). The impacts on the irrigated fields also made possible the existence of benefits with the increased availability of forage and the environmental recovery (or the avoided degradation of the *Caatinga*). Investments in mechanized patrols have meant important savings for families in the costs of productive labor and soil preparation. The quantification was made on the basis of specific studies that were carried out by PROCASE between 2019 and 2021 for each type of investment, presenting evidence of the results. Details of the assumptions for the cost and benefit estimates of the plans are presented in Annex.

20. **Environmental component**. Economic profitability was also calculated on the environmental component, the economic IRR was estimated at 14.4% and the component's NPV is estimated at US $ 1.34 million, with a benefit / cost (B / C) ratio of 3.6. The benefits of investments in solar energy, nurseries and AS have been integrated here.

21. **Results compared to the design.** The overall results are less than the results of the preliminary design calculation (done in 2010). Some of the causes are: a) delays in the execution of the project (which generated a delay in the realization of benefits), b) the smaller number of hectares and affected family and agro-industrial systems ((which may be due to the over-dimensioning of the design and due to changes in strategy and investments during implementation), c) greater investment in issues with less possibility of directly quantifying benefits (such as emergency plans that have an impact on water and fodder availability); d) the harsh period of drought during the implementation (which reduced the possibilities for rapid capitalization of benefits); e) changes in political priorities and the reduced focus on PAA / PNAE reduced the possibilities of accessing the market and valuing products from family farming.

22. In addition, the project sought to reach the poorest and most vulnerable families, prioritizing the social gain of the intervention, without using the issue of profitability as an exclusion criterion. This may also have caused lower-than-expected economic returns. Investment in technical assistance to organize groups was also greater, which took additional time between calls for proposals and delayed implementation. The methodological tools (AS spreadsheets, training in economic results) arrived shortly after the implementation of the productive projects. As a general criterion, PROCASE's priority was to execute and took advantage of the IFAD facilitation instances

to analyze partial economic results, based on the impact on incomes. The use of results information was limited as it arrived after the main decisions had already been made.

Table 4 – Compared Results (I)

Indicadores de rentabilidade comparados	PDR	RCP	%
TIRe	21.50%	12.42%	-9.08
VANe	68.30	11.98	-82%
Custo total	49,690,000	36,379,500.00	-27%
Custo FIDA	25,000,000	23,198,682.00	-7%

23. So, in addition to the greater number of families affected with direct benefits and the diversification of sources of benefit, the previous elements are added to the delays in realizing benefits today and the decline caused by COVID 19 (in the years 2020 and 2021) resulting inability to value benefits quickly over the life of the Project.

Other key efficiency indicators

24. Finally, other key indicators of the project's efficiency were calculated, such as: a) Cost per family, estimated at US $ 1,490 (45% lower than the design estimate); Management cost over Total cost, calculated at 10%, (which is above the estimate in the drawing that was made at 6%); and c) Administrative cost per beneficiary, estimated at US $ 365 (even lower than the estimated value in the drawing at US $ 537). The main explanation is the lower total project cost (-27%) and the greater number of benefited families (+ 32%).

Table 5 – Compared Results (I)

Outros indicadores de Eficiencia	PDR	RCP	%
Custos Gestao/Custo total	6%	10%	4%(pontos)
Custos operacionais/Custo total	20%	25%	5% (pontos)
Custo por beneficiario	$ 2,686	1,490	-45%
Custo administrativo por Beneficiario	$ 537	$ 365	-32%
Custo FIDA por Beneficiario	$ 1,351	930	-31%

25. This cost per general family can be broken down into several costs per family according to the groups of beneficiaries, according to the data presented in table 27 below.

Table 6 - Cost per beneficiary family, for the main PROCASE activities

Activitie	Cost per Family (in USD)
Productive Projects (PPs)	1.001
E. Plans- Irrigated fields	878
Desalination plants	540
Mechanized patrol	179
Dams (counterpart)	163
Technical Assistance (AT)	593
Solar energy (cooperatives)	1.292
Agroforestry Systems (AS)	149

26. The main lessons learned in relation to profitability and economic returns are: a) the need to integrate the issue of profitability and financial and economic viability in the investment decision criteria (with studies, pre-investment plans, etc.).) especially when it has to do with infrastructure; b) the need to improve M&E mechanisms with methodologies to gather information and value and report benefits (especially in cases of environmental benefits and resilience, together with actions to access water and fodder and analyze production chains); c) the need to integrate the issue of profitability, the efficiency of interventions and the economic and financial returns (along with other data produced by the M&E system) when making decisions with real-time data, using the information generated in the planning of investments and implementing changes. The use was very low until 2018/19 and when the systems were implemented they no longer had the possibility to feed decision-making.

Annex 1. Economic Results

Picture 2 - Results of the ex post economic and financial analysis

PROCASE
PROJETO DE DESENVOLVIMENTO SUSTENTÁVEL DO CARIRI, SERIDÓ E CURIMATAÚ

PROCASE's Ex-post Financial and Economic Analisys

FIDA
Investindo nas populações rurais

SECRETARIA DE ESTADO DA AGRICULTURA FAMILIAR E DO DESENVOLVIMENTO DO SEMIÁRIDO
GOVERNO DA PARAÍBA

	IRR	NPV R$
GLOBAL -Economic	12,4%	69.642.227

	IRR	NPV R$
Environmental Component -Economic	14,4%	7.783.215

Mitigated pressure of the *Caatinga* (ha)

16.317

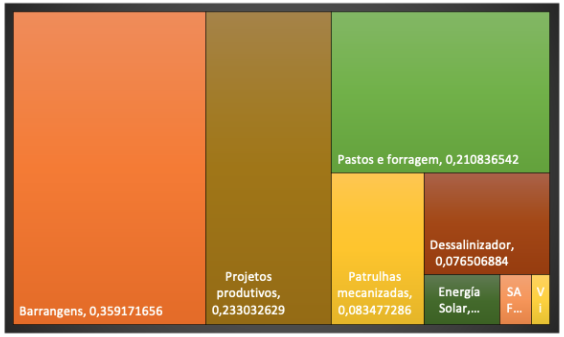
	#	# Beneficiarios	
Total		**24.413**	
Productive Projects	**97**	**2.959**	
Solar energy	**6**	**908**	
Undergorund Dams	**280**		
Big Dams	**3**	**39.801**	**10.000**
Desalination Plants	**61**	**1.654**	
Patrols	**9**	**1.681**	
Emergency Plans		**5.566**	
# AS	31		
Seedling Nurseries	13		

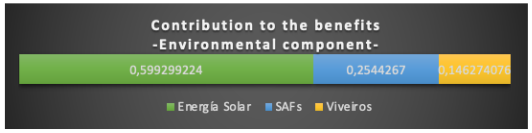
Productive Projects -Financial

	TIRf	VPLf
Handicraft Productive Projects	33%	$ 72.905
Goat Milk Productve Projects	14%	$ 1.255
Goat Meat Productive Projects	11%	$ 311
Fruit I Productive Projects	n/d	-$ 299.358
Fruit II Productive Projects	38%	$ 583.015

Other Investments -Economic

	TIRe	VPLe
Irrgated Fields	19%	$ 16.101.498
Desalination Plants	18%	$ 7.584.685
Mechanized Patrol	35%	$ 5.035.519
Solar Energy	14%	$ 1.165.556
Coronel Jueca	43%	$ 58.728.469
Cacimbinha (*)	17%	$ 6.312.516
Riacho Fundo (*)	17%	$ 1.846.563





*Soamente 10.000 foram tidas em consideraçao nas áreas de proximidade aos mesmos

Barragens

Annex 2. Dam calculation assumptions

Picture 3 - Drought (beginning)

Coronel Jueca				
Box 1. Technical characteristics and costs				
Dam capacity (full)			6.126.875	m3
Investment Cost				
	Real Investment cost		5.556.668	R$
	Maintenance Cost (% of CI)		1	%
	annual maintenance cost		55566,68	
Box 2a. Availabe Premises and use of water I				
Dam capacity (full)			6.126.875	m3
			24,19%	
Water Availability per year (m3/year)			1.482.091	m3/year
Benefited Familiy			25.872	
	Tipology	%	m³	Water use percentage
Crop:	Maize and forage	15%	200.082	
Livestock:	Goats and cows	35%	466.859	90%
Water	Water trucks	50%	666.941	
Box 4. Improvements on Agriculture				
Water available for agriculture			200.082.293	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			204	ha
Incremental improvment/há			60	R$
Incremental improvement per dam on agriculture			12.173	R$
Box 5. Water improvments for livestock				
Water Livestock availability			466.858.685	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			255.813	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			13.035.803	R$
			50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			666.940.978	litros/barragem
Liters/family/Year			25.778	litros
Cost of Water			0,02	
Incremental Improvement available water			13.565.579	R$
		Adoçao		50%

Cacimbinha (*)				
Box 1. Technical characteristics and costs				
Capacidade da barragem (cheio)			2.156.560	m3
Investment Cost				
	Custo do Investimento		4.061.173	R$
	Custo da manutenção (% of CI)		1	%
	Custo annual manutenção		40611,73	
Box 2b. Availabe Premises and use of water II				
Dam capacity (full)			2.156.560	m3
			21,77%	
Water Availability per year (m3/year)			469.483	m3/year
Benefited Familiy			10.848	
	Tipologia	%	m³	Water use percentage
Crop:	Maize and forage	15%	63.380	
Livestock:	Goats and cows	35%	147.887	90%
Water	Water trucks	50%	211.267	
Box 4. Improvements on Agriculture				
Water available for agriculture			63.380.220	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			65	ha
Incremental improvment/há			239	R$
Incremental improvement per dam on agriculture			15.425	R$
Box 5. Water improvments for livestock				
Water Livestock availability			147.887.180	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			81.034	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			4.129.361	R$
		Adoçao	50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			211.267.400	litros/barragem
Liters/family/Year			19.475	litros
Cost of Water			0,02	
Incremental Improvement available water			4.297.179	R$
		Adoçao		50%

Riacho Fundo (*)				
Box 1. Technical characteristics and costs				
Capacidade da barragem (cheio)			298.616	m3
Investment Cost				
	Custo do Investimento		1.257.664	R$
	Custo da manutenção (% of CI)		1	%
	Custo annual manutenção		12576,64	
Box 2c. Availabe Premises and use of water III				
Dam capacity (full)			298.616	m3
			21,77%	
Disponibilidade de agua por ano (m3/ano)			65.009	m3/year
Water Availability per year (m3/year)			3.081	
	Tipologia	%	m³	Water use percentage
Crop:	Maize and forage	15%	8.776	
Livestock:	Goats and cows	35%	20.478	90%
Water	Water trucks	50%	29.254	
Box 4. Improvements on Agriculture				
Water available for agriculture			8.776.175	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			9	ha
Incremental improvment/há			239	R$
Incremental improvement per dam on agriculture			2.136	R$
Box 5. Water improvments for livestock				
Water Livestock availability			20.477.742	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			11.221	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			571.787	R$
		Adoçao	50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			29.253.916	litros/barragem
Liters/family/Year			9.495	litros
Cost of Water			0,02	
Incremental Improvement available water			595.025	R$
		Adoçao		50%

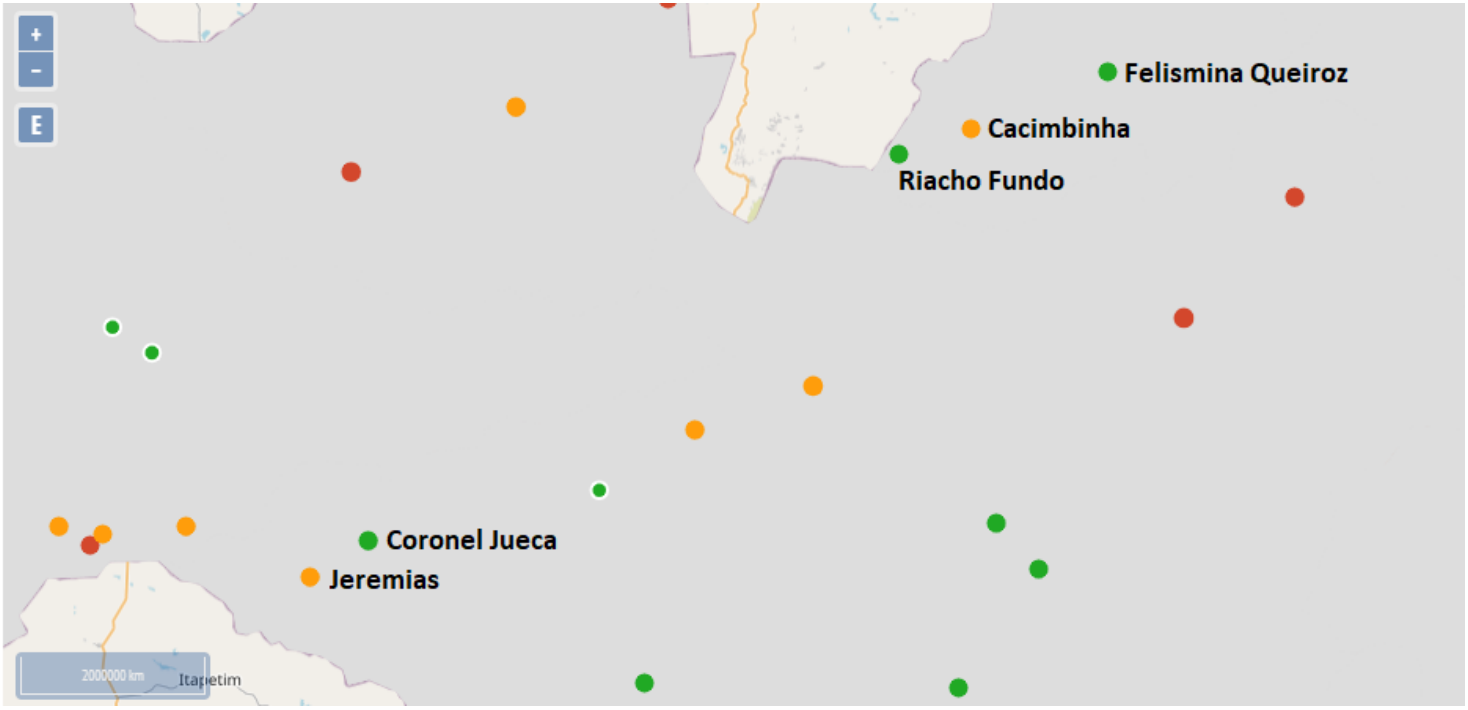
Picture 4 - Drought (final)

Coronel Jueca				
Box 1. Technical characteristics and costs				
Dam capacity (full)			6.126.875	m3
Investment Cost				
	Real Investment cost		5.556.668	R$
	Maintenance Cost (% of CI)		1	%
	annual maintenance cost		55566,68	
Box 2a. Availabe Premises and use of water I				
Dam capacity (full)			6.126.875	m3
			0,35%	
Water Availability per year (m3/year)			21.444	m3/year
Benefited Familiy			25.872	
	Tipology	%	m³	Water use percentage
Crop:	Maize and forage	10%	2.144	
Livestock:	Goats and cows	20%	4.289	100%
Water	Water trucks	70%	15.011	
Box 4. Improvements on Agriculture				
Water available for agriculture			2.144.406	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			2,188	ha
Incremental improvment/há			60	R$
Incremental improvement per dam on agriculture			130	R$
Box 5. Water improvments for livestock				
Water Livestock availability			4.288.813	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			2.350	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			119.754	R$
			50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			15.010.844	litros/barragem
Liters/family/Year			580	litros
Cost of Water			0,02	
Incremental Improvement available water			305.321	R$
		Adoçao		50%

Cacimbinha (*)				
Box 1. Technical characteristics and costs				
Capacidade da barragem (cheio)			2.156.560	m3
Investment Cost				
	Custo do Investimento		4.061.173	R$
	Custo da manutenção (% of CI)		1	%
	Custo annual manutenção		40611,73	
Box 2b. Availabe Premises and use of water II				
Dam capacity (full)			2.156.560	m3
			1,2370%	
Water Availability per year (m3/year)			26.677	m3/year
Benefited Familiy			10.848	
	Tipologia	%	m³	Water use percentage
Crop:	Maize and forage	10%	2.668	
Livestock:	Goats and cows	20%	5.335	100%
Water	Water trucks	70%	18.674	
Box 4. Improvements on Agriculture				
Water available for agriculture			2.667.665	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			2,7	ha
Incremental improvment/há			239	R$
Incremental improvement per dam on agriculture			649	R$
Box 5. Water improvments for livestock				
Water Livestock availability			5.335.329	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			2.923	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			148.975	R$
		Adoçao	50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			18.673.653	litros/barragem
Liters/family/Year			1.721	litros
Cost of Water			0,02	
Incremental Improvement available water			379.822	R$
		Adoçao		50%

Riacho Fundo (*)				
Box 1. Technical characteristics and costs				
Capacidade da barragem (cheio)			298.616	m3
Investment Cost				
	Custo do Investimento		1.257.664	R$
	Custo da manutenção (% of CI)		1	%
	Custo annual manutenção		12576,64	
Box 2c. Availabe Premises and use of water III				
Dam capacity (full)			298.616	m3
			1,2370%	
Disponibilidade de agua por ano (m3/ano)			3.694	m3/year
Water Availability per year (m3/year)			3.081	
	Tipologia	%	m³	Water use percentage
Crop:	Maize and forage	10%	369	
Livestock:	Goats and cows	20%	739	100%
Water	Water trucks	70%	2.586	
Box 4. Improvements on Agriculture				
Water available for agriculture			369.388	litros/família
Water crop consumption (palm in liters/ha)			980.000	liters/ha
Total ha correlation			0,377	ha
Incremental improvment/há			239	R$
Incremental improvement per dam on agriculture			90	R$
Box 5. Water improvments for livestock				
Water Livestock availability			738.776	litros/barragem
Livestock intake needs per year			1.825	litros
Livestock numbers			405	cabeças
Incremental improvment/livestock			51	R$
Incremental improvement per dam on livestock			20.628	R$
		Adoçao	50%	
Box 6. Water Improvment for human consumption				
Water avaliability for human consumption			2.585.716	litros/barragem
Liters/family/Year			839	litros
Cost of Water			0,02	
Incremental Improvement available water			52.593	R$
		Adoçao		50%

Picture 5 – Local of dams



Annex 3. Dam calculation assumptions

Picture 6- Aggregate inflows of Productive Projects

Fruits		Incremental improvments on the PP																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Fruticultura LV	1	-$ 911.823	-$ 18.451	-$ 6.943	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	$ 333	
	2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	3			-$ 1.215.764	-$ 24.601	-$ 9.257	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	$ 444	
	4				-$ 303.941	-$ 6.150	-$ 2.314	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	$ 111	
	5					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
		-$ 911.823	-$ 18.451	-$ 1.222.707	-$ 328.209	-$ 15.074	-$ 1.537	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	$ 888	
Ajustado		$ -	$ -	$ -	-$ 328.209	-$ 15.074	-$ 1.537	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Fruticultura HV	1	-$ 875.981	$ 65.713	$ 141.873	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	$ 739.851	
	2		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	3			-$ 1.167.975	$ 87.617	$ 189.164	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	$ 986.468	
	4				-$ 291.994	$ 21.904	$ 47.291	$ 246.617	$ 246.617	$ 246.617	$ 246.617	$ 246.617	$ 246.617	$ 246.617	$ -	$ -	$ -	$ 246,617	$ 246,617	-	-	
		-$ 875.981	$ 65.713	-$ 1.026.102	$ 535.474	$ 950.919	$ 1.773.610	$ 1.972.936	$ 1.972.936	$ 1.972.936	$ 1.972.936	$ 1.972.936	$ 1.972.936	$ 1.972.936	$ 1.726.319	$ 1.726.319	$ 1.726.319	$ 1.726.566	$ 1.726.566	$ 1.726.319	$ 1.726.319	
Ajustado		-$ 875.981	$ 65.713	-$ 1.026.102	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,676,996	$ 1,467,371	$ -	$ -	
Artesanato	1	-$ 303.551	$ 81.745	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	
	2		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	3			-$ 303.551	$ 81.745	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	$ 158.475	
	4				-$ 121.421	$ 32.698	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	$ 63.390	
	5					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	6						-$ 60.710	$ 16.349	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	$ 31.695	
		-$ 303.551	$ 81.745	-$ 145.077	$ 118.799	$ 349.647	$ 319.629	$ 396.688	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	$ 412.034	
Ajustado		-$ 303.551	$ 81.745	-$ 145.077	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Caprino	1	-$ 2.393.550	$ 779.870	$ 779.870	$ 779.870	$ 779.870	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	$ 892.394	
	2		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	3			-$ 3.275.385	$ 1.067.190	$ 1.067.190	$ 1.067.190	$ 1.067.190	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	$ 1.221.171	
	4				-$ 1.007.811	$ 328.366	$ 328.366	$ 328.366	$ 328.366	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	$ 375.745	
	5					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	6						-$ 125.976	$ 41.046	$ 41.046	$ 41.046	$ 41.046	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	$ 46.968	
		-$ 2.393.550	$ 779.870	-$ 2.495.515	$ 839.249	$ 2.175.426	$ 2.161.974	$ 2.328.997	$ 2.482.978	$ 2.530.356	$ 2.530.356	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	$ 2.536.279	
		-$ 2.393.550	$ 779.870	-$ 2.495.515	$ 839.249	$ 2.175.426	$ 2.287.951	$ 2.287.951	$ 2.441.932	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	$ 2.489.311	
Ajustado		-$ 2.393.550	$ 779.870	-$ 2.495.515	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Ovino	1	-$ 826.006	$ 168.499	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	$ 250.575	
	2		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	3			$ 1.156.408	$ 235.898	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	$ 350.805	
	4			-$	$ 330.402	$ 67.400	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	$ 100.230	
		-$ 826.006	$ 168.499	-$ 905.833	$ 156.071	$ 668.779	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	$ 701.610	
Ajustado		-$ 826.006	$ 168.499	-$ 905.833	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Subtotal projects		-$ 4.399.088,83	$ 1.095.825,83	-$ 4.572.526,84	$ 1.044.594,97	$ 3.390.182,52	$ 4.197.619,74	$ 4.431.075,17	$ 4.574.235,91	$ 4.614.507,89	$ 4.614.507,89	$ 4.614.507,89	$ 4.614.507,89	$ 4.614.507,89	$ 4.404.883,43	$ 4.404.883,43	$ 4.404.883,43	$ 4.404.883,43	$ 4.404.883,43	$ 4.404.883,43	$ 4.404.883,43	

Annex 4. Evidence on Business Functioning (Target: 80% of agricultural and non-agricultural businesses operating profitably after three years) (PROCASE; 2021) (Sample: 32 Productive Projects)

Table 7- Progression of Associations 2015 X 2019. Variation calculated already considering the adjustment of 20% in the values listed in 2015

Association	2015	2019	Variação	Increment	Activity
Associação de Resistência das Rendeiras de Cacimbinha	11.091	328.436	2368%	Yes	Handicrafts
Ass. dos Prod. Rurais, Ass Pau Ferro, Caiana, e outros.	1.224	13.034	787%	Yes	Forage prod.
Associação dos Produtores Rurais do Distrito de Bom Jesus	10.430	81.922	555%	Yes	Goats
Associação dos Produtores Rurais do Arruda - ASPRA.	10.848	74.000	468%	Yes	Goats
ASSENTAMENTO MANDACARÚ	6.593	44.496	462%	Yes	Goats
Ass. dos Ag. do Projeto de Assentamento Novo Campo	12.434	78.508	426%	Yes	Goats
Ass. Criadores de Cap. e Ovinos Mun de Juazeirinho - ACCOMJ	80.792	469.467	384%	Yes	Goats
Ass. Com. dos Peq Prod. Rurais Carneira Verissimo - APRACEV	4.433	22.518	323%	Yes	Fruticultura
Coop. de Prod. Bens Serviços S João do Tigre - COOPERTIGRE	20.960	97.654	288%	Yes	Handicrafts
ASS. DOS ASSENTADOS DO ASSENTAMENTO DOS DEZ	38.803	128.878	177%	Yes	Goats
Sítio Juá - Assentamento Juá	62.625	205.299	173%	Yes	Goats
Associação dos Caprinoculturores de Gurjão - ACAPRIG	184.598	589.138	166%	Yes	Goats
Ass. dos Ap. e Meliop de São José dos Cordeiros - ASJC	14.235	42.396	148%	Yes	Beekeeping
Ass. Com. de Des. Rural Nossa Senhora das Vitórias	15.613	46.078	146%	Yes	Fruits
Associação da Comunidade Negra Serra do Abreu	18.679	52.744	135%	Yes	Fruits
Ass dos Ass no Ass Zé Marcolino Fazenda Serrote Agudo	23.176	64.955	134%	Yes	Goats
Ass. Com dos Prod Rurais do Saco dos Goitís - ASCPROSG	15.783	44.099	133%	Yes	Fruits
Ass de Des Rural Capoeiras, Coalhadas e Região - ADERCCOR	22.435	55.613	107%	Yes	Fruits
Ass. dos peq Agr Lagoa Onça, Bujiga e Umbuzeiro - APALUMB	52.887	108.840	71%	Yes	Goats
Associação Rural dos Fruticultores do Sítio Bujari	66.557	120.727	51%	Yes	Fruits
Comunidade Camará - Zona Rural de Remígio/PB	14.589	19.660	12%	Yes	Fruits
Ass. Mandacarú - Ass Alvorada Antigo Sítio Feijão - Sumé/PB	11.498	15.307	11%	Yes	Fruits
Ass. dos Ap. e Meliponicultores S Vicente de Seridó e Região	98.912	100.574	-15%	Yes	Beekeeping
Ass. Com. Prod. Rurais Com. Ponta de Serra do Brandão	7.859	7.234	-23%	No	Fruits
Ass. Centro de Cidadania das Mulheres - Canoa de Dentro	16.043	14.098	-27%	No	Fruits
Ass Peq Prod Rurais Riacho do Alg e do Sítio Sta Rita de Cima	18.795	14.412	-36%	No	Brooms
Ass dos Trab Rurais do Proj de Ass Santa Verônica - ATRASV	24.549	18.718	-36%	No	Fruits
Ass dos Ass da Ref Agr do Assentamento P Freire I - APAF	17.494	10.120	-52%	No	Goats
Ass do Des Com dos Prod do Assentamento Riacho da Cruz.	39.268	18.325	-61%	No	Goats
Ass. Com. dos Ag. Fam. Imóvel Richa do Sangue - ACAFIRS	66.288	6.260	-92%	No	Goats
Coop. dos Mineradores de Frei Martinho-COOPERMINERAL	2.000	0	-100%	No	Mining
Coop. de Garimpeiros de Nova Palmeira - COOGARIMPO	0	0	0%	No	Mining

"To measure the result, the value in 2019 was compared to that of 2015, corrected to values in 2019. To exemplify, note that in the Beekeepers and Meliponicultors Association of São Vicente de Seridó e Região there was apparently a positive variation, as it was R$ 98,912 in 2015 to R$ 100,574. However, after the due update of the value in 2015 for comparison, the result is negative. 68.8% of the associations showed an increase in the income generated in the project's support area (agricultural or not) higher than the monetary adjustment of 20%. What classifies them as profitable businesses. It is worth mentioning that the sources of income considered were different for each type of business. For businesses such as goat farming, fruit growing and other types of production related to agriculture, agricultural income was considered as an assessment tool. For businesses like handicrafts, non-agricultural income." (PROCASE; 2021)

IFAD
Investing in rural people

Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 5: Environmental social and climate impact assessment (detailed analysis)

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Appendix 5: Environmental, social and climatic impact assessment

1. Environmental, climatic and social context of the PROCASE intervention area

The landscape in which PROCASE operates is defined as Brazilian semiarid, occurring in the central region of the Northeast and reaching the North of Minas Gerais. In Paraíba, it occurs in more than 80% of the territory, encompassing the ecoregions of the *Planalto da Borborema* and *Depressão Sertaneja Setentrional*.

The predominant biome is the *Caatinga*, with higher areas remaining in the Atlantic Forest, where some scientists contest the characterization of this vegetation formation, considering them as dry mountain forests.

In any case, the native vegetation of this landscape has been suffering environmental degradation, due to the continuous cycles of unordered land use and occupation. As a result, the loss of biodiversity and soil degradation resulted in the phenomenon of desertification according to the State Plan to Combat Desertification (PAE/PB).

In addition to the loss of biodiversity, natural resources and the lack of characterization of the landscape, desertification has reduced the capacity of human occupation in this territory, as its productive capacity is reduced, leading to serious socio-environmental problems such as the abandonment of the rural area and agglomerations in cities.

In order to reduce the effects of desertification, PROCASE established in its MIP the objective of combating it through the sustainable management of the *Caatinga* biome.

Much is discussed about the sustainability of semi-arid regions. Some scientists even suggest the impossibility of having viable human communities in these environments, especially if we consider the consumption patterns of large cities.

This is a short-sighted view of what is considered sustainable or even viable. For establishing the forms of production or consumption based on a given environment and considering it as a reference for so many other parts of the planet is a mistake.

Semi-arid regions do have viability. Several examples from around the world demonstrate success stories that lead to defend this position. However, it is known that most of these environments have suffered degradation, especially as they try to establish patterns of production and consumption in large urban centers.

This thesis is anchored in the concept that the sustainability and viability of semi-arid regions will only be achieved if we obtain management models appropriate to the paradigm of living with the typical characteristics of this environment.

Management that runs through your broader senses. From the organizational management of associations of rural communities, through the formation of collectives, cooperatives, to the established public management model.

In Brazil, the semiarid occurs in all 9 states in the Northeast region in addition to the North of Minas Gerais. As climate change advances, degradation processes become increasingly critical. We are at a critical moment in the way we face what we do and what must be done to reduce and reverse this situation.

Among the Brazilian states delimited in the semiarid region, Paraíba has its territory with more than 80% inserted in those in the semiarid region. Two-thirds of its population are also there, and it is not feasible for there to be an exodus to coastal areas as in the past.

Thus, there is no alternative to the statement that we need to learn how to develop a coexistence management by practicing it, identifying mistakes and successes, and conducting it in the most efficient way.
In the semi-arid region of Paraíba, just as the natural landscape mixes with agricultural production environments, or that human communities depend heavily on local natural resources for their survival, environmental management becomes intrinsic to other perspectives, be it economic, of infrastructure, public health, etc.

It is the environmental management, with its multi and interdisciplinary perspective, that can create a sustainable and viable model for human communities to continue to develop, and manage to conserve the natural landscape and its natural resources.

The Project's action in the environmental and climate spheres

Environmental Regularization (Implementation of the CAR, environmental and sanitary licensing of enterprises with polluting potential)

PROCASE since its conception has been concerned with ensuring that the projects supported by the agreements signed with the communities comply with the current environmental legislation, thus guaranteeing institutional security, as well as demonstrating to the beneficiaries the importance of meeting the environmental standards, contributing to the public environmental management. , the community and sustainable development.

The main actions established were the promotion of the implementation of the CAR (linked to the environmental certification of rural properties) through the training of youth who acted as multipliers, the environmental and sanitary regularization of the polluting enterprises.

In this action, PROCASE managed to get the 15 trained young people to complete 351 registrations. These certifications today make up part of the more than 3,662,024ha certified for the State of Paraíba, which reached by the end of 2019 - the limit year for declaring the CAR - a percentage of 96.70% of its inserted in SICAR.

As for the enterprises with a polluting potential, 35 were identified among the 97 productive projects, that is, liabilities of some type of environmental licensing. Those who need certification with health surveillance agencies for the marketing of their products add up to 15 establishments. All of these are already in the process of being processed, some more initial, others more advanced. The total number of families benefited is 912.

The results of these actions can be measured in two ways: directly, guaranteeing the operational legality of the enterprises, making it possible for them to sell their products, including these certificates and licenses are often prerequisites for participation in government purchases or standards of good practices in private markets, but also has a pedagogical nature, while collaborating with the awareness of those who experience the enterprise.

Picture - *COOPESCAF* environmental and health regularization process. After 10 years of pending issues with the agencies, with the technical assistance offered by PROCASE it was possible to reach the Operation License (*SUDEMA*) and the State Inspection Seal (Agricultural Defense). Source: PROCASE, 2019.

Strengthening Water Security

PROCASE carried out a major intervention to guarantee water security to its beneficiaries, especially because during its execution between the years 2015 to 2020, one of the most prolonged and severe drought periods was recorded. This action, in addition to having an immediate response to that moment of public calamity, guaranteed over time something long lasting. Well, underground dam and desalination plants. In addition to the large dams implemented by the government of the State of Paraíba, inserted in the territory where PROCASE operates, which provided a guarantee of supply for about 12,000 people.

The total number of families served by emergency plan I and II out of 5,565. In addition, it ensured the development of several other associated actions (water and animal food security, production of food for human consumption, etc.).

The most important result is undoubtedly those aimed at full domestic water security (12 months of supply) guaranteed by the intervention of 415 viable tubular wells, in addition to those that achieved moderate water security (up to 7 months of supply) by underground dams. It is interesting to note that the number of families benefited by PROCASE intervention exceeds those served by large dams (considering a family nucleus formed by 4 people). The investment value of the dams totals R $ 13.7 million, while PROCASE invested R $ 27.3 million in the emergency plan. However, in addition to the greater number of beneficiaries, we can conclude that the capillarity of the action is greater, the potential for using water for agricultural production is also higher; there were no additional costs with expropriation, in addition to the environmental impact with habitat loss it is almost nil compared to the formation of the reservoir.

Picture - Water security strategies supported by PROCASE. Right: large dam to collect surface water (*Riacho Fundo*, municipality of *Tenório*). Left: Deep Tubular Well implemented in benefited community.
Source: PROCASE, 2019.

Sustainable use of water

PROCASE acted interconnected between its actions. No activity was built separately, demonstrating the technical understanding of living with the semi-arid region, where all technologies and practices must be integrated and optimizing processes.

In this sense, 663 fields of forage palm were installed together with tubular wells and underground dams with the installation of localized irrigation systems, moved with a diversified energy matrix, giving emphasis whenever possible to clean alternatives, especially wind (494) and solar (169). With this action, 5,565 families were benefited, guaranteeing opportunities for agricultural production in a sustainable manner.

Picture - Mr. Euclides reporting on the sustainable use of water and agricultural production through the underground dam installed in the Saquinho community, municipality of *Nova Palmeira*. Source: PROCASE, 2021.

The main impact that we can affirm with the intervention carried out by PROCASE is that there is an optimization of the interventions.

Agro-ecological best practices and encouraging coexistence with the semi-arid region

Among the interventions carried out by PROCASE were those on the main productive chains, be it agricultural or non-agricultural, which are developed in the semiarid region. PROCASE mainly promoted sheep-goat farming, contributing around 60% of its investments. However, the great difference of this intervention is in the way that it was approached, offering not only animals for the formation of a herd, but technologies that guaranteed the production and conservation of food, and agroecological-based technical advice so that there would be a profound change in the paradigm of production.

About 2,099 families benefited from sheep and goat farming projects. Of those where the focus was on goat breeding, all were directed towards dairy production. This intervention has a fundamental role in the conservation of the remnants of native vegetation in the *Caatinga*, as it excludes creation in the extensive model, becoming semi-intensive in fenced areas popularly called mangoes. Investments of R $ 1.2 million in palm fields reduced the pressure on the biome, which, especially in this last drought, suffered from the removal of native cacti from the forest remnants for supply to the animals, avoiding their death due to starvation. What is interesting to note is that if we used the same investment amount

Picture - The strategy of promoting best management practices guarantees the environmental sustainability of the activities supported by PROCASE. In this example, the production of forage palm and the semi-intensive rearing of dairy goats has allowed the maintenance of the remaining native vegetation remnants.. Source: PROCASE, 2019.

to restore degraded environments - considering the amount of R $ 10,000.00 / ha established by the National Plan for the Recovery of Native Vegetation (*PLANAVEG*) - we would achieve only 120 hectares of restoration. With the strategy used by PROCASE, in addition to avoiding impact on 16,000 ha of native vegetation, it was also possible to implement 300 ha of managed areas, capable of serving as ecological corridors or springboards for some species of wild fauna; more than twice as much as would be possible by conventional reforestation methods.

Solar Energy

Investments in photovoltaic energy were another important PROCASE sustainability action, directly aligning with the Agenda 2030 Sustainable Development Goals (SDGs), specifically to objective 07 (Accessible and Clean Energy).

Through the 06 agro-industries benefited by this initiative, it was possible to benefit 881 associated families. So far, adding the energy production of all the monitored inverters, we have reached the value of 529,586 Kwh. From an economic point of view, there has already been a reduction of R $ 392,922.85 in expenses with electricity. The CO2 avoided in the atmosphere is already 243 tons, which corresponds to the carbon fixation by planting 5,904 trees.

The results demonstrate that the intervention carried out in the agroindustries, besides significant environmental gains with the change of the energy matrix, also allowed the reduction of costs in the

productive activity, allowing them to become more competitive, consequently, the guarantee that the beneficiary producers of PROCASE maintained the flow of its production, thus strengthening the entire production chain.

Picture - Solar energy system implemented at COOAPECAL, municipality of Caturité. PROCASE, 2020.

Environmental Restoration

Among the most successful environmental actions we can mention the promotion of environmental restoration that PROCASE promoted through incentives with the implementation of agroforestry systems, support to seedlings nurseries and environmental training linked to technical assistance.

As of 2017, PROCASE started an intervention in order to produce a sample of the possibilities of implementing agroforestry systems in the semi-arid region of Paraíba. 31 AS implemented between the 05 operating territories.

These AS, were implanted with areas of 2,500 m2, with predisposition for expansion up to 0,5ha. In these last 3 years, we have already accounted for 15.5 ha. Its dimensions do not seem to bring so much relevance, however, the investment that occurred in the transfer of knowledge on principles of syntropic agriculture, soil conservation techniques, crop integration, guaranteed to reach about 425 families, allowing them to build an agroecological transition from production.

In 2020, despite all the difficulties imposed by the pandemic of the new coronavirus, PROCASE carried out the insertion of a palm / herb-salt consortium in 85 communities already served with an emergency plan. The objective is that this production technique can be gradually transmitted to more beneficiaries, creating an ambience for future interventions focused on AS, in addition to ensuring that there is mitigation of the effects of the use of brackish water in irrigated fields.

Within this context, there was the insertion of nurseries cultivated by PROCASE through some productive projects, which later formed the Curimataú Nursery Network. In this sense, both the AS initiative and the palm / grass-salt consortium promoted the production of seedlings by these producers. In total, more than 16,000 seedlings were produced and distributed throughout PROCASE's territory.

Picture – Evolution of AS implemented in the *Bom Sucesso* community, municipality of *Sossego*, in the last 02 years. Above: In 2018 (on the left) when planting began associated with an underground dam and in 2019 (on the right) after 05 months, when it already had significant plant development. Center: At 9 months, there was the first harvest of, reaching 07 tons of biomass. Due to the understanding of the efficiency of the acroecological techniques, the palm field neighboring the AS receives similar management at the community's own initiative. Below: With 02 years of implementation, the AS is confused with the remnant of adjacent native vegetation and ensures food security for families during the pandemic.. Source: PROCASE

Picture - The seedling nursery cultivation supported by PROCASE reflects in the integration actions between crops adapted to semi-arid conditions. Left: production of ornamental cacti and succulents. Right: Salt grass (Atriplex sp.) Developed from the distribution of seedlings to be implanted in the palm fields of the emergency plan. Source: PROCASE, 2021.

Environmental education and awareness

Linked to solar energy projects, there were 04 important interventions in education and environmental awareness. Three of them followed the same scope, with the insertion of the school community surrounding the cooperatives of the 2017 solar energy agreements on environmental issues, and one, the preparation and implementation of the ARTEZA Solid Waste Plan, which involved all the beneficiaries of the project. , in addition to the community of the *Ribeira de Cabaceiras* District.

It was possible with the environmental training initiatives with the school community, to offer content related to the conservation of the environment and living with the semiarid for 305 students and 124 teachers, totaling 429 people. It is important to note that these individuals become multiplier agents, making it possible to transmit the knowledge offered to a greater number of people. Combined with the structures implanted by PROCASE existing throughout its territory of operation (palm fields, localized irrigation, photovoltaic systems, SAF, etc.) that can serve as learning units, environmental awareness in the semiarid can become more playful and concrete.

ARTEZA's Solid Waste Plan brought environmental awareness to the 75 direct beneficiaries, and the 200 indirect ones of the cooperative, which allowed the leather processing processes in the agro-industry to become more eco efficient, guaranteeing environmental quality for everyone who makes ARTEZA and to the *Ribeira de Cabaceiras* District.

Picture - Training in environmental education, promoted in association with solar energy projects, a way to integrate the practical actions of PROCASE with the spread of knowledge to future generations. Source: PROCASE. 2019.

Conclusion

In these 8 years of running PROCASE, it has been possible to achieve its main sustainability objectives. All the environmental actions planned in its objectives were carried out, in addition to others, which arose through needs and adjustments to the moment when one of the biggest recorded droughts was faced, as a result of climate change.

Difficulties arose and were faced with technical-scientific knowledge, creativity and respect for traditional knowledge, guaranteeing the success of the various actions we carry out.

The foundation of how the path of environmental sustainability should be traced in rural activities had been built and elucidated: the arrangement of technologies for living with the semi-arid region linked to supporting the economic development of family farming associations and cooperatives allows the creation of a favorable environment for socioenvironmental development. , reducing the direct and indirect impacts on the natural landscape of the *Caatinga*. Now, just continue to follow this path.

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Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 6: Dates of supervision mission and follow-up missions

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Mission	Dates
Impl. Sup/Follow Up Mission 1	20 July 2011 - 23 July 2011
Impl. Sup/Follow Up Mission 2	01 July 2012 - 04 July 2012
Impl. Sup/Follow Up Mission 3	15 January 2013 - 18 January 2013
Impl. Sup/Follow Up Mission 4	30 September 2013 - 04 October 2013
Supervision Mission 1	22 October 2013 - 25 October 2013
Supervision Mission 2	19 May 2014 - 27 May 2014
Impl. Sup/Follow Up Mission 5	26 January 2015 - 27 January 2015
Supervision Mission 3	05 May 2015 - 15 May 2015
Impl. Sup/Follow Up Mission 6	09 December 2015 - 15 December 2015
Impl. Sup/Follow Up Mission 7	14 March 2016 - 17 March 2016
Mid-Term Review 1	28 November 2016 - 21 December 2016
Impl. Sup/Follow Up Mission 8	13 February 2017 - 22 February 2017
Impl. Sup/Follow Up Mission 9	06 June 2017 - 08 June 2017
Supervision Mission 4	25 July 2017 - 11 August 2017
Impl. Sup/Follow Up Mission 10	16 October 2017 - 20 October 2017
Supervision Mission 5	12 March 2018 - 23 March 2018
Impl. Sup/Follow Up Mission 11	11 September 2018 - 14 September 2018
Supervision Mission 6	25 March 2019 - 05 April 2019
Impl. Sup/Follow Up Mission 12	07 October 2019 - 11 October 2019
Impl. Sup/Follow Up Mission 13	20 January 2020 - 24 January 2020
Impl. Sup/Follow Up Mission 14	11 May 2020 - 15 May 2020
Remote supervision mission 1	23 November 2020 - 27 November 2020

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Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 7: Terms of Reference of the completions review mission

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
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Latin America and the Caribbean
Programme Management Department

Appendix 7: Scope of the final review mission

Terms of Reference for Mission Members (in Portuguese)

1. PROCASE, in the State of Paraíba, aimed to reduce poverty and improve the living standards of family farmers in 56 municipalities in the semi-arid region of Paraíba and directly benefited a total of 23 thousand families. The project was concluded on December 31, 2020 (completion) and the financial closure will take place on June 30, 2021 (closing). IFAD's last in-person mission was January 2020, with a remote support mission in May 2020 and a remote oversight mission in November 2020. The specific focus of the remote project completion mission will be on completing all the project documentation, thus:

a) Accountability and documentational review of the final audit of the project, including the COVID-19 emergency purchases;
b) Support in the preparation of the Economic-Financial Study;
c)Review of the implementation of the exit strategy;
d) Support the project in its financial closing;
e) Finalize the Project Completion Report, including the results of the impact assessment, the report with the assessment listeners, as well as all annexes.

2. Project coordination is requested to **deliver the following documentation to IFAD by March 3, 2021:**

a) aFinal Impact Assessment Report;
b) Project Completion Report (PCR), with all attachments;
c) Financial report for the second half of 2020;
d) Documentation for the final audit of the project;
e) Report of the evaluative listening with the beneficiary groups;
f) Report on the implementation of the project's exit strategy;
g) Report of the Economic-Financial Study.

3. The mission will work remotely between **March 8 and 12, 2021** and will focus on finalizing the project's closing documentation. The mission will be led by Leonardo Bichara Rocha, CPO ICO Salvador. All members should support the gathering of technical information prior to the mission. Below the detailed **Terms of Reference** for the mission team members:

Leonardo Bichara Rocha - CPO and Head of Mission

4. Under the guidance of the Country Director, will be responsible for:

i. Lead the mission team to achieve its objectives;
ii. Work with the Project Coordinator and State Government authorities to prepare the work plans and objectives of the mission and programming;
iii. Lead the negotiation and official communication with the State Government;
iv. Finalize the agenda and technical points of the mission, in dialogue with the Government;
v. Represent IFAD at institutional meetings and local authorities (Government, Secretariats of State and Regional Institutions);
vi. Ensure consistency and alignment with the missions and objectives of the Project, taking into account the objectives and commitments of IFAD 11;
vii. Monitor the state's procedures for a possible request to the BNDES for the new IFAD project for the northeast (Project Seeding Climate Resilience in Rural Communities in the Northeast, PCRP);
viii. Lead the preparation, negotiation and finalization of the Memorandum.

Pablo Sidersky - Technical Coordinator and Specialist in rural development and technical assistance

5. Under the guidance of the Head of Mission, he will be responsible for:

i. Coordinate the finalization of the PCR, with the contributions of the members of the mission, ensuring cohesion and alignment, and the institutional requirements of IFAD;
ii. Support in the elaboration of the mission agenda and organization of the documentation received by the project;
iii. Review the implementation of the project's exit strategy, with a view to economic, commercial and environmental sustainability, and administrative processes, and propose final adjustments;
iv. With the support of mission members, coordinate the preparation of a short Memorandum, including financial closure arrangements, including final accounts and audit and exit strategy;

Leandro Bullor –Specialist in Economic-Financial Analysis

6. Under the guidance of the Head of Mission, he will be responsible for:

v. Support in the survey of technical information prior to the mission;
vi. Guide the PMU team in the collection of relevant information through the ex-post Economic-Financial Analysis (EFA) of the project;
vii. Finalize the EFA Report and support the dissemination of the most important results;
viii. Finalize the PCR sections on the themes according to the distribution of tasks in table 1

Federica Lomiri –Specialist in Result Systematization

7. Under the guidance of the Head of Mission, she will be responsible for:

i. Support in the survey of technical information prior to the mission;
ii. Review the lessons learned in ORMS, ensuring that they are easy to understand and agreed with the project coordination;
iii. Review the project's knowledge management products, and recommend the work needed to finalize them for publication;
iv. Finalize the CPR sections of the project in the themes according to the distribution of tasks in table 1;

Adriana Martins –Specialist in Impact on Poverty

8. Under the guidance of the Head of Mission, she will be responsible for:

i. Support in the survey of technical information prior to the mission;
ii. Review the Impact Assessment Report and assist in finalizing the document;
iii. Support in the dissemination of the most important results of the project;
iv. Finalize the PCR sections on the themes according to the distribution of tasks in table 1;

Gleice Santos Meneses - Specialist in Focalization and Documentation

9. Under the guidance of the Head of Mission, she will be responsible for:

i. Support in the survey of technical information prior to the mission;
ii. Review the Listening Assessments Report of the beneficiary groups, and support the dissemination of the most important results;
iii. Finalize the PCR sections on the themes according to the distribution of tasks in table 1;

Diogo Nascimento - Specialist in Procurement and Procurement

10. Under the guidance of the Head of Mission, will be responsible for complying with specific IFAD's procurement ToRs, in addition to the attributions below:

i. Support and guide the PMU in the review of the Procurement and Contracting Plan (PCP) 2021 according to the new IFAD model, assess whether it has been fully updated and improved, check whether it is complete, whether it complies with the Annual Operational Plan (AOP) and whether is consistent with country systems and / or IFAD's Procurement Guidelines for Projects, as well as IFAD's Procurement Manual;
ii. Offer support, advice and recommendations on:
    a. the limits, maximums and preferences that must be applied when purchasing and contracting projects;
    b. the types of contracts and contractual arrangements for the acquisition of goods and the contracting of works and consultancy services necessary for the execution of the projects;
    c. the proposed acquisition and contracting methods;
    d. procurement review procedures used by IFAD, and make suggestions to improve the overall quality of processes in this area;
iii. Review and guide the PMU on ongoing acquisitions, in particular purchases completed in recent months, such as COVID-19 emergency purchases;
iv. Evaluate the use of the PAC as a planning and management tool;
v. Also check whether they are in compliance with compliance with any recommendations arising from previous IFAD reviews, with issues identified in memory aids, as well as issues raised in the project's audit reports;
vi. Support in monitoring compliance with contractual conditions and proper application of IFAD guidelines and procedures and agreed rules for procurement and contracts;
vii. Detect flaws and prepare recommendations for the project team to address important issues in the area of procurement and contracts and create control mechanisms in the procurement and contracting processes and procedures;
viii. Support the financial expert in the preparation of the annex on Compliance with the Loan Covenants;
ix. Finalize the PCR sections on the themes according to the distribution of tasks in table 1;
x. Support in the closing of the procurement and contracting works of the project.

Danilo Pisani - Financial Management Specialist

11. Under the guidance of the IFAD chief of mission and senior finance officer, following the standard Guidance Note and Standard Terms of Reference for Supporting Remote Implementation of Financial Management (FMRS), you will be responsible for:

i. Assess whether financial management arrangements are in place to manage and control project finances in compliance with IFAD's fiduciary requirements.
ii. Evaluate the financial performance of the Project.
iii. Monitor the status of implementation of the internal and external audit recommendations and the agreed actions of the most recent supervisory mission.
iv. Check the validity of Disbursement Requests and the documentation underlying the Declarations of Expenses.
v. Provide remote support to the project team on specific issues / challenges.
vi. Finalize the PCR sections on the themes according to the distribution of tasks in table 1.

Table 1 – Distribution of Tasks in the Review of the PCR

Topics	Project's Responsible	Contribution/Support	IFAD team review
Summary	Rocha		Leonardo
A. Introduction	Rocha	Gerências	Pablo
B. Project Description			
B1. Context of the Project	Rocha	Gerências	Pablo
B2. Objectives of the Project	Rocha	Gerências	Pablo
B3. Implementing Alternatives	Rocha	Gerências	Pablo
B4. Target Groups	Nicholas	Cida, Miguel	Federica/Adriana
C. Assessment of the relevance of the project			
C1. Relevance to the external context	Rocha	Consultoria	Federica
C2. Internal Logic	Rocha	Com apoio de Rosa	Federica
C3. Adaptation of changes made to the design	Rocha	Gerências	Pablo
D. Assessment of project effectiveness - Implementing			
D1. Material objectives and products obtained	Rocha	Gerências	Adriana
D2. Impact on rural poverty	Rocha	Gerências	Adriana
i) Income and domestic assets	Nicholas	Carleuza	Adriana
ii) Human and social capital	Cida		Adriana/Federica
iii) Food security	Nicholas	Cida	Adriana
iv) Agricultural productivity	Nicholas		Adriana
v) Institutions and policies	Rocha	Gerências	Federica/Pablo
vi) Access to markets	Nicholas	Thiago	Federica
vii) Gender equality and women's empowerment	Maria		Gleice
viii) Adaptation to climate change	Wallene		Pablo
xix) Management of the environment and natural resources	Wallene		Pablo
D3. Focus and reach	Rocha	Gerências	Gleice
D4. Innovation	Rocha	Gerências	Federica
D5. Scaling up	Rocha	Gerências	Federica
E. Assessment of project effectiveness - fiduciary			
E1. Project costs and financing	André		Danilo
E2. Quality of project management	André		Leonardo
i) Procurement and contracting	André		Diogo
ii) Monitoring and evaluation and knowledge management	Rocha		Adriana
E3. Quality of financial management	André		Danilo
E4. Internal rate of return of the project	André	Gerências e Consultoria	Leandro
F. Partner performance	Rocha	Gerências	
F1. IFAD performance (quality of supervision and support for implementation)	Wallene		Leonardo
F2. Government performance	André	Rocha	Leonardo
G. Assessment of sustainability	Rocha	Gerências	Pablo
H. Lessons learned and knowledge management	Rocha	Gerências	Federica
I. Conclusions and recommendations	Rocha	Gerências	Leonardo
Appendix 1. Logical framework of the project	Rocha		Adriana
Appendix 2. Summary of modifications to the financing contract	André	Gerências	Danilo/Diogo
Appendix 3. Actual project costs	André		Leandro, Federica e Danilo
Appendix 4. Internal rate of return for the project	André	Gerências e Consultoria	Leandro
Appendix 5. Environmental, social and climate impact assessment	Wallene	Gerências	Pablo
Appendix 6. Dates of the supervisory mission and follow-up missions	Automático do sistema do IFAD		Gleice

Appendix 7. Scope of the final review mission	Rocha		Gleice
Appendix 8. List of people interviewed and mission program	Rocha		Gleice
Appendix 9. Final minutes of the final stakeholder meeting and workshop	Rocha		Gleice

Table 2 – PROCASE's team active in the PCR preparation

PROCASE's TEAM ACTIVE IN THE PCR PREPARATION

- Aristeu Chaves Sousa – General Coordinator

Human Development and Social Capital Division (*GDHCS*)

- Maria Aparecida Henriques – Manager
- Gracilene Macedo Braz – Fellow

Productive Development and Market Insertion Division (*GPDIM*)

- Nicholas Lucena Queiroz - Manager
- Alex Carlos Silva Pimentel – Former Manager and Consultant
- André Luiz Silva - Consultant
- Antônia Sheila Pessoa do Nascimento - Consultant
- Edilberto Macedo Santos Filho - Consultant
- Joseane Bezerra de Freitas - Consultant
- Miguel David de Souza Neto – Consultant
- Natália Thayná Farias Cavalcanti – Consultant

Environmental Management and Combating Desertification Division (*GGACS*)

- Wallene de Oliveira Cavalcante – Manager
- Thiago Cesar Farias da Silva - Consultant

Administrative and Financial Division (*GAF*)

- André Cantalice Noronha de Godoi – Manager
- Angelita Braz da Silva - Consultant
- Carlos Eduardo Barbosa Amorim - Consultant
- Giovanna Camelo de Medeiros - Consultant
- José Edgar Melo Gomes – Consultant
- Rafaela Rocha Facundo de Almeida – Consultant

M&E Division (*GM&A*)

- José Ferreira Rocha – Manager
- Carleuza Andrade da Silva - M&E Specialist – Consultant
- Fábio Santiago de Sousa Júnior - Consultant
- Rosa Márcia França - Consultant
- Larissa Evelyn Pontes Farias – Fellow
- Paulo Magno de França Gomes - Fellow
- Wandark Petrônio Pereira de Brito – Fellow

- Maria do Carmo Soares D'Oliveira – Gender, Generation, Race and Ethnicity Advisor
- Viviane Maria Ramalho Galvão – Communication Advisor

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Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 8: List of person met and mission's programme

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Appendix 8: List of people interviewed and mission program

Date	Morning	Afternoon
Reuniões Preparatórias		
03/03 Wednesday	**Meeting 01 (Zoom) 10 am / 12 noon - Meeting to prepare for the mission - Impact Assessment** - PROCASE participants: Aristeu; Rock; Cida; Wallene; Carleuza; Pink; Fábio; and Maria. - IFAD participants: Adriana, Pablo.	
04/03 Thursday	**Meeting 02 (Zoom) 10 am / 11 am - Leveling meeting and mission preparation** - IFAD participants: The whole team	
Reuniões durante a Missão		
8/03 Monday	**- Meeting 03 (Zoom) 9h00 / 10h00. - Official opening of the mission - Presentation of the work that will be developed during the mission.** - SEAFDS Secretary - Jonildo Cavalcanti da Silva Filho - jonildofilho@gmail.com - PROCASE Participants: Aristeu; João Ferreira; Viviane; Maria; Cida; Edgar (André); Rock; Nicholas; Wallene; Carleuza; Pink; and Fábio. - IFAD participants: The entire Mission team. **- Meeting 04 (Zoom) 10h00 / 12h00. - Finalization of the Project Completion Report (PCR) - Meeting I** - PROCASE participants: Aristeu, Rocha; Carleuza; Fábio; Maria; Wallene; and Nicholas. - IFAD participants: Leonardo, Pablo, Adriana, Federica, Leandro, Gleice.	**Meeting 05 (Zoom) 2:00 pm / 5:00 pm: Finalization of the Economic and Financial Study** - PROCASE participants: Aristeu, André, Rocha, Carleuza, Otoniel, Prof. Rubén - IFAD participants: Leandro, Pablo
9/03 Tuesday	**- Meeting 06 (Zoom) 9h00 / 12h00: Financial closing - review of accountability and final audit documentation** - PROCASE participants: Aristeu; André; E d g a r; and Carlos Eduardo. - IFAD participants: Leonardo, Danilo, Diogo **- Meeting 07 (Zoom) 09h30 / 12h00: Finalization of the Project Completion Report (PCR) - Meeting II** - PROCASE participants: Rocha; Carleuza; Pink; Fábio; Maria; Wallene; and Nicholas. - IFAD participants: Pablo, Adriana, Federica, Leandro, Gleice	**- Meeting 08 (Zoom) 14h00 / 17h00 .: Acquisitions and Contracts (I)** - PROCASE participants: Aristeu; André; Rafaela; Letyssia (SEDH); Natália; Dr. Narla; and Dr. Ricardo - IFAD participants: Leonardo, Danilo, Diogo **- Meeting 09 (Zoom) 2:00 pm / 5:00 pm: Implementation of Exit Strategy, Knowledge Management (systematization of good practices).** - PROCASE participants: Cida; Maria; Nicholas; Wallene; Vivane; Carleuza and Rosa. - IFAD participants: Pablo, Federica, Adriana

10/03 Wednesday	**Meeting 10 (Zoom) 10 am / 12 pm: Closing workshop (s): presentation and discussion of the results of 'territorial wiretapping'.** - PROCASE participants: Cida; Maria; Nicholas; Wallene; Vivane; Carleuza. - IFAD participants: Leonardo, Pablo, Federica, Adriana and Gleice **Meeting 11 (Zoom) 10h00 / 12h00: Financial closing II - Implementation of the POA / PAC for 2021** - PROCASE participants: Aristeu; André; Rafaela; E d g a r; and Rocha; - IFAD participants: Danilo, Diogo	**- Meeting 12 (Zoom) 14h00 / 17h00 .: Acquisitions and Contracts (II)** - PROCASE participants: Aristeu; André; Rafaela; Letyssia (SEDH); Natália; Dr. Narla; and Dr. Ricardo - IFAD participants: Danilo, Diogo
11/03 Thursday	Submission of individual contributions to the Memorandum by 12 noon	Sending the Memorandum to the Project
12/03 Friday	**- Meeting 13 (Zoom) 09: 00 / 10:30 - [Adjustments and finalization of the memo]** - PROCASE participants: Aristeu; João Ferreira; Cida; André; Nicholas; Rock; and Wallene. - IFAD Participants: Mission Team **- Meeting 14 (Zoom) 11h00 / 12h00 - Closing Meeting ('Wrap-up meeting), with presentation by PROCASE of the main results and legacies of the project - Signature of the Memorandum** - SEAFDS Secretary - Jonildo Cavalcanti - SEPLAG Secretary - Gilmar Martins - Secretary SEDAP - Efraim Morais - Director of the Cooperar Project PROCASE participants: Aristeu; João Ferreira; Cida; André; Nicholas; Rock; and Wallene. - IFAD Participants: Mission Team	

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Brazil

Cariri and Seridó Sustainable Development Project (PROCASE-Paraiba)

Project Completion Report

Appendix 9: Final wrap-up/stakeholder workshop findings

Mission Dates:	08/03/2021 - 12/03/2021
Document Date:	29/06/2021
Project No.	1100001487
Report No.	5733-BR
Loan ID	1000003937

Latin America and the Caribbean
Programme Management Department

Appendix 9: Conclusions of the closing workshops with stakeholders

On March 25, 2021, the PROCASE's **Final Evaluation Workshop with Beneficiaries and Partners** was promoted, from 2:30 pm to 5:00 pm, remotely, due to the COVID-19 pandemic. .

Objective of the Workshop: To provide a space for reflection that allows the analysis of the results of the Project; its products, results and impacts, in a way that allows dimensioning the scope in terms of relevance, effectiveness, efficiency, sustainability and impact of the Program.

The event was attended by 85 people, 51% women and 49% men. With the presence of 47 (55%) beneficiaries, 17 (20%) representatives of partner organizations / institutions and 21 (25%) formed by the Project team. Leaders of associations and communities from the four territories served by PROCASE participated, in addition to partner organizations / institutions, State's Secretariat for Family Farming - *SEAFDS*, State's Secretariat for Women and Human Diversity - *SEMDH*, State's Secretariat for Infrastructure, Water Resources and the Environment - *SEIRHMA*, Paraiba Research Company, Rural Extension and Land Regularization - *EMPAER*, Cooperative of Labor and Technical Services of Agrarian Reform - *COOPTERA*, Institute for Citizenship and Sustainable Development - *IDS*, *PATAC* and National Learning Service Rural - *SENAR*. It is important to highlight that the beneficiaries (participants) contemplated representatives of all the actions developed by the Project, as well as, of the priority public, women, youth and *quilombola* communities. According to the attached attendance list.

The methodology used was a "participatory discussion/reflection" about the results and impacts identified from the actions implemented by PROCASE, with the help of a facilitator. Due to the Covid-19 Pandemic, the methodology of the event has undergone adaptations. To achieve the objectives proposed by the event, an instrument for collecting information with the participating public was previously elaborated and applied. In the case of beneficiaries, 57 questionnaires were applied. The choice of the beneficiaries' representation took into account the multiplicity of the Project's actions, as well as the participation of the priority public (women, youth and *quilombola* communities). In the case of partner institutions / organizations, account was taken of those that had a closer action with the Project, either in the institutional articulation of partnerships or in the execution of services provided, as is the case with technical advisory entities. In this profile, 7 institutions / organizations were invited to answer the questionnaire and participate in the event. In the elaborated and applied questionnaire, questions were asked about the four macro themes guided by IFAD, regarding the final evaluation, which are: The effects on the lives of the beneficiaries; on the extent of reaching the objectives and targets; on the performance of partners and on the sustainability of actions.

The event was divided into three parts: in the first, the objectives of the event and the welcome by the authorities present were presented, as well as by the representation of the institutions and beneficiaries. The importance of the moment with the closure of the Project was highlighted. In the second part, the products, results and impacts of the Project were presented, these have already been identified by the various studies carried out and which make up the PROCASE Review and Conclusion process. In the third, the results of the evaluated themes were presented, through a form, by the participants of the event and a "discussion/reflection" was carried out with the objective of validating, rectifying or expanding the identified results. In addition, a discussion was held on possible recommendations and lessons learned.

Active participation during the event made it possible to confirm these results, either through objective statements, or through exciting testimonies from beneficiaries and partnerships.

In general, the results were validated and extended. It is important to highlight that the results pointed out by the participants in the questionnaires were very positive and confirmed the results and impacts in all the evaluated themes. It was confirmed that PROCASE was effective and provided results and impacts such as: the increase in the productive and social infrastructure; access to new technologies or adapted technologies; the increase in commercialization and access to markets; increased food security; the increase in income; improvement in the environment of natural resources and better coexistence with the semi-arid region and managed to meet the demands of the priority public (women,

youth and the quilombola community). Regarding the fulfillment and extension of the goals and objectives, the relevance and efficiency of PROCASE was confirmed when it enabled important gains for the poor rural population; promoted positive behavior changes both for farmers and for service providers; and changed the lives of the beneficiaries for the better. In the field of partner performance, it was confirmed that PROCASE and IFAD were able to respond to the needs / demands expressed by family farmers; the Project team was proactive in solving the identified problems; the other national / state/local public policies contributed in part to the achievement of the Project's objectives; PROCASE and IFAD offered sufficient and timely support for the implementation of the actions carried out. In the field of sustainability of actions, it was confirmed that the actions implemented can be considered sustainable; the main factors that can affect the sustainability of the actions were identified; the mechanisms / actions that need to be implemented; and who should be assigned these responsibilities. For each theme, some recommendations were made, and the lessons learned were identified. The results evaluated by themes will be presented in the tables below.

THEME 1- THE EFFECTS ON THE LIFE OF BENEFICIARIES - Effectiveness / Impacts

QUESTIONS	ANSWERS	GENERAL RECOMMENDATIONS WITHOUT THEME
1 - With Procase's actions, was there an increase in access to infrastructure? (Productive - machines, equipment, spaces; access to water and others)	-100% interviewed participants stated that YES. -The biggest highlights were the productive infrastructure to expand production and forage support; for the improvement of production; production of solar energy and access to water.	- Guarantee technical assistance to organizations since the beginning of the execution of productive projects; -Ensure specific technical advice for craft projects, which can contribute to product design, development and modeling, marketing strategy and others. - Reduce bureaucratic processes, avoiding delays in the execution of projects; -Continue strengthening associations and cooperatives mainly seeking to focus on project management; -Enlarge the focus of Projects on the issue of commercialization and certification of enterprises; -Executing the public notices of published projects in full, especially when referring to the priority public (women, young people and *quilombola* communities), when this does not happen it ends up decreasing the protagonism of these
2 - With Procase's actions, has there been an increase in access to new technologies or adapted technologies?	-93% of beneficiary participants stated that YES. -In the view of the participants of the institutions / partners, 86% said YES. -The highlights were for the new productive equipment, desalinizers, solar energy and highlighting the coexistence with the semiarid	
3 - With Procase's actions, was there an increase in market access / commercialization?	-74% of beneficiary participants replied that YES. -In the view of the participants of the institutions / partners 100% affirmed that YES. -The beneficiaries highlighted the importance of increasing marketing, but emphasized the need to expand channels of access to the market, both private and institutional.	
4 - With Procase's actions, was there an increase in income?	-100% participants present at the event stated that YES. According to them, Procase contributed to income in several ways: increased production; decreased costs; access to water; enlargement of the herd (goat / sheep); product improvement; and increased sales of products, etc.	
5 - With Procase's actions, was there an increase in Food Security?	-100% participants said YES. - Procase contributed to food security mainly with the irrigated fields that many of them are intercropped with other cultures and also through productive projects.	
6 - With Procase's actions, have there been improvements in the environment of natural resources / coexistence with the semiarid?	-94% of beneficiary participants stated that YES. -In the view of the participants of the institutions / partners, 86% said YES. - The highlight goes to TA actions in the field of the relationship with the environment and living with the semiarid, highlighting the improvement of environmental and agricultural practices, such as: forage production, soil management, better use of water resources; replanting of areas, etc. Other actions such as SAF´s and solar energy were also highlights.	
7 - With the Procase actions, were the associations /	96% of beneficiary participants stated that YES. - In the view of the participants of the institutions / partners, 86% said YES.	

cooperatives strengthened?	- The increased feeling of collectivity is highlighted; greater participation in meetings and activities; greater importance of associativism.	audiences, as in the 2016 call notice.
8 - Have PROCASE and IFAD been able to respond to the needs / demands expressed by the priority public (Youth, Women and Quilombola Communities)?	87% of beneficiary participants stated that YES. -In the view of the participants of the institutions / partners, 43% said YES and 57% in part. -The importance of the Project's actions in improving the life and autonomy of women and young people is highlighted; increased women's self-confidence and self-esteem; improving women and youth access to public policies; improving women's empowerment.	-Continuities of actions that integrate women and youth into their communities;

LESSONS LEARNED

1-That the technical advice must be permanent since the beginning of the Project and adequate to the diverse, beneficiary audiences, thus generating more results in the long run;
2- The importance of the training process to develop the various skills necessary for the sustainable development of family farming,
3- The importance of access to diversified knowledge and the appropriation of strategies for living with the semi-arid region, generating sustainability;
4- The importance of genetic improvement of the goat and sheep herd as well as the recomposition of the forage palm;
5- The importance of expanding the local market, recognizing the products of Family Farming, from fairs, local exhibitions and social networks. This has contributed significantly, however, it is essential to expand the commercialization channels.
6-The importance of strengthening associations / cooperatives both in organizational matters and in the management of actions;
7-You should have started hiring Young Scholars, right at the beginning of the execution of the Project. To have better monitored the activities of young people, working together with them in the field;
8- The importance of working with women and the discussion of important issues such as gender equity, a fair division of domestic work and the adoption of agroecological logbooks.

THEME 2- ABOUT THE EXTENSION OF OBJECTIVES AND GOALS - Relevance and Efficiency

QUESTIONS	ANSWERS	GENERAL RECOMMENDATIONS WITHOUT THEME
1- In your opinion / experience what did the rural population gain from Procase's actions?	-Various gains were reported by the beneficiaries (as), here we present the most cited: -Technical advice expanded knowledge and experience through training to perform activities in rural areas; -Access to drinking and production water; -Knowledge to produce and store fodder (production and commercialization), avoiding the purchase; -Improvement in the genetic quality of the animals (Goats and sheep); -Knowledge in the areas of environmental preservation and coexistence with the semi-arid / sustainability / implementation of SAFs; -Improvement of the infrastructure of the developments / Equipment to improve the production and processing of products; -Access to new technologies; -Increased production and commercialization of family farming products; - Strengthening of associations through improved organization, administrative and financial management, and the quality of teamwork; -More opportunity for women and young people to perform their jobs; - Opportunities to access public policies -Gained more dignity.	-The execution of the Project generated significant results, in this sense its actions should be replicated more and more, expanding the service to more families and communities - In order to ensure better results, technical advisory and training activities should be initiated at the time of the Project's execution, which will expand actions, training activities, follow-up to beneficiaries with guidelines and practices. - The training processes must be permanent and efficient to guarantee the change in behaviors necessary for the development and sustainability of the actions.
2- In your opinion / experience, was there a change in the behavior of family farmers in your community /	- 81% of beneficiary participants replied that YES and 13% in part. -In the view of the participants of the institutions / partners 71% said YES and 29% in part. –The main behavioral changes reported were:	

cooperative / association / family with the implementation of PROCASE actions? 2.1- If so, do you mention any of these behavioral changes?	- Greater incentive to work in the community / association collectively and give more value to community goods; -Motivation in producing and marketing food / products; -Learning and practical use of soil conservation techniques, using organic fertilization and mulch in areas of crops, pastures and forages; -Awareness of the importance of diversifying and storing food for animals; -Care and practices for better use of water resources, better management of livestock, better use of roughage; -Increased interest in expanding the breeding and increasing the planting area for crops; -The feeling of responsibility towards the environment, leading the beneficiary to plant seedlings to reforest the banks of the river (fruitful and native seedlings); -Women are more confident to seek other public policies; -The feeling of self-worth of women, through the registration of their productive activities, in the agroecological booklet; - Greater interest and organization of women as individuals, with a commitment to take care of the structures with responsibility and to actively participate in the association; - Greater insertion of young people in the community association, as well as their performance in productive activities; -The constant interest of farmers in replicating the experiences learned in the training processes and in the properties; - Greater commitment in all of the community to strengthen mutual aid and seek more actions for the community trying to access more public policies; -Increased the search for support for family farming, as well as the new experiences of living with the semiarid region; -The renewal of the feeling of credibility in public policies.	- It is important to continue investing in agroecology, the solidarity economy and good initiatives to live with the semi-arid region. -It is increasingly recommended to strengthen the network of partners by setting up an efficient strategy that allows the monitoring and sustainability of the gains achieved with the execution of Procase.
3 - In your opinion / experience, has there been a change in behavior from service providers (governments, institutions, etc.) to farmers (families), with the implementation of PROCASE actions?	-79% of beneficiary participants responded that YES and 17% in part. -In the view of the participants of the institutions / partners, 43% answered that YES and 57% in part. - It is important to highlight that the fine-tuning between service providers in the vicinity of the Project is essential to guarantee these results.	
4 - Have the lives of family farmers changed for the better, compared to the situation prior to the project?	91% of beneficiary participants responded that YES and 5% in part. -In the view of the participants of the institutions / partners 86% answered that YES and 14% in part.	
5- In your opinion/experience was PROCASE responsible for these changes?	91% of beneficiary participants replied that YES and 7% in part. -In the view of the participants of the institutions/partners 71% answered YES and 29% in part.	
LESSONS LEARNED 1-The relevance of Procase in strengthening family farming, in organizational, socio-productive and environmental aspects; 2-The Project provided greater recognition of the condition, ethnic, generational and gender; 3-Farmers more encouraged to produce, greater knowledge and access to existing public policies;		

3-The exchange of knowledge between farming families; strengthening local organizations; the strengthening of coexistence strategies with the semi-arid region through sustainable management for the production of healthy food for families, are legacies left by Procase;
4-The good service provided by the Project, in fact, had the ability to change the reality of the benefited families, thus, one can perceive the gain in quality of life, financial, productive and living with the semiarid.

THEME 3- PARTNER PERFORMANCE

QUESTIONS	ANSWERS	GENERAL RECOMMENDATIONS WITHOUT THEME
1- Have PROCASE and IFAD been able to respond to the needs / demands expressed by farmers / family members?	100% of participants interviewed, beneficiaries and partner institutions responded that YES	- It is important that the network of partners around the Project is strengthened through continuous planning and articulation of integrated actions, thus enabling greater involvement with the objectives of the Project and the results achieved; - Expand the articulation with managers, state and municipal, as well as expand the access of beneficiaries to other public policies;
2- Did the PROCASE team proactively seek to identify problems and provide solutions?	100% of the beneficiary participants replied that YES.	
3- Did public policies and government regulations, whether (national, state and local) support the achievement of Procase's objectives? Example other policies, such as PAA, PNAE, credit and others.	-In the view of the participants of the institutions / partners, 86% answered that YES.	
4- Did PROCASE and IFAD offer sufficient and timely support for the implementation of the actions carried out in your community / association / family?	43% of beneficiary participants replied that YES, 30% in part and 10% NO.	
LESSONS LEARNED 1-The need for greater articulation with the partners network in favor of the Project, including municipal managers / secretariats, not only in agriculture, but also in health, education and social assistance so that it can have a more integrated monitoring. 2- Importance of continuous planning with the partners involved, discussing the integrated actions carried out and the results achieved; 3-Access to different public policies, mainly agrarian ones, are fundamental to reach the Project's objectives, in this sense it is important to establish permanent monitoring and evaluation strategies with the beneficiaries and partners to measure the results;		

THEME 4- SUSTAINABILITY

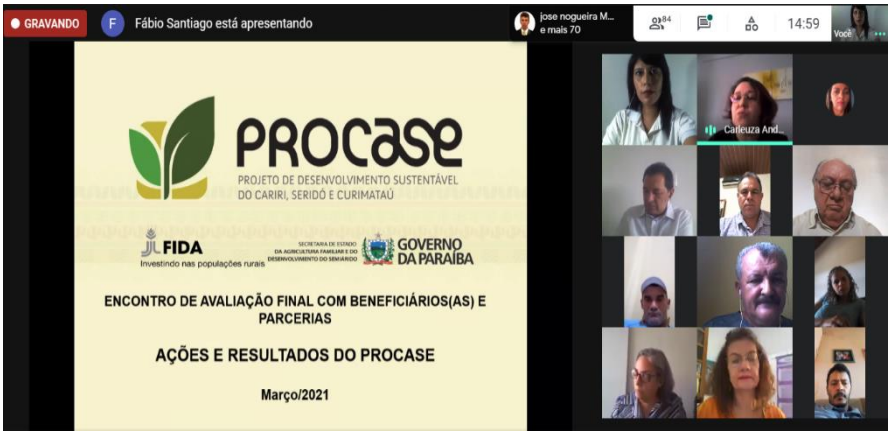
QUESTIONS	ANSWERS	GENERAL RECOMMENDATIONS WITHOUT THEME
1 - In your opinion, can the activities implemented by Procase be considered sustainable?	100% of the participants interviewed, beneficiaries and partner institutions answered that YES.	
2 - What factors can affect the sustainability of the actions implemented by Procase? (Multiple choices)	For beneficiaries: -Lack of community or association management was indicated by 63%; -Lack of follow-up by other partner institutions was indicated by 46%; - After the end of Procase, the AT will be deficient and was indicated by 11%; - The lack of TA and expansion of marketing channels was indicated by 7%; In the view of partner intuitions / organizations: 1st, the lack of follow-up by other partner institutions was indicated; 2nd, the lack of management by the community or association was indicated;	**-** Fortalecer as práticas de convivências com o semiárido; -Management of production through agroecology, the use of renewable energies, and social technologies -Establish partnership with organizations / institutions to continue the
3 - What mechanisms / actions need to be	For beneficiaries:	

implemented to ensure that Procase's earnings are not lost? (Multiple choices)	-You need to have technical monitoring by other partner institutions was indicated by 83%; -The families need to do a good management of the received actions was indicated by 76%; -The association / cooperative needs to do a good management of the received actions was indicated by 63%; - Expanding access to markets, both private and institutional, was indicated by 61%; In the view of partner intuitions / organizations: 1st place, it was indicated that the association / cooperative needs to do a good management of the received actions; 2nd place was indicated the need to expand access to markets, both private and institutional; 3rd it was indicated that it needs to be technically monitored by other partner institutions;	support / technical assistance to farmers; -Strengthen the management of enterprises to guarantee the results achieved so far; - Articulate a strategy to support the expansion of marketing spaces with partners.
4- Who should be responsible for these actions?	For beneficiaries, the responsibility is: -Families benefited were indicated by 85%; -Government of the state was indicated by 61%; -Director of the association/cooperative was nominated by 52%; -EMPAER was indicated by 44%; -COOPERAR was indicated by 44%; In the view of partner intuitions/organizations: 1st place was indicated the board of associations / cooperatives; 2nd place, the beneficiary families were indicated; 3rd, the state government/secretariats was appointed;	

LESSONS LEARNED

1-The importance and valorization of living with the semi-arid region;
2-The importance of involving women and young people in the sustainability of the gains achieved;
3-Increase in the production of forage production and storage and expansion of intercropped crops;
4-Interest in expanding production due to processing and commercialization;
5-Importance of rotating funds of animals and palms to generate sustainability;
6-Systematization of successful experiences as an instrument for scaling up;
7- Importance of articulation and participation in networks, strategies and spaces that seek to develop actions that envisage a relationship with the environment and coexistence with the semi-arid region;
8-Need for institutional articulation and construction of strategies aimed at the sustainability of the results achieved.

PHOTOS AND TESTIMONIALS OF THE FINAL EVALUATION WORKSHOP WITH BENEFICIARIES AND PARTNERS

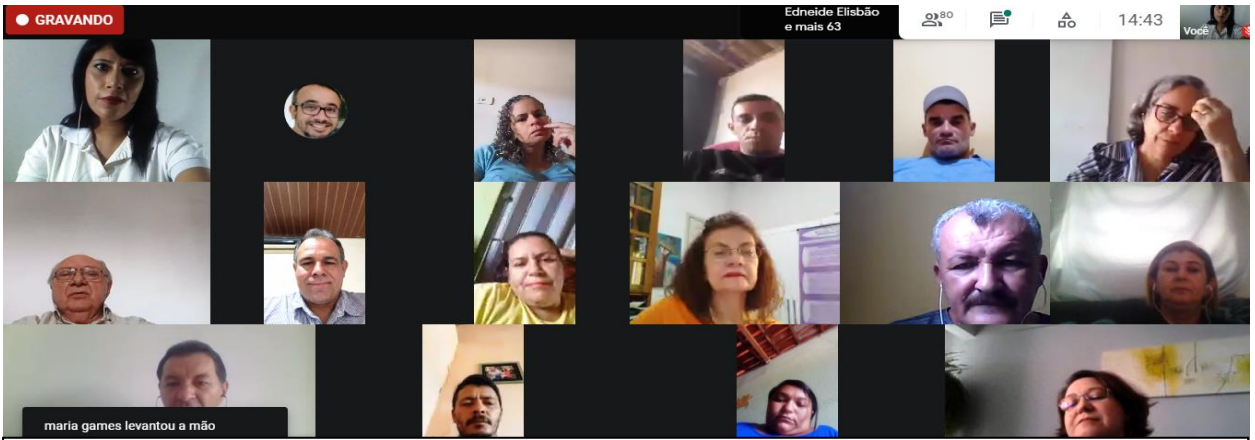


PROCASE started out as a dream, and it was built with the staff, it was dreamed together, with the support of the technical team, Margaridas has part of its history with it, with the eyes of those who think about the future and from then on increased our greatest dreams. Today we have a minimum income, even in a Pandemic.

Adilma Fernandes-Grupo as Margaridas-PPs.

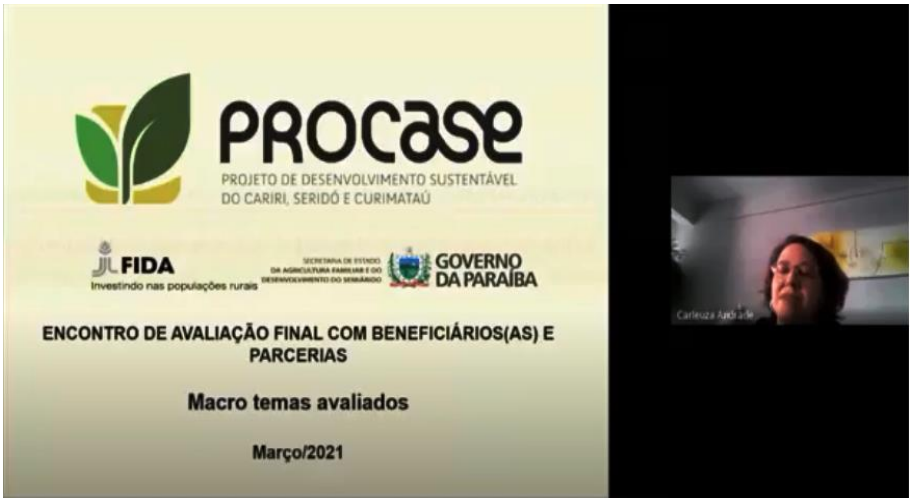
PROCASE made the community have dignity, Quilombo de Santa Rosa is an example of achievements, we won partners, we left 23 members, in 2017 to 84, with women and men, in addition to 35 young people. There was an exchange, Palma camp. We go to the spaces to collect our rights, the board has the majority of women, to always lead.

Edilene Monteiro-Quilombo Santa Rosa.



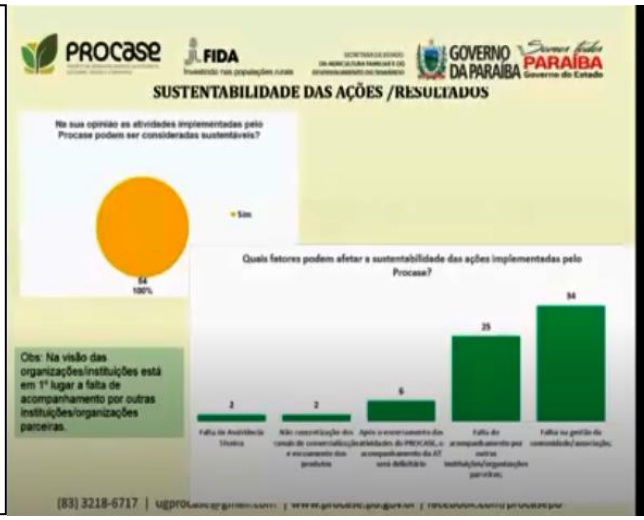
For us here in *São José dos Cordeiros*, PROCASE was a real turning point. The difference is not only in quantity but also in the quality of production. Our product has been and is being valued more and more and we are forever grateful for all this help from PROCASE. Today São José dos Cordeiros lives up to the title of Capital do mel. **Samuel dos Santos Bezerra –AAME-PPs-Apicultura**.

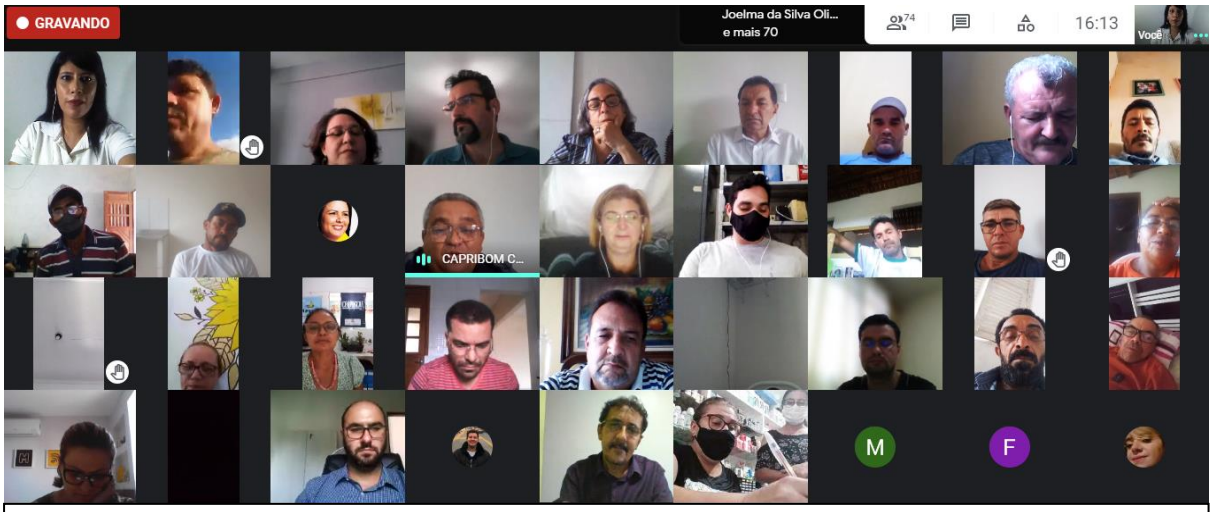
FOTOS E DEPOIMENTOS DO WORKSHOP DE AVALIAÇÃO FINAL COM BENEFICIÁRIOS (AS) E PARCEIROS



Procase provided an improvement of 1,000%, before we had no water and today, in addition to water, we produce beans, corn, palm and diversified vegetables. We sell vegetables and life has improved a lot, we even bought a cart to do the marketing. Today, there are 6 people working directly and 3 indirectly.
Fabio Honorato- PE-Irrigated forage palm field turned into a vegetable garden.

I am the son of a farmer and I was a young fellow from Procase, which was my first job opportunity. Today I have conquered countless job opportunities through the experience acquired in the Project. .Today I am graduated in the Agroecology course and I do postgraduate studies in Zootechnics - UFCG.
João Vitor Santos-Monteiro.





My acknowledgements to the entire Procase team, to IFAD and to all partner institutions, which made all productive projects happen and the opportunity for great experiences. It was of great importance, thank you very much!
Cícero Dias-PPs

LIST OF PARTICIPANTS IN THE FINAL ASSESSMENT WORKSHOP WITH BENEFICIARIES AND PARTNERS

N°	TERRITORY / PARTNER INSTITUTION	COUNTY	ASSOCIATION/COOPERATIVE	PROJECT	BENEFICIARY (A)	GENDER IDENTITY
1	Cariri Ocidental	Congo	Comunidade do Sítio Cardoso / Associação dos Pequeno Produtores Rurais de Riacho do Algodão e Santa Rita	Projeto Produtivo e Caderneta Agroecológica	Andrea Amurim da Silva	Feminino
2	Cariri Ocidental	São José dos Cordeiros	Associação de Desenvolvimento Comunitário Rural de Cardoso	Plano Emergencial (Barragem Subterrânea + Campo de Forragem)	Wilson Barros de Sousa	Masculino
3	Cariri Ocidental	São Sebastião do Umbuzeiro	Comunidade do Sítio Santana	Plano Emergencial (Poço + Campo de Forragem).	Fábio Cavalcante Honorato	Masculino
4	Cariri Ocidental	Monteiro	Associação Comunitária da Vila Produtiva Rural - VPR LAFAYETTE	Plano Emergencial (Poço + Campo de Forragem + SAF	Luciano dos Santos	Masculino
5	Cariri Ocidental	Amparo	Comunidade do Sítio Caiçara – Assentamento Mata / Associação dos Produtores Rurais do Sítio Caiçara	PP - Projeto Produtivo	José Nogueira de Morais	Masculino
6	Cariri Ocidental	Monteiro	CAPRIBOM - Cooperativa dos Produtores Rurais de Monteiro PB.	PP - Projeto Produtivo Energia Solar	Francisco Rubens Remígio	Masculino
7	Cariri Ocidental	Parari	Associação dos Criadores e Produtores de Caprinos e Ovinos de Parari (ACPCOP)	PP - Projeto Produtivo – Caprinocultura	José Costa de Farias	Masculino
8	Cariri Ocidental	Serra Branca	Comunidade do Sítio Lagoinha / Associação Comunitária dos Moradores do Sítio Lagoinha	PP/Quilombola - Projeto Produtivo (Caprino e Ovino)	Fabia dos Santos Mota	Feminino
9	Cariri Ocidental	Camalaú	COOPESCAF – Cooperativa de Pescadores, Aquicultores e Agricultores Familiares de Camalaú e Região.	PP - Projeto Produtivo -Piscicultura	Maria de Fátima Mota Barbosa	Feminino
10	Cariri Ocidental	Monteiro	CAPRIBOM - Cooperativa dos Produtores Rurais de Monteiro PB.	Bolsista do PP - Projeto Produtivo Energia Solar	João Victor Inácio dos Santos	Masculino

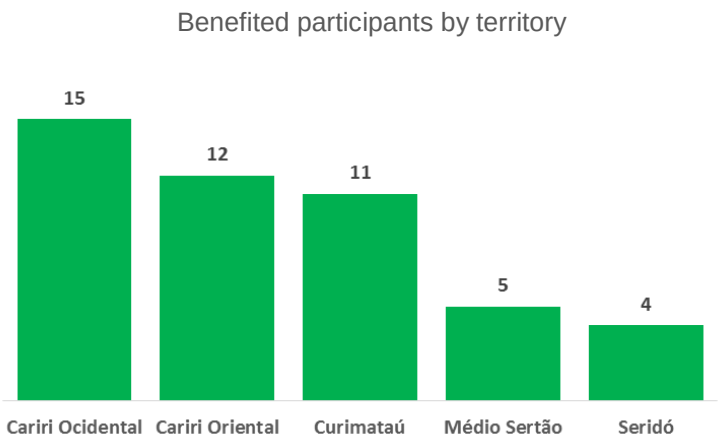
11	Cariri Ocidental	São João do Tigre	Comunidade Cacimba Nova / Associação Quilombola Rural de Cacimba Nova – São João do Tigre PB	Jovem Quilombola	Edneide Elisbão	Feminino
12	Cariri Ocidental	Camalaú	Associação dos Assentados do Assentamento do Eldorado dos Carajás - Camalaú PB	Dessalinizador	Vera Lúcia Ferreira Feitosa	Feminino
13	Cariri Ocidental	São José dos Cordeiros	AAME SJC	PP - Projeto Produtivo - Apicultura	Samuel dos Santos Bezerra	Masculino
14	Cariri Ocidental	Serra Branca	Comunidade do Sítio Lagoinha / Associação Comunitária dos Moradores do Sítio Lagoinha	PP/Quilombola - Projeto Produtivo (Caprino e Ovino)	Fabricia Dos Santos	Feminino
15	Cariri Ocidental	São Sebastião do Umbuzeiro	Representante das rendeiras de são Sebastião do Umbuzeiro	PP - Projeto Produtivo	Alany Gomes	Feminino
16	Médio Sertão	Santa Luzia	Associação Comunitária dos Produtores Rurais de Saco dos Goitis	Projeto Produtivo, Plano Emergencial e Caderneta Agroecológica	Carmita Araújo de Souza	Feminino
17	Médio Sertão	Junco do Seridó	Associação Comunitária dos Pequenos Produtores Rurais da Carneira Veríssimo	PP - Projeto Produtivo	Francisco Assis dos Santos	Masculino
18	Médio Sertão	Várzea	Associação Comunitária Quilombola de Pitombeira	Projeto Produtivo, Plano Emergencial e Dessalinizador	Maria de Fátima Souza Santos	Feminino
19	Médio Sertão	São Mamede	Associação dos Agricultores Rurais de Serra Branca, Jatobá, Queimadas e Morcego	Projeto Produtivo e Plano Emergencial	Damião Pedro de Araújo	Masculino
20	Médio Sertão	São José do Sabugi	Comunidade Redinha	Plano Emergencial e Jovem Bolsista	Camila Medeiros da Costa	Feminino
21	Seridó	Juazeirinho	Associação dos Criadores de Caprinos e Ovinos do Município de Juazeirinho - ACCOMJ	PP - Projeto Produtivo - Caprinocultura	Clayton Nóbrega Pereira	Masculino
22	Seridó	Pocinhos	Associação Comunitária do Sítio Cajueiro	PP - Projeto Produtivo – Artesanato	Joelma da Silva Oliveira	Feminino
23	Seridó	São Vicente do Seridó	Associação Comunitária dos Moradores de Santa Maria	PP - Projeto Produtivo – Artesanato	Gisélia Pontes	Feminino

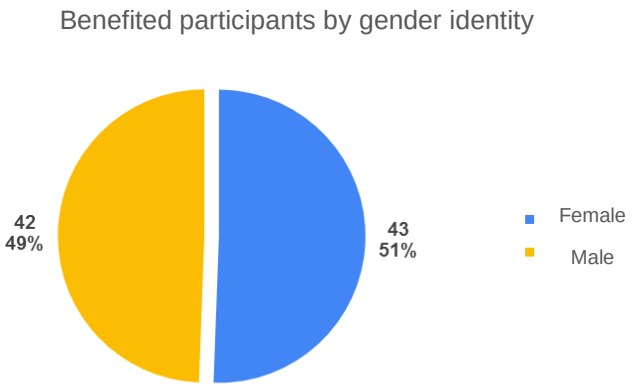
24	Seridó	Pedra Lavrada	Comunidade Serrote Redondo	Plano Emergencial e Operador do Sistema de Dessalinização Vertical	José Wilson Bezerra Santos	Masculino
25	Cariri Oriental	Caturité		Jovem bolsista e Plano Emergencial	Ana Beatriz do Espirito Santo Barbosa	Feminino
26	Cariri Oriental	Gurjão		Tapeçaria de Gurjão	Ana Robéria Gonçalves de Oliveira	Feminino
27	Cariri Oriental	São Domingos do Cariri	Associação Porteiras	PP - Projeto Produtivo	Diógenes Fernandes do Nascimento	Masculino
28	Cariri Oriental	Boa Vista		Quilombo Santa Rosa / Plano Emergencial	Edilene Monteiro Fernandes	Feminino
29	Cariri Oriental	Alcantil		Dessalinizador e Caderneta Agroecológica	Francineide Barbosa de Oliveira	Feminino
30	Cariri Oriental	Santo André	Assoc. de Ilha Grande	PP - Projeto Produtivo	Josenilda Niculau	Feminino
31	Cariri Oriental	Cabaceiras	ARTEZA- Ribeira de Cabaceiras	Energia Solar	Lucas de Araújo Castro	Masculino
32	Cariri Oriental	Boqueirão	CASACO	PP - Projeto Produtivo	Maria Célia Araújo	Feminino
33	Cariri Oriental	Caraúbas	ACCOC	PP - Projeto Produtivo	Rosinete de Freita Bezerra	Feminino
34	Cariri Oriental	Caraúbas		Patrulha Mecanizada	Rone Feitoza de Sousa	Masculino
35	Cariri Oriental	Santo André	Assoc. de Ilha Grande	PP - Projeto Produtivo	Luciana leite de Oliveira	Feminino
36	Cariri Oriental	Santo André	Assoc. de Ilha Grande	PP - Projeto Produtivo	Natalia leite de oliveira niculau	Feminino
37	Curimataú	Barra de Santa Rosa	Assentamento Riacho da Cruz	PP - Projeto Produtivo	Cícero Silva Dias	Masculino
38	Curimataú	Barra de Santa Rosa	Assentamento Riacho de Sangue	PP - Projeto Produtivo	Heleno Silva Pereira	Masculino
39	Curimataú	Algodão de Jandaíra	Assentamento Rosa Luxemburgo	Dessalinizador	Valdiléia dos Santos Moreno	Feminino
40	Curimataú	Sossego	Comunidade Bom Sucesso	Barragem Subterrânea	Arlindo Ferreira de Macêdo	Masculino
41	Curimataú	Picuí	Comunidade Mari Preto	Energia Solar	Júlio Pereira da Costa	Masculino
42	Curimataú	Picuí	Comunidade Quixaba	PP - Projeto Produtivo	Damaiana Patrícia Dantas	Feminino
43	Curimataú	Remígio	Comunidade Negra do Camará	PP - Projeto Produtivo	Rivaldo dos Santos Nascimento	Masculino
44	Curimataú	Remígio	Assentamento Oziel Pereira	PP - Projeto Produtivo	Adilma Pereira Fernandes	Feminino

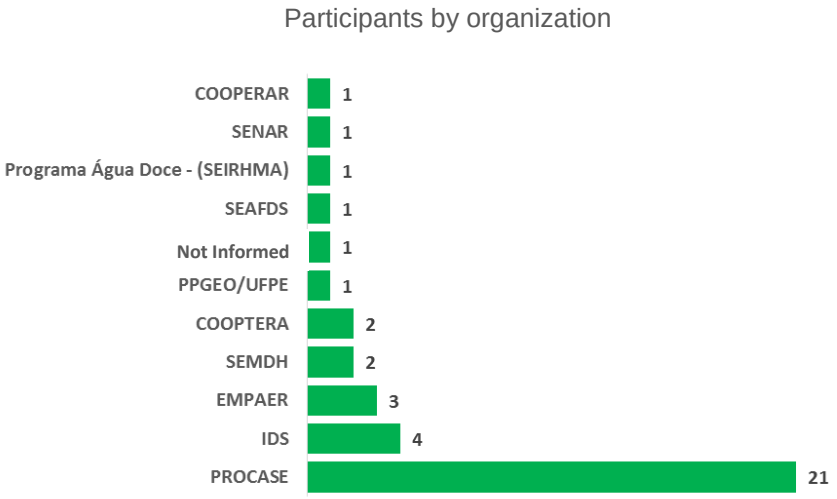
45	Curimataú	Algodão de Jandaíra	Comunidade Plácido Clementino	Plano Emergencial com Perfuração do Poço	José Renato	Masculino
46	Curimataú	Picuí	Comunidade Quixaba / Associação de Mulheres em Quixaba Picui e Região	PP - Projeto Produtivo	Maria Ednalva Dantas dos Santos	Feminino
47	Curimataú	Algodão de Jandaíra	Comunidade Rosa Luxemburgo	Dessalinizador	Leinha Santos	Feminino
48	PPGEO/UFPE				Luciano Guimarães	Masculino
49	IDS				Claudia Reis	Feminino
50	IDS				Valdivan Almeida	Masculino
51	IDS				Jucileide Borburema	Feminino
52	IDS				Silvana Lopes	Feminino
53	COOPERAR				Márcia Dornelles	Feminino
54	EMPAER				Alciene Novaes de Carvalho Veras	Feminino
55	EMPAER				Flaviano Guedes de Araújo	Masculino
56	EMPAER				Jefferson Morais	Masculino
57	SEAFDS				Jonildo Cavalcanti	Masculino
58	Programa Água Doce - (SEIRHMA)				Robi Tabolka	Masculino
59	SEMDH				Lídia Moura	Feminino
60	SEMDH				María Auxiliadora da Silva	Feminino
61	SENAR				Gabriel Petelinkar Pereira	Masculino
62	COOPTERA				José Roberto	Masculino
63	COOPTERA				Ivanildo Luiz	Masculino
64	PROCASE				Aristeu Chaves Sousa	Masculino
65	PROCASE				José Ferreira Rocha	Masculino
66	PROCASE				Viviane Maria Ramalho Galvão	Feminino
67	PROCASE				Carleuza Andrade da Silva	Feminino
68	PROCASE				Fábio Santiago de Sousa Júnior	Masculino
69	PROCASE				Joseane bezerra de Freitas	Feminino

70	PROCASE				Jorge Guilherme Gomes de Medeiros	Masculino
71	PROCASE				Joao Macedo Moreira	Masculino
72	PROCASE				Paulo Magno de França Gomes	Masculino
73	PROCASE				Kilma Cristina Silva	Feminino
74	PROCASE				Maria do Carmo Soares D'Oliveira	Feminino
75	PROCASE				Miguel David de Souza Neto	Masculino
76	PROCASE				José Orlando Virgolino Pereira	Masculino
77	PROCASE				André Cantalice Noronha de Godoi	Masculino
78	PROCASE				Neide Rodrigues de Araújo	Feminino
79	PROCASE				Narladiene Viana Colaço	Feminino
80	PROCASE				Nicholas Lucena Queiroz	Masculino
81	PROCASE				Antônia Sheila Pessoa do Nascimento	Feminino
82	PROCASE				Maria Aparecida Oliveira de Miranda Henriques	Feminino
83	PROCASE				Felipe Leal Marinho de Alcântara	Masculino
84	PROCASE				Karolliny Angela de Oliveira Araújo	Feminino
85	Não informado Curimataú	Remígio/Negra Camará		Not informed	Rivaildo da Costa Nascimento	Masculino

LIST OF PARTICIPANTS IN THE FINAL EVALUATION WORKSHOP WITH BENEFICIARIES AND PARTNER ENTITIES







Appendix 9 (b) – Report of the Final Meeting of the Closing Mission

Projeto PROCASE

Data: 12 de março de 2021, Paraíba, Brasil

Participantes:

• Secretaries of the State Government of Paraíba • Mr. Jonildo Cavalcanti – *SEAFDS* – Secretário; • Mr. Gilmar Martins – *SEPLAN* – Secretário; • Mr. Rafael Oliveira – *SEDAP* – Deputy Secretary; • PROCASE TEAM ▪ Mr.. Aristeu Chaves - Procase Project Coordinator; ▪ Mr. José Rocha – Monitoring and Evaluation Manager ▪ Mr. André Cantalice – Financial Administrative Manager ▪ Mrs. Aparecida Henriques – Human Development and Social Capital Manager ▪ Mr. Wallene Cavalcante – Manager of Environmental Management and Combating Desertification; ▪ Mrs. Carleuza Andrade – M&E Specialist ▪ Mr. João Ferreira Sobrinho – ▪ Mr. Omar Gama – *Cooperar* Project Director ▪ Mr. Nicholas Queiroz – Component Manager ▪ Mrs. Viviane Ramalho – Communication advisor	IFAD TEAM • Mr. Leonardo Bichara Rocha - CPO; • Mr. Pablo Sidersky – Technical Coordinator and Specialist in Rural Development; • Mrs. Federica Lomiri – IFAD Consultant - Specialist in Result Systematization; • Mrs. Adriana Martins – IFAD Consultant, Planning and M&A Specialist; • Mrs. Gleice Meneses – IFAD Program Assistant; • Mr. Diogo Nascimento – IFAD Consultant Procurement and Contracting Specialist; • Mr. Danilo Pisani – IFAD Consultant Financial Management Specialist;

The Coordinator Aristeu Chaves thanked everyone for their participation, the support of IFAD and the Secretaries of State during the implementation of PROCASE and gave the floor to the Secretaries present.

Secretary Jonildo Cavalcanti thanked IFAD and the PROCASE team for implementing a project that changed the reality of many rural territories in Paraíba.

Executive Secretary Rafael Oliveira thanked IFAD and the PROCASE team for the effectiveness of the Project and the positive results for change in the Cariri and Curimataú region.

Secretary Gilmar Martins thanked IFAD and the PROCASE team, showing that the Project was a finalist in the effectiveness ranking of State projects and reinforced its satisfaction with the Project's results.

Program Officer Leonardo Bichara Rocha thanked the Secretaries of State for their presence and requested that the Secretaries be sensitized to put into effect the agreements established in the mission. He stressed that PROCASE is the second best IFAD project in Brazil and is among the best projects in Latin America and the Caribbean, in addition to being recognized by ECLAC as a reference project in the country. He emphasized that IFAD will continue to operate in the northeast through a project with

the Green Climate Fund and recommended that Paraíba apply. He ended by thanking the entire PROCASE team for the commitment and implementation of the Project.

Mr. Omar Gama reinforced his thanks and satisfaction with the results of PROCASE and gave the floor to Carleuza Andrade who started his presentation on the results of the Project from the closing studies.

At the end of the presentation, Mr. Gilmar thanked the exhibition and requested the inclusion of the information in a government information platform that is being developed by the State Government.

The other members of the PROCASE team gave their contributions, adding all the lessons learned and the important legacy that the Project will leave for the State of Paraíba, such as the implementation of photovoltaic systems and other projects.

Mr. Aristeu highlighted the challenges to be faced in order to continue guaranteeing the change in the quality of life of Paraiba.

Mr. Rafael presented the new developments planned based on the PROCASE experience.

Mr. Leonardo highlighted the memorandum agreements for the successful completion of the Project, thanked all the teams and for the partnership with the Government of the State of Paraíba.

The Secretaries ended their speeches reinforcing the gratitude of the State Government for the successful implementation of PROCASE and for the successful partnership with IFAD.

Mr. Aristeu ended the meeting by thanking the Secretaries for their commitment and the commitment of the entire team in implementing the Project.

Foto 17 – Reunião de encerramento da missão

Annex A – GENDER APPROACH IN PROCASE: RESULTS FOR RURAL WOMEN

PROCASE reached a total of 24,413 families, with women owning 49% of the contemplated universe. In the investments made, the lowest index obtained was in the irrigated palm field, which is of the order of 40%, and the greatest reach was of the order of 62% with desalination plants, under the direct responsibility of women. It should be noted that out of 97 Productive Projects, the corresponding 24% is made up of a group of women, making up the sum of R $ 3.7 million invested in goats and sheep activities, handicrafts, food processing, bistro kitchen and school, backyards productive with reuse of gray waters, among various types of productive interventions aimed at providing means for women's economic autonomy. As exemplified by Quitéria dos Santos, based on agrarian reform, treasurer of her association and poet "for the first time I am benefited and not just beneficiary (2020)", said the farmer about the change that she saw in her condition of receiving the benefits of projects to the position of supplier of products, for having sold a significant amount of *jerimum* (squash) and manioc, to compose basic baskets acquired by *Fundação Banco do Brasil*, through *PATAC*, and distributed with rural families due to the pandemic, in 2020.

Picture - Quitéria dos Santos e Sara Constâncio (below) female farmers served by PROCASE – Settlement *São Domingos*, Cubati, Territory of Seridó. Source: Patac

The impact assessment points out that there was an 18% increase in the participation of women in agricultural activity in the Treatment Group, while in the Control Group the increase was 8%, demonstrating a PROCASE effect of around 9%. The women's testimonies about the gains obtained from the Project's actions show the results of the investments, as in the *Lagoinha quilombola* community, in *Serra Branca*, which benefited from a goat breeding project.

"*Here we had nothing, if we needed to make silage we had to rent a silage, a breeder even in the city is difficult to fix, today it is a luxury, the palm is a blessing, because in the dry season we now have what we give to animals, in the drought we had to sell the animals everything, and brush cutter that I only saw on television once, now even we women can brush without ending the column. Thank goodness PROCASE changed our lives, whoever wants to enjoy the benefits is a very good project. " (FÁBIA DOS SANTOS MOTA, president of the association, March 2019)*.

In the year 2020, the *Lagoinha* community produced 20 tons of forage, obtaining fodder support to cross the drought period and not need to dispose of part of the herd, as is common in periods of drought..

Picture - *Lagoinha Quilombola* Community, Animal Provision and Palm Field of the Productive Project

The expansion of women's productive activities can also be seen in irrigated palm field activity, as mentioned by Joseane Bezerra (2020), at the *Garapa* Association in the municipality of Monteiro, where 11 women produce horticulture, and a young woman who lived harvesting tomatoes in plantations in another city indicate the changes that have occurred in your life

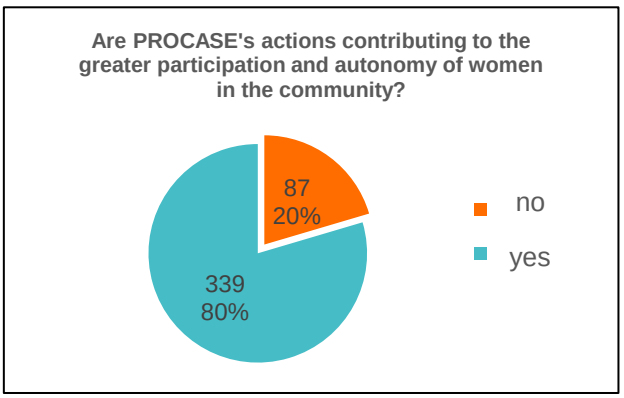
“For me the kit was wonderful, because I lived in the world, working for others. Today in addition to the palm I give to my sheep, I cultivate corn, beans, papaya, cabbage, coriander, chives, cucumber, and everything close to home ” (CELI VALDINO DA SILVA RODRIGUES, setembro de 2020)

Picture - Célia's Palm Field at Sitio Garapa – *Monteiro*

The Association of Rural Producers of *Sítio Caiçara* benefited from a Goat Farming Productive Project, where 10 families produce 200 liters of milk per day to guarantee their income. It has a group of young people and women, and the changes that occurred in the recognition of work, and the economic empowerment of women, can be seen in the report of a beneficiary, Josefa Maria Ferreira Morato, who highlights:
“*Us women were never seen, and PROCASE gave us more visibility, I received my goats and today I already have three more goats, I take care and I know that I will increase my herd. Feed was difficult here, now we have the palm of the underground dam and the production fields of the wells. In the drought it was a damned sacrifice for water for the animals, now we have everything.*” (SETEMBRO, 2020)

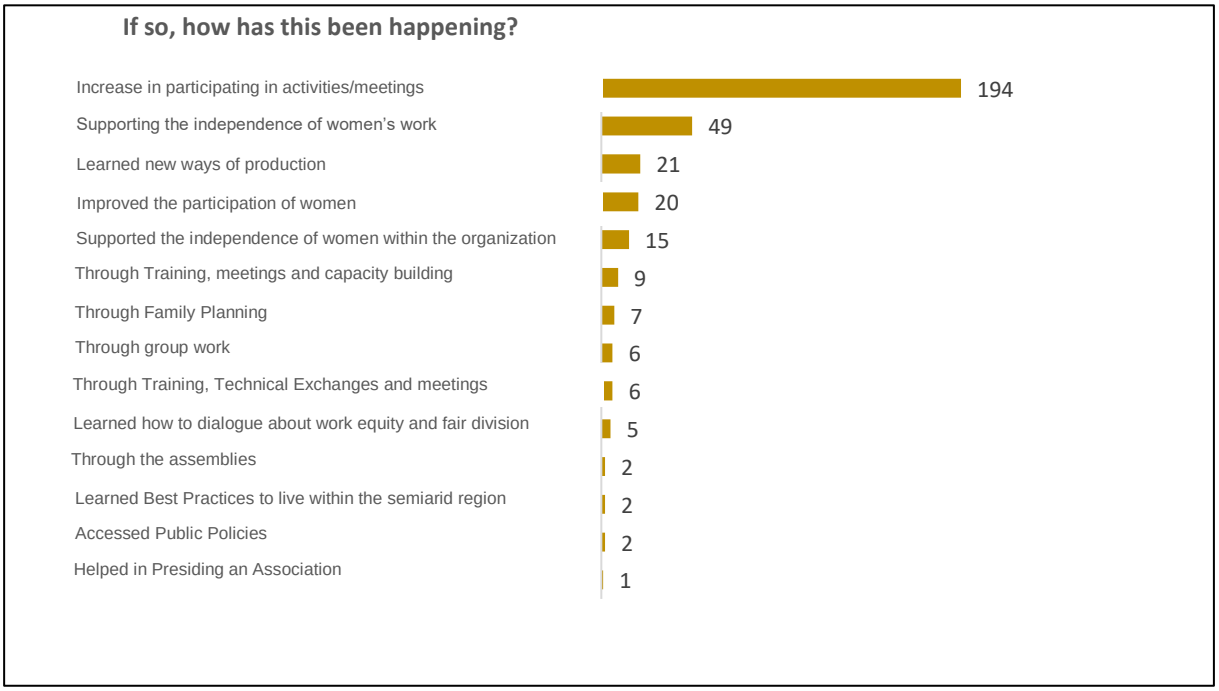
Picture - Provision of animals Association of Rural Producers of Sítio Caiçara.
Source: PROCASE

Evidencing the results of investments for the lives of women, studies carried out during the execution of the Project, by M&A, in 2019, indicate the effect of a greater insertion of women in the community and strengthening of their autonomy, expansion of participation in activities; valuing their work in the association; learning production techniques; institution of dialogue on the fair division of domestic work; participation in training and formation of a group of women, among other aspects that are confirmed in the responses described below:



Another experience of the Productive Project of women that has been generating results is from the *As Margaridas* group, in the *Oziel Pereira* settlement, in *Remígio*. With the acquisition of equipment through the Project, the increase in production was significant, according to leadership information, up to 50% in some products. Regarding the increase in income, after the Procase investments, there was an increase and, according to the members, in a few months they even have a minimum wage for each family involved in the production processes, reports technician Edilberto Macedo, from the RPMUs, from *Curimataú* (August , 2020). Currently they are already installed in the school-kitchen space, and structuring the *Bistro Rural*.

Picture - Delivery of 608 kg of cakes to CRAS of Remígio, February, 25th, 2020



GENERATED INNOVATIONS THAT CONSTITUTE THE DIFFERENTIAL FOR THE BENEFICIARY

The implementation of the gender strategy in PROCASE, sought to establish a praxis based on the principles of gender equality and equity, generation and race / ethnicity, as a legacy of the Project to the implementation of public policies in the rural world in the state of Paraíba. To guarantee this purpose, technical and methodological support was made available to the people who are part of the team, coordination and, in particular, to the technical advisory partners, so that they could attend the public in their daily lives with the focus on equity. Emphasizing that the transformations required by the framework of transversality of gender, generation, race and ethnicity, pursued by PROCASE, also needed to be experienced by the teams themselves. This helped to broaden the understanding of power relations, asymmetries and inequalities, promoting changes in the work with technical advisors, sponsoring the changes required in management practices, in the exercise of power and in the sharing of responsibilities in groups and collectives financed with Project resources.

Based on this gender strategy and the theoretical and methodological framework adopted, the training, studies and evaluations of PROCASE interventions were continuously promoted, with an emphasis on the operational process experienced in the Focusing Working Group, under the coordination of the gender advisor, generation, race and ethnicity of the Project.

The Focusing WG had a reflective and operative character, functioned as a space for learning, and for analyzing practices related to the execution of productive projects and the way in which priority groups, that is, women, *quilombolas* and youths, were contemplated with the interventions carried out. In addition to ensuring an environment where conflicts and criticism were allowed to be explicit.

The reflexive connotation was achieved through studies promoted within the scope of the WG, through readings and discussions on gender inequalities, asymmetries in access to opportunities due to race, ethnicity and generation; sexual division of labor; chauvinism; patriarchy and patrimonialism; roles assigned and performed by women in agriculture. Among several interventions guided by the principles of feminisms, feminist economics, agroecology, aiming to strengthen the sustainability of development and the strengthening of the culture of living with the semiarid region.

In addition, the WG was experienced as an operating learning environment because it enabled the analysis and evaluation of activities carried out with the beneficiary public, whether in terms of training in gender, in management, associativism, forage, and herd management; or examining how the implementation of productive investments and marketing strategies take place. How PROCASE technicians analyze the WG experience`;

Picture – Monthly assembly – Focalization WG

" *In the monthly space of the Gender WG meeting, technicians and technicians from the URGPs in the territories where Procase operates and also from the teams of Technical Advisory companies contracted to work with the groups, meet to discuss the gender issues experienced in the work of monitoring the communities, as well as thinking about strategies and solutions to the problems brought by the teams, the WG has become a valuable instrument, an important space within ethical standards of secrecy, questions and cases to be brought to the debate, taking into account in order to think about possible solutions to mediate conflicts and contribute to the emancipation and autonomy of women in communities. We had the opportunity to jointly think about actions that can directly and objectively contribute to taking women into spaces for social participation, power and knowledge sharing, considering that issues related to women's financial autonomy are crucial for their autonomy and freedom.*" (ELVIRA RÊGO, 2019, p. 8).

Picture - Inclusion of female farmers in the Focalization WG

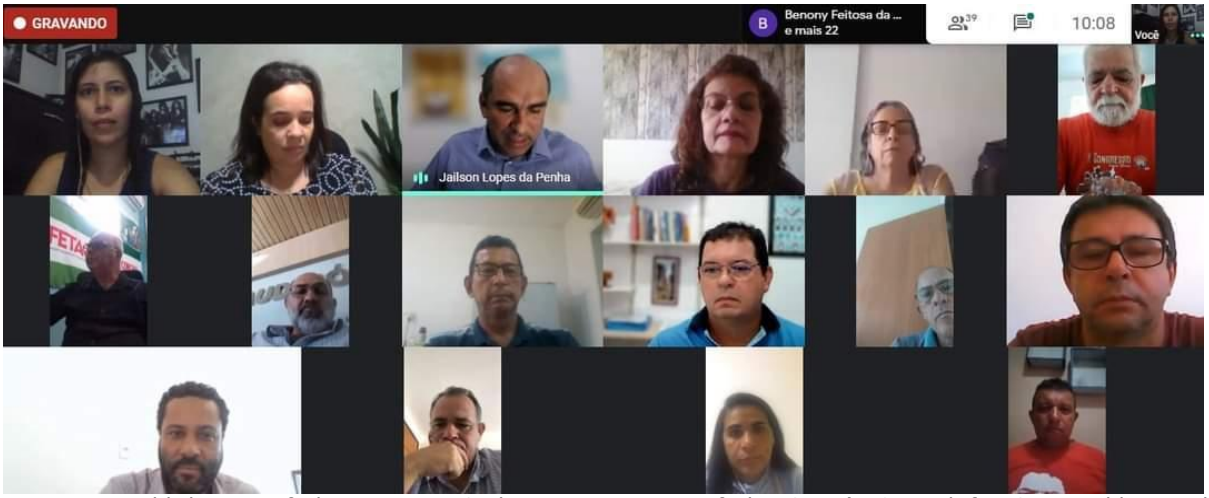
Picture - Inclusion of young fellows in the Focalization WG

In the strategy, the Pro-Equity Action Plan contributes to strengthening the formation of teams, favoring the beneficiary public, and PROCASE left as legacy the adoption of the approach of gender, generation, race and ethnicity, as a founding condition to build sustainability development, in interventions in rural areas. Aiming at the sustainability of this innovative experience, the Gender Equality, Generations, Race, Ethnicity and Traditional Peoples WG was established, on a permanent basis, as a consultative body of the State Council for Sustainable Rural Development of Paraíba - *CEDRS*/PB, in March 2021. According to the approved resolution, this Equity WG "has the purpose and attributions, to support and contribute to the planning and monitoring of guidelines and actions to promote equity of gender, generations, race, ethnicity and for traditional peoples in sustainable rural development Paraíba "(CEDRS, 2021, p. 1). Focusing on public policies aimed at women, youth and the elderly, *quilombolas*, indigenous people, gypsies, artisanal fishermen and other traditional peoples of the state's rural environment. As stated by the Human Development Manager at PROCASE and advisor at CEDRS/PB.

"*The creation of the WG with the objective of advising CEDRS is an achievement. PROCASE's proposal, recognizing the Council as a space for participation by government and civil society bodies, will then make its discussions and decisions with a view from the lens of gender equity, generations, race and ethnicity, enriching the debate and seeking always insert women, generations and traditional communities into rural development policies*" (APARECIDA HENRIQUES, 2021).

The SEAFDS Secretary, chairman of the Council, also comments on the importance of the participation of women and young people, during the installation of the equity WG

"The Council is another space for planning and managing public policies aimed at sustainable development, and we must guarantee the participation of women and young people in the composition of the Sustainable Rural Development Councils" (JONILDO CAVALCANTE FILHO, 2021)



Picture - Establishment of the Equity WG during a meeting of the State's Council for Sustainable Rural Development – *CEDRS*/PB - march 17th, 2021.

Also as a legacy of PROCASE, the adoption of the Agroecological Logbooks - AL methodology was implemented in the five territories of its scope. The tool reached 95 farmers and data from 55 booklets were systematized. This initiative was carried out in partnership with Semear Internacional, and comprised the Collective Gender Plan of IFAD projects, constituted a means for exchanging learning between the gender advisors of IFAD projects and consolidated the gender WG formed by the advisors, PSI, counting with important support from IFAD's gender advisor, Rodica Weitzman. As a result of the use of Agroecological Logbooks in Paraíba, the following aspects are highlighted:

55 female farmers involved
12 communities,
5 territories
6% of the total passbooks of the total IFAD projects
36% of female farmers who work with AL are settled by agrarian reform
22.22% participate in exclusive groups of women
56% participate in a formalized productive group
82% participate in a productive or interest group
170 different types of products without repetition, women's contribution to FNS and socio-biodiversity.
R $ 154,284.86 in terms of income, produced by women, made visible
68% of the production value was related to products sold (highest proportion among IFAD projects)
More than 30% of the total production is processed, means greater added value and better use of production
2 partner organizations, *EMPAER* and PB *Rural Sustentável-COOPERAR* have declared their interest in continuing the adoption of CA in the municipalities within their jurisdiction.

Ensuring the participation of PROCASE beneficiaries in activities with the Cadernetas was important, despite the work being carried out without the support of the contracted ATA, as there was no extension of the technical assistance after August 2019, when the adoption of the Caderneta began. This intervention was effected by the commitment made in the scope of the Focusing WG, based on the commitment of the PROCASE field team, of voluntary techniques that had been focal points of the TAs, of young scholarship holders and, mainly, by the provision of four multiplying farmers in the methodology of agroecological books, which thus became independent and participated in the training and mobilization activities of other farmers in the territories. It is worth mentioning the contribution of EMPAER during the action. In the sustainability strategy, EMPAER is one of the institutions of the government of Paraíba that, together with the PB Rural Sustentável / COOPERAR program, are committed to taking CA to the municipalities within its jurisdiction, SEMDH and SEFDS were also involved in reflections on the CAs, in the course of constitution of the equity GT in CEDRS / PB.

To talk about the relevance of the booklets, testimonials from the female farmers are presented: "*I am speaking on behalf of the small rural producers Riachão do Algodão and Santa Rita (Congo- Cariri Ocidental) Also thanking the PROCASE program for empowering the feminist women in my community with the agroecology booklet program, thanking Maria, a jewel that always are giving us assistance here, Jorge and everyone in the program who is always bringing the best*". (ANDREA DE AMURIM DA SILVA, PRESIDENTE DA ASSOCIAÇÃO, MARÇO, 2021).

And farmers from the *CASACO* association, from *Cariri Oriental*, wrote about the booklet in the chat of the PROCASE evaluation event, Célia Araújo, from the municipality of *Boqueirão*, said it was "a great record and appreciation of the work of women and their wealth around the home (March, 2021) ", also Francineide Barbosa, a logbook multiplier farmer, from the *Lagoa de Jucá* community, in the municipality of *Alcantil*, expressed that" the logbooks are marvelous! "(March, 2021). Closing the account of this methodology of working with women, we present the look of the farmer Quitéria dos Santos, settled in the agrarian reform, who uses the Agroecological Logbook and makes poetry

CADERNETA AGROECOLÓGICA (2020)/ AGROECOLOGICAL LOGBOOK (2020)

Quitéria dos Santos Cunha, farmer, Settlement *São Domingos*, *Cubati* – PB

"A caderneta chegou
Pra ajudar a reforçar
Aquele nosso costume
Das coisas sempre anotar

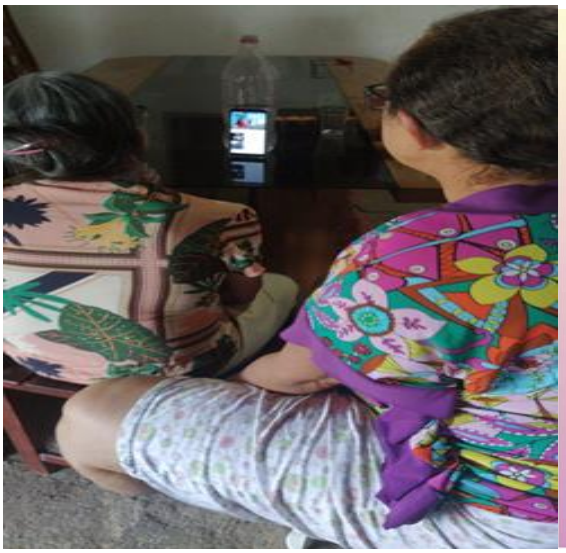
Comecei anotar tudo
Com muita dedicação
Chegou o final do mês
Foi grande a empolgação
A olhar a caderneta
E vê tanta produção

A caderneta chegou
Para nos empoderar
Ensinar que não é ajuda
A gente sabe trabalhar
E com toda a propriedade
O trabalho da mulher estar"

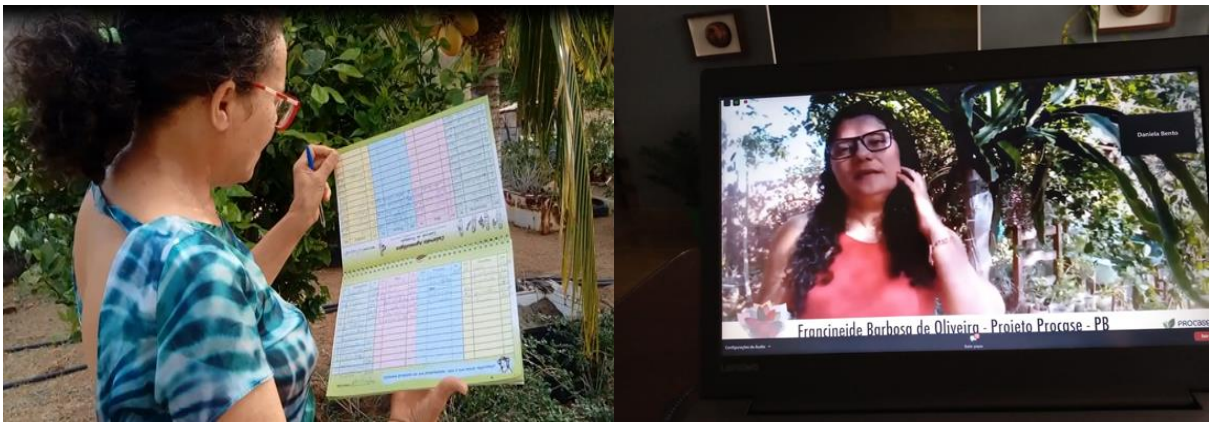
"The logbook arrived
To help reinforce
That our custom
Of things always write down

I started to write everything down
With a lot of dedication
The end of the month has arrived
The excitement was great
Looking at the logbook
And see so much produce

The logbook arrived
To empower us
Teaching that it is not help
We know how to work
And with all the property
The woman's job to be"



Picture – Preliminary meeting - Andreia and Dona Rita. *Comunidade Santa Rita – Congo*/PB. Source: Fellow Gislâynne da Silva (Gil)/2020 e Paraíba State Seminar on Agroecological Logbooks: challenges and results. Source: PROCASE/2020



Picture – Agroecological Logbook's use - *Comunidade Saco dos Goitis – Santa Luzia* - Carmita Souza and *Comunidade Lagoa de Jucá – Alcantil* - Francineide Barbosa (Fran). Source: PROCASE Folder/2020

CHALLENGES FACED OR OVERCOMED

Among the challenges faced, it was relevant to fail to operationalize IFAD's support mission recommendations on gender issues, carried out in October 2015, which suggested carrying out a gender diagnosis and hiring specific technical advice, to work directly with the women, farmers, technical assistance teams in the field and with the Project team. The difficulties in equalizing PROCASE's financial flow, and in management, prevented this strategic orientation from being put into practice, which was sought to be operationalized in the years 2016 to 2017, without results.

This impediment restricted the construction of a strategy for the insertion of the approach in a transversal and more robust way, with the support of direct assistance in the territories. In addition, the impossibility of executing Notice 01/2016, which included priority groups composed of women, *quilombolas* and young people, limited the possibilities of weaving networks of organizations of women's collectives, the articulations were limited to productive projects, which had the character of benefit groups with collective investments, for a group of associates. The alternative created was to expand the Focusing WG as a training space for technical teams, while monitoring how new project interventions reached women and other priority groups, and contributed to expanding the technical capacity to guarantee the implementation of actions of equity.

LESSONS LEARNED

In the case of Lessons Learned, it is necessary to highlight the importance of focusing on the creation of productive groups of women, as a guarantee of recognition, and of support, to the dimension of the productive work they carry out in family units and communities;

Identify or formulate appropriate methodologies to operationalize the transversality of gender, generation, race and ethnicity, with an intersectional approach, for the insertion of women and other priority groups in the various activities carried out by the Project. Be it training activities, productive inclusion, environmental, organizational initiatives; having a strategy and mechanisms so that the technical teams can see the different subjects that make up the social, political and productive dynamics in families and communities. It is also necessary to establish minimum quotas for the participation of women, which become a reference for the goal to be achieved, both with the beneficiary public, and for the composition of the Project teams and the technical services contracted. Observe a protocol of good non-discriminatory practices, to confront conservative values rooted in society, such as patriarchy, machismo, homophobia and the devaluation of youth actions, among other aspects necessary to overcome crystallized visions about life forms in the countryside . It is also understood that M&E has a central role in making the adopted gender mainstreaming visible, through the data and information produced about the Project's interventions.

RECOMMENDATIONS, aiming at SUSTAINABILITY

Finally, as recommendations for sustainability, the importance of having a specific TA in equity stands out, contemplating the groups of women and the formation of technical teams; it is also relevant to formulate a gender diagnosis, at the beginning of the Project's implementation, which serves to support the intervention strategy and the formulation of an Equity Action Plan. In addition, according to FAO (2017), the workload of rural women in Brazil is 27.5 hours of unpaid work, including domestic chores, while for men it is only 5.2 hours a week. In view of this, it is essential to discuss, and implement, activities aimed at addressing the fair division of domestic work in rural areas, under the risk that the expansion of productive work resulting from investments will increase the burden on women and aggravate the situation. painful working hours. Other aspects that are necessary for the gender approach are to contemplate the theme of sexual and reproductive health and the confrontation with the various forms of violence experienced by rural women.

PROCASE's gender, generation, race and ethnicity strategy was carried out with a view to establishing the transversality of this approach, seeking to ensure that all interventions carried out within the scope of the Project included the group of people that make up the rural population, especially women, who despite being more than 50% of the population in the state of Paraíba, and Brazil, experience situations of inequality of opportunities, while their activities and contributions to productive work are relegated to invisibility. The mechanisms of statistics, to a large extent, do not have the requirements to measure the results of women's work, and of peasant production and reciprocity practices. This imposes two gigantic challenges, first is to be able to insert women in the productive processes, and to consolidate economic empowerment; second is to have the means to measure the results obtained in their economic activities.

Annex B – YOUTH IN THE PROCASE TERRITORIES OF ACTION: ACTIONS WITH YOUTH

The process of training and qualifying rural youths in the PROCASE action territory took place through territorial meetings, workshops, exchanges and specific programs such as training for the CAR - Rural Environmental Registry; introduction to seedling nursery in addition to participation in training implemented by TA's with the public benefited by Productive Projects. Of the 1,562 participations in the training process carried out by the Technical Advisory, 8% were young women and 5% young men.

Picture – Youth training in the Rural Environmental Registry – *CAR* - Folder/PROCASE

Training for CAR-Rural Environmental Register carried out in 2016. The objective was to train 20 young people from the various communities where PROCASE works to enable them to carry out the CAR on the properties. Coordinated by environmental management team, the instrument used was a cooperation agreement with SUDEMA that made technicians and equipment available for the course.

Picture Youth training in the Rural Environmental Registry – *CAR* - Folder/PROCASE

The seedling nursery course aimed to train students for the selection, production and propagation of species of local varieties, soil preparation and substrate for planting, planting, collecting, storing, implementing nursery infrastructure and marketing production. It was the result of a partnership with the *Escola Técnica Redentorista - ETER*, from *Campina Grande*, developed in alternation with school time and community time activities, totaling 120 hours of classes. Except for the *Médio Sertão* territory, the other territories had youth representation counting 20 young participants.

Picture – Seedling Nursery Training - *Tempo Escola* – Folder/PROCASE

Picture – Seedling Nursery Training - *Tempo Comunidade* – Folder/PROCASE

Among the various moments of the course, the young people highlighted the experience of the exchange to get to know the project of Ecosystem Conservation and recovery of degraded areas in the semiarid UFCG/CDSA/SUMÉ. "*The Interchange provided an opportunity for us young people, in addition to technical training, to meet and interact with another group committed to the recovery of the caatinga*." (Rafael dos Santos – *Settlement Paulo Freire*, June, 2016)

Picture – Youth Seedling Nursery technical exchange *UFCG/CDSA/SUMÉ*

Picture - In June 2016 the young people were certified as technicians in seedling nursery. File/PROCASE

The assembly of rural youth in the semi-arid region with the theme "Sharing and building new knowledges about living with the semi-arid region" aimed at strengthening the agendas of youths in the semiarid regions of Brazil, based on the spaces for participation and in the process of building territorial development policies.

It brought together more than 300 young people from all states in the Brazilian semiarid region to discuss ways of living with the region, representing the most diverse segments of organized civil society, who live and develop actions in the field, with participation that considered the representation of gender, race , generation and ethnicity. There were three days of workshops, plenary sessions and debates that resulted in the "Letter from youth in the semi-arid region", contemplating the dialogues, reflections and suggestions presented by youths from the countryside living in the semi-arid region.

Picture - Ref: http://portalsemear.org.br/wp-content/uploads/2018/04/AF_Sistematiza%C3%A7ao-Encontro-de-Jovens-Rurais-do-Semiarido.compressed.pdf

The experience of youth in the semiarid region was recorded in a publication made by PROCASUR with the support of SEMEAR.

In 2019, the II Assembly of rural youth from the semiarid took place, this time in Picos, Piauí. The Paraíba delegation had 35 rural youths from PROCASE's territories. It was an opportunity for young people from the semiarid to exchange experiences in the participation of the workshops that addressed the issues of gender, agroecology, eco gastronomy, cultural identity. As in the first meeting, youth from the semi-arid region launched the youth letter.

Picture – Banner of the participation of the Youth of Paraíba in the II Assembly of Rural Youth in the Semiarid Region Picos – Piauí. Arquivo/PROCASE

Picture -
- http://portalsemear.org.br/wp-content/uploads/2020/03/EBOOK_SEMEAR-PULSAR-JOVEM-NO-SEMIARIDO_16032020.pdf

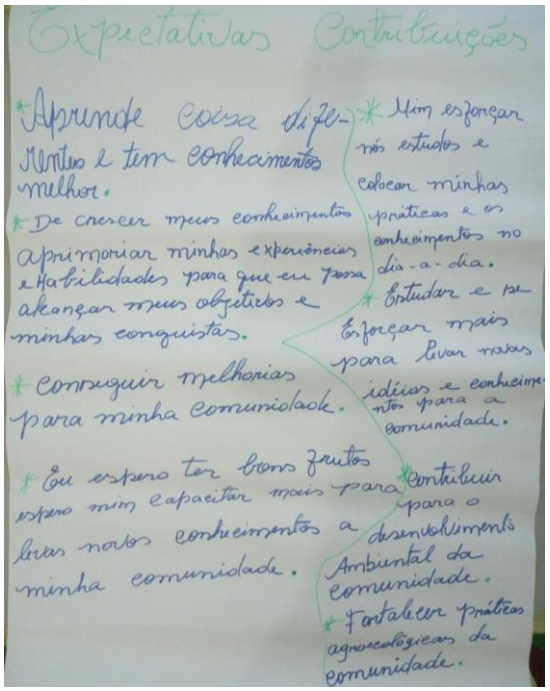
The program named “Youth weaving together with the semi-arid region” was developed with youths from PROCASE's areas of operation and was the result of a partnership with *FAPESQ* - Foundation for the Support of Research in the State of Paraíba, which made it possible to grant scholarships. for young rural apprentices in the semi-arid region. The objective of such action was to create job and income opportunities, and at the same time to disseminate knowledge and practices on the sustainability of rural development, in the semi-arid region of Paraíba; addressing content on management of environmental resources, public management and creation of opportunities and business management in rural areas, observing the transversality of gender and race.

Picture – State’s Meeting of Fellows and Signing of the contract with Governor João Azevedo. File/PROCASE

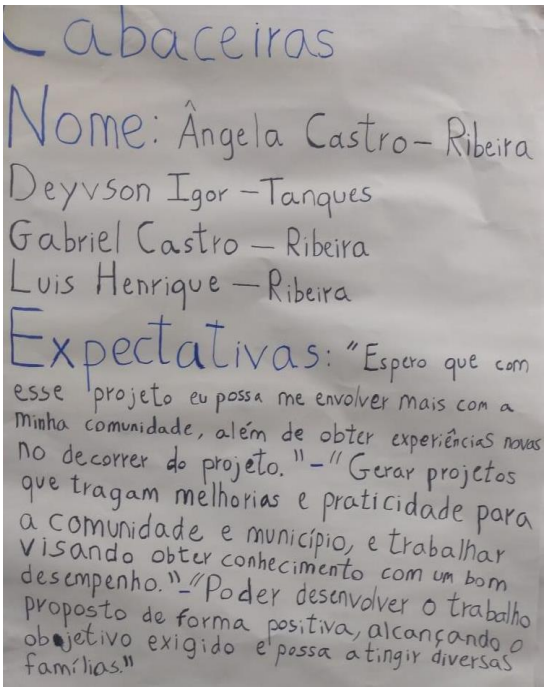
During the months of July to November, the young scholarship holders entered the communities with actions developed by PROCASE. In each of the fifty-six municipalities in the area in which they operate, four fellows met and participated in the life and activities related to the projects. They held events with groups of women farmers in emergency plans and agreements, and they also contributed to the communities in organizing and creating the groups responsible for the management and monitoring of desalinizers. Six young scholarship holders became young multipliers of agroecological logbooks and accompanied women from the Quixaba community, in the municipality of Picuí; Mandacarú settlement in Sumé and Santa Rita community in Congo. One aspect observed in this period is the number of scholarship holders from Cariri Ocidental, with higher education, with a desire and willingness to work, aligning theory and practice with the concepts learned in the classroom in the agroecology course. As a result of the engagement of the scholarship holders in the program, a cooperation term was established between UFCG/CDSA, campus Sumé, allowing the young scholarship holders to carry out the curricular internship in the community with monitoring and evaluation of the coordination of the RPMU, of Cariri Ocidental.

Picture - Signature of the Cooperation Term SEAFDS/UFCG/CDSA. Fonte: File/PROCASE

In this period, with the objective of strengthening the strategies of living with the semiarid, the young scholarship holders participated in three training modules focusing on several themes: activity planning and communication skills; educational/communicative training; integration and agroecology: collection, storage of creole seeds and management of nurseries. In addition to planning how each participant would perform in the five months as a scholarship holder, the young people expressed their desires and expectations, as can be seen:


Expectativas Contribuições

* Aprender coisa diferentes e ter conhecimentos melhor.
* De crescer meus conhecimentos aprimorar minhas experiências e Habilidades para que eu possa alcançar meus objetivos e minhas conquistas.
* Conseguir melhorias para minha comunidade.
* Eu espero ter bons frutos espero mim capacitar mais para levar novos conhecimentos a minha comunidade.
* Mim esforçar nos estudos e colocar minhas práticas e os conhecimentos no dia-a-dia.
* Estudar e se Esforçar mais para levar novas idéias e conhecimentos para a comunidade.
* Contribuir para o desenvolvimento Ambiental da comunidade.
* Fortalecer práticas agroecológicas da comunidade.


Cabaceiras

Nome: Ângela Castro – Ribeira
Deyvson Igor – Tanques
Gabriel Castro – Ribeira
Luis Henrique – Ribeira

Expectativas: "Espero que com esse projeto eu possa me envolver mais com a minha comunidade, além de obter experiências novas no decorrer do projeto." – "Gerar projetos que tragam melhorias e praticidade para a comunidade e município, e trabalhar visando obter conhecimento com um bom desempenho." – "Poder desenvolver o trabalho proposto de forma positiva, alcançando o objetivo exigido e possa atingir diversas famílias."

Picture - Example of youth expectations – Youth from *Médio Sertão* e do *Seridó*. Source: File/PROCASE

Among the actions planned by higher education students, we highlight the proposal of Jonathan Fonteles, from the territory of Curimataú, who proposed to relate the seedling production work required by his course at the IFPB, with the activities of middle-level scholarship holders. And with this work, the result of producing more than 100 seedlings of native species for the communities monitored was achieved. Another proposed action that is listed as an example is that of scholarship holder Viviane Vasconcelos dos Santos, from the territory of Western Cariri, who planned to accompany the SAF of the Mandacaru Settlement in Sumé.

Picture – Young Fellows Jonathan Fonteles de Frei Martinho e Viviane Vasconcelos de Sumé in a field activity – Seedlings Production. File/PROCASE

There were five face-to-face meetings that had a methodological focus on Educational/communication and Pedagogy *Griô*, concentrating actions on three main axes of formation: peasant identity, gender and generation discussions. In addition to other virtual meetings held with the purpose of guiding the planning of priority actions with the communities assisted by the scholarship holders.

Recognizing the need to create conditions for young people to have an interest in cultivating the land, following the tradition of their ancestors, with the motivation to seek new knowledge and opportunities, training with young people from the Youth program Weaving Together with the Semi-Arid was carried out in the five territories (*Cariri Ocidental, Meio Sertão, Seridó, Cariri Ocidental and Curimataú*) inserted in the semi-arid region of Paraíba that PROCASE (Sustainable Development Project of Cariri, Seridó and Curimataú) serves.

The topics covered in the training were agroecology, forest nursery, fodder management and phytosanitary management. It is worth mentioning that the presentations were adapted to the needs of each territory, valuing individual and collective knowledge, and working with the community information that young people contributed (FERNANDA MACEDO QUADRO, December, 2019).

Picture – Training of Young Fellows from the Territories of *Seridó* and *Médio Sertão*. Arquivo/PROCASE

Picture – Training of Young Fellows from the Territories of Cariri Oriental, Cariri Ocidental, Curimataú e Médio Sertão. File/PROCASE

The scholarship program was an instrument, and a fundamental space for PROCASE to get closer to the youth, daughters and sons of beneficiaries, as in addition to being the first experience of a paid internship for many, it also served as motivation for engagement in work and daily life in the semi-arid region with its struggles, achievements and victories. There is also an atmosphere of integration among young people from different communities.

A considerable number of fellows evaluated the experience highlighting the opportunity given to them with regard to expanding knowledge and the possibilities to share with their community group and others with whom they have been learning.

Among the evaluations, Ana Beatriz reports: "*The scholarship program encouraged me a lot, especially to find space in my community, as there was not yet a young person who represented the youth in agriculture in our place. I was able to help a lot with what I learned in the project and encourage farmers more*. " (ANA BEATRIZ DO ESPÍRITO SANTO, dezembro de 2019)

Picture – Groups of Seridó and from Curimataú in a sharing moment

The conclusion of the studies of the "Youths Weaving Together with the Semi-Arid" program, carried out in partnership with FAPESQ, brought together young scholarship holders from the five territories where PROCASE operates. This action aimed to carry out a guided visit to the experiences of INSA, to

expand the learning about the semi-arid region and to evaluate the results of the training process experienced by scholarship holders of the Call for Proposals 001/2019, SEAFDS/FAPESQ.

Picture – Opening of the closing ceremony – Sharing moments and presentations

This activity was carried out at the experimental farm and at the headquarters of the Institute, a guided visit, with the participants distributed in groups of 25 and 30 young people to experience the dynamics in the form of a carousel. There were four teams, each visiting and talking about the following areas of experimentation: **Water Reuse, Breeding of native varieties, forage production and Soil Management**. Each group, with the accompaniment of a researcher-educator, had the opportunity to visit an educational space for carrying out research and demonstrating sustainable technologies to improve social coexistence with the climatic, water, social and environmental conditions of the Brazilian Semiarid region.

Picture – Soil management training.

As the young Wandson Ramos Souza Pereira highlighted "*this visit was sensational, I had never had the opportunity to visit INSA, but through this PROCASE and FAPESQ program it allowed us to know most of the techniques that are applied in the research center*."


Picture – Native Breeds Training


Picture – Forage production training – *Caatinga* Seedling Nursery

This space for learning, exchange of knowledge and knowledge through research results provided to young people from PROCASE's areas of activity is expressed in the speech of the young Lygia Maria Martins dos Santos, 22 years old, from the Settlement *Riacho da Cruz*, *Barra de Santa Rosa*, *Curimataú*, undergraduate student in Agroecology *IFPB - Campus Picuí*, who stated: "*Each experiment has its own importance and qualities, but some young people identify more with one than with the other. I went to the Seeds and Seedling Production group, where we produce umbu seedlings - Spondias Tuberosa. The seeds were already planted in beds, we just transplanted the seedlings over two feet high into the seedling bags. It was great, because I was a PROCASE scholarship holder, working together with seedling nursery farmers, many tips and learnings I acquired with some young people and INSA researcher Thiago Ferreira*". (LYGIA MARIA MARTINS DOS SANTOS)

In addition to providing a training environment, the meeting was also a moment of celebration and closing of the program with delivery of the training certificates that took place throughout the process. It is important to note that many young people in this group obtained approval at ENEM and will be entering the university in 2021.

Picture – Final Plenary of the Scholarship Closing Meeting - Delivery of the Certificates

All the moments of the meeting were of unique significance. In addition to the opportunity to reunite the entire group, the shared knowledge was also the time to evaluate the experience. With four guiding questions asked to youths, which brought the importance of becoming PROCASE scholarship holders, the most relevant activities, the lessons learned and the difficulties faced. The following summary will serve as learning in the construction of a new project whose priority audience will be youth. It is noted that of the difficulties presented, the one with the greatest incidence was transportation, followed by the construction of the reports. As the negative can be transformed, many young people noted the importance of having learned to report. Identified that the formulation of the reports was one of the challenges for the group, PROCASE made available one of the fellows of its staff to give basic guidance on the preparation of this document. Another data of the evaluation is about the first remuneration obtained, showing how difficult it is for rural youths to win their first paid job. Below results obtained in 403 responses given the evaluation carried out, considering more than one answer per young participant, as we work with open questions.

Evaluation of program results with fellows

Questions Evaluated	Answers	Nº of answers	%
Importance of the scholarship	The experience was very important	36	9%
	First remuneration	20	5%
	Contributes to professional training	8	2%
	Young people to be remembered by a government program	3	1%
	Opportunity to learn more about PROCASE	2	0%
	Acquire knowledge on various topics related to the field	1	0%
Important Activities	Training	64	16%
	Monitoring and knowledge of P.P and Emergency Plan	40	10%
	Participate and value the activities in my community	10	2%
	Gender Workshop	4	1%
	Interaction between the university and the community	2	0%
	Monitor the implantation of the desalinizer in the community	2	0%
	Mineral salt workshop	2	0%
	Learn to report	2	0%
	Creation of the first group of young people in the community	1	0%
	Meet Animal Rotational Fund	1	0%
	The creation of the school garden project	1	0%

Questions Evaluated	Answers	Nº of answers	%
Main Lessons	Complicity and collectivity	13	3%

	Care for the *caatinga,* environment and SAF	12	3%
	Closer living with the community	9	2%
	Be persistent	8	2%
	Reaffirmation of the importance of family farming and rural youth	8	2%
	Importance of Associativism	7	2%
	Be responsible	5	1%
	Be disciplined	4	1%
	Learn how to make reports	3	1%
	To be organized	2	0%
	Greater insertion in my community	2	0%
	Importance of valuing community culture	2	0%
	Interaction and importance of teamwork	2	0%
	Socialize acquired knowledge	2	0%
	Learn about pesticide-free agriculture	1	0%
	Monitor the development of the seedling nursery	1	0%
	Learn about mulch	1	0%
Setbacks	Access to transportation for commuting (Training / Communities)	52	13%
	Write the report	21	5%
	Interaction with the community	19	5%
	Reconciling training, classes and fieldwork	14	3%
	Lack of information at the beginning of the experiment	4	1%
	No computer / internet access	3	1%
	Motivating youth participation	3	1%
	Shyness	2	0%
	Tutors did not respond as expected	3	1%
	Interaction with other fellows in the municipality	1	0%
	TOTAL ANSWERS	**403**	100%

In addition to the events mentioned, there were strategic exchanges that mobilized young people from various states, such as Eco-gastronomy, Saberes do Semiárido, among others, in partnership with Semear Internacional and Rural Tourism, which also had the support of PROCASUR, and was hosted by PROCASE.

Picture – Technical Exchange – Knowledge in the semiarid regions. File/PROCASE

In the exchange of rural tourism held in Paraíba, the experiences of the Flores Vila Real Project were visited, which has a group of female managers highlighting the female protagonism, the Vó Maria restaurant, which besides serving meals with products from the community itself maintains a stall for sales of fruit pulp and products of local production, in the municipality of Areia. In Boqueirão the young

participants got to know Lajedo do Marinho where they were received by crochet companies who shared how they inserted the production and sale of pieces in the local tourist chain, while in Boqueirão they learned about various agroecological practices through CASACO - Coletivo Asa Cariri Oriental. The closing took place in Cabaceiras, at the opening of the traditional Festa do Bode Rei.


Picture – Project Experiences – *Flores Vila Real* and *Vó Maria* – Rural Turism. - *Areia*/PB


Picture – Rural Turism.- *Lajedo do Marinho*/PB e *Cabaceiras*/PB

Another relevant moment for PROCASE youths was the participation in the photo contest on “Beauty of the Semi-arid” promoted by the Semear Internacional Program, in 2018. Among the classified photographs, the photographic record of the young Alana Ferreira da Silva was in first place. In addition to the prizes for having her own photograph illustrating the cover of the program's publication, portraying the beauty of the semi-arid region and the smartphone received from SEMEAR, the young woman covered represents quilombola youths, is the daughter of Maria do Céu, a leadership she had lost years before life in an act of domestic violence practiced by the ex-partner. Young quilombola marked by resistance as well as the xique-xique she photographed.

Foto – First Place

Foto – Award moment. File/PROCASE

In the general results framework, when it comes to the insertion of young people as the main beneficiaries of the families served by PROCASE, the percentage of 7% was reached, a quantity that limited reaching some of the goals related to youth, which are advocated in the initial proposal of PROCASE.

Due to the operational difficulties faced in the PROCASE execution process, it was not possible to finance productive projects elaborated and proposed, based on youth initiatives, as indicated in notice 001, of the year 2016, of the Government of the State of Paraíba / PROCASE, designed to open the range of productive investment opportunities, prioritizing in the call the productive projects presented by young people, *quilombolas* and women.

The intervention aimed at contemplating youth in the countryside, was a deficient aspect of the PROCASE execution, given the insufficiency of financial resources faced in certain stages, as well as they were not considered when choosing the allocation of financial resources. However, with a view to guaranteeing equity, in the Technical Advisory action strategy, initiated in 2017, the opportunity was opened to encourage the inclusion of youths in the various strategic actions of PROCASE (Productive Projects, Irrigated Fields, Desalination plants and the Program for Scholarships). These actions made it possible to serve 1616 young people, reaching a result of 202% in relation to the initial goal. To illustrate, some experiences that serve youth are identified, such as in Western Cariri, in the agreement signed with *CAPRIBOM*, which includes 223 families, 41 of whom are young beneficiaries, equivalent to 18% of the group. They are women and men between 18 and 29 years old, breeders of goats, cattle, who supply milk to the cooperative and get a market for their product and support for their productive activities. An important achievement, but still insufficient when considering the demands and needs of rural youth in the semiarid region.

ANNEX C- QUILOMBOLAS COMMUNITIES IN THE TERRITORIES OF PROCASE - ACTIONS AND RESULTS

PROCASE is committed to ensuring that historically most marginalized groups benefit from their actions

Picture – Handicraft training –*Mãos que ensinam. Mãos que aprendem*-File/PROCASE

"We have the right to be equal when our difference makes us inferior, and we have the right to be different when our equality de-characterizes us"

Boaventura de Sousa Santos

QUILOMBOLA COMMUNITIES IN THE PROCASE TERRITORY OF ACTION

In Paraíba, quilombola communities began to be made visible after the approval of Art.68 of the Federal Constitution of 1988. However, the struggles of quilombola communities for the achievement of certification and the right to land have concrete evidence from the end of the decade of 1990. According to the Palmares Cultural Foundation, Ordinance 238/2018; the first community to receive the Quilombo-CRQs Remaining Community certificate in Paraíba was the Serra do Talhado Community in the municipality of Santa Luzia, in 2004.

PROCASE in its final design (PROCASE, 2009, p. 24), identifies six (6) certified communities in the territory in which it operates. The *Talhado* Community in the municipality of *Santa Luzia*, the *Pitombeira* community in the municipality of *Várzea*, both in the territory of the *Sertão Médio*. In the territory of *Curimataú* the community of Serra do Abreu, in the municipality of *Nova Palmeira* and in the territory of *Cariri Ocidental* the three communities of *Livramento*, *Areia de Verão*, *Sussuarana* and *Vila Teimosa*, a total of 4 certificates.

The process of self-recognition as a quilombo remnant is the initial step, and the community becoming recognized is a process that goes beyond official documents, going beyond the cold documentary letter. It means having the courage to expose yourself and expose the history of your ancestry marked by discrimination, racism and prejudice. It is a great achievement, but surrounded by great challenges, among which is the guarantee that the public policies achieved will become reality in the daily life of the community..

ACTIONS IN QUILOMBOLAS COMMUNITIES

PROCASE's actions with quilombola communities involved training of people and associative organizations; through exchanges, workshops encouraging participation, the occupation of discussion spaces in order to promote dynamics that generate economic and social gains.

The communities benefited from the productive projects, involve a group of 90 families, being a percentage of 74% women and 26% men, also counting on the participation of 4 young people in the position of ownership of the investments. Among these communities presented, two are composed of mixed groups, that of the Pitombeira community, in the municipality of Várzea and Lagoinha, in Serra Branca, the others are formed by women. Lagoinha started the agreement as a profile of family farming only, but from 2018 it became part of the self-recognition process and started to be counted as a quilombola remnant.

Among the new productive support strategies defined in the Project, from 2018, other communities began to benefit from drilling wells and installing kits for irrigated and intercropped palm fields, in addition to desalinizers. Financing of productive activities through the implementation of irrigated fields benefiting a global sum of 126 families, 69 of which are led by women. They contemplated the communities of Santa Rosa, in the municipality of Boa Vista; Cacimba Nova, in São João do Tigre, Roça Velha, Sítio do Meio / Rua Preta, Roça Nova, Sítio do Meio, Sítio Roça Nova / ASCAMP, in Camalaú; Sussuarana, in the city of Livramento; Cantinho, in Serra Branca and Pinga / Talhado, in Santa Luzia), territories of the Eastern Cariri, Western Cariri and the Middle Sertão,

The implantation of desalination plants, a central equipment to guarantee quality water for human consumption in more precarious locations, reached 3 *quilombola* communities, namely, *Sussuarana*, in *Livramento*; Cantinho in *Serra Branca* and *Pitombeira*, in Várzea, in the territories of *Cariri Ocidental* and *Sertão Médio*, respectively.

EXCHANGES- SHARING, RESISTANCE, ACHIEVEMENTS, CONTINUITY

Picture – Handicraft Training – In kneading the clay and making the fragment the story of many achievements and challenges - Arquivo/PROCASE

In addition to the financial contribution through agreements, irrigated fields and learning units, PROCASE promoted annual *quilombola* exchanges among communities. Held from 2015 to 2019, with the purpose of strengthening the organization and identity of this priority group. These were initiatives that promoted cultural, political, spiritual, ancestral and economic articulation of people remaining in quilombos, seeking to strengthen the autonomy of communities, the process of self-recognition, recognition and sustainability of these groups.

It is worth highlighting the importance of organizational processes around Exchanges. The communities that hosted the 2016, 2017 and the second half of 2019 Exchanges experienced experiences that made it quick to obtain the title of recognition. *Cacimba Nova*, hosted the II Interchange in December 2016 and achieved certification on November 20, 2017; then, *Santo Rosa*, received the III *Quilombolas* Interchange, in December 2017, was in the process of self-organization and received his title, dated December 19, 2018; *Cantinho*, began to take part in this debate with only one representative in the II Interchange, then expanded their presence in the others and came to assume the organization of the V Interchange, held in December 2019. They intensely experienced the entire organization process and won the certificate as remaining quilombo dated January 2, 2020. More recently, in 2021, the *Roça Velha*/*Rua Preta* communities, in the municipality of *Camalaú* and *Ligeiro de Baixo*, in *Serra Branca*, also obtained certification, both in the Cariri Ocidental.

These communities that obtained the Recognition Title, *Santa Rosa*, from the municipality of *Boa Vista*, *Cacimba Nova*, in *S. João do Tigre* and *Roça Velha*, in *Camalaú*, founded their associations with the support of the mobilizers of PROCASE do Cariri Oriental and of Western Cariri, respectively. Cantinho and *Ligeiro de Baixo*, in *Serra Branca*, had a contribution to organize the procedures required for recognition with the *Palmares* Foundation.

This is a very important aspect, since recognition by the public authorities in the case of Fundação Palmares makes the community a priority for access to social policies, but self-identity is sometimes a painful element. Stories of discrimination, of others' speeches about people in the community such as; "Something wrong in the city, soon they had heard:", it could only be the blacks ... from *Talhado*" registered in the collective unconscious makes it difficult to assume the heritage of the *quilombos*. This is a personal and community process that happens from the inside out and never from the outside in..

The support for obtaining recognition, and the title, as *quilombo* remnants is also highlighted in the speech of the young leader of *Cacimba Nova*, who states "*PROCASE helped, along with other supporters, the development, and in the process of certification and recognition before the law as a quilombola community. And the reunification of youth to develop work within the community itself"* (EDNEIDE, CACIMBA NOVA, 2020)".

The assessments of recognized quilombolas indicate how the PROCASE experience, promoting intersectionality, bringing together interventions aimed at supporting the organization, with training activities, without losing sight of the identity and productive aspects, capable of promoting opportunities

for political and social strengthening. organization of specific groups, considered priority. As another quilombola leadership points out about their perspectives with the investments made by PROCASE, stating that "*The interaction between the community and PROCASE bringing knowledge and improvements in the community's quality of life. Putting into practice all the knowledge taught to women in our community*" (VERA, SERRA DO ABREU, 2020).

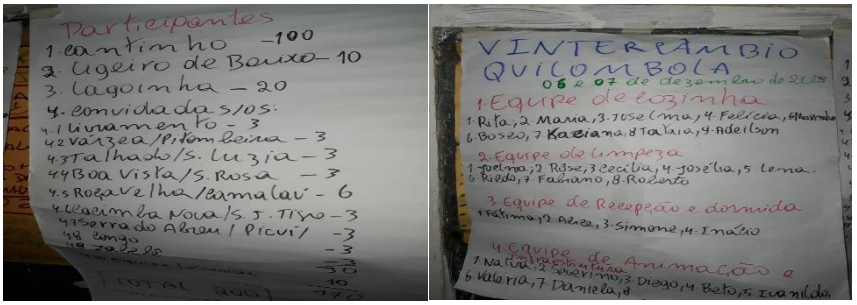
It appears that the training interventions, organization and experiences with the promotion of the 5 *Quilombola* Technical Exchanges, which took place in the period from 20015 to 2019, constituted milestones for obtaining results that are contributing to the organizational strengthening of quilombola communities, for having favored the structuring processes of associations and the mobilization of people for self-recognition as remnants of quilombos. As a result, 5 (five) new groups won their "Self-Definition Certificate", an increase of 125% in certified areas.

It is important to emphasize that these communities in the organizational paths of *quilombola* association foundation, and internal preparation, had decisive support from PROCASE and partnerships articulated by the Project, such as contributions from *SEMDH* and other organizations. In addition to overcoming the historical prejudice of seeing, and recognizing, as black people, valuing belonging, this internal organization has made it possible to expand the role of these communities in the political scenario of municipalities and the state. The benefits of public health and education services are reaching the population, sometimes through the intervention of the Federal Government, with which these communities are also articulated in a state forum. Proof of this is the autonomy generated by the communities, as was verified in the holding of the 5th Interchange, made by the *Cantinho* community, which mobilized support, mainly from the people of the community itself, through financial contributions, from those who live there or from representatives of the new generation of community that perform functions as professionals of education, health and other occupations in large urban centers.

An indication of the growing organization was evidenced in the sequence of exchanges, expanded and improved each year, in terms of organization, number of participants and, mainly, in reinforcing the autonomy of each community. It can be inferred that this form of action experienced with quilombola communities is an innovative action promoted by PROCASE, which can be a significant legacy of a relationship between the State and society established in a respectful way and of intentional reinforcement of the communities' role. Leaders recognize the processes experienced as a milestone and cite what they call "the great Exchange" as a divider in the organizational journey of their remaining quilombo communities.

Thus, it is observed that pro-equity actions, with the purpose of provoking changes in people's mentality, in power relations in the perspective of favoring the sustainability of development, can reinforce strategies for living with the semiarid and constitute an innovative legacy. left by PROCASE and IFAD.

The exchanges have become an instrument for the personal and organizational growth of the groups, as shown by the images that point to the importance of illustrating the results of the preparatory meetings assumed by all the host communities of the exchanges, such as the *Cantinho* community.



Picture – Result of the preparatory meeting of the V Technical Exchange - *Cantinho/Serra Branca* - PB- File/PROCASE

PHOTOGRAPHIC RECORDS OF EXCHANGES OF QUILOMBOLA COMMUNITIES- PROCASE-PB

I EXCHANGE ACTION OF PITOMBEIRA E TALHADO- Várzea e Santa Luzia-PB

Picture – Registration of the preparatory meeting for the I Technical Exchange -*Soledade-PB*, 2015. File/PROCASE

Picture 6: Opening of the Ist exchange in the community of *Pitombeira*- 04/12/2015

Picture – Opening of the 1st Exchange in the Community of *Pitombeira*- 04/12/2015-Arquivo/PROCASE

Picture – Space for exchanging experience at the *Escola do Comunidade do Talhado* - 2º dia - 05/12/2015-File/PROCASE

Picture – Closing of the I Technical Exchange- *Galpão da Louceiras do Talhado- S. Luzia-PB*, 05/12/2015-File/PROCASE

II EXCHANGE ACTION OF *CACIMBA NOVA- São João do Tigre* - PB

Picture – Opening of the Assembly –*Cacimba Nova- São João do Tigre-PB*, 25/11/2016- File/PROCASE

Picture – Integration activity - Keep the flame burning - Night of the II Assembly – 25/11/2016 File/PROCASE

Picture – An moment with the Children of the Community - II Assembly, 26/11/2016- File/PROCASE

III EXCHANGE ACTION OF- *COMUNIDADE SANTA ROSA- Boa Vista* - PB

Picture – Opening of the III Technical Exchange (welcome words from the President of the Association, Edilene Monteiro and the PROCASE Coordinator, Aristeu Chaves), 01/12/2017-File/PROCASE



Picture – Educational workshops of the III Technical Exchange (Fanzines, Handicrafts and Hair and Identity), 02 e 03/12/2017-File/PROCASE

IV EXCHANGE ACT˜ION OF *COMUNIDADE DE ROÇA VELHA - Camalaú*/PB


Picture – Initial welcome from the Communities - *Roça Velha*- March, 2019-File/PROCASE


Picture – Opening of the IV Technical Exchange – Institutional words from PROCASE and from the Community.- Arquivo/PROCASE


Picture – IV Technical Exchange Educational Workshops with partners (Geotinta/PASCAR/UFCG e Equity of Domestic Labor /PATAC) - File/Procase

V EXCHANGE ACTION OF *COMUNIDADE DO CANTINHO- Serra Branca* - PB

Picture – V Technical Exchange preparational meeting – *Cantinho* Community - *Serra Branca* - File/PROCASE

Picture – Opening of the V Technical Exchange – *Cantinho* Community -*Serra Branca*-PB, December, 2019-File/PROCASE


Picture – Educational Workshops - V Technical Exchange (Fair division of domestic work and water use and reuse). File/PROCASE

Picture – Educational Workshops- V Technical Exchange (Turbans Making Workshop) - File/PROCASE

Foto –Fanzines presentation/sharing at the closing of the V Technical Exchange-File/PROCASE

PHOTOGRAPHIC RECORDING OF SUPPORTED QUILOMBOLAS DEVELOPMENTS




Picture – Renovation of the women's group shed - Quilombo do Talhado-External/Internal area/Stª Luzia-PB - File/PROCASE


Picture – Construction of the Agro-industry and equipments - *Quilombo Serra do Abreu* - Outdoor/indoor area/*Nova Palmeira* File/PROCASE

Picture – Shed and desalination plant - *Areia de Verão* e *Sussuarana* Community - *Quilombolas* of Livramento-PB- File/PROCASE

Picture – Goat breeding project - Delivery of animals and equipment - *Quilombolas* of Pitombeira-Várzea-PB File/PROCASE

Picture – Drilled well and irrigated field - *Quilombo* of *Santa Rosa-Boa Vista*-PB File/PROCASE