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IMPLEMENTATION COMPLETION AND RESULTS REPORT

ON LOANS

IN THE AMOUNT OF US$137.5 MILLION

TO THE

REPUBLIC OF PARAGUAY

FOR A

SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT PROJECT (PRODERS)

August 31, 2021

Agriculture And Food Global Practice
Latin America And Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Dec 22, 2020})

Currency Unit	=	Guarani
Guarani 1	=	US$0.0001
US$ 1	=	6939 Guarani

FISCAL YEAR
January 1 - December 30

Regional Vice President:	Carlos Felipe Jaramillo
Country Director:	Jordan Z. Schwartz
Regional Director:	Anna Wellenstein
Practice Manager:	Preeti S. Ahuja
Task Team Leader(s):	Pablo R. Valdivia Zelaya, Edward William Bresnyan
ICR Main Contributor:	Hira Channa

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
CDG	Community Development Group *(Comité Vecinal de Microcuenca)*
CFAA	Country Financial Accountability Assessment
CIS	Community Development Groups Investment Subproject
COC	Community Organization Coordinator
CPF	Country Partnership Framework
DEAg	MAG: Directorate of Rural Extension (*Dirección de Extensión Agraria*)
DGJ	MAG: Directorate of Gender and Youth (*Dirección de Género y Juventud Rural)*
DGP	MAG: Directorate of Planning (*Dirección General de Planeación)*
DIA	MAG: Directorate of Agricultural Research (*Dirección de Investigación Agrícola)*
DINCAP	MAG: Directorate for the Coordination and Administration of Projects (*Dirección Nacional de Administración y Coordinación de Proyectos*)
DIPA	MAG's Directorate of Livestock Research
EE	Environmental Education
EMP	Environmental Management Plan
ESMF	Environmental and Social Management Framework
FDRS	Sustainable Rural Development Fund (*Fondo de Desarrollo Rural Sostenible*)
FM	Financial Management
GIS	Geographic Information System
GDP	Gross Domestic Product
GOP	Government of Paraguay
GTZ	German Technical Cooperation (*Gesellschaft für Technische Zusammenar*)
IA	Indigenous Association
IFR	Interim Financial Report
IICA	Inter-American Institute for Cooperation on Agriculture (*Instituto Interamericano de Cooperación para la Agricultura*)
INDERT	National Rural Development and Land Institute (*Instituto Nacional de Desarrollo Rural y de la Tierra*)
INDI	Indigenous Peoples Institute of Paraguay (*Instituto Paraguayo del Indígena*)
ISR	Implementation Status Report
JSDF	Japanese Social Development Fund

M&E	Monitoring and Evaluation
MAG	Ministry of Agriculture and Livestock (*Ministerio de Agricultura y Ganadería)*
MDP	Micro-catchment Development Plan
MSC	Municipal Steering Committee
NRM	Natural Resources Management
PARN	Paraguay Natural Resources Management Project
PIC	Community Investment Plans
PICI	Indigenous Communities Investment Plan
PIF	Farm Investment Plan
PIMA	Market Access for Agricultural Products Project
PMU FM	Project Management Unit Financial Management
POA	Annual Operating Plan
PRODERS	Sustainable Agriculture and Rural Development Project (*Proyecto de Desarrollo Rural Sostenible*)
PROMAFI	Project for the Improvement of Family and Indigenous Agriculture (*Proyecto de Mejoramiento de la Agricultura Familia e Indígena*)
RENABE	National Registry of Beneficiaries (*Registro Nacional de Beneficiarios)*
SENACSA	National Service for Animal Health and Quality (*Servicio Nacional de Calidad y Salud Animal)*
UBN	Unsatisfied Basic Needs
VMG	Vice Ministry of Animal Husbandry (*Viceministerio de Ganadería*)
ZCU	Zonal Coordination Unit

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P088799	PY PRODERS Sustainable Agriculture & Rural Development
Country	**Financing Instrument**
Paraguay	Investment Project Financing
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Republic of Paraguay	MAG/PRODERS

Project Development Objective (PDO)

Original PDO

To improve the quality of life of Small-Scale Farmers and Indigenous Communities in the Project Area in a sustainable manner,through the support of actions to strengthen community organization and self governance, improve natural resources management andenhance the socio-economic condition of said farmers and communities.

Revised PDO

To improve in a sustainable way the socio-economic condition of Small-Scale Farmers and Indigenous Communities in the ProjectArea,through the support of actions to strengthen their communityorganization, self-governance, and access to markets and valuechains.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
IBRD-75030	37,500,000	37,500,000	37,500,000
IBRD-83160	100,000,000	100,000,000	100,000,000
Total	**137,500,000**	**137,500,000**	**137,500,000**
Non-World Bank Financing			
Borrower/Recipient	9,250,000	0	0
Total	**9,250,000**	**0**	**0**
Total Project Cost	**146,750,000**	**137,500,000**	**137,500,000**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
29-Jan-2008	30-Jun-2009	04-Feb-2013	28-Dec-2013	30-Nov-2020

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
10-Jun-2013	15.76	Change in Results Framework Change in Components and Cost
07-Nov-2013	20.65	Additional Financing Change in Project Development Objectives Change in Results Framework Change in Loan Closing Date(s)
24-Jul-2015	44.98	
10-Jul-2017	88.81	Change in Results Framework Change in Loan Closing Date(s) Reallocation between Disbursement Categories Change in Implementation Schedule
17-Jul-2018	112.85	Change in Loan Closing Date(s)
31-May-2019	121.94	Change in Components and Cost Reallocation between Disbursement Categories Change in Legal Covenants Other Change(s)
13-Nov-2019	130.01	Change in Results Framework Change in Loan Closing Date(s)

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Moderately Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	29-Apr-2008	Satisfactory	Satisfactory	.38
02	17-Nov-2008	Unsatisfactory	Unsatisfactory	.38
03	13-Mar-2009	Satisfactory	Unsatisfactory	.38
04	30-Jul-2009	Moderately Satisfactory	Moderately Satisfactory	.38
05	30-Sep-2009	Moderately Satisfactory	Moderately Satisfactory	.38

06	29-Dec-2009	Moderately Unsatisfactory	Moderately Unsatisfactory	.88
07	07-May-2010	Moderately Unsatisfactory	Moderately Unsatisfactory	.91
08	29-Jun-2010	Moderately Satisfactory	Moderately Satisfactory	.94
09	04-Jan-2011	Moderately Unsatisfactory	Moderately Satisfactory	1.25
10	06-Sep-2011	Moderately Satisfactory	Moderately Satisfactory	2.04
11	14-May-2012	Moderately Unsatisfactory	Moderately Satisfactory	6.15
12	20-Nov-2012	Moderately Unsatisfactory	Moderately Satisfactory	9.87
13	10-Jun-2013	Moderately Unsatisfactory	Moderately Satisfactory	16.14
14	03-Nov-2013	Moderately Satisfactory	Satisfactory	21.03
15	08-May-2014	Moderately Satisfactory	Satisfactory	25.82
16	20-Aug-2014	Moderately Satisfactory	Moderately Satisfactory	26.96
17	24-Feb-2015	Moderately Satisfactory	Moderately Satisfactory	45.36
18	15-Sep-2015	Moderately Satisfactory	Moderately Satisfactory	47.67
19	26-May-2016	Moderately Unsatisfactory	Moderately Unsatisfactory	59.18
20	18-Oct-2016	Moderately Unsatisfactory	Moderately Unsatisfactory	62.01
21	05-Jun-2017	Moderately Unsatisfactory	Moderately Satisfactory	85.53
22	26-Oct-2017	Moderately Satisfactory	Moderately Satisfactory	95.75
23	16-May-2018	Moderately Satisfactory	Moderately Satisfactory	109.29
24	27-Nov-2018	Moderately Satisfactory	Moderately Satisfactory	116.61
25	04-Jan-2019	Moderately Satisfactory	Moderately Satisfactory	117.10
26	21-May-2019	Moderately Satisfactory	Moderately Satisfactory	122.32
27	10-Feb-2020	Moderately Satisfactory	Moderately Satisfactory	130.89
28	24-Aug-2020	Satisfactory	Moderately Satisfactory	135.93
29	30-Nov-2020	Satisfactory	Moderately Satisfactory	137.63

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**95**
Agricultural Extension, Research, and Other Support Activities	30
Fisheries	5
Livestock	5
Other Agriculture, Fishing and Forestry	55
Public Administration	**5**
Other Public Administration	5

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Private Sector Development	**100**
Jobs	100
Finance	**7**
Finance for Development	7
Agriculture Finance	7
Social Development and Protection	**29**
Social Inclusion	29
Participation and Civic Engagement	29
Urban and Rural Development	**50**
Rural Development	50
Rural Markets	7
Rural Non-farm Income Generation	14
Land Administration and Management	29

Environment and Natural Resource Management	**14**
Water Resource Management	14
Water Institutions, Policies and Reform	14

ADM STAFF

Role	At Approval	At ICR
Regional Vice President:	Pamela Cox	Carlos Felipe Jaramillo
Country Director:	Pedro L. Rodriguez	Jordan Z. Schwartz
Director:	Pedro Alba	Anna Wellenstein
Practice Manager:	Ethel Sennhauser	Preeti S. Ahuja
Task Team Leader(s):	Gerardo Segura Warnholtz	Pablo R. Valdivia Zelaya, Edward William Bresnyan
ICR Contributing Author:		Hira Channa

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. **At appraisal of the Sustainable Agriculture and Rural Development Project's (PRODERS / also referred to as the Project) in 2006, the economy of Paraguay had emerged from protracted stagnation in the 1990's but was still characterized by high inequality and significant poverty.** Real GDP grew at an estimated rate of 3.5 percent in 2006, and the economic turnaround had led to a significant decline in external public debt, which stood at 30.5 percent of GDP in 2006, down from 50 percent in the earlier years. However, despite the economic turnaround, per capita GDP in 2006 was at the same level as a quarter of century earlier, inequality was extremely high, reflected in a GINI coefficient of 0.53 and gross inequality of land ownership. Additionally, figures from 2005 indicate that over 1.2 million people in rural areas lived in poverty - including almost all 86,000 indigenous people – and 650,000 people or 54 percent of the total rural population lived in extreme poverty.

2. **The agriculture sector was critical to the economy and bimodal: a capitalized entrepreneurial agriculture, primarily responsible for sector growth, and 300,000 mostly small-scale farmers.** In 2006, 10 percent of the rural population owned two-thirds of the land, while 30 percent of the population was landless. The economy of Paraguay was essentially natural resource-based, with agriculture and livestock production accounting for 25 percent of GDP, 85 percent of exports and 45 percent of the employed population. Small-scale farmers faced the challenges of limited access to land, capital and technology, and social and human capital resources. The land situation in Paraguay was characterized by significant inequality in tenancy and extensive irregularity of land title[1].

3. **Despite its ecological importance, Paraguay suffered from severe environmental degradation.** This included accelerated erosion, loss of soil fertility, loss of biological diversity, decreased quantity and quality of water resources, and severe deforestation. A principal cause of this environmental degradation was Paraguay's model of agricultural development which predominantly promoted short-term profits over long term environmental sustainability. Practices contributing to this degradation included expansion of the agricultural frontier through the colonization of new lands, slash-and-burn agriculture, extensive grazing, and mono-cultivation of cotton and soy.

4. **Alignment with the Government's Strategy:** The Government of Paraguay's (GOP) sectoral focus was on sustainable economic growth, including actions to strengthen agricultural production and agro-industry, address poverty and social exclusion particularly in rural areas, and to increase human capital by stressing equity and increased access to basic services.[2] These actions were outlined in key strategy documents including the GOP's National Strategy for the Fight against Poverty, Inequality and Social Exclusion and the Agriculture and Rural Development Program (2004-2008). This project focus is embedded in the Project Development Objective (PDO) which sought to improve the socio-economic condition of small-scale farmers and indigenous farmers in a sustainable manner.

[1] Data has been taken from Project Appraisal Document
[2] Reflected in the San Bernardino declaration of 2004

5. **Rationale for World Bank (also referred to as the Bank) support.** The rationale for the Bank's support and involvement at the time of preparation can be pared down to three points:

a. **PRODERS was expected to benefit from the synergies associated with being part of an integrated portfolio.** The World Bank's project portfolio at the time of preparation included: (i) two projects in collaboration with the Japanese Social Development Fund (JSDF)[3]; (ii) an Additional Financing for Pilot Community Development Project (PRODECO); (iii) the Forestry Project; and (iv) the Land Administration Project.

b. **PRODERS' design would benefit from the Bank's experience with similar activities in other projects in Paraguay and internationally.** In Paraguay, the preceding Paraguay Natural Resource Management Project (PARN) had promoted an integrated model of natural resource management and technological support to agriculture. The Bank had also supported successful micro-catchment area based sustainable rural development projects in several Brazilian states (e.g., in Santa Catarina and Parana).

c. **The Bank team could/would learn from related initiatives in Paraguay funded by other international agencies.** For example: International Fund for Agriculture Development's (IFAD) Paraguay Rural Project, on training beneficiaries and their organizations for collective commercialization of agricultural products; and the German Technical Cooperation (GTZ) executed Caazapá Rural Development Project, which focused on the sustainable management of natural resources and, on producers' successful diversification of production.

Theory of Change (Results Chain)

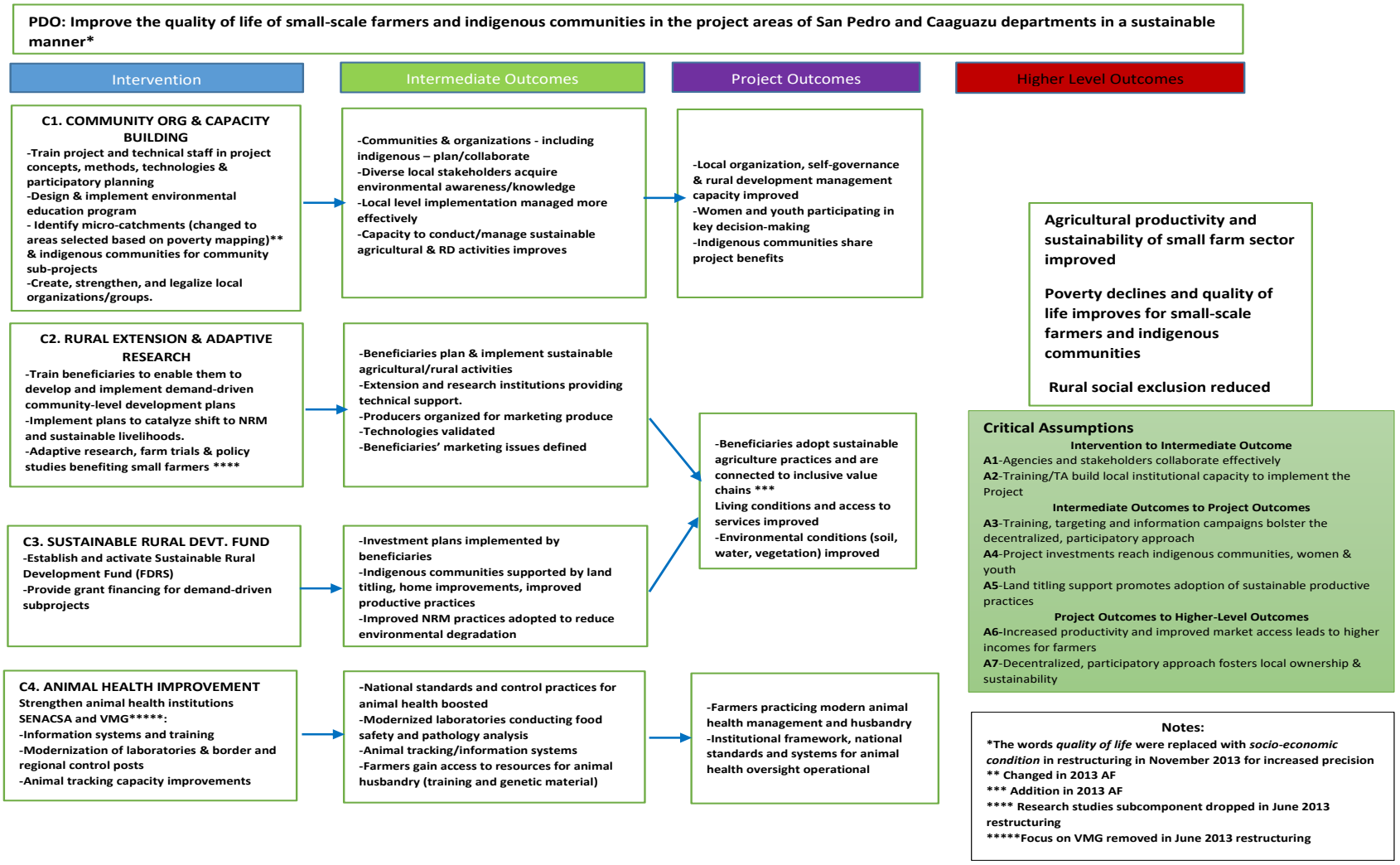
6. The Project was approved before presentation of a Theory of Change (TOC) in the Project Appraisal Document (PAD) became mandatory, and consequently, the PAD did not contain a diagrammatic representation. Figure 1 presents the Theory of Change based on the implicit results chain described in the PAD, and incorporates applicable changes to the Project over time, noted briefly in footnotes and discussed further in Section I B.

7. **Targeting of beneficiaries:** The two departments selected for intervention were Caaguazú and San Pedro, the poorest departments in the Eastern Region[4]. The 39 municipalities in these two departments were categorized as High, Medium and Low Priority based on criteria related to poverty and environmental factors (loss of forest cover and soil use). Micro catchments were to be selected during implementation using the same criteria. The PAD estimated that the Project would reach 16,800 small-scale farmers from 600 communities and 2,030 families from 73 indigenous communities.

[3] The Indigenous Land Regularization Project and the Indigenous Community Development Project

[4] These departments were selected according to poverty-based targeting criteria using the national PLIPEX index (a prioritization method for targeting areas for social investments aimed at the reduction of extreme poverty). The PLIPEX index measures poverty levels according to income and Unsatisfied Basic Needs (UBN). It was calculated in 2004 by Paraguay's Secretariat of Social Action.

Figure 1- Theory of Change



Project Development Objectives (PDOs)

8. As stated in the Loan Agreement No. 7503-PY, the PDO was: "*to improve the quality of life of Small-Scale Farmers and Indigenous Communities in the Project Area in a sustainable manner, through the support of actions to strengthen community organization and self-governance, improve natural resources management and enhance the socio-economic conditions of said farmers and communities*."[5]

Key Expected Outcomes and Outcome Indicators

9. In Table 1 below, the appraisal-stage PDO Indicators are assigned first – and as relevant - to the PDO itself, then to the main associated actions (framed as dependent clauses) needed to accomplish the PDO.[6]

Table 1: Original PDO Indicators Aligned to the PDO, and to its Associated Actions

PDO Theme and Main Actions	PDO Indicators as per PAD
Improve the quality of life of Small-Scale Farmers and Indigenous Communities in the Project Area in a sustainable manner, through:	• At least 50 percent of the target farms increase their agricultural incomes by 30 percent. Of these, at least 20 percent obtain an agricultural income above the poverty line. • The incidence of poverty (measured in Unsatisfied Basic Needs - UBN)) reduced by 50 percent in the assisted small-scale-farmer and indigenous communities. • 67 percent of beneficiary households with access to at least one additional basic service aimed at home improvements.
Support of actions to strengthen community organization and self-governance	• CDGs, MDCs and MSCs[7] established, strengthened, and participating in the management of rural sustainable development in at least 80 percent of the target micro-catchments and indigenous communities in the project area with participation of women and rural youth in decision-making (appropriate level of participation to be agreed by the organizations).
Improve natural resources management	• Environmental conditions (soil, water quality, vegetation cover) improved in at least 70 percent of the 84 target micro-catchments and 73 indigenous communities • Greater awareness among 50 percent of project beneficiaries of land degradation and the potential contribution of sustainable natural resources and land management to improved livelihoods in the project area.
Enhance the socio-economic condition of said farmers and communities."	• Production of crops for domestic consumption increased by 20 percent in 50 percent of the poorest beneficiary families. • Productivity of land (kg or MT/by hectare) increased by an average of 25 percent in 10,000 farms through the application of productive practices promoted by the project • 20 percent of indigenous communities without formal land titles at project start acquire titles and 50 percent of small-scale farmers without title receive assistance toward acquiring titles.

Components

10. **Component 1: Community Organization Development and Capacity Building** (Appraisal Estimate: IBRD:US$2.23 Million, Actual Cost: US$1.67 Million). This component financed: (i) organization of beneficiaries to

[5] As per the ICR Guidelines, the PDO statement is technically: "*to improve the quality of life of Small-Scale Farmers and Indigenous Communities in the project area in a sustainable manner*". The remaining parts of the PDO statement are dependent clauses describing the means to these objectives.

[6] The core PDO statement is treated as a single construct not requiring "unpacking" (ICR Guidelines). However, a more granular, meaningful alignment of the PDO Indicators is provided by aligning the PDO itself and its corresponding actions as described in the dependent clauses.

[7] Community Development Groups (CDG), Micro-catchment Development Committee (MDCs), Municipal Steering Committee (MSC)

participate actively in local decision-making structures[8]; and (ii) preparation of project staff to implement the project technical strategy aimed at the adoption of sustainable agriculture and rural development activities in micro-catchments and indigenous community territories. The component had two subcomponents: (1.1) Training and Environmental Education (EE), where the plan was to train project extension workers (micro-catchment, indigenous community and social organization technicians) and other project staff (including Ministry of Agriculture and Livestock - MAG - staff involved in the project) as well as rural workers and youth; and, design and implement an environmental education program; and (1.2) Community Organization Development, to facilitate training and strengthening of community organizations**.**

11. **Component 2: Rural Extension and Adaptive Research** (Appraisal Estimate: US$9.14 Million, Actual Cost: US$41.07 Million). Individual, small-scale, farmer households, producers' groups, and indigenous communities would be helped to overcome technical, socio-economic, and environmental constraints to allow them to shift from existing, non-sustainable agricultural practices to sustainable livelihood strategies enhancing natural resources management and reducing rural poverty. There were two subcomponents: (1.1) Rural Extension - main activities included technical assistance and training for project beneficiaries, and assistance in development and implementation of the community development plans; and (1.2) Adaptive Research and Studies - financing of research trials, and marketing and policy studies.

12. **Component 3: Sustainable Rural Development Fund** (Appraisal Estimate: US$19.5 Million Actual Cost: US$87.15 Million). This component sought to implement an incentive mechanism – a Sustainable Rural Development Fund (FDRS) financing demand-driven investment subprojects - to facilitate and induce the adoption of the project strategy within the benefited micro-catchments. Proposals would be prepared by eligible project beneficiaries supported by project extension workers. In most cases, the FDRS grant would finance a maximum of 85 percent of the investments included in a subproject. Grantees would provide at least 15 percent in-kind contribution to cover the rest. The FDRS would finance five categories of subprojects: (i) Individual Small-scale Farmer Investment Subprojects for basic home improvements and sanitation (up to US$500.00 per subproject); (ii) Individual Small-scale Farmer Investment Subprojects to improve farm production and productivity (up to US$2,000 per subproject); (iii) Community Development Group Investment Subprojects to improve agricultural and livestock production and productivity (up to US$10,000 per subproject); (iv) Indigenous Community Investment Subprojects (up to US$25,000 for subproject); and, (v) Municipal Investment Subprojects (up to US$40,000 per subproject).

13. **Component 4: Animal Health** (Appraisal Estimate: US$3.38 Million Actual Cost: US$1.12 Million). This was designed to assist Paraguay to initiate animal health improvement measures and to contribute to the regional strategy for animal health management to ensure high national standards of animal health. It had two sub-components: (i) Strengthening the nodal implementing agency for this component - National Service for Animal Health and Quality (SENACSA); and (ii) Strengthening the Vice Ministry of Animal Husbandry (VMG).

14. **Component 5: Project Management, Monitoring and Evaluation. (**Appraisal Estimate: US$3.28 Million, Actual Cost: US$5.54 Million). This component included overall management of the project (i.e., supervision, monitoring, and evaluation activities), project audits, financial and project management capacity building at MAG, as well as project dissemination and coordination with other related projects and programs.

[8] Decision making structures refer to beneficiary involvement in CDGs, MDCs and MSCs

15. The difference in the appraisal cost and the actual cost is driven primarily by the Additional Financing of US$100 Million that was approved in November 2013 and the associated scale-up of activities. Additional impacts were due to: (i) dropping of subcomponent 4.2 and downscaling of activities for Component 4.1; (ii) scaling up of training activities under Component 2; (iii) reallocation of funds from Component 1 and Component 5 to Component 3 in 2017 to adjust for the larger number of beneficiaries under that Component.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

16. **The Project was implemented over 12.5 years.** Six restructurings and an Additional Financing (combined with a seventh restructuring) resulted in numerous changes. The following paragraphs summarize these changes, and Table A7.1 in Annex 7 provides an overview of the main changes over the Project's lifetime.

Revised PDOs and Outcome Targets

17. **The PDO was revised once as part of an Additional Financing loan of US$100 million approved by the World Bank Board of Directors in November 2013.** The revised PDO was to "*improve in a sustainable way the socio-economic condition of Small-Scale Farmers and Indigenous Communities in the Project Area, through the support of actions to strengthen their community organization, self-governance, and access to markets and value chains*". Adjustments to PDO Outcome targets are detailed in Table A7.2, Annex 7.

Revised PDO Indicators

18. PDO indicators changed considerably throughout the life of the Project: The PAD had ten PDO indicators but two were dropped by the restructuring of June 2013; five were dropped and two new indicators were added by the restructuring of November 2013. Finally, two PDO Indicators were rephrased in June 2017. The detailed changes in the PDO indicators are provided in Table A7.2 in Annex 7.

Revised Components

19. Changes to the components at each applicable restructuring – and the Additional Financing - are provided below:

a. **June 2013:** (i) Subcomponent 2.2. Adaptive Research: This was dropped because activities had not started and could not produce the expected results by the existing closing date; and (ii) Subcomponent 4.2- Support to the Vice-Ministry of Livestock (VMG) was dropped because of lack of progress, and because institutional changes reduced VMG's mandate to implement field activities.

b. **November 2013 (**Additional Financing): Specific changes to Project Components were: (i) Component 3: Activities were reoriented to focus only on community subprojects without any National Rural Development and Land Institute (INDERT) subprojects, and the number of community investment proposals to be financed was increased from 480 to 2,000 while the number of indigenous community proposals to be financed was increased from 45 to 130; and, (ii) Component 4: Animal Health activities financed under the original loan were re-oriented to strengthen the Project's support for small producers, rather than national-level activities to control Foot and Mouth Disease.

c. **July 2017:** Introduced a new strategy/approach under Component 3 – Family by Family - targeting small-scale, individual farmers identified as living in poverty, instead of communities.

d. **May 2019:** Added an activity in Component 5, described as financing of technical assistance to analyze and prepare possible interventions to strengthen community organizations and facilitate access to markets of Small-Scale Farmers and Indigenous Communities within the Project Area.

e. Other Changes

20. **Additional Financing in June 2013**: (i) Geographical scope was expanded[9]; and (ii) the beneficiary targeting strategy was changed to selecting sub-districts based only on poverty indicators from the 2010 Census data.

21. **The Restructuring of July 2017 reallocated loan resources between disbursement categories:** The allocation for Component 3 (investments under the Sustainable Rural Development Fund), and Component 4 (Animal Health Improvement) was increased. Additional resources were devoted to Component 3 to finance an increased number of beneficiaries including those under the "Family by Family" strategy (introduced by this component). Component 4 (Animal Health Improvement) required additional funds for certain activities such as office rehabilitation for the Vice-Ministry of Livestock and a study on the feasibility of animal identification. Funds under Component 1 (Community Organization Development and Capacity Building) and Component 5 (Project Management) were reduced to accommodate the above-mentioned increases.

Rationale for Changes and Their Implication for the Original Theory of Change

22. The following section provides the rationale for the six restructurings across the Project lifetime and the Additional Financing:

a. **Restructuring of June 2013**: This restructuring followed the Mid-Term Review (MTR) of February 2013 (MTR delayed-original closing date was December 2013). The MTR acknowledged that the Project had disbursed only 30 percent of the funds in 80 percent of the project time, even though a significant acceleration of disbursement had occurred in 2012 (70 percent of the total amount disbursed to date). The MTR and other PRODERS´ documentation ascribe implementation delays to: (i) delayed project effectiveness; (ii) delayed recruitment of project staff; (iii) excessively dispersed project activities associated with animal health activities under Component 4; (iv) a complex menu of sub-projects which included diverse community investment projects in addition to Municipal Investment Plans; and (v) lack of an integrated Monitoring and Evaluation System. These challenges meant that the Project was behind in financing sub-projects (only half of the estimated beneficiaries had been reached a year from closing) and negligible progress had been made on Subcomponent 2.2 (no research studies conducted or started) or on Component 4 (no activities started with SENACSA or VMG)[10].

b. **Additional Financing, November 2013: (**i) The changes to components (expansion of scale and exclusive focus on community subprojects) were driven by the increase in project scope and the continued

[9] In addition to the two departments of Caaguazú and San Pedro, the Project now included Concepcion, Canindeyú and Caazapá Eventually communities from neighboring departments in Eastern Region including Amambay, Central, Itapúa, Misiones, Guairá, Paraguarí, Cordillera and Alto Parana were included in Project's geographic scope through changes in the operating manual.

[10] Several operational adjustments to simplify and speed up the process of disbursements to the subprojects were also recommended by the MTR (e.g., reducing the number of disbursements to sub-projects to two) and incorporated in the Operational Manual.

simplifications recommended by the MTR earlier that year; (ii) the change in targeting criteria was intended to improve the Project's poverty focus; (iii) the changes in the PDO were meant to make it more measurable and clear; and (iv) the change in the dependent clause was in line with the PAD for the original loan (Loan 7503-PY), which also stressed the importance of diversifying production practices to help producers access new markets and develop value chains.

c. **Restructuring of July 2015:** This was meant to improve support to rural communities by allowing for central procurement of goods and services in situations when this would result in faster and improved services compared to community procurement.

d. **Restructuring of July 2017:** The closing date was extended, to allow the Project to achieve its intended objectives and, a new Family by Family approach was introduced in Component 3, targeting families rather than communities. The rationale was that although the community-based approach had significant benefits, it did not allow inclusion of the most vulnerable families who were not fully integrated into their community because of their lower income level.

e. **Restructuring of May 2019:** The new activity introduced under Component 5 was intended to help the Borrower allocate funds for preparation of the follow-up project Market Access for Agricultural Products Project (PIMA), which was declared effective on July 6, 2020.

f. **Restructuring of November 2019:** The Government of Paraguay requested an extension of the closing date to November 30, 2020 to achieve project targets not achieved due to delayed implementation of community investments (most were implemented in 2017-2019).

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

23. **The relevance of the PDO to the CPS and Country Partnership Framework (CPF) at closing is High.** The PDO was highly relevant at the time of appraisal and remained consistently relevant throughout implementation with the World Bank's CPSs and CPF. At closing, the primary themes of the PDO remained in the mainstream of the new World Bank/Paraguay CPF 2019–2023 (Report No131046PY). The Project was linked to one of the key objectives mentioned in the CPF 2019-2023 unlocking the productivity of the rural economy through the following two mechanisms. First, it looked to combine technical assistance with access to funds to help farmers overcome barriers to increase adoption of sustainable and diversified farm practices. Second, it contributed to this objective by providing basic services (such as electricity, water, and sanitation) and legal services for formalization of land rights for indigenous communities, that could enable vulnerable communities to become more productive. The Project remained fully relevant, even when considering its restructurings, none of which substantially altered the overall development objective.

B. ACHIEVEMENT OF PDOs (EFFICACY)

24. **A key source of evidence is a survey commissioned by the Borrower and the Bank and conducted by the Inter-American Institute for Cooperation on Agriculture (IICA) near the Project's closing [11].** The challenges of the Project's M&E system during its implementation (described in Section IVA) make the IICA survey critical to a comprehensive and methodologically sound assessment of the Project. The survey consisted of a randomly selected and representative sample of 185 subprojects (consisting of 4,060 beneficiaries). Of the 4,060 participants, 925 were selected for individual surveys on personal/household information. The workshops and the survey were conducted in November 2019[12]. The Family by Family (FXF) strategy is evaluated using an additional survey, conducted a year later, with a randomly selected representative sample of 460 beneficiaries. In lieu of a baseline, the IICA survey utilized retrospective questions, to reconstruct the initial situation - or without project - from the individual and collective memory of the beneficiaries, on topics such as crops produced, production volume, as well as sales prices and production costs

25. PRODERS-supported sub-projects were divided into four different strategies: Community Investment Plans (PIC), Indigenous Communities Investment Plan (PICI), Farm Investment Plan (PIF), and Family by Family (FXF). PICs, PICIs and PIFs included productive investments to increase yields and diversify agriculture systems, as well as social, environmental and community investments. The FXF typology included only productive investments, consisting of technology packages for vulnerable rural families. The demand-driven and flexible design of the Project meant that subprojects were varied in nature and the focus of activities depended on the needs of the groups. A summary of the type of investments and activities within each category is shown in the table below with the proportions of financing taken from the 185 workshops sampled:

Table 2: Expenditure under investment categories for different subprojects

Investment type	PIC (%)	PICI (%)	PIF (%)	Description of Activities Financed under each Investment Category
Environmental	6	5	8	Establishment of nurseries, reforestation with native, exotic and fruit trees purchase of inputs for agroforestry practices.
Productive	61	64	57	Purchases of Key crop inputs (including those for new sustainable practices promoted by the Project), animals (poultry, ruminants), tools, farm machinery and vehicles for transportation
Social	7	25	12	Establishment of community drinking water systems, electrification, improvement of bathrooms, kitchens and other home repairs and purchase of cleaner stoves.
Community	24	4	21	Establishment of community productive facilities (for e.g., processing facilities for crop outputs)
Administrative	2	3	2	Hiring of services to assist with documentation for procurement of goods and financial management by community organizations

26. The revised PDO was "**To improve in a sustainable way the socio-economic condition of Small-Scale Farmers and Indigenous Communities in the Project Area**". This objective was to be achieved through two main pathways:

[11] The IICA report was the main source of evidence for the BCR. A summary of the key findings from the survey also utilized in the BCR are provided in Annex A7.3.
[12] The workshops were conducted in 2019, but information was updated based on secondary information of prices and quantities produced. The survey of Family-by-Family beneficiaries was conducted in 2020.

"(i) the support of actions to strengthen their community organization and self-governance and; (ii) access to markets and value chains".

27. The following paragraphs first discuss how well the Project performed in the achievement of its objective. The discussion of achievement is divided into two parts: The first part focuses on the **improvement of the socio-economic condition of small-scale Farmers and Indigenous communities** while the second part discusses the qualification that this should be done in a **sustainable** way. Then the discussion moves to performance indicators that measure success in achieving the two main pathways mentioned in the paragraph earlier. Finally, the last part of the discussion is focused on successful completion of the two main activity streams of the Project (technical support and disbursement of funds to communities and families).

Improvement of the socio-economic condition of Small-scale Farmers and Indigenous Communities

28. **Direct Project Beneficiaries:** The project reached 249,662 direct beneficiaries. The AF increased the target for beneficiaries to 256,000 (97 percent achieved); the target was reduced in 2017 to 225,000 (114 percent achieved)[13].

29. **PDO Indicator 1: "Number of targeted farms that increase their agricultural income by at least 30 percent".** The IICA survey indicates that 28,172 farms increased their incomes by 30 percent or more. This substantially exceeds the project target at closing of 10,000 farms (282 percent of the target)[14] established by the 2017 restructuring. The target number of farms before it was reduced in the 2017 restructuring was 25,500. This target was also exceeded at 110 percent (28,172/25,500).

30. **PDO Indicator 2: "No. of targeted farms which are able to pass above the poverty line"**[15]. From the IICA survey, 28,180 families were above the poverty line at the time of the survey. This achievement is higher than the target value (10,000 farms) set in 2017. Pre-2017 restructuring this target was worded as *at least 50 percent incidence of poverty reduced in the assisted small-scale farmers and indigenous communities*. According to the IICA survey data, the average poverty rate (proportion below the poverty line) in the sample before the Project intervention was 52 percent and 48 percent after the Project intervention. A 50 percent reduction in the incidence of poverty from 52 percent means that the poverty rate after the Project should be 26 percent, which indicates that the achievement of this indicator is only 55 percent (i.e., 26 percent/48 percent).

31. **PDO Indicator #3: "Percentage of farms that have increased their productivity (per Ha) by at least 25 percent through the application of productive practices promoted by the Project"** with a target of 25 percent of farms. Following discussion with Bank team, the IICA report used yield data for cassava and maize for measurement because both were grown by 71 percent of the sample. Some 32 percent of the sampled farms saw yield increases higher than 25 percent for at least one of these crops indicating an achievement rate of 128 percent (i.e., 32 percent/25 percent)[16].

[13] It should be noted that this is a conservative measurement of the direct beneficiaries as it only includes those who benefited from subprojects. There are another 49,579 direct beneficiaries of the Project's activities including: 440 trained PRODERS extension technicians and 49,139 teachers and students who received the Environmental Education Program.
[14] Values are adjusted for inflation.
[15] While the indicator mentions the 2016 poverty line (defined at PYG 446.798 it was updated by the 2017 restructuring), the ICR utilizes the analysis from the IICA survey which utilizes the 2019/20 poverty line which is higher at PYG 506,307.
[16] This indicator remained unchanged in the 2017 Restructuring.

32. **Evidence from the IICA report indicates that the results for PDO indicators 1-3 were robust to the introduction of the limited counterfactual analyses possible.** The report utilizes national level rural income and production data reported as a counterfactual in the absence of a control group or baseline. Target values do not change significantly.

33. Two important Intermediate Indicators also provide evidence that the Project improved socio-economic conditions of target beneficiaries by looking at the provision of basic services to beneficiaries.[17] Specifically, these are: "Families with improved housing (improved toilets, ovens, roof, etc.)" and "Number of indigenous communities which gained access to water and/or electricity thanks to the project". The homes of some 19,314 families were improved, with improvements such as installation of sanitary latrines (6,407 families), installation of cleaner and more efficient stoves (8,177 families), upgrades of floors, ceilings and walls (8,489 families), provision of access to potable water (4,385 families), and provision of electric light (1,481 families), against a target of 8,000 (241 percent achieved), and 70 indigenous communities were provided with access to potable water or electricity against a target of 60 communities (117 percent achieved)[18].

Sustainability

34. The *sustainability* aspect is examined through two indicators. The IICA survey finds that 82 percent of the sample had adopted a sustainable technology or practice (e.g., green manure crops, crop rotation, leguminous crops, minimum tillage, and cover crops) or diversified production (e.g., dairy production, eggs, poultry, small ruminants, and fruit production) against the target of 80 percent (102 percent achievement). Additionally, *good forestry practices* were implemented on 5,430 hectares against a target of 6,000 hectares (91 percent). *Good forestry practices* were defined as agroforestry, reforestation with exotic, native and fruit trees, natural regeneration, and protection of yerba mate trees.

Pathways to achievement of PDO

35. Two pathways were identified in the PDO statement to achieving the PDO**.** The first was to strengthen community organization and self-governance, and the second was to strengthen access to markets and value chains for the targeted beneficiaries. Evidence for the first pathway "*strengthening community organization and self-governance"* can be found in the IICA report outside of the PRODERS´ Results Framework. An index was developed to gauge the level of formalization of the organization at the time of the survey[19]. The index showed that 14.6 percent of the organizations reached a consolidated level of development and 29.3 percent of the organizations were classified as incipient, indicating their need for significant support to develop further[20].

[17] The indicator values for these two indicators are taken from the project database.
[18] Some families benefitted from multiple activities, which is why the total is greater than 19,314.
[19] 34 questions related to different aspects of the organization were asked that could be grouped into categories of institutional arrangements, financial arrangements, marketing, external recognition of the organization and credit access. Based on the answers to the questions in the form applied in the Workshops, organizations of indigenous producers or communities were categorized as follows: **(i) Consolidated,** those organizations with affirmative answers equal to or greater than 80 percent; **(ii) In Development,** 61 to 79 percent and (**iii) Incipient**, equal to or less than 60 percent of positive responses.
[20] It should also be noted as a caveat to the results from this index, that it captures the moment at which it was surveyed and does not capture progress or improvement in organizational capacity.

36. The second pathway is captured in the PDO Indicators "*Associative management capacity increased: 80 percent of Community Development Groups (campesinos) / 50 percent of indigenous groups with business proposals oriented to business plans to access markets and inclusive value chains*[21]". Some 84.8 percent (106 percent achievement) of proposals from farmers and community organizations, and 62 percent (124 percent achievement) of proposals from indigenous groups were oriented towards accessing markets and value chains.[22]

37. There is also anecdotal evidence that the Project enabled some community groups to sell directly to agro-processors (examples include three communities selling raw milk directly to processors, and the Ache community processing and then selling yerba mate directly to the company *GUAYAKI*). The Project also promoted participation of communities in local market fairs, and sales data from the PIU database (from 2015-2019) suggest that an average of 12 percent of the sales made by groups was through fairs, with the proportion consistently increasing across the four years.

Activity streams

38. Finally, two streams of activities conducted under the Project are assessed. The first set is related to training and equipment for technical staff and deploying this staff to train beneficiaries. The main intermediate indicator capturing this is **"*Number of technicians trained and operating in the project areas*".** A total of 440 technicians were trained under PRODERS from a target of 345 set by the AF in November 2013 (128 percent achieved). Technicians were trained in areas related to improved production practices, marketing of agricultural produce, community development and strengthening of organizations, and gender issues. Also, under the first stream of activities, the Project provided equipment to different field units of *the National Service for Animal Health and Quality* (SENACSA) so that they would be connected to the main office.

39. The second stream of activities used by the Project was the disbursement of funds, goods, or services to those whose proposals were successful. The Project was largely successful in meeting the target number of proposals financed and completed for the peasant communities and the indigenous communities: 98.8 percent and 100 percent of proposals completed their planned activities and targets against the post 2017 restructuring target proposals (1,185 and 180 proposals, respectively), and 59 percent and 100 percent against the pre-2017 restructuring targets (2000 and 180 proposals, respectively).

Justification of Overall Efficacy Rating

40. **Overall Efficacy is rated Substantial. Factors considered in determining this rating were the following:**

a. The operation almost fully achieved its objectives and disbursed 99.7 percent of its loan proceeds - albeit with several extensions of the closing date.

b. All six PDO indicator targets were exceeded if evaluated against the targets set post-2017 Restructuring. When the indicators are evaluated against the more ambitious (AF) targets pre-restructuring, i.e., when applying the position – with hindsight - that reducing certain targets in 2017 was not merited given the

[21] This includes the farm investment plans referred to as PIF, because of the indicator being focused on PIC.

[22] These indicators are not used as evidence for strengthening of community organization and self-governance, because the indicator captures capacity building of community organizations in a very specific area related to market access and value chains. Additionally, it should be noted this proportion comes from 116 plans instead of the 185 because they included only plans that were financed in the second half of the Project.

context, four of the six PDO Indicators end targets were exceeded, and one shows substantial achievement (97 percent). However, the indicator related to reduction in poverty was far less successful when assessed against the AF pre-restructuring target.

c. Out of 24 Intermediate Results Indicators, 21 met or exceeded their AF pre-restructuring targets.

C. EFFICIENCY

41. The financial and economic analyses of agricultural results are also based on the survey of: (i) 185 workshop participants of the PIC, PICI and PIF strategy; and (ii) 460 beneficiaries for the Family by Family strategy[23]. The financial analysis considered the benefits generated by the increased production, increased sales and diversification of agricultural systems promoted by PRODERS. The economic analysis considered in addition, the increased availability of time provided by social investments under PRODERS (implementation of improved stoves at household level and drinking water systems at community level), reduced incidence of acute respiratory diseases resulting from investments in improved stoves, and the recovery of ecosystem services due to PRODERS' environmental investments and capacity building. Income and cost flows were adjusted based on the implicit deflator of agricultural GDP, to eliminate the effect of price changes over time. The implicit deflator acts as a proxy to control the variation of income in products and inputs.[24]

42. **The analysis shows that 77 percent of investment plans are viable (NPV>0) at 10 years (440/568), 86 percent at 15 years (487/568) and 89 percent at 20 years (506/568).** The PICI is the typology that presented the lowest proportion of viable investment plans compared to the other investment typologies in all evaluation horizons (38 percent, 59 percent, and 67 percent for 10, 15 and 20 years). The positive results for the case of Family by Family stand out, in which it is observed that 83 percent, 90 percent and 94 percent of the subprojects, respectively, remained viable in 10, 15 and 20 years.

43. **At the aggregate level, considering incremental cost, income and net income flows for all investment plans, all typologies present positive profitability indicators.** At the aggregate level, a financial rate of return of 25.7 percent, 31.5 percent, and 32.5 percent at the 10, 15 and 20 year-horizon, respectively, is obtained. The benefit-cost ratio is 1.21, 1.39 and 1.46 at the 10, 15 and 20 year-horizons, respectively. Family by Family stands out, presenting the highest profitability indicators. PIF presented positive profitability indicators, but of a lesser magnitude than PIC and PICI. This represents the trend of improvement in the efficiency of PRODERS' design and implementation of investment plans.

44. **Results reveal the high sensitivity of financial profitability with respect to yields**: With a 10 percent decrease in yields (either due to limited technical assistance, low adoption rate and/or incidence of climatic factors beyond the farmers' control), the total NPV at the aggregate level falls by 56 percent, 36 percent, and 36 percent and the EIRR fell by 28 percent, 20 percent and 20 percent at 10, 15 and 20 years.

[23] This sample size ensures statistical representativeness with a confidence level of 95 percent and a margin of error of 4.6 percent for Family by Family. Maximum variance was assumed (Informe de Cierre del Proyecto de Desarrollo Rural Sostenible, 2020).

[24] Given the high variability of the data, a dispersion analysis of the Financial Internal Rate of Return was performed for each typology, to identify extreme values (mean IRR plus / minus two standard deviations) that were generating distortions in the distribution These were dropped from the analysis.

45. **Environmental and social co-benefits:** It is important to note the importance of the generation of environmental and social co-benefits by PRODERS. Of the total economic benefits, 22 percent come from social benefits (lower incidence of respiratory diseases and increase in time availability due to efficient stoves and drinking water systems in the communities), 13 percent of the total benefits correspond to ecosystem services recovered by the Project, and 65 percent of the economic benefits come from agricultural productive activity.

46. **Project rate of return:** In the economic analysis, the total cost of the project, US$137.5 million, was considered. For a 20-year horizon, the incremental economic benefit for the entire Project is estimated at US$7.7 million, with an economic internal rate of return of 28.2 percent.

47. **Aspects of design and implementation.** The Project faced significant delays in completion, with the Project closing nearly three years after the closing date planned in the Additional Financing Paper (December 2017). Three changes of government and associated transitions, and the usually long timeline of projects in Paraguay due to the challenging operating environment, all contributed. To estimate the efficiency loss due to these delays a scenario was simulated in which all subprojects were implemented one year earlier. The NPV obtained under this scenario is US$10.7 million, which is 37 percent higher than the NPV obtained with the actual disbursements that were made (US$7.7). This is a downward estimate of the cost, since it assumes only a year delay.[25] However this analysis should be qualified in the following way: This comparison is against the counterfactual of earlier implementation, while if extensions were not granted this would have meant incomplete or fewer subprojects (probably implying a lower rate of return), i.e., the longer timeframe/extensions provided the opportunity for the Project to achieve. Other characteristics of this Project were not of sufficient weight to markedly affect its efficiency.

48. **Comparison to Appraisal:** The table below provides a comparison to Appraisal EFA. The EIRR is higher for the analysis done at closing because it considers additional environmental and social benefits of the Project.

Table 3: Comparison of results at appraisal and closing

	EFA PAD (2007)	EFA ICR (2021)
EIRR	17 percent	28.2 percent
Quantified benefits	Agriculture benefits	Agriculture, environmental and social benefits
Scope of analysis	Loan 7503	Loan 7503 and Loan 8316
Economic discount rate	Unknown	12 percent

49. **Efficiency is rated Substantial, based on overall financial and economic results.** The economic analysis of PRODERS likely underestimates the impacts on beneficiary families, as it is not able to quantify a series of benefits, e.g., assistance with obtaining identity documents for 4,099 beneficiaries; investments in improved sanitation; and access to electricity. Additionally, not all environmental benefits were quantified.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

50. **The overall outcome rating is Satisfactory based on the following:**

[25] It is complicated to create a scenario of what the return would have been if implementation had gone according to the scheduled timeline. This is because the returns are very sensitive to the assumption of when we assume each of the sample sub-projects started

a. **High** rating for Relevance of the PDO based on its sustained alignment with World Bank strategy documents for Paraguay and government's current strategic/planning instruments.
b. **Substantial** rating for Efficacy, based on the achievement or surpassing of almost all key targets and important collateral/complementary achievements.
c. **Substantial** rating for Efficiency**,** based on positive economic and financial outcomes.

Split Assessment of Overall Outcome Rating

51. The Task Team considered the arguments for/against including a split assessment of overall outcome based on reductions in PDO Indicator targets by the Restructuring of July 2017 (see Table A7.2, Annex 7) and concluded that a split assessment was not warranted. The decision to reduce targets in 2017 despite strong progress reported at that time was based on the Bank team's observations at the time that: (i) the Client's management of M&E was inadequate; (ii) Project team was unable to provide clear guidance due to the recent turnover of PMU management; and (iii) there was confusion– again due to M&E deficiencies - on the status of disbursements to subprojects. In this context, the Bank agreed with the Client to reduce certain targets to more manageable levels. The revised targets were therefore not based on formal projections, and are judged – including in retrospect, by the Bank team - to have been unnecessary. With one exception, final achievement for the PDO Indicators in question came close to, or exceeded, their much higher AF targets.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

52. **Impact on indigenous communities:** A particularly satisfying aspect of the Project has been its explicit focus on providing support to indigenous communities, who are amongst the most deprived in Paraguay. The Project financed investments in 180 indigenous communities from different linguistic families and peoples, reaching 7,876 households, of which 49.6 percent were women (40,168 individuals, or 34 percent of Paraguay's 117,150 indigenous people). The Project approach to providing support to indigenous communities was highly participatory and included regular consultations with the communities throughout the project lifetime. Support for indigenous communities was multifaceted and key impacts include:

a. Increase in incomes and poverty reduction: According to the results from the IICA survey, 74 percent of beneficiaries from indigenous communities (overall proportion was 47 percent) increased their income by 30 percent. In addition, the Project helped reduce the proportion of indigenous families living below the poverty line from 52 percent to 43.6 percent, a decrease of 8.4 percent (overall decrease was 4.6 percent).
b. **Provision of basic services:** The Project financed the provision of safe potable water for 45 communities, electric power installations for 10 communities, and 15 communities received support for both water services and electricity installations. In addition, the Project financed home improvements or improved stoves for 7,212 indigenous families.
c. **Legal Support:** (i) 5,923 individuals obtained identity cards enabling them to get equal access to government services; and (ii) 105 communities received support for regularizing their land titles.

53. **Project activities contributed to diversification in agricultural production activities.** For all intervention strategies, except for FXF, increases in agricultural income were driven by diversification of income sources. This shift is the most substantial for the indigenous communities, for whom 92 percent of agricultural income was coming from either maize or cassava before the Project against an average of 29 percent for the others. This

proportion declined from 92 percent to 63 percent following project interventions. The key change was through livestock farming, with beneficiaries from indigenous communities increasing the proportion of their productive income from livestock from 9 percent to 32 percent after the Project[26] [27].

54. **Food security and dietary quality were improved by the Project.** Data from the sample for the year 2019-2020 indicates that beneficiaries consume a large part of their production, and this is especially true for indigenous communities who consume 78 percent of total production[28]. This high level of self-consumption suggests that increased production improves food availability and therefore contributes positively to food security. An increase in livestock production, consisting of raw milk and eggs, (70 -78 percent of which is self-consumed) also implies a more nutritious and diversified diet for beneficiaries.

Women and Youth

55. **Project targeting ensured that 53 percent of total direct beneficiaries were women.** The inclusion of women is particularly relevant when considering that according to the PAD, only 20 percent of small-scale farmer families in the Project area were female led. Women were successfully included in the Project via extensive technical support through the business plan/proposal preparation process and helping female led enterprises in registering as businesses or cooperatives. Out of the total 1,364 organizations with investment projects financed by the Project, 58 percent had at least 40 percent female members or higher. This proportion is higher for the 180 organizations from indigenous communities where 65 percent of the groups had at least 40 percent of women as members.

56. **The Project oriented training and activities to increase women's involvement and to allow them to benefit from the activities.** The Project also offered training specifically designed for women in the areas of business planning and marketing. During focus group discussions held for the IICA report, women beneficiaries appreciated: (i) the community network that the Project helped create; (ii) being made the main beneficiaries of a subproject and the accompanying feeling of empowerment; and (iii) improved market access through points such as market fairs resulting in increased revenue and savings (primarily through better prices).

57. Finally, the Project's investments in community water systems and improved stoves have larger impacts on women and children because they: (i) are more likely to be collecting water; and (ii) spend more time indoors, leading to greater exposure to dangerous particulates which cause respiratory diseases.

Institutional Strengthening

58. **The close and effective coordination with INDI for working with indigenous communities helped MAG build institutional capacity to work with indigenous communities.** The Project had a highly participatory approach with regards to the indigenous communities. Regular meetings were established between the departmental and central coordinating authorities of the Project, and the departmental and/or interdepartmental indigenous organizations, to inform the communities about the progress of the Project, plan activities and discuss aspects

[26] This shift is present but smaller for other intervention strategies, increasing from 3% to 7% for PIF projects and 19% to 26% for PIC projects.
[27] Sources of income for the *Family by Family* strategy are stable in the years before and after the Project.
[28] Figure for self-consumption is not reported in the before project period

related to implementation. Additionally, the Project used radio shows to disseminate key messages regarding Project services and procedures and to better understand the issues faced by the indigenous communities by inviting representatives from these communities for discussions[29].

Poverty Reduction and Shared Prosperity

59. **The Project achieved the targets for increased income and productivity, even when the more rigorous targets - revised downwards in 2017 - were applied**. As discussed in the earlier sections the Project contributed to poverty reduction, especially amongst the more vulnerable indigenous communities.

60. **In addition to these quantifiable benefits, Project activities have led to other non-quantifiable benefits such as;** (i) investments in improved stoves lead to reductions in respiratory diseases; (ii) increased availability of time resulting from having drinking water systems in the communities; (iii) access to the Paraguayan social protection system due to issuance of identity documents; and (iv) highly valued activities by beneficiaries such as investments in improving bathrooms and providing electricity.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

61. **Key terms in the PDO statement were not well defined.** The PDO referred to complex concepts such as "quality of life", "sustainability", and "improvement of natural resource management" whose definitions were not developed during the project lifetime. This lack of clarity posed a challenge in evaluating the project during implementation and the overall level of ambition of the Project. The team adjusted the PDO during a restructuring in 2013, primarily to clarify the wording in the PDO, and modified the PDO indicators and intermediate indicator multiple times during implementation to improve measurability.

62. **The Results Framework had major shortcomings at design:** The Results Framework changed substantially during the life of the Project, with many of the changes reflecting issues originating in the original PAD RF, which was grossly over-designed, demanding, and used unclear language.

63. **Project design was participatory in nature through its:** (i) model of demand-driven subprojects; (ii) emphasis on the active participation of beneficiaries in project implementation; and (iii) training of beneficiaries and technicians in participatory methodologies. This approach served the Project well throughout its life specially in its approach to the indigenous communities.

64. **Readiness to implement: Initial delays faced by the Project indicate gaps in implementation preparation.** Some of the issues emerging early on were (i) delays in signing of agreements between MAG and National Land and Rural Development Institute (INDERT), the Indigenous People's Institute of Paraguay (INDI) and National Service for Animal Health and Quality (SENACSA); (ii) delays in the hiring of a human resource firm to contract necessary staff for the PMU, and (iii) delays in conducting the baseline surveys.

[29] Information was on sustainable agricultural practices, on services provided by the Project such as assistance with acquiring identity cards practices, and informational messages such as those related to COVID-19 in the Project on masking social distancing, handwashing etc.

65. **Project design was relatively complex with regards to the institutional capacity context.** In addition to the main activities of the Project built around supporting sub-project implementation, original Project design also included other very different activities such as research studies (under Component 2.2), and capacity building activities for SENACSA and the Vice-Ministry of Livestock.

B. KEY FACTORS DURING IMPLEMENTATION

Factors subject to the control of implementing entities

66. **There was significant transition of key figures involved in the Project over its lifetime**. Between 2009 and November 2020, there were five different national administrations, eleven ministerial administrations in the MAG, six DINCAP Directors-General, and ten PRODERS General Coordinators. In addition to the learning curve associated with each managerial change, the transitions led to slowdowns in implementation as different administrations sought to independently review project activities. These transitions also caused slowdowns in approvals for hiring of staff, by delaying the procurement and confirmation of Project staff.

67. **Modifications in implementation modalities agreed during the MTR helped the Project gain momentum over time.** Following the MTR, the Project was restructured in June 2013. The scope of the Project was reduced (reduction in target number of subprojects and dropping of two subcomponents), and a number of administrative simplifications were agreed upon, such as limiting the number of financial transfers to subprojects to two and allowing the use of project funds by beneficiary committees to hire financial specialists

68. **The Additional Financing allowed for the Bank's continued engagement in the sector, but implementation was initially slow.** Considering the Project's low levels of disbursement and the slow implementation noted in the MTR conducted earlier in February 2013, the size of the AF is notable. However, the AF Project Paper notes that disbursement had increased (CY 2013 disbursements were 50 percent higher than CY 2012), and that the issues identified by the MTR had been addressed in the restructuring of June 2013. However, disbursements in the year 2013-2014 decreased slightly from the preceding year and the Project ratings were downgraded in the August 2014 Implementation Status Report (ISR).

69. **Intensive supervision from the Bank's side followed the effectiveness of the AF to help address implementation slowdowns:** In order to address the administrative bottlenecks which had slowed Project implementation, the Project team conducted eight supervision missions between September 2014 (effectiveness of AF) and June 2015 to address issues such as: (i) delays in contracting a human resource firm to manage staff hiring (eventually 150 technical staff were hired without the firm); and (ii) challenges faced in procurement by communities due to difficulties in preparing needed documentation (restructuring in July 2015 helped communities contract accounting services which helped address this issue).

70. **The targeting strategy changed from micro-catchments to selection based on poverty data:** In December 2013, the Project shifted from a micro catchment strategy, which included poverty level and environmental degradation data, to one based solely on poverty data. The many other changes introduced in parallel to the change in the targeting strategy (based on the June 2013 restructuring preceding the approval of the AF discussed in the earlier paragraph) combined with limited data from the Project's early phase make it difficult to evaluate the impact of this change. However, discussions with those involved in the Project prior to and following the change indicate that it was perceived as a positive shift.

71. **Slowdown in implementation of subprojects in indigenous communities between 2014-2016**. Following the cancellation of the contract in July 2014 with the service provider supporting the indigenous strategy, implementation slowed down for indigenous plans, but picked up pace in 2016 when another service provider was hired. This issue reflects some of the administrative challenges faced by the Project; the contract of the service provider for the indigenous strategy was ended unexpectedly, despite earlier commitments by MAG of renewal, and it took the Project a year and half to replace the provider because of the administrative and/or regulatory bottlenecks that complicated key functions such as hiring and/or renewing personnel contracts.

72. **The Family by Family (FXF) strategy incorporated in a restructuring in 2017 reflected a change in strategy from community to individual families:** The FXF strategy sought to improve the socio-economic condition of target beneficiaries but its strategy of providing specific input packages to individual families differed from the rest of the Project which was focused on community level commercial or productivity enhancement subprojects. By closing, this strategy comprised 8.5 percent of the Project's beneficiary families. The strategy successfully targeted a more vulnerable (lower income) population amongst the campesino communities[30].

73. **Working with SENACSA entailed coordination challenges.** The Project struggled after effectiveness to implement activities under Component 4.1 with SENACSA. This was partly attributable to unsuccessful coordination with SENACSA, because it has a high degree of financial and operational autonomy (around 95 percent of SENACSA's total budget is financed by the private sector through fee-based services). Eventually, a scaled down version of Component 4.1 was implemented (provision of computers, routers, and lab equipment).

Factors outside the control of government and/or implementing agencies

74. **Adverse Weather Events and price fluctuations negatively affected production, but limited data is available to assess the extent of the impact:** Significant adverse events weather include the drought conditions that affected agricultural production in the 2011/2012 and 2017/2018 growing seasons, and flooding in 2015/16 and 2016/17. Looking at the producer level prices of maize and cassava, the two main crops of PRODERS beneficiaries, a steady decline is evident in maize prices after 2013, while cassava prices dropped by 38 percent from 2014-2015, but began to rise following this sharp drop.

75. **COVID-19:** COVID-19 and the associated health and economic crises affected Paraguay near the end of the Project's life. The strict lockdown imposed by the Ministry of Health to preclude COVID-19 spread prevented technicians from visiting rural communities to monitor progress and to close subprojects. A strategy adopted by PRODERS included the conduct of radio awareness campaigns, including in indigenous languages, on steps that would reduce the spread of the virus. Additionally, PRODERS supported affected project beneficiaries through procurement of farm inputs and small machinery worth US$3.5 million.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

[30] Families were identified through a survey conducted by Secretaria de Tecnica de Planificacion to identify households in target regions living in extreme poverty and involved in the agriculture sector.

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

76. **The scope of the M&E framework was comprehensive, designed to track and measure implementation and demonstrate results for the productive, socio-economic, and environmental elements of the Project.** The key objectives of the M&E system at design, as included in Subcomponent 5.2 (Designing and Implementing a Monitoring and Evaluation System), were: (i) to monitor project progress towards objectives and develop a baseline status (ii) promote the responsible use of resources given the objectives pursued; (iii) provide information and receive feedback from those involved; and, (iv) generate methodologically sound inputs for the measurement, analysis, and dissemination of project results and lessons learned.

77. **The many significant changes in the Results Framework throughout the Project's life reflect poorly on the original RF, since most were driven primarily by its unsatisfactory design.** The RF in the PAD consisted of 9 PDO Indicators and 64 Intermediate Results Indicators. By closing, the RF consisted of 6 PDO Indicators and 18 Intermediate Results Indicators (see detailed table with all changes and their rationale in Table A7.2). At project closing, only 3 of the original 9 development indicators were maintained (with adjustments) and 56 Intermediate Results Indicators had been removed, in addition to making 23 modifications and 10 additions of new Intermediate Indicators. The rationale for many of these changes included: (i) poorly defined indicators, i.e., lack of clarity on what the indicator was measuring and how this would be done; and (ii) repetition - there were multiple indicators capturing the same outcome.

M&E Implementation

78. **The project struggled with implementation of an effective M&E system.** The issues with the M&E system were noted repeatedly in project Aide Memoires and in the Mid-Term Review conducted in 2013. In May 2016, a technical support mission from FAO recommended that M&E be given much higher priority to effectively address weaknesses that had prevented the accurate measurement of key PDO indicators and other project achievements to date. This issue was compounded by the frequent rotation of M&E staff, depriving the Project of an institutional memory in this area. The challenge with weak M&E systems has been noted in the documentation of other Projects in Paraguay, including in the ICR for Natural Resources Management Project (PARN), indicating that this may be a systemic issue for projects in this context. This suggests the need for closer study, and the potential introduction of more flexible, simpler, and realistic M&E approaches that move away from the "gold standard" (see below).

79. **Challenges with the M&E system prevented a baseline on which formal impact evaluation could rely.** After project effectiveness, the plan was to identify a control group in the micro-watersheds not served by the Project to conduct a baseline, and to prepare the technical specifications of the M&E system by the end of 2010. However, delays in the establishment of an effective M&E system prevented collection of baseline data even once Project activities were well underway.

80. **The RF was substantially modified during the seven restructurings for simplification and clarity.** During the life of the Project multiple Bank teams looked to improve on the RF, modifying it substantially. The teams' modification made the indicators precise, measurable, and clearer.

81. **The Project relied on three sources of information to inform the RF and provide guidance on project progress.**

a. The PRODERS database collected information on project activities, including training for extension staff and beneficiaries, number of sub-projects being financed, assistance provided to communities on the provision of potable water, electricity and on land titling, for example. Shortcomings included: (i) not collecting information on four of the six final PDO Indicators and on key Intermediate Results Indicators such as adoption of new technologies by beneficiaries; (ii) gaps in information for indicators on which it did keep records, e.g., registering the number of beneficiary families but not tracking the number of family members, needed to calculate direct beneficiaries; and, (iii) data collection on some of the indicators started only mid-way through project implementation, e.g., good forestry practices adopted on the Project's beneficiary farms only started to be tracked in 2015.

b. The Project also utilized the RENABE (*Registro Nacional de Beneficiarios*) database to track the three main indicators and for assistance in identifying beneficiaries. The Project identified beneficiaries for the Family-by-Family strategy in 2017 using this database but due to its limitations, it was not utilized to report on the indicator values in the final ISR or this ICR. Identified limitations were: (i) restriction to peasant beneficiaries and not including data on indigenous communities; and (ii) data collection started later in the project lifetime, thus the sample of PRODERS beneficiaries in the database was not representative of all the geographical regions covered by the Project even for *campesino* beneficiaries.

c. The third source of data was the IICA survey which has been discussed in the earlier section on Efficacy. The WB team noted the importance of an external evaluation of the Project in the Aide Memoire in May 2018, following which IICA was hired and produced a methodologically rigorous, well-documented report.

82. **The main PDO indicators, on income increase, productivity and poverty decrease were updated four times across the 12.5 years of the Project.** First reported in 2014, the indicator values were based on a survey conducted with 500 participants (400 beneficiaries and 100 control participants). They were updated a second time in 2017 when, during the restructuring, both the target and indicator values were changed. The third update was in the May 2018 ISR, based on calculations from the RENABE database. The last update reported in the 2020 ISR, based on the results of IICA's 2019 survey, which rigorously examined, analyzed, and reported updated results for all indicators in the RF (summary in A7.2), greatly improving the evidence base for asserting project achievements in the ICR.

M&E Utilization

83. **However, the challenges with the M&E system detailed above with regards to design and implementation of the M&E system and the significant changes in the indicators across the life of the Project, meant that the Project did not have a consistent and systematic source of information/data to guide its progress and inform planning during its life.** To overcome the challenges of implementing a successful communication strategy on Project progress, or to effectively disseminate results, the World Bank team and the PIU also relied on data on disbursement to subprojects, anecdotal evidence shared by the extension officers, and field visits to beneficiary communities for a comprehensive view of project progress and the issues being faced. The IICA report discussed earlier makes the dissemination prospects/potential more positive, and the messages clearer and better-substantiated.

Justification of Overall Rating of Quality of M&E

84. **Overall, M&E performance and quality is rated as Modest.** The issues with the design and challenges experienced during implementation of the M&E system limited its use as a practical tool throughout implementation and beyond. The World Bank flexibly and repeatedly adjusted the PDO and Results Framework to simplify and improve the quality of the indicators to establish a methodologically sound basis for assessing project achievements, this did not outweigh the persistent weaknesses during implementation.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

85. **The Project safeguards rating was Moderately Satisfactory (MS) at closing.** The good practices promoted by the Project were highlighted, but the monitoring of investments and sustainability of the interventions left some room for improvement. The World Bank supervision missions helped generate recommendations and adjustments for improvements that were progressively and satisfactorily implemented.

Environmental Aspects

86. **Environmental Safeguards compliance was rated Moderately Satisfactory throughout the Project's life**. The Project was classified as Category B and activated four World Bank environmental safeguards during the preparation and implementation of the Project in its different phases: BP/OP 4.01 Environmental Assessment, BP/OP 4.04 Natural Habitat Conservation, BP/OP 4.36 Forest Conservation and OP 4.09 Sustainable Pest Management. Performance was as follows:

a. The Project promoted practices that had a positive environmental impact including promotion of green fertilizers; reforestation with native and exotic species; adoption of agroforestry systems (e.g., silvo-pasture, windbreaker curtains, mixed home gardens); and reforestation of the native forest.

b. PRODERS' investments in the environmental area, reflected in the subprojects, encouraged forest plantations implemented and managed to meet the demand for household firewood and to lower the pressure of use on native forests. A key example within indigenous communities was replacing use of native forest with exotic tree species like eucalyptus to meet firewood demand for the drying process of yerba mate.

c. Integrated pest management techniques were disseminated, focused on biological controls, and types of parasites and tools for behavioral control of pests and insects. However, one of the recommendations by the Environmental Monitoring report was the need to monitor the use of pesticides, especially in summer months, against attacking cutting ants, and to intensify training on integrated pest control.

Social Safeguards

87. The Project was classified as Category B and triggered Indigenous Peoples (OP 4.10) to extend its benefits to indigenous groups. An Indigenous Strategy was published on the Bank's website and disseminated widely in-country.

88. Social Safeguard Performance and compliance was rated satisfactory through the life of the Project because: (i) the PMU was well-equipped with a fully dedicated team to manage the Indigenous Strategy at the Ministry level, duly supported by indigenous facilitators at the local level; and (ii) PRODERS reached or exceeded the goals

established for the implementation of OP 4.10 in terms of development and investment plans, access to water and/or electricity, access to identity documents and support for certification of land tenure of indigenous communities, while also maintaining an inclusive and participatory approach with indigenous leaders and communities. Highlights also include the Project's overall efforts to build engagement with indigenous communities, and the successful use of local facilitators.

89. The Indigenous Strategy was formulated based on consultations with the representatives of the different groups of indigenous people of Paraguay. The Project Preparation Team initially conducted consultations with indigenous leaders, INDI technical staff, technicians working on the Indigenous Component of the PARN and representatives of Indigenous NGOs working in the selected areas.[31]

Fiduciary Aspects

90. Financial Management (FM) performance ratings ranged from Satisfactory to Moderately Unsatisfactory (MU) and the FM risk rating was High throughout project implementation. The MU rating in November 2015 was driven by: (a) delays in appointing key PMU staff; (b) failure to reinforce FM staffing in view of the expanded activities to be financed under the Additional Financing Loan; and, (c) failure to complete the process for extending the contract of the concurrent auditor to carry out subproject audits. PRODERS' implementation was complex, with transfers/grants to individuals, and geographically dispersed small rural and indigenous communities which, together with the limited FM capacity of the PMU, were major elements of the High FM risk. Other key aspects related to FM are:

a. The concurrent subproject audits of beneficiary eligibility, procurement processes, uses of funds and documentation of expenses did not highlight any significant issues. All the Project's Financial Statement Audit Reports were received on time or with a delay of less than four months, except for the Project's first audit which exceeded that limit. All the Financial Statement Audit Reports expressed unmodified (i.e., clean) opinions. All Interim Financial Reports (IFRs) received during the project lifetime were considered acceptable and the majority (68 percent) were received by the due date. The Project's Designated Account is fully documented.

b. DINCAP's planning, budgeting, accounting, internal controls, funds flow, financial reporting, and auditing arrangements have: (a) correctly and completely recorded all transactions and balances relating to the Project; (b) facilitated the preparation of regular, timely and reliable financial reports/statements; (c) safeguarded the Project's assets; and (d) been audited providing reasonable assurance that the proceeds of the loan were used for the intended purposes.

Procurement Compliance

91. Procurement Compliance performance ratings were Moderately Satisfactory throughout the Project. The public procurement regulatory system in Paraguay is consistent with the Bank's Core Procurement Principles and is in accordance with international good practices. The following summarizes the compliance history:

a. Appropriate procurement approaches, clear procurement documents and robust evaluation reports were achieved only after much back and forth during the Bank's review processes. This situation occurred due

[31] Workshops were held with representatives of 13 Indigenous Associations from the departments of Caazapá, Canindeyú, San Pedro, Alto Paraná, Amambay, Caaguazú, and Concepción.

to: (i) procurement staff with limited capacity; (ii) intervention of actors in the Ministry (out of the Project Management Unit (PMU)), not familiar with Bank policies, who usually demanded non-applicable requirements from the local law; and (iii) duplicated and cumbersome internal procedures within the MAG,

b. With regards to subproject implementation, initially communities struggled with preparation of the documentation needed for procurement. However, following the restructuring in 2015 they were permitted to allocate part of their budget to acquire accounting services, which helped smooth the procurement process from their end.

C. BANK PERFORMANCE

Quality at Entry

92. **Key elements relevant for assessing the project's quality at entry are as follows:**

a. **Project was relevant to the context at appraisal, but the PDO was complex, and the Project faced many delays in launching.** The Project adopted an innovative approach to addressing the challenge of reducing poverty amongst the poorest farmers/vulnerable groups through increased productivity while also promoting sustainable practices to deal with natural resource degradation. But the PDO included terms not clearly defined and the initial delay in implementation indicates significant issues at the preparation stage. [32]

b. **The implementation approach for the core set of project activities (the community level sub-projects) was logical, but the scope of activities was broad.** Project design stressed the strengthening of the producer organizations and indigenous communities as a precondition for implementation of project activities on the ground. Participatory, demand-driven planning was emphasized. However, the scope of the activities was ambitious, stretching the institutional capacity of the implementing partner.

c. **The Project specifically targeted vulnerable groups in poor regions.** The regions selected for project focus were those with the lowest socio-economic indicators. The Project explicitly targeted indigenous communities within these regions, and while RF indicators were not gender disaggregated in the PAD, the importance of targeting women farmers was discussed in the PAD.

d. **The M&E system/arrangements were not clearly described at entry.** The Results Framework was fragmented and duplicative, requiring substantial change over the Project's lifetime. (See Section IVA).

e. **Fiduciary aspects (procurement, FM, and safeguards) were adequately assessed, but persistent issues suggest a more careful assessment was needed.** FM and procurement capacity assessments were conducted during preparation for the main implementing agencies, and action plans and training were designed to boost those agencies' capacity. The required safeguards assessments and plans were prepared. However, persistent procurement issues and slow disbursements to subprojects suggest that a more careful ex ante assessment would have been appropriate to smooth implementation.

f. **The project risk assessment was realistic, but mitigation measures for risks related to institutional capacity proved insufficient.** The Project risk assessment considered multiple risks and recommended mitigation strategies, however those proposed for risks related to institutional capacity (significant

[32] The earliest Aide Memoire is from a mission in Oct 2005. The Project was approved by the Bank's Board in January 2008. Part of the Project's preparation costs were borne by a Japanese Trust Fund: Paraguay TF053772.

consultations, public accountability, and capacity building) were insufficient to prevent slow implementation for the initial years of project activities.

Quality of Supervision

93. **Key elements relevant for assessing project supervision are as follows:**

a. **Initial delays in implementation:** The steep learning curve resulted in substantial implementation delays: a year before its original closing date (December 2013) the Project had only disbursed 33 percent of the loan. The Mid-Term Review (MTR) originally scheduled for June 2011 was delayed repeatedly because of high turnover amongst Project Coordinators and Bank Task Team Leaders[33].

b. **Supervision missions mobilized a wealth of technical support sourced from World Bank Headquarters, the Country Management Unit, and other agencies such as the FAO.** World Bank Teams carried out 27 implementation missions between project effectiveness (June 2009) and closing (November 2020). The missions comprised teams with relevant expertise, engaged in field visits and met with the PRODERS PMU team and relevant stakeholders to assess progress and challenges.

c. **The World Bank's focus was generally proactive and supportive.** The project was restructured seven times, suggesting strong proactivity in project teams' approach to addressing project implementation challenges. Extensions to the Project closing date enabled the Project to substantially achieve its objectives. The restructuring following the Mid-Term Review was the most extensive and resulted in significant administrative and operational simplifications.

d. **The Additional Financing followed an MTR which resulted in scaling down and cancellation of some activities due to non-implementation**. Despite the timing of the AF and the implementation challenges faced, it served as a vehicle to continue/sustain the Bank's engagement with the country, to deepen and expand coordinated agricultural and environmental management, and to intensify the Project's development effectiveness.

e. **There was relatively high turnover of Bank Task Team leadership during the Project's life.** Seven different TTLs led the Project from preparation to closing. However, two of the seven TTL's served for nearly 8 of the Project's 12.5-year lifespan.

f. **Challenges with the M&E system prevented teams from accurately assessing status of activities at a given moment:** This was the case during the restructuring in 2017 when the Project team was unable to assess the achievement of targets resulting in adjustments, which were later assessed as unnecessary.

g. **The World Bank worked with the PRODERS project team and other executing agencies to ensure orderly project closure and sound transition arrangements for the regular operation of supported activities.** This included determining responsibility and arrangements for the completion of some incomplete investments and ensuring the timely delivery of the Impact Evaluation and the Borrower Completion Report (BCR).

[33] The Project was prepared on the heels of the Natural Resources Management Project I (PARN) that closed in March 2006, which had also piloted a similar sub-project model. However, for PARN key administrative and contracting functions were carried out by the United Nations Development Program (UNDP) instead of the National Directorate for Project Coordination and Administration (DINCAP) Implementation Completion Report for the Natural Resources Management Project (December 26, 2006).

Justification of Overall Rating of Bank Performance

94. **The World Bank's overall performance is rated Moderately Satisfactory, due to modest shortcomings in both Quality at Entry and Quality of Supervision (as described earlier).** These shortcomings are mainly associated with the complexity of project design given the challenging institutional context for project implementation, limitations in M&E and the RF, and questions associated with the size of and rationale for the AF. These shortcomings were at least partially overcome owing to the close supervision support provided by the World Bank team and the team's effectiveness in working with the Borrower to address the large number of challenges that arose during implementation, through tools such as restructuring.

D. RISK TO DEVELOPMENT OUTCOME

95. **The main risk to the development outcome of the Project is the sustainability of the sub-projects financed under the Project, which is subject to multiple factors.** The participatory approach deployed under PRODERS could increase sustainability by creating a greater sense of ownership of the activities; however, the organizations in the survey sample tended to be less formalized at closing which would make it difficult for the organizations to succeed in an increasingly formalized Paraguayan economy. The limited evidence from the IICA survey is positive: (76 percent of subprojects were still in operation two years post-completion;[34] and (b) 97 percent of participants from the PIC and PIF projects indicated that they would continue to utilize the diversification practices and new sustainable technologies introduced by the Project[35].

96. **Alternate "multiplicative" models for providing technical assistance are needed to help improve the sustainability of the subprojects.** The risk to subproject sustainability and continued use of the new improved practices adopted can be mitigated by multiplicative models that are less labor intensive then the traditional extension approach such as: e-extension, training of trainers/lead farmers and farmer field schools. The Project utilized the lead farmer approach and MAG is developing a call center for farmers to utilize such models for technical support.

97. **Market risk associated with prices, production quality, and timing of delivery for honoring contracts could potentially hamper the profitability of many of the Project's productive investments.** The Project contributed to equipping small farmers with a deeper awareness of market demands and more integrated production systems. However, the preparedness of PRODERS beneficiaries for market risk is likely heterogenous depending on how well-structured and matured the beneficiary community organizations are.

98. **The Project has also contributed to a better understanding of the risks associated with external weather events and weather variability,** through encouraging adoption of sustainable practices and the Environmental Education Program which targeted teachers and students. Furthermore, MAG is disseminating meteorological bulletins and investing in agro-meteorological infrastructure to closely monitor extreme weather events and provide alerts to producers through the Project for the Improvement of Family and Indigenous Agriculture (PROMAFI, acronym in Spanish), funded by IFAD.

[34] This indicator is limited to only those subprojects from the sample that had already finished at least two years prior to the survey date (2017), 92 out of the 185 sampled. Respondents from indigenous communities might have misinterpreted the question. This, in addition to the small sample of indigenous organizations for this question (only 12 organizations met the criteria of being more than 2 years old), suggests that information on indigenous communities from this question is unreliable.
[35] PICI beneficiaries were not asked this question

99. **The Project used a highly participatory model in working with producer organizations, farmers and indigenous communities.** This emphasized strengthening local organizations, learning exchanges, and beneficiary empowerment. Participatory models can reduce initial reluctance to adopt improved methods and increase the likelihood of continued use of improved technologies and practices.

V. LESSONS AND RECOMMENDATIONS

100. **Inclusion of technical experts in M&E during project preparation and implementation is essential**. The key lessons from the challenges faced by the M&E system during the Project's life are: (a) the project preparation team should consist of an expert in M&E so that detailed strategies reflecting on-the-ground realities can be established from the start to reduce challenges with M&E during the project lifetime; (ii) specialized support should be brought in during implementation if necessary to design and set up an M&E system, and oversee consistent and methodologically sound monitoring practices, data systems and evaluation products.

101. **Invest project resources in developing more sustainable models for delivering technical assistance.** The Project relied heavily on technical assistance provided to farmers for training in new technologies and practices, including on financial matters; however, this task force was tied to the life of the Project. Technical support programs should include multiplicative models of extension and strengthen the capacity of the line ministry's extension departments to successfully manage these programs in the post-project period.

102. **Participatory approaches are essential for engaging with vulnerable people such as the indigenous communities.** The Project conducted workshops at design and regularly throughout the life of the Project and used different communication mediums (such as radio shows) to remain in tune with the communities' needs. However, one gap that serves as a recommendation for future projects is strengthening INDI´s institutional capacities to deliver the Project's messages and support its implementation, acknowledging the habits and customs of such target beneficiaries.

103. **The Project's model of technical assistance along with financing communities for sustainable, productive, and diversified agricultural activities increased use of improved practices.** More than 80 percent of respondents were using sustainable production practices at the time of the IICA survey or had implemented more diversified production practices. This is critical as the global need for adoption of sustainable agriculture production practices is becoming more intense. It is recommended that projects exploit all opportunities to promote these.

104. **Customize approaches to accommodate different types of beneficiaries:** Different levels of group formalization suggest that different approaches suit different types of groups. Less formalized groups for example would need greater and sustained technical support. Additionally, more commercially oriented subprojects would in general be suited for more formalized groups. A key lesson therefore is to better characterize and understand the limitations for the different types of beneficiaries at the design stage and to adapt approaches accordingly.

105. **While the many contextual factors limit definitive assertions, insights from PRODERS suggest that in Paraguay, the community approach has advantages over targeting individuals.** While community approaches requires greater coordination and training**,** specifically support for organizational development, key advantages over an individual approach include: (a) economies of scale in terms of commercial activity and the efficient use

of public resources; (b) improved learning amongst farmers, for example through use of trainers/lead farmers; and, (c) enhancement of the support system available to farmers, as indicated from the focus group discussion with female farmers participating in market fairs. Finally, it should be noted that while the Family-by-Family approach was able to reach more vulnerable families compared to the community approach (as evidenced by their lower incomes), it was far more limited in its scope of activities.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: To improve socio-economic condition of Small-Scale Farmers and Indigenous Communities

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1. Number of targeted farms that increase their agricultural income by at least 30%	Number	0.00 30-Jun-2009	10000.00 05-Jul-2017		28,172.00 30-Nov-2020

Comments (achievements against targets):
Target exceeded, achieved at 281%.

Methodology-Indicator value is taken from the IICA report commissioned near the end of Project by Borrower. IICA report used a representative sample of 185 workshops (with 4060 beneficiaries) and 460 F*F beneficiaries. The indicator is based on a before and after comparison of agriculture income. However, because no baseline data is available income values for "before" values are based on respondents' recall (respondents were asked about the year before the subproject started, which is determined with PRODERS administrative records). After values are based on agriculture income for the year 2018/2019. (Full survey was conducted in October 2019 for all strategies except F*F, for which the survey was conducted in October 2020. Figures for the other 3 strategies were updated for the year 2020 using price and production data for key agricultural products using secondary data).

These figures from the last ISR were updated based on updated analysis from IICA, which is utilized in the ISR. These include 1) addition of the Family by Family beneficiaries and 2) Updating price and production to the agriculture year 2019/2020 from 2018/2019

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2. Number of targeted families that are able to pass above the poverty line (with per-capita income above Gs.446.798 per month in rural areas – expressed in Guaranies October 2016) OLD: At least 50% i	Number	0.00 01-Jan-2009	10000.00 05-Jul-2017		28,180.00 30-Nov-2020

Comments (achievements against targets):
Target exceeded, achieved at 281%.

Methodology-Indicator value is taken from the IICA report commissioned near the end of the Project by Borrower. Income values were calculated for the period 2018-2019 to determine status against the poverty line. This indicator utilized individual beneficiary income data (for 925 survey respondents) instead of the workshop level observations used in the earlier indicator

These figures from the last ISR were updated based on updated analysis from IICA, which is utilized in the ISR. These include 1) addition of the Family by Family beneficiaries and the 2) Updating price and production for agriculture income to the agriculture year 2019/2020 from 2018/2019

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
3. Percentage of farms with	Percentage	0.00	25.00		32.20

land productivity (by ha) increased at least by 25 percent through the application of productive practicespromoted by the project		01-Jan-2009	06-Dec-2013		30-Nov-2020

Comments (achievements against targets):
Target exceeded, achieved at 129%.

Methodology-Indicator value is taken from the IICA report commissioned near end of Project by Borrower. Increase in agriculture production was based on yield increase n two commodities maize and cassava (since most beneficiaries produced either one of these). A 25% increase in yield for either commodity was recorded as an increase for the sake of teh indicator. Production values are based on "before" values (respondents were asked about year before the subproject started, based on PRODERS administrative records) and after values which were for year 2018/2019 (survey took place in 2019) except for F*F beneficiaries who were surveyed later in October 2020.

These figures from the last ISR were updated based on updated analysis from IICA, which is utilized in the ISR. These include 1) addition of the Family by Family beneficiaries and the 2) Updating price and production to the agriculture year 2019/2020 from 2018/2019

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
4. Direct project beneficiaries	Number	0.00 30-Jun-2009	256000.00 06-Dec-2013	225,000.00 05-Jul-2017	249,662.00 30-Nov-2020
5. Female beneficiaries	Percentage	0.00	40.00		52.70

Comments (achievements against targets):
Target exceeded, achieved at 110%

The direct beneficiaries of the Project include the total number of owners of farms benefiting from subprojects in PIF, PIC, PICI and FxF, extracted from the PRODERS database, was multiplied by the average number of household members, determined in the external surveys conducted by IICA, in 2019 for PIF, PIC and PICI and in 2020 for FxF. It should be clarified that, in previous calculations, the average number of family members, used for calculation, was a standard commonly used by the MAG *(4 members per farm for peasant community plans, 6 for indigenous people and 6.3 for FxF),* which has not had a recent update.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
6.A Associative management capacity increased:80% Community Development Groups (campesinos) with business proposals oriented to business plans to access markets and inclusive value chain	Percentage	0.00 30-Jun-2009	80.00 06-Dec-2013		84.80 30-Nov-2020

Comments (achievements against targets):
Target achieved 106% of target

Methodology-Indicator value is taken from the IICA report commissioned near end of Project by Borrower. Values are for PIC subprojects and the subprojects with indigenous communities (PIF projects are excluded because they were the Projects before this indicator was introduced in 2013 and F*F projects are excluded because those were at individual level).

This indicator maintained different criteria for measurement for Campesino subprojects (PIC) and for indigenous organizations (PICI). The criteria for Campesino producer organizations for having business proposals oriented towards *access markets and inclusive value chains was* translated as the presence of four of five key documents in their business plans.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
6.B Associative management capacity increased:50% of indigenous groups with business proposals oriented to business plans to access markets and inclusive value chai (P	Percentage	0.00 12-Jun-2013	50.00 06-Dec-2013		62.00 30-Nov-2020

Comments (achievements against targets):
Target exceeded, achieved at 124% of target

Value is based on the IICA report commissioned by the Borrower. The criteria for indigenous organizations is different compared to the campesino community projects. **For indigenous organizations, this was translated as the investment plan including the words that they would market at least one agricultural, forestry or livestock product, along with a brief qualitative description of its marketing**

A.2 Intermediate Results Indicators

Component: C1 -- Community Organization Development and Capacity Building

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
7. Number of technicians trained and operating in the project areas	Number	0.00 30-Jun-2009	290.00 30-Jun-2009	345.00 06-Dec-2013	440.00 30-Jul-2020

Comments (achievements against targets):
target achieved, exceed at 127% of target

The measurement was based on PRODERS data and records and was part of the results framework from the start of the Project. PRODERS had a structured training program for its technicians which included a few of the Project's own technical and administrative staff and mostly field technical staff.

The difference from the last ISR occurs because the list of individuals was reviewed again and some individuals who had appeared again were removed from the calculation which is why this has reduced from 482 to 440

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
8. Number of people reached by Environmental Education Program	Number	0.00 30-Jun-2009	8000.00 30-Jun-2009	24,000.00 06-Dec-2013	64,469.00 30-Nov-2020

Comments (achievements against targets):

Target exceeded 268% of the target.

This indicator was measured based on PRODERS data and records of individuals trained under the Project's environmental education Program. Consists mostly of students and teachers

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
22. Number of indigenous communities which gained access to water and/or electricity thanks to the project	Number	0.00 30-Jun-2009	60.00 05-Jul-2017		70.00 30-Nov-2020

Comments (achievements against targets):
Target achieved, 117% of target

This indicator was measured based on PRODERS records, and was included in the results framework in July 2017.

60 indigenous communities gained access to safe water, 10 to electricity and 15 to both supplies, benefiting a total of 3,643 families

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
23. Number of indigenous people to whom a formal identity card has been	Number	0.00 30-Jun-2009	4000.00 05-Jul-2017		5,923.00 30-Nov-2020

provided					

Comments (achievements against targets):
Target exceeded, 148% of target.

The measurement was based on PRODERS and INDI records. PRODERS worked with INDI to bring the equipment needed to certify the documentation process and coordinated the arrival of relevant staff from key institutions to the communities. It also provided resources to raise awareness in communities before the staff arrived.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
24. Number of indigenous communities that have received land titling support	Number	0.00 30-Jun-2009	80.00 05-Jul-2017		105.00 30-Nov-2020

Comments (achievements against targets):
Target exceeded 131% of target

Support for land titling benefited **105 indigenous** communities with **8,523** members for a total of **52,351** hectares entitled or in process. These 105 communities recieved support from the Legal Team hired by PRODERS and commissioned to the Paraguayan Indigenous Institute (INDI) under the MAG-INDI Convention.

Component: C2 -- Rural Extension and Adaptive Research

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
12. Number of producers trained as promoters in sustainable production and financial/commercial matters	Number	0.00 30-Jun-2009	600.00 10-Jun-2013	2,500.00 06-Dec-2013	2,782.00 30-Nov-2020

Comments (achievements against targets):
Indicator exceeded by 111%

This indicator was measured based on PRODERS data and records and was included in the Project results framework in the first restructuring of the first phase of the project, in June 2013.

The 2782 farmers are producers of selected farms who were previously trained and assisted by their extensionist technician but were now provided additional training, with support from the specialist in the organization and associative management, with the goal that they could provide support to other project producers in sustainable production issues, as well as commercial and financial. The farms of these 2782 farmers were used for additional activities during the Project such as field days (structured training for other farmers), demonstrations, and educational tours.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
13. Percentage of beneficiaries trained that have adopted diversification and new sustainable technologies to increase production & produciivity	Percentage	0.00 30-Jun-2009	80.00 05-Jul-2017		82.00 30-Nov-2020

Comments (achievements against targets):
Target achieved at 103%.

This indicator was based on the IICA survey commissioned by the borrower near the end of the Project. The value of 82% is based on a response to question on whether the respondents **had diversified or adopted a sustainable technology or practice**.**Examples of sustainable practices include utilization of green manure crops, crop rotation, growing leguminous crops, minimum tillage, and cover crops. Examples of diversification practices include the production of milk and eggs, raising small animals, and fruit production.**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
14. Ha under good forestry practices	Hectare(Ha)	0.00 30-Jun-2009	5000.00 30-Jun-2009	6,000.00 06-Dec-2013	5,430.00 30-Nov-2020

Comments (achievements against targets):
Target substantially achieved at 91%

Data was taken from the PRODERS database. "Good forestry practices" were defined as agroforestry, reforestation with exotic, native and fruit trees, natural regeneration, and protection of yerba mate trees.

Component: C3 --Sustainable Rural Development Fund (FDRS)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

9. Families/farms with investment proposals	Number	0.00 30-Jun-2009	12600.00 30-Jun-2009	30,000.00 06-Dec-2013	49,199.00 30-Nov-2020

Comments (achievements against targets):
Indicator was exceeded at 164%.

This indicator includes families from PIF (10226), PIC(31097) and PICI (7876) strategies.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
10. Community Investment Proposals financed and implemented (PIC)	Number	0.00 30-Jun-2009	480.00 30-Jun-2009	1,200.00 05-Jul-2017	1,180.00 30-Nov-2020

Comments (achievements against targets):
Target substantially achieved at 98%.

This indicator was measured based on PRODERS data and records

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
11. Number of Indigenous	Number	0.00	60.00	180.00	180.00

Communities Development Plans financed and implemented (PICI)		30-Jun-2009	30-Jun-2009	05-Jul-2017	30-Nov-2020

Comments (achievements against targets):
Target achieved at 100%

This indicator was measured based on PRODERS data and records

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
15. Percentage of subprojects that complete disbursements and investments targets established in their management plan	Percentage	0.00 30-Jun-2009	80.00 06-Dec-2013		99.70 30-Nov-2020

Comments (achievements against targets):
Target exceeded at 125%

This data was taken from the PRODERS database. It is the percentage of subprojects that made their disbursements according to those set out in their investment plan

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at

				Target	Completion
16. Percentage of subprojects that achieve 80% of their intended results from the investment plan	Percentage	0.00 30-Jun-2009	80.00 06-Dec-2013		66.40 30-Jul-2020

Comments (achievements against targets):
Target was partially achieved at 83%.

This indicator was based on data collected during the IICA survey. The indicator value was based on the question "**What percentage of their expected results in the investment plan were achieved?" and offered four ranks to facilitate the response *(i.less than 50%, ii. between 50% and 80%, iii.between 80% and 100% and iv.more than 100%).***

This question was asked for the PIF and PIC groups, but was not asked in the PICI workshops. So the values only include PIF and PIC groups.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
17. Percentage of subprojects that are functional 2 years after their closing date	Percentage	0.00 30-Jun-2009	75.00 06-Dec-2013		76.40 30-Jul-2020

Comments (achievements against targets):
Target achieved by 102%.

The completion date of the subproject is defined as when the subproject stopped receiving disbursement from the Project account). It should be noted that this indicator is limited to only those subprojects from the sample that had already finished at least two years prior to the survey date

(2017), which is less than half of the subprojects sampled (92 out of the 185 sampled). This is lower for PIC and PICI subprojects where less than 27% of those sampled (32 out of 116) had been completed by 2017 or earlier. Additionally, respondents from indigenous communities might have misinterpreted the question and understood the question as to whether they were still receiving disbursements from the Project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
21. Families with improved housing (improved toilets, ovens, roof, etc.)	Number	0.00 30-Jun-2009	8000.00 05-Jul-2017		19,314.00 30-Nov-2020

Comments (achievements against targets):
Target exceeded by 241%

The indicator was measured based on PRODERS data and records. Project team created a classification of 5 types of improvements in housing or access to supplies that improve the quality of life within it, and counted the beneficiary families by type of intervention

Component: C4 -- Animal Health Improvement

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
18. SIGOR (Geographic Information System for SENACSA Regional Offices) local units connected	Yes/No	No 30-Jun-2009	Y 05-Jul-2017		Yes 30-Jul-2020

Comments (achievements against targets):
Target achieved at 100%

PRODERS contributed to the decentralized units of SENACSA both departmental and district, being connected through a regional connection system. To this end, PRODERS invested in computer equipment for 16 secretariats

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
19. SIGOR (Geographic Information System for SENACSA Regional Offices) on line coverage	Yes/No	No 30-Jun-2009	Y 05-Jul-2017		Yes 30-Jul-2020

Comments (achievements against targets):
Target achieved at 100%

PRODERS contributed to the expansion of SIGOR's online coverage by providing communication equipment (20 Routers) for secretaries

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
20. Biotery lab improved/rehabilitated	Yes/No	No 30-Jun-2009	Y 05-Jul-2017		Yes 30-Jul-2020

Comments (achievements against targets):
Target achieved at 100%

PRODERS made investments in equipment and improvements in laboratory facilities.

B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: *Improvement of the socio-economic condition of Small-scale Farmers and Indigenous Communities in a sustainable manner*	
Outcome Indicators	1. Number of targeted farms that increase their agricultural income by at least 30 percent". Target:10,000 / Result: 28,172 (282 percent) 2. No. of targeted farms which are able to pass above the poverty line Target: 10,000 / Result: 28,180 (282 percent) 3. Percentage of farms that have increased their productivity (per Ha) by at least 25 percent through the application of productive practices promoted by the Project Target: 25 percent / Result: 32 percent (128 percent) 4. Direct project beneficiaries (Total) Target: 225,000 / Result: 249,662 (111 percent) 5. Direct project beneficiaries (Women) Target: 40 percent / Result: 52.7 percent (132 percent)
Intermediate Results Indicators	1. Families with improved housing (improved toilets, ovens, roof, etc.) Target:8000 / Result: 19,134 (241 percent) 2. Number of producers trained as promoters in sustainable production and financial/commercial matters Target: 2500 / Result: 2,782 (111 percent) 3. Percentage of beneficiaries trained that have adopted diversification and new sustainable technologies to increase production & Productivity Target: 80 / Result: 82.3 (125 percent)

Key Outputs by Component (linked to the achievement of the Objective/ Outcome 1)	Component 2: **Number of visits by technicians to communities: no target/36,000** **Training activities for individual producers: no target/11,128** **Legal services hired for assistance with land titling: Yes** **Visits by INDI to indigenous communities for processing of identity cards: 360** Component 3 Indicators **1.Amount of money transferred to peasant beneficiaries under *Planes de Inversion Familia (PIF)* Result: no target/ US$4,737,905** *a. Amount of money spent on purchases of crop inputs, animals (poultry, ruminants), tools, farm machinery and vehicles for transporting good to and from markets: US$2,690,067* *b. Amount of money spent on community productive facilities (for e.g. processing facilities for crop outputs): US$973,031* *c. Amount of money spent on community drinking water systems, electrification, improvement of bathrooms, kitchens, overall housing improvement and cleaner stoves: US$584,817* *d. Amount of money spent on hiring of services to assist with procurement of goods and financial management: US$96,237* *e. Amount of money spent on establishment of nurseries, reforestation and agroforestry practices in soils with steep soils: US$393,753* **2. Amount of money transferred to peasant beneficiaries under *Planes de Inversion Communitaria (PIC)* Result: no target/US$47,891,906** *a. Amount of money spent on purchases of crop inputs, animals (poultry, ruminants), tools, farm machinery and vehicles for transporting good to and from markets:29,410,917* *b. Amount of money spent on community productive facilities (for e.g. processing facilities for crop outputs): US$11,386,283* *c. Amount of money spent on community drinking water systems, electrification, improvement of bathrooms, kitchens, overall housing improvement and cleaner stoves: US$3,176,387* *d. Amount of money spent on hiring of services to assist with procurement of goods and financial management: US$999,461* *e. Amount of money spent on establishment of nurseries, reforestation and agroforestry practices in soils with steep soils: US$2,918,859* **3.Amount of money transferred to indigenous beneficiaries under *Planes Comunitarios Indigenas (PICI)* Result: no target/US$11,296,271**

	a. Amount of money spent on purchases of crop inputs, animals (poultry, ruminants), tools, farm machinery and vehicles for transporting good to and from markets: US$7,226,628 *b. Amount of money spent on community productive facilities (for e.g., processing facilities for crop outputs): US$444,259* *c. Amount of money spent on community drinking water systems, electrification, improvement of bathrooms, kitchens, overall housing improvement and cleaner stoves: US$2,797,956* *d. Amount of money spent on hiring of services to assist with procurement of goods and financial management: US$294,343* *e. Amount of money spent on establishment of nurseries, reforestation, and agroforestry practices in soils with steep soils: US$533,085* **5. Value of inputs transferred to beneficiaries under *Familia por Familia* Result: no target/US$4,140,683** Component 4: **1.Purchased computers and communication equipment worth: no target/US$293,212** **2.Purchased lab equipment for and repairs to the Bioterio laboratory: no target/US$381,310** Component 5 **1. Preparation of a budget for the implementation team (100 percent)**

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Gerardo Segura	Task Team Leader, Senior Rural Development Specialist
Harideep Singh	Senior Rural Development Specialist
Reynaldo Pastor	Senior Counsel
Michael Carroll	Lead Natural Resources Management Specialist
Alexandre Arrobbio	Senior Financial Management Specialist
Andres Mac Gaul	Senior Procurement Specialist
Jose Janeiro	Senior Finance Officer
Frank Fragano	Environmental Consultant
Marcelo Sili	Consultant
Teresa Roncal	Operations Analyst
Diana Rebolledo	Language Program Assistant
Alvaro Soler	Senior Rural Dev Specialist
Diego Paysse	Rural Development Specialist
Nestor Bragagnolo	Agronomist, Micro-catchment Specialist
Judith Lisansky	Senior Anthropologist
Maria Isabel Braga	Senior Environmental Specialist
Emilio Rodriguez	Senior Procurement Specialist
Kamine Jorge	Senior Counsel
Karen Ravenelle-Smith	Language Program Assistant
Graciela Lituma	Rural Development Specialist
Humberto Costa	Rural Development Specialist
Matthew Cummins	Junior Professional Associate
Supervision/ICR	

Pablo R. Valdivia Zelaya, Edward William Bresnyan	Task Team Leader(s)
Gustavo Adrian Canu, Martin Ariel Sabbatella	Procurement Specialist(s)
Miguel-Santiago da Silva Oliveira	Financial Management Specialist
Francis V. Fragano	Environmental Specialist
Rahmoune Essalhi	Team Member
Tatiana Tassoni	Social Specialist
Angel Alberto Yanosky	Environmental Specialist
Maria Emilia Sparks	Social Specialist
Mario I. Mendez	Procurement Team
Brenda Mendieta-Arroyo	Procurement Team
Sofia Keller Neiva	Team Member
Antonella Celeste Perila	Procurement Team
Hira Channa	ICR Primary Author
Anna F. Roumani	Consultant

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY05	11.419	45,569.81
FY06	27.067	139,502.47
FY07	18.718	129,835.77
FY08	30.113	164,780.02
FY09	0	0.00
Total	**87.32**	**479,688.07**
Supervision/ICR		
FY08	.275	14,121.69

FY09	13.860	93,218.20
FY10	21.180	127,795.26
FY11	16.385	92,848.32
FY12	14.207	103,058.78
FY13	17.204	129,154.08
FY14	16.296	124,323.93
FY15	26.229	199,209.08
FY16	39.025	265,355.99
FY17	18.842	156,386.88
FY18	34.305	188,700.02
FY19	24.647	147,877.59
FY20	20.904	180,127.94
Total	**263.36**	**1,822,177.76**

ANNEX 3. PROJECT COST BY COMPONENT

	7503 PA (US$M)		8316 PY (US$M)		Total Projected (US$M)			Total Executed (US$M)			
Components	Amount at Approval 7503 PA (US$M)	Counter-part (US$M)	Amount at Approval 8316 PY (US$M)	Counter part (US$M)	Total Amount Approved 8316 PY+7503 PA (US$M)	Total Counter-part Contribution (US$M)	Total	Actual at Project Closing (US$M)	Counter part (US$M)	Total	Percentage of Approval (percent)
C1 -- Community Organization Development and Capacity Building	1.90	0.44	1.2	0.50	3.1	0.94	4.04	1.67	0.04	1.71	42%
C2 -- Rural Extension and Adaptive Research	8.70	1.73	29.85	4.50	38.55	6.23	44.78	41.57	3.79	45.36	101%
C3 --Sustainable Rural Development Fund (FDRS)	19.50	5.39	64.00	10.00	83.5	15.39	98.89	87.15	14.77	101.92	103%
C4 -- Animal Health Improvement	2.90	0.81	0.80		3.7	0.81	4.51	1.12	0.01	1.13	25%
C5 -- Project Management, M&E and Technical Assistance	3.20	0.85	3.90	1.0	7.1	4.9	12	5.53	2.34	7.87	66%
Unallocated	**1.3**				1.3	0	1.3				
Front End Fee			0.25		0.25	0	0.25	0.25		0.25	100%
Total	**37.5**	**9.2**	**100**	16.00	**137.5**	**25.22**	**162.72**	**137.3**	**20.95**	**158.24**	**97%**

ANNEX 4. EFFICIENCY ANALYSIS

Methodology

1. A standard cost-benefit analysis was performed to assess the financial and economic merit of PRODERS. A cost benefit analysis seeks to quantify all the incremental costs and benefits that can be directly attributed to the project.

2. The financial and economic analysis was carried out on each of the four types of investment plans considered by PRODERS: Community Investment Plan, Indigenous Communities Investment Plan, Farm Investment Plan and Family by Family (PIC, PICI, PIF and FxF, respectively for its acronym in Spanish).

Quantified benefits of the project

3. The financial analysis considered the benefits generated by the increased production and diversification of agricultural systems promoted by PRODERS. The economic analysis, in addition to agriculture benefits, also considered the increased availability of time resulting from social investments of PRODERS (implementation of improved stoves at household level and drinking water systems at community level), reduction of the incidence of acute respiratory diseases resulting from investments in improved stoves, and the recovery of ecosystem services as a result of PRODERS' environmental investments and capacity building.

Financial and economic benefits: increase in level and diversification of agricultural production systems

4. The financial and economic benefits considered correspond to the increase in production and diversification at subproject level, which have been achieved thanks to the project's investments in rehabilitation and conservation of natural resources, technical assistance for the implementation of good agricultural practices, organizational strengthening, delivery of production packages and strengthening of marketing chains. The project's interventions have promoted/resulted in the diversification of traditional crops, offering the option of producing several items in the same space and period, through the combination of a series of species that are important for household consumption and that are also in high demand by the market, based on polyculture management techniques and crop rotation.

5. In order to estimate the expected benefits of improved agricultural systems, a comparison is needed of the situation that producers would be in without project, with the future situation with project, i.e., investments to improve productive capacity. The Marginal Productivity Method was applied, consisting of estimation of the Net Present Value of the highest agricultural production resulting from the improvement in management of I&D systems as a result of the investments that the project funded. It is based on a theoretical agricultural production function which states that yields per hectare depend of a set of productive factors.

$$\mathbf{y_j = f(X)}$$

Where:
y_j= yield per hectare of crop j, X= Matrix of productive factors per hectare (labor, capital, etc.)

6. The method is based on the principle that farmers maximize their profits by using the productive factors they have (productive capacity). The method is also based on the principle of the limiting factor, which states that the production frontier is determined by the productive input that is available at a level that prevents the increase of yields, regardless of whether the other productive inputs are available at levels that would increase production. Therefore, the improvement in productive capacity that has been obtained in the situation with project has

allowed farmers to increase and diversify their agricultural production compared to the situation without a project. The financial and economic benefits are, therefore, the difference in net income between the situation with project and the situation without project:

$$AB = \sum_{j}^{n} (p_j * q_j^{wp} - C^{wp}) * ha_j - \sum_{j}^{n} p_j * q_j^{wop} - C^{wop} * ha_j$$

Where:
AB= Agricultural benefit , p_j= output price of crop j , q_j^{wp} = yield per hectare in with project situation
C^{wp}= production cost per hectare in with project situation,ha_j = cultivated hectares of crop j, q_j^{wop} = yield per hectare of crop j in a without project situation ,C^{sp}= production cost per hectare in without project situation

7. This method assumes that output and input prices are exogenous, meaning that they are not affected by the expected increase in production. Likewise, it is assumed that output and input prices will remain constant over time, in order to eliminate a price effect that may distort the results. Therefore, the incremental financial and economic benefit is directly related to the productive increase resulting from project investments to improve the productive capacity of the beneficiaries.

Assumptions

a. Sample

8. The financial and economic analysis is based on the collection of primary information from 185 investment subprojects randomly selected through participatory workshops with benefited families carried out between September and October 2019, distributed between PIF, PICI and PIC. This sample size ensures statistical representativeness with a confidence level of 90 percent and a margin of error of 10 percent for each of the categories36. Likewise, it is based on primary information obtained from 460 surveys randomly selected of FxF beneficiaries, taken between October and November 2020 by IICA (2021), whose margin of error is 4.6 percent and a confidence level of 95 percent[37].

Table 1. Sample size and number of subprojects implemented

Typology of Investment	Sample Size	Investment Plans Implemented (Subprojects)
PIF	69	472
PIC	66	712
PICI	50	180
FxF	460	4,569

Fuente: Own elaboration based on IICA, 2020 and IICA 2021.

9. In order to resolve the situation of not having baseline, the "Evaluación de Resultados del Proyecto de Desarrollo Rural Sostenible", executed by IICA, 2020, participatory workshops were held with the benefited communities (PIF, PIC and PICI), in order to reconstruct the initial situation or without project from the individual and collective memory of the beneficiaries, on topics such as crops produced, production volume, as well as sales

[36] The dataset of this financial and economic analysis for agriculture benefits comes from the study "Evaluación de Resultados del Proyecto de Desarrollo Rural Sostenible", executed by IICA, 2020. According to Terms of Reference, this sample size ensures statistical representativeness with a confidence level of 90% and a margin of error of 10% for each of the categories: PICI, PIC and PIF. It was assumed maximum variance. The distribution of the sample between the typologies was carried out proportionally to the number of PICI, PIC, PIF implemented at the Department level.
[37] This sample size ensures statistical representativeness with a confidence level of 95% and a margin of error of 4.6% for FxF. It was assumed maximum variance.

prices and production costs. The same situation affects FxF, for which the study "Informe de Conclusión del Proyecto de Desarrollo Rural Sostenible (IICA, 2020) applied surveys to beneficiaries to construct the baseline.

b. Model Farm

10. For each of the investment typologies (PIC, PIF and PICI), a model farm was built, which seeks to represent a typical production system in a without-project situation and in a with-project situation in terms of production structure, in order to build a flow of total income, total costs and net income that could be considered as a reference for PIF, PIC and PICI. The model farm contains data collected in terms of productive activities, including production of agricultural products intended for self-consumption as well as for sale. .

11. Costs: The financial analysis considered the total amount provided by PRODERS at investment plan level, which includes investments for environmental, productive, community and administrative purposes. Likewise, it considers non-monetary contribution (counterpart) from beneficiaries for the implementation of the investment plans. In the FxF typology, given the nature of its intervention, only productive investments were made, without implementing actions that involve investments for environmental, community and administrative purposes. It includes costs of crops (preparation of land, seeds for planting, care of the crop, harvest and labor) and livestock (feeding, sanitation and handling of animals). Likewise, the cost of technical assistance granted by PRODERS to the beneficiaries was considered.

12. Income: items destined for self-consumption and sale were considered, in order to represent the total value of the production that the model farm registers in each period analyzed.

c. Financial flows

13. In the construction of flows, both costs and benefits were estimated considering the market prices of inputs and outputs. Following the assumption of the Project Appraisal Document 2007, an evaluation horizon of 20 years was considered. Additionally, the analysis has been carried out at 10 and 15 years. The income growth rate is calculated as an annual average between income and costs in the "without- project" and "with-project" situation. This analysis is necessary considering the lack of data in the intermediate periods to create the approximate financial flow of the project. This rate is used to construct the flows of total income, total costs and net income during the execution of the project.

14. The financial flows built for the model are based on the data of: investments (productive, environmental, community and administrative), income, residual value, production costs and technical assistance. To add technical assistance, a flow was made for each of the organizations, taking into account that it is a fixed amount per beneficiary and that it is provided during the execution of the project. A flow of investments, costs and income was built according to the years of initiation and implementation of each plan. After the project is finished, costs and income are kept constant: the productivity and efficiency improvements due to the project are maintained over time (sustainability principle). In the calculation of financial flows, residual values are included, and assume a depreciation of the assets of 95 percent in 15 years, which implies an annual depreciation rate of 0.18. The financial and economic discount rate considered was 12 percent per year.

d. Agricultural implicit deflator

15. Income and cost flows are adjusted based on the implicit deflator of agricultural GDP, in order to eliminate the effect of price changes over time. To adjust the price effect and the input effect of the financial and economic analysis, the implicit deflator of agricultural GDP (base year 2018) was estimated based on information published

by the Central Bank of Paraguay.. The implicit deflator acts as a proxy to control the variation of income in products and inputs. The formula used for the calculation is:

$$Implicit\ deflator\ of\ agricultural\ GDP = \left(\frac{Nominal\ Agricultural\ GDP}{Real\ Agricultural\ GDP}\right) * 100$$

e. Conversion factors

16. Specific conversion factors were calculated for this analysis in order to adjust financial prices to economic prices.

Table 2. Conversion Factors

Ítem	Conversion Factor
Standard conversion factor	0.971
Official Exchange rate (G/US$)	6,500
Shadow Exchange rate (G/US$)	6,696
Conversion factor for input price	0.75
Conversion factor for output price	0.85
Conversion factor for wage	0.831

Source: Own elaboration, 2021.

f. Opportunity cost of capital

17. The financial and economic analysis considers a discount rate of 12 percent per year that was applied to all future cost and benefit flows. This rate includes different risks (macroeconomic and agricultural) and inflation. The sum of the flow of costs and benefits is discounted at this rate to generate the financial and economic Net Present Value (NPV) of the project. A Net Present Value greater than zero means that not only are the opportunity costs of the capital investment recovered, but a real net value equal to the positive amount of the NPV is generated. In addition to the NPV, the analysis presents other standard measures that are used to evaluate projects, including the Internal Rate of Return (IRR). The IRR is a discount rate that makes the NPV of all cash flows equal to zero in a discounted cash flow analysis. In other words, for a project to be viable, an Internal Rate of Return greater than 12 percent is required, given the assumed opportunity cost of capital. Finally, the Equivalent Annual Payment (EAP) is estimated, to show the NPV of an investment as a series of equal cash flows for the length of the investment. This indicator acts as a proxy for the average net income per year that the family will receive during the evaluation horizon.

Economic benefits - decreased incidence of acute respiratory diseases

18. In the case of the economic analysis, in addition to the benefits due to an increase in the level and diversification of agricultural production systems, the analysis considers the decrease in the incidence rate of acute respiratory diseases from social investments oriented to implementation of improved stoves. To assess these benefits, the Forgone Output Approach was applied. PRODERS permitted the relocation of stoves outside the home, with more efficient combustion chambers. This has permitted, among other benefits, a reduction in the number of days in which the economically active population of beneficiary families stops working as a result of suffering from acute respiratory diseases and / or caring for sick relatives (minors and older adults). Therefore, families benefiting from social investments in improved stoves outside the home have more days that they can dedicate to work. Within the analysis, these days have been valued based on the average income observed in the workshops described in the previous section. The economic benefits are calculated from the least amount of days

in which the members of the household that belong to the economically active population stop working due to suffering from acute respiratory disease.

$$EBIRD = \sum_{i=1}^{t} \frac{I * Sto * (e^{wp} - e^{wop}) * (1+g)^t}{(1+r)^t}$$

Where:
EBIRD= Economic benefit due to lower incidence of respiratory diseases, I= Annual average income ,Sto= number of improved stoves implemented, e^{wp}= incidence of acute respiratory diseases in with-project situation , e^{wop}= incidence of acute respiratory diseases in without-project situation, t= evaluation horizon, g= annual income growth rate, r= economic discount rate

19. This analysis was based on the results of Troncoso et al, 2018. They found that 26.5 percent of people who live in a household that uses coal or firewood as the main or secondary fuel inside the house presented cough and symptoms of acute respiratory diseases, while only 10.2 percent of people living in homes that use only clean fuels presented coughs and symptoms of acute respiratory diseases. The monthly labor income estimated is US$199 (weighted average of income of PIC, PICI, PIF and FxF). The evaluation horizon is 20 years, the income growth rate is 3 percent per year and the economic discount rate is 12 percent. Estimation of this benefit considered that PRODERS implemented 8,177 improved stoves.

Economic benefits - decreased time requirement for collecting firewood

20. Another of the economic benefits quantified in this evaluation has been the decrease in the time dedicated to collecting firewood because of the implementation of improved stoves with more energy-efficient combustion chambers, that improve the control of heat emission. This means a lower consumption of biomass (firewood). Therefore, improved stoves have made possible the reduced requirement for firewood by households to satisfy their cooking needs. This implies that households spend less time collecting firewood. To quantify this benefit, the same approach was applied as for the benefit due to a lower incidence of respiratory diseases, that is, the greater availability of time that families can have, given that improved stoves are more efficient and require less firewood to operate. It was assumed that each family has a person who belongs to the economically active population to collect firewood.

$$EBRFC = \sum_{i=1}^{t} \frac{I * Sto * (l^{wp} - l^{wop}) * (1+g)^t}{(1+r)^t}$$

Where:
EBRFC= Economic benefit due to less time requirement for firewood collection, I= Annual average income Sto= number of improved stoves implemented, l^{wp}= time spent collecting firewood in with-project situation' l^{wop}= time spent collecting firewood in without-project situation, t= evaluation horizon, g= annual income growth rate, r= economic discount rate

21. This analysis was based on the results of Troncoso et al, 2018. They found that rural households that require firewood as fuel dedicate 3.45 hours a week to the task of collection. It assumed that with the implementation of improved stoves, the time requirement for firewood collection will be 50 percent less (1.73 hours a week). Likewise, it is estimated that the monthly labor income is US$199 (weighted average of income of PIC, PICI, PIF and FxF). The evaluation horizon is 20 years, the income growth rate is 3 percent per year and the economic discount rate is 12 percent. To estimate this benefit, PRODERS' implementation of 8,177 improved stoves was considered.

Economic benefits - decreased time requirement for water collection

22. PRODERS made social investments for the implementation of drinking water systems at the community level, which allowed the resource to be permanently available for domestic use over time. These communities lacked potable water systems, so families had to dedicate time to collect water from surface sources nearby. To quantify this benefit, the highest availability of time that families can have was valued, given that beneficiary families have potable water systems in their own communities. It was assumed that each family has a person who belongs to the economically active population to collect water.

$$BERTA = \sum_{i=1}^{t} \frac{I * SAP * a^{wp} - a^{wop}) * (1+g)^{t}}{(1+r)^{t}}$$

Where:
EBRWC= Economic benefit due to less time requirement for water collection, I= Annual average income, SAP= number of benefited families with community drinking water systems, a^{wp}= time spent collecting water in with-project situation, a^{wop}= time spent collecting water in without-project situation, t= evaluation horizon, g= annual income growth rate, r= economic discount rate

23. This analysis was based on the results provided by PRODERS, who reported that rural households that need to collect water from surface sources dedicate 3 hours a day to this task, and with the implementation of potable water systems in the communities, the required time for collection is zero, since these systems are located in the same communities. It is assumed that the person in charge of collecting water belongs to the economically active population and the monthly labor income is estimated to be US$199 (weighted average income of PIC, PICI, PIF and FxF). The evaluation horizon is 20 years, the income growth rate is 3 percent per year and the economic discount rate is 12 percent per year. To estimate this benefit, it was considered that PRODERS implemented 214 drinking water systems.

Economic benefits – improvement of ecosystem services

24. The natural environment is critical for the provision of a wide range of ecosystem services, which generate both direct and indirect benefits to human well-being and to nature. According to the World Bank (201738), ecosystem services include at least four types of benefits:

a. Provisioning services that include specific products people obtain from ecosystems, including sustainable wood harvesting and non-timber values, including bushmeat supply.

b. Regulating services, which are the benefits people obtain from the regulation of ecosystem processes, such as watershed protection, soil-erosion prevention, and carbon storage.

c. Supporting services, which include natural processes necessary to maintain other services and which may include soil formation, nutrient cycling, and primary production.

d. Cultural services, which include non-material benefits provided by ecosystems, such as natural areas for recreation, sacred sites, and sites that are important for research or aesthetic enjoyment.

25. PRODERS made environmental investments for the rehabilitation and conservation of natural resources in the environment in which the beneficiary communities live. PRODERS invested in the implementation of agroforestry systems, forest curtains, forest enrichment, reforestation and promotion of natural regeneration. The approach

[38] Worlds Bank. 2017a. The World Bank Environmental and Social Framework. Washington, DC http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf.

used for estimating benefits is Value Transfer, which consists of estimating the value of an ecosystem service of interest in a specific place or case by assigning an existing valuation based on reference studies for a similar ecosystem elsewhere. To obtain the total economic value of ecosystem services, the value considered as a reference must be multiplied by the area that generates these environmental services

$$EBES = \sum_{i=1}^{t} \frac{(VESE * Ha) * (s^{wp} - s^{wop}) * (1+g)^t}{(1+r)^t}$$

Where:
EBES= Economic benefit for improvement of ecosystem services, VESEI= Economic value of ecosystem services per hectare, Ha= benefited hectares, s^{wp}= capacity to provide ecosystem services with-project situation, s^{wop}= capacity to provide ecosystem services without-project situation , t= evaluation horizon, g= annual ecosystem service value growth rate, r= economic discount rate

26. The analysis considered the ecosystem services and their valuations published by the World Bank, 202039, which identifies the main economic effects of forest loss in Paraguay and estimates an economic value of the ecosystem services provided by the forests in the regions of eastern and western Paraguay. In this case, the values corresponding to the eastern region of Paraguay were used, since PRODERS' actions were concentrated in this region.

Table 3. Ecosystem Services Valuation

Ecosystem service	Type of ecosystem service	Región del Este de Paraguay US$/ha/year
Provisioning services	Sustainable timber and fuelwood harvest	107
	Bushmeat harvest	24
Regulating services	Carbon capture and storage	165
	Watershed protection services	73
	Soil-erosion protection services	150
Other services	Other forest services	7
	Total	**526**

Source: World Bank, 2020

27. The project carried out actions to improve the quality of provision of ecosystem services in 5,428 hectares. It is assumed that a without-project situation presented a significant degradation that prevented the potential generation of ecosystem services. It is considered that prior to the project intervention, this area provided ecosystem services at 30 percent of its potential (swop) due to degradation and mismanagement. As a result of the intervention of PRODERS, the capacity to provide ecosystem services improved, reaching 80 percent of its potential capacity to generate ecosystem services . Therefore, 50 percent of the values presented in Table 3 are taken as the price per hectare for the provision of ecosystem services. The evaluation horizon is 20 years, the growth rate of the value of ecosystem services is 3 percent per year and the economic discount rate is 12 percent per year.

[39] World Bank, 2020. The Value of Forests in Paraguay – Economic Analysis and Policy Recommendations

Unquantified benefits of the project

28. Other benefits that could not be quantified include:

Financial:

a. Increase in productivity and cultivated area in families that do not participate in the project but who are assisted by an extensionist trained by the Project
b. The multiplier effect on other links in the economy due to forward and backward production linkages
c. The effect on livestock production systems in terms of higher productivity given the strengthening of the Geographic Information System for SENACSA Regional Offices and the rehabilitation of the Bioterium Laboratory.

Economic:

a. Increase in productivity and cultivated area in families that do not participate in the project but are assisted by an extensionist trained by the project
b. The multiplier effect on other links in the economy due to forward and backward production linkages
c. The effect on livestock production systems in terms of higher productivity given the strengthening of the Geographic Information System for SENACSA Regional Offices and the rehabilitation of the Bioterium Laboratory.
d. Improvements in health conditions due to social investments (access to improved bathrooms, electricity, home improvements)
e. Improvement in food and nutritional security of beneficiary families
f. Access to the Social Protection and Promotion System for people who have an identity document
g. Increase in the value of the lands of indigenous communities that have been part of the project's process of tenure regularization.

Project cost

29. The economic analysis considered the total cost of PRODERS, including Loan 7503 and Loan 8316, for a total of US$137.5 million. It is important to note that all costs have been incorporated, but not all the benefits. Thus, this analysis under-estimates the real positive economic impact for society, and should be considered as on the lower end of net benefits.

Results

a. Outlier identification

30. For each typology, a dispersion analysis of the Financial Internal Rate of Return (FIRR) was carried out, in order to identify extreme values that are generating distortions in the distribution. The weighted average[40] coefficient of variation is 122 percent.[41]

[40] The weighting was carried out according to the proportion of the investment amount that PRODERS dedicated to each typology
[41] Pearson's coefficient of variation is widely used in statistical analysis that allows the variation of data to be measured as a function of the mean.

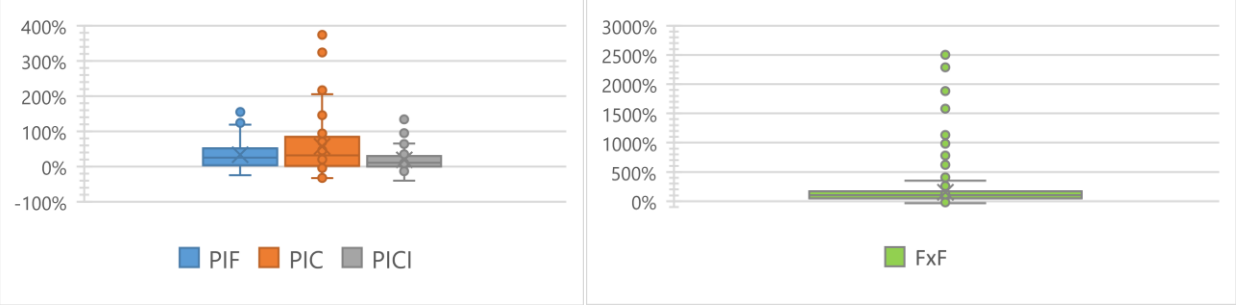
Table 5. Variation Coefficient

Typology	Sample Size (Investment Plans)	Coefficient of Variation (%)
PIF	69	105
PIC	66	124
PICI	50	141
FxF	460	157
Total of Investment plans	645	
Weighted average		122

Source: Own elaboration, 2021

31. Figure 1 shows the high dispersion of the FIRR in the four typologies, especially in FxF, when considering all the observations.[42] To identify outliers, for each typology an interval was established based on the average of the FIRR plus/minus two standard deviations: i) Upper Limit: average IRR + 2 standard deviations; ii) Lower Limit: average IRR - 2 standard deviation. This method was able to identify 17 percent, 36 percent, 20 percent, and 7 percent outliers for PIF, PIC, PICI and FxF typology, respectively, representing 12 percent of the total database. In this way, the estimates of the productive benefits in financial and economic terms were made based on 568 investment plans.

Figure 1. Box Plot of FIRR per typology.



Source: Own elaboration, 2021

Table 6. Outliers per Typology

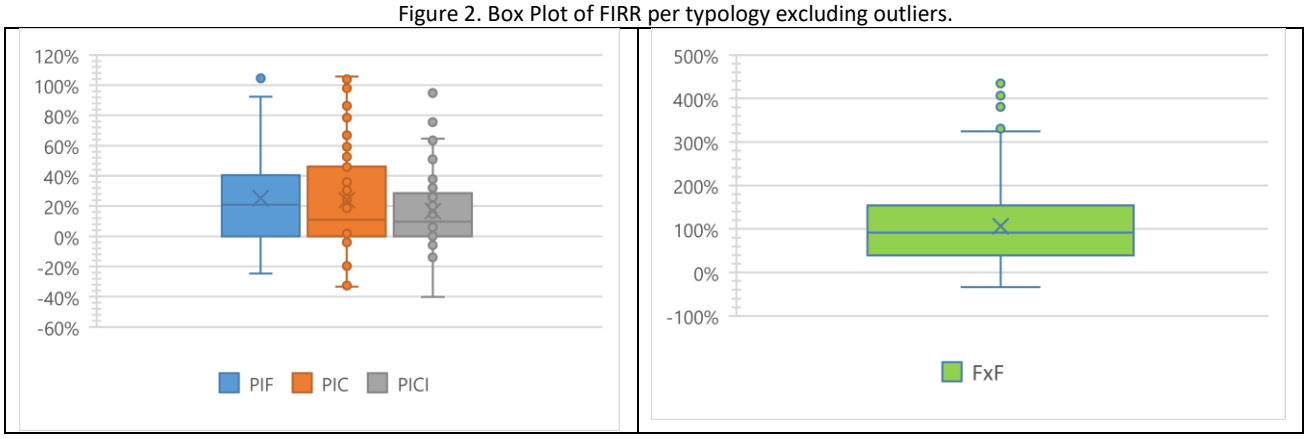
Typology	Sample size (Investment Plans)	Outliers	Proportion (%)
PIF	69	12	17
PIC	66	24	36
PICI	50	11	20
FxF	460	30	7
Total of Investment Plans	645	77	12

Source: Own elaboration, 2021

[42] A box plot was made specifically for FxF because its dispersion is much greater than PIC, PICI and PIF.

32. **Figure 2 shows the box plot by typology, excluding outliers.** By excluding the outliers, it is observed that the coefficient of variation decreases to 101 percent, which reflects that this procedure reduces the high variability of the data.

Figure 2. Box Plot of FIRR per typology excluding outliers.



Source: Own elaboration, 2021

Table 7. Variation Coefficient Excluding Outliers

Typology	Sample size (Investment Plans)	Coefficient of Variation (%)
PIF	57	98
PIC	42	97
PICI	39	125
FxF	430	76
Total of Investment Plans	568	
Weighted average		101

Source: Own elaboration, 2021

b. Financial analysis

33. To capture the medium and long-term effects, a financial analysis of the incremental net benefits was carried out considering 3 evaluation horizons: 10, 15 and 20 years. Given that the PIC, PICI, and PIF correspond to investment plans that cover several families that belong to the same organization, the results of profitability indicators are presented at the investment plan level (number of viable investment plans, NPV, and IRR), and subsequently the benefits are estimated at benefited family or farm level (NPV/beneficiary and EAP/beneficiary). In the case of FxF, the interventions carried out by PRODERS were at the family / farm level.

34. At a general level, 77 percent of investment plans are viable (NPV>0) at 10 years (440/568), 86 percent at 15 years (487/568) and 89 percent at 20 years (506/568). The PICI is the typology that presented the lowest proportion of viable investment plans compared to the other investment typologies in all evaluation horizons (38 percent, 59 percent and 67 percent for 10, 15 and 20 years). It is also the typology that presented the lowest financial results, in the three evaluation horizons.

35. When estimating the results at the beneficiary level, it is observed that the EAP, which corresponds to a constant annual cash flow that equals the NPV during the period considered in the evaluation horizon, is ₲ 2,937,

₲ 4,975, and ₲ 7,666 per year for PICI, PIC and PIF, respectively, taking a 10-year evaluation horizon. At 20 years, the EAP is ₲ 10,732, ₲ 12,275 and ₲ 13,181 per year for PICI, PIC and PIF, respectively.

36. The positive results for the case of FxF stand out, showing that 83 percent, 90 percent and 94 percent of the subprojects were viable in 10, 15 and 20 years. It is worth mentioning that in the case of FxF, the results were not directly comparable with PIC, PICI and PIF. Given the nature of its intervention, in FxF only productive investments were made, without implementing actions that involved investments for environmental, community and administrative purposes, unlike PIC, PICI and PIF, where these investments were considered in the cost flows to achieve the results.

Table 8. Profitability Indicators per Typology at Investment Plan and Beneficiary Level, by Evaluation Horizon

Typology	Indicator	Evaluation Horizon		
		10 years	15 years	20 years
PIF	NPV>0	39 (68 percent)	42 (74 percent)	42 (74 percent)
	NPV	₲ 1,821,024	₲ 3,295,279	₲ 4,194,458
	IRR	**29.4 percent**	**30.4 percent**	**33.5 percent**
	NPV / beneficiary	₲ 43,312	₲ 78,376	₲ 98,453
	EAP / beneficiary	₲ 7,666	₲ 11,508	₲ 13,181
PIC	NPV>0	27 (64 percent)	34 (81 percent)	34 (81 percent)
	NPV	₲ 4,786,706	₲ 11,646,746	₲ 15,612,046
	IRR	**29.3 percent**	**37.5 percent**	**41.5 percent**
	NPV / beneficiary	₲ 28,111	₲ 68,399	₲ 91,686
	EAP / beneficiary	₲ 4,975	₲ 10,043	₲ 12,275
PICI	NPV>0	15 (38 percent)	23 (59 percent)	26 (67 percent)
	NPV	₲ 1,619,172	₲ 5,571,295	₲ 7,821,634
	IRR	**4.7 percent**	**21.3 percent**	**25 percent**
	NPV / beneficiary	₲ 16,594	₲ 57,099	₲ 80,163
	EAP / beneficiary	₲ 2,937	₲ 8,368	₲ 10,732
FxF	NPV>0	359 (83 percent)	388 (90 percent)	404 (94 percent)
	NPV / beneficiary	₲ 192,534	₲ 448,056	₲ 593,204
	IRR	**103 percent**	**114 percent**	**115 percent**
	EAP / beneficiary	₲ 34,075	₲ 65,785	₲ 79,417

Source: Own elaboration, 2021

37. For each typology, incremental cost, income and net income flows were calculated considering all the investment plans identified in Table , in order to estimate aggregate profitability indicators. In the following table it is observed that all typologies present positive profitability indicators. At the aggregate level, a financial rate of return is obtained of 25.7 percent, 31.5 percent, and 32.5 percent at 10, 15 and 20 years-horizon, respectively. The benefit cost ratio is 1.21, 1.39 and 1.46 at 10, 15 and 20 years-horizon.

38. FxF stands out, presenting the highest profitability indicators. PIF presented positive profitability indicators, but of a lesser magnitude than PIC and PICI. This represents the trend of improvement in the efficiency of designing and implementation of investment plans by PRODERS.

Table 9. Aggregated Profitability Indicators per Typology, by Evaluation Horizon

Typology	Indicator	Evaluation Horizon		
		10 years	15 years	20 years
PIF	VPN	₲ 46,708,327	₲ 113,049,806	₲ 151,035,289
	TIR	17.7 percent	21.7 percent	22.8 percent
	B/C	1.076	1.1545	1.190
PIC	VPN	₲ 70,222,725	₲ 193,703,432	₲ 265,078,834
	TIR	24.6 percent	32.5 percent	33.8 percent
	B/C	1.19	1.38	1.46
PICI	VPN	₲ 45,336,813	₲ 155,996,251	₲ 219,005,750
	TIR	24.8 percent	35.2 percent	36.7 percent
	B/C	1.16	1.41	1.51
FxF	VPN	₲ 41,943,706	₲ 97,665,734	₲ 129,283,909
	TIR	106.1 percent	113.8 percent	113.9 percent
	B/C	1.82	2.32	2.478
Aggregated	VPN	₲ 2,005,201,807	₲ 4,713,305,663	₲ 6,274,711,836
	TIR	25.7 percent	31.5 percent	32.5 percent
	B/C	1.21	1.39	1.46

Source: Own elaboration, 2021

c. Sensitivity analysis

The results of the financial analysis assume that after the project, beneficiary families will be able to maintain the results permanently over time (at 10, 15 and 20 years). To evaluate the long-term robustness of the results achieved, a sensitivity analysis was carried out to assess how the project's financial profitability indicators change if there is a decrease in level of yields throughout the evaluation period. Simulating the decrease in yields over time seeks to analyze the case that the beneficiaries do not maintain the good results over time, due to less technical assistance after the project, low rate of adoption of good agricultural practices, and/or incidence of adverse weather conditions. For the sustainability analysis, a 10 percent decrease in yields was considered once the project was completed throughout the evaluation horizon to assess financial profitability indicators. In Table 4, one observes at the aggregate level an IRR of 18.4 percent, 25.3 percent y 26.5 percent at 10, 15 and 20 years respectively, and a benefit-cost ratio of 1.09, 1.25 and 1.29 at 10, 15 and 20 years respectively, figures considerably lower than those obtained in Table. PIF typology presents negative profitability indicators at 10 years of evaluation. However, at 15 and 20 years the trend reverses and shows positive indicators. PIC, PICI and FxF present positive profitability indicators at the aggregate level.

39. One of the major challenges for beneficiary families will be the sustainability of the results over time, post-project. This analysis reveals the high sensitivity of financial profitability with respect to yields: with a 10 percent decrease in yields (either due to low technical assistance, low adoption rate and/or incidence of climatic factors), the total NPV at the aggregate level falls by 56 percent, 36 percent and 36 percent at 10, 15 and 20 years.

Table 4. Profitability Indicators Considering 10 percent Decrease in Yields after the Project.

Investment Typology	Indicator	Evaluation Horizon		
		10 years	15 years	20 years
PIF	VPN	₲-19,590,647	₲ 28,581,847	₲ 46,979,146
	TIR	9.4 percent	14.6 percent	15.7 percent
	B/C	0.97	1.04	1.06
PIC	VPN	₲ 26,439,437	₲ 123,950,246	₲ 167,327,213
	TIR	17.1 percent	26.0 percent	27.4 percent
	B/C	1.07	1.25	1.29
PICI	VPN	₲ 13,216,156	₲ 102,763,449	₲ 143,011,711
	TIR	16.0 percent	28.2 percent	29.8 percent
	B/C	1.05	1.27	1.33
FxF	VPN	₲ 32,660,522	₲ 80,477,231	₲ 107,609,715
	TIR	86.9 percent	96.4 percent	96.6 percent
	B/C	1.64	2.08	2.230
Agregado	VPN	₲ 875,054,938	₲ 3,025,371,557	₲ 4,025,520,306
	TIR	18.4 percent	25.3 percent	26.5 percent
	B/C	1.09	1.25	1.29

Source: Own elaboration, 2021

d. Economic analysis

40. An economic analysis of PRODERS was carried out to evaluate the incremental benefits for society by comparing the without-project situation and the with-project situation. The analysis considered the benefits generated by:

a. increased production and diversification of agricultural systems provided by productive investments of PRODERS
b. increase in time availability resulting from PRODERS ' social investments, specifically in improved stoves and drinking water systems
c. decrease in the incidence of acute respiratory diseases resulting from PRODERS' social investments in improved stoves
d. recovery of ecosystem services because of PRODERS' environmental practices and investments.

41. The total cost of the project was considered, that is, US$137.5 million. For a 20-year horizon, the incremental economic benefit for the entire project is estimated at US$7.7 million, with an economic internal rate of return of 28.2 percent[43].

42. It is important to note the importance of the generation of environmental and social co-benefits of PRODERS. Of the total economic benefits, 22 percent come from social benefits (lower incidence of respiratory diseases and increase in time availability due to efficient stoves and drinking water systems in the communities), 13 percent of

[43] To represent a proxy the effect of the delay in disbursements of the PIF, PICI, PIC and FxF subprojects on the profitability indicators, a scenario was simulated that consider that all subprojects were implemented one year earlier. The NPV obtained is US$10.7 million, which represents 37% more than the NPV obtained with the disbursements that were actually made (US$7,7 million).

the total benefits correspond to ecosystem services recovered by the project, and 65 percent of the economic benefits come from agricultural productive activity.

43. Productive investments, in general, were viable in all types (77 percent of investment plans have NPV>0 to 10 years of evaluation) and have increased the level of production and diversification of production systems, which translates into an improvement in net income and higher availability of food for household-consumption. However, it was not possible to quantify within the economic benefits the multiplier effect over the value chain nor the effect over other related sectors of the economy.

44. Social investments have a significant effect on beneficiary communities. In this analysis, it was only possible to quantify benefits (lack of information) due to a reduction in the incidence of respiratory diseases resulting from the investment in improved stoves and the higher availability of time resulting from having drinking water systems in communities and improved stoves. However, PRODERS has had other important benefits, such as the effect on food security due to the greater availability of food in the communities, one of the most important aspects in reducing levels of extreme poverty. Another important result is delivery of the identity document for 4,099 beneficiaries belonging to indigenous communities. Since these people and their families did not have an identity document, they were excluded from the Paraguayan social protection system. Another important benefit that could not be considered in the economic analysis was the investment in improving bathrooms and providing electricity, both investments highly valued by the beneficiaries.
45. Not all environmental services have been possible to quantify in the economic analysis. The provision of cultural services, such as natural areas for recreation, sacred sites, and sites that are important for research or aesthetic enjoyment, have not been valued for lack of information.

46. For all the above, the economic analysis of PRODERS underestimates the real impacts on beneficiary families, as it is not able to quantify a series of benefits highly valued by them. Therefore, these results should be considered as the lower limit of the benefits of the project.

47. The economic analysis carried out in the PAD (2007) was based on nine Illustrative Farm Models representative of individual agricultural farming and one representative collective indigenous production system. Profitability indicators was estimated considering constant input and product prices, constant real exchange rate, 100 percent of investment costs (excluding labor) included in farm models. Incremental net benefits were estimated based on the farm models (increased agricultural production and farmers' income) and the prices adjusted to reflect the economic opportunity cost, while all transfers including taxes and subsidies were excluded from the analysis. The overall internal economic rate of return (EIRR) of the project was estimated to be 17 percent. This estimate was conservative, since it only takes into account production benefits from agricultural activity. One of the key reasons for the lower EIRR estimated in the EFA analysis in the PAD was that benefits from activities such as stoves (lower respiratory disease), introduction of community drinking systems (time saving specially for women) and improved ecosystem services were not included in the analysis presented in the PAD.

Table 5. Comparison of EFA PAD (2007) and EFA ICR

	EFA PAD (2007)	EFA ICR (2021)
Result: Economic Internal Rate of Return	17 percent	28.2 percent
Source of information	Secondary information of nine Illustrative Farm Models representative of individual agricultural farming and one representative collective indigenous production system	Primary information collected from 185 investment subprojects through participatory workshops with benefited families statistical representativeness with a confidence level of 90 percent and a margin of error of 10 percent for each of the categories (PIF, PICI, PIC and FxF)
Source of quantified benefits	Agriculture benefits	Agriculture, environmental and social benefits
Costs	The cost stream is based on four elements: (i) on-farm investment and recurrent costs; (ii) extension to farmers; (iii) community development costs and training; (iv) community and municipality investments; and (v) partial costs of project administration. Costs utilized were the base costs plus physical contingencies.	Total costs of Loan 7503 and Loan 8316 was considered: US$137.5 million.
Scope of analysis	Loan 7503 (US$37.5 million)	Loan 7503 (US$37.5 million) and Loan 8316 (US$100 million), for a total of US$137.5 million
Economic discount rate	Unknown	12 percent

Source: Own elaboration (2021), and PAD (2007).

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

YVY HA TYMBA ÑAMBAREKO
MINISTERIO DE AGRICULTURA Y GANADERÍA

TETÃ REKUÁI
GOBIERNO NACIONAL

Paraguay de la gente

Misión: Contribuir al desarrollo agrario sostenible y competitivo del país, a través de una gestión institucional realizada por personas motivadas.

Nota MAG N°.811...
Expediente MAG N° 26746/2021

Asunción, 19 de agosto de 2021

Señor
PABLO R. VALDIVIA ZELAYA, Gerente De Proyectos
Senior Agribusiness Specialist
Banco Mundial
Presente:

El ***MINISTERIO DE AGRICULTURA Y GANADERÍA (MAG)*** se dirige atentamente al ***BANCO MUNDIAL***, en relación al *"Proyecto de Desarrollo Rural Sostenible"* - PRODERS, Convenio de Préstamo BIRF N°s. 7503 y 8316, en referencia al Informe ***"IMPLEMENTATION COMPLETION AND RESULTS REPORT"*** **on loans, in the amount of US$ 137.5 million, to the Repubilc of Paraguay, for a Sustainable Agriculture and Rural Development Project (PRODERS)**, presentado por el Banco Mundial el 04 de agosto de 2021.

Al respecto, y según lo manifestado en la Nota de la Coordinación General del Proyecto de la referencia, coincide con el ICR del Banco, por lo cual se solicita proseguir con los trámites de rigor para la conclusión final del mismo.

El ***MINISTERIO DE AGRICULTURA Y GANADERÍA (MAG)***, hace propicia la oportunidad para reiterar al ***BANCO MUNDIAL***, las expresiones de su distinguida consideración.

SANTIAGO BERTONI HICAR
MINISTRO

SBH/smm/gm

Visión: "Institución moderna que lidera el sector agrario del país".

Yegros N° 437 e/ 25 de Mayo y Cerro Corá – Tels.: (021) 452 316 / 441 036 – Asunción Paraguay

Elaborado: Gisselle Mendoza. Aprobado: Firmante

ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

WORLD BANK DOCUMENTS:

All internal documents related to the project can be found at:
http://operationsportal.worldbank.org/secure/P088799/home?tab=documents

- Project Appraisal Document (PAD701)
- Loan Agreement
- Restructuring Papers
- Implementation Supervision Reports (ISR)
- Supervision Aide Memoires
- Integrated Safeguards Data Sheet
- Environmental Assessment
- Procurement Documents
- Financial Management Supervision Reports
- Auditing Documents
- Country Partnership Framework (CPF) and Systematic Country Diagnostic (SCD)

STUDIES/REPORTS:

- FAO, 2017. Evaluación de Resultados del Proyecto de Desarrollo Rural Sostenible Paraguay (PRODERS), Préstamo 7503. Informe de Evacuación.
- IICA, 2019. Evaluación De Resultados Proyecto De Desarrollo Rural Sostenible (PRODERS).
- IICA, 2020. Informe de Conclusión del Proyecto de Desarrollo Rural Sostenible (PRODERS)
- Troncoso, K., Smith, K., Tagle, M., Galeano, A., Torres, R., Soares da Silva, A. 2018. Afecciones respiratorias por el uso de leña y carbón en comunidades de Paraguay. Pediatría, Vol. 45; N° 1; (enero - abril) 2018
- World Bank, 2020. The Value of Forests in Paraguay – Economic Analysis and Policy Recommendations.
- Wageningen Workshop Proceedings (200) Adoption of Technologies For Sustainable Farming Systems https://www.oecd.org/greengrowth/sustainable-agriculture/2739771.pdf
- Food and Agriculture Organization (2005) Participatory policy development for sustainable agriculture and rural development. *http://www.fao.org/3/ak483e/ak483e.pdf*

ANNEX 7. COMPLEMENTARY INFORMATION AND DATA

Table A7.1. Project Stages by Timeline with Descriptions

Timeline	2009 (July)	2013(Feb)	2013(Nov)	2015(July)	2017(July)	2018 (July)	2019 (May)	2019 (Nov)
Event	Original Loan became effective (US$37.5 Million)	Project restructured in response to MTR	AF Loan in the amount of (US$100 million) approved	Project restructured	Project Restructured	Project Restructured	Project Restructured	Project Restructured
PDO			PDO changed					
PDO Indicators	9 PDO indicators	1 PDO indicator dropped	5 PDO indicators dropped, 2 added (including one beneficiary number)		2 PDO indicators rephrased			
Project Targets		20 percent reduction on average on targets related to Component 3 (investment plans, MIPs dropped)	Targets increased, to reflect increased financing		Targets reduced, with limited reasoning as to why in the restructuring paper			
Project Components		Subcomponent 2.2 and 4.2 were dropped	New subcomponent n financial education Focus completely on community subprojects under component 3 without INDERT subprojects Component 4 oriented to smallholder livestock producers				New activity under component 5 *"financing of technical assistance to analyze and prepare possible interventions to …."*	

Timeline	2009 (July)	2013(Feb)	2013(Nov)	2015(July)	2017(July)	2018 (July)	2019 (May)	2019 (Nov)
Geographical Area and beneficiary target	84 microcatchments areas *(microcuencas)* and **73** Indigenous Communities	reduced to **61** and 40						
Disbursement Original(7503) AF(8316):		Original:42 percent AF:N/A	Original:55 percent AF: N/A	Original:93 percent AF:10 percent	Original:100 percent AF:51.56 percent	Original:100 percent AF:75.60 percent	Original:100 percent AF:84.69	Original:100 percent AF:92.76 percent
Changes to closing date		Closing date extended to December 2017			Closing date extended to December 2018	Closing date extended to Nov 2019		Closing date extended to Nov 2020
Other Changes				Allow provision of goods, works, consultants' services and non-consulting services in addition to cash	Introduction of new approach "Familia by Familia' Money reallocated from Component 1 and 5, to 3 and 4		Inclusion of the Safeguards Incident Response Requirement (new corporate requirement)	

Table A7.2-Results Framework and Modifications

PDO Indicators

Item	Original Results Framework (PAD)	1st Restructuring post-MTR Feb 2013[44]	Additional Financing Nov 2013	Restructuring July 2017	Final Version Measured at Closing, Nov 2020
	PDO: To improve the quality of life of Small-scale Farmers and Indigenous Communities in a sustainable manner through the support of actions to strengthen community organization and self-governance, improve natural resources management, and enhance the socio-economic conditions of said farmers and communities.	**No Change**	**PDO Revised: To improve in a sustainable way the socio-economic conditions of Small-scale Farmers and Indigenous Communities in the Project area, through the support of actions to strengthen their community organization, self-governance and access to markets and value chains.** **Reason:** Revision of PDO was intended to improve accuracy and clarity. The focus of supporting activities also shifted towards markets and away from natural resource management (NRM) as a means to effect change (although NRM continued as a cross-cutting theme/activities).	**No Change**	**No Change**
1.	CDG, MDCs, and MSCs or IAs established, strengthened and participating in the management of rural sustainable development in at least 80 percent of target micro-catchments and indigenous communities in the project area with participation of women and rural youth in decision-making (appropriate level of participation to be agreed by organizations	**No Change** Original target # of micro-catchments was 84 and target for the Indicator was 67 MCs.	**DROPPED** **Reason**: Already covered under Component 1. Also, AF shifted focus of project actions from "micro-catchments" to poverty zones (mapped for targeting purposes).	**---**	---
2.	At least 50 percent of the target farms increase their farm incomes by 30 percent. Of these, at least 40	**No Change**	**Revised** **(Increased target values)** At least 70 percent of target farms	**Revised** No. of targeted farms that increase their agricultural	**No change:** No. of targeted farms that increase their agricultural

[44] The June 2013 Restructuring Paper states that "changes corresponded to an expected reduction of 25-30% in expected outcomes". Also, two subcomponents were dropped: Subcomponent 2 (Adaptive Research) and Subcomponent 4.2 (Support to the Vice-Ministry of Livestock).

Item	Original Results Framework (PAD)	1st Restructuring post-MTR Feb 2013[44]	Additional Financing Nov 2013	Restructuring July 2017	Final Version Measured at Closing, Nov 2020
	percent obtain an agricultural income above the poverty line.		increase their agricultural income by 30 percent. Target: 25,500 farms (see ISR #15)=*: 50 percent of 9,150 families (OP) + 70 percent of 29,850 families (AF) =25,470*) The wording "Of these, at least 40 percent obtain an agricultural income above the poverty line" was revised and became a new PDO Indicator: "Number of targeted farms which are able to pass above the poverty line (with per capita income above Gs446.798/month in rural areas – expressed in Gs. as at October 2016)". See Item 5 below. **Reason:** Indicator redefined at a more ambitious level (under the PAD version, 10 percent lifted above the poverty line would have been satisfactory).	income by at least 30 percent Target: 10,000 farms **Reason:** Emphasis shifted to the number of farms showing increased income, rather than a percentage: (i) Many factors outside project control have an impact on agricultural income and poverty; (ii) the project approach required a long process before achieving such impact: TA, then investments expected to generate income, then marketing, after which income can be measured. The initial target was overly ambitious, and was increased by the AF, but was unrealistic in its context. NOTE: The source of data for this significant decrease in target and achievement values is not clearly reported in project documentation. The subsequent value for this indicator reported in May 2019 was calculated using a sample of 1,029 from the RENABE database showed that incomes had increased by at least 30 percent for 24,734 farms	income by at least 30 percent Target: 10,000 farms
3.	Production of crops for domestic consumption increased by 20 percent in 50 percent of the poorest beneficiary farms	**No Change** Based on a 20 percent increase in 1600 farms	**DROPPED** **Reason:** Already included in other indicators	---	---
4.	Productivity of land (by ha) increased by an average of 25 percent on 10,000 farms through the application of productive practices promoted by the Project.	**Revised** "10,000" was omitted, replaced by "beneficiary", but target remained same.	**Revised** Percentage of farms with land productivity (by ha) increased by at least 25 percent through the application of productive processes promoted by the	**No change** Percentage of farms with land productivity (by ha) increased by at least 25 percent through the application of productive processes promoted by the	**No change:** Percentage of farms with land productivity (by ha) increased by at least 25 percent through the application of productive

Item	Original Results Framework (PAD)	1st Restructuring post-MTR Feb 2013[44]	Additional Financing Nov 2013	Restructuring July 2017	Final Version Measured at Closing, Nov 2020
			Project. Target: 25 percent of 30,000 farms = 7,500 farms **Reason:** Target was increased to reflect AF scale-up. Approach would include action towards increasing both the un-utilized area per farm, and yield per hectare.	Project. Target: 25 percent of 30,000 farms (Shown as "no change" in 2017 RP and target shown as 25 percent in subsequent ISRs). **Reason**: NA	processes promoted by the Project. Target: 25 percent of 30,000 farms
5.	The incidence of poverty (measured in UBN) reduced by 50 percent in the assisted small-scale farmer and indigenous communities.	**No Change**	**Revised** Incidence of poverty reduced by at least 50 percent in the assisted small-scale farmers and indigenous communities Target: 37.5 percent (based on average share of beneficiaries living below the poverty line = 75 percent) "Measured in UBN" was omitted.	**Revised:** Number of targeted families able to pass above the poverty line (with pc income above Gr. 446.798 per month in rural areas – expressed in Guaranies Oct 2016) Target: 10,000 farms See 2017 Restructuring Paper paras 22-23, and Indicator 2 Reason above. This indicator was split off from Indicator 2 above at time of AF.	**No change:** # targeted families able to pass above the poverty line (with percent income above Gr. 446.798 per month in rural areas – expressed in Guaranies Oct 2016). Target: 10,000 farms
6.	65 percent of beneficiary households with access to at least one additional basic service aimed at home improvements	**No Change**	**DROPPED** **Reason:** Already an Indicator under Component 3	---	---
7.	20 percent of indigenous communities without formal land titles at project start acquire titles, and 50 percent of small-scale farmers without titles receive assistance towards acquiring titles.	**No Change**	**DROPPED** **Reason:** Beyond the control of the Project	---	---
8.	Environmental conditions (soil, water quality, vegetation cover) improved in at least 70 percent of the 84 target micro-catchments and 73 indigenous communities.	**DROPPED** **Reason:** No reason provided in 2013 Restructuring Paper but probably associated with project no longer working with micro-catchments.	---	---	---
9.	Greater awareness among 50 percent of Project beneficiaries of	**No Change**	**DROPPED**	---	---

Item	Original Results Framework (PAD)	1st Restructuring post-MTR Feb 2013[44]	Additional Financing Nov 2013	Restructuring July 2017	Final Version Measured at Closing, Nov 2020
	land degradation and the potential contribution of sustainable natural resources and land management to improved livelihoods in the P area.		**Reason:** Judged as irrelevant		
10.	Greater awareness among 70 percent of project beneficiaries of the importance of good animal health management and husbandry.	**DROPPED:** This PAD PDO Indicator is not mentioned in the 2013 Restructuring Paper, the AF PP, or any subsequent RPs (or ISRs). It is assumed dropped early on.	---	---	---
11.	---	---	**NEW** Number of direct project beneficiaries Target: 256,000 Of which Women: 40 percent **Reason:** Core PDO Indicator added **NOTE:** The Project Paper for the Additional Financing (2013) added a new Core PDO Indicator for direct beneficiaries, without stating a target. ISR #15 of May 2014 (immediately after AF) shows end-target of 256,000.	**Revised** Target reduced to 225,000 No. of direct project beneficiaries (225,000) - percent of female direct beneficiaries (40 percent) **Reason:** Reduction in the # of beneficiaries from 256,000 to 225,000 (-12 percent), was to compensate for initial over-estimation. The June 2017 poverty measurement showed that poverty was at best stagnant during the preceding growth years, demonstrated the challenges of reducing poverty. The target reduction was compensated by non-monetary project benefits, as captured by 4 new Intermediate Indicators.	**No change:** No. of direct project beneficiaries (225,000) -percentage of female direct beneficiaries (40 percent) **NOTE:** ISR #26 shows target was reduced to 213,900 (from 225,000). **Reason:** ISR #27 (Feb 2020) notes: "The estimates of the number of individuals benefited by the project is based on a more accurate calculation. The previous estimate (225,000) was based on the average number of individuals per family, while this target is based on the actual number of family members". However, as this is a Core PDO Indicator, and the archive lacks evidence that this change was formalized, the 2017 target of 225,000 is used by the ICR for final measurement.
13.	---	---	**NEW** Associative management capacity increased 80 percent in Community Development Groups,	**No change** Associative management capacity increased 80 percent in Community Development	**Revised:** Indicator was split in two for monitoring and measurement purposes in the January

Item	Original Results Framework (PAD)	1st Restructuring post-MTR Feb 2013[44]	Additional Financing Nov 2013	Restructuring July 2017	Final Version Measured at Closing, Nov 2020
			and 50 percent of Indigenous Community Groups with investment proposals oriented to Business Plans to access markets and inclusive value chains. Target: 80 percent CDGs, and 50 percent IDGs **Reason:** It was considered essential to measure new activity under the AF, access to markets and inclusive value chains through Business Plans and financial/marketing education.	Groups, and 50 percent of Indigenous Community Groups with investment proposals oriented to Business Plans to access markets and inclusive value chains	2020 ISR - Associative management capacity increased: Community Development Groups with business proposals oriented to Business Plans to access markets and inclusive value chains - Target 80 percent - Associative management capacity increased: Indigenous Groups with business proposals oriented to Business Plans to access markets and inclusive value chains – Target 50 percent

Intermediate Indicators - Evolution of the Results Framework with Explanation of Changes

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
Component 1: Community Organization Development and Capacity Building/OUTCOME - Greater community participation in the implementation of sustainable agriculture and rural development activities and increased local management capacity to support this implementation					
1.	295 technicians trained and operating in the project area, (including 120 PRODERS, 70 DEAG, and 100 technicians from municipal and departmental governments, and other relevant institutions)	**No change**	**Revised:** 345 technicians trained and operating in the project area (295 from Original Project and 50 from AF) **Reason:** Changed to reflect scaled-up activities. At the time of AF preparation, 130 technicians had been trained.	**No change** Number of technicians trained and operating in the project area Target: 345	**No change** Number of technicians trained and operating in the project area Target: 345
2.	Environmental education program implemented and reaching about 8,000 people including teachers, students and members of local organizations (e.g., municipal government sector offices, and medium- and large-scale farmers' organizations	**Target value changed** Target value reduced to 5,600 people (from 8,000) **Reason:** NA	**Revised** Environmental education program implemented and reaches about 24,000 (8,000 from Original Project and 16,000 from AF) **Reason:** Changed to reflect scaled-up activities. Also, the AF reverted to the PAD target of 8,000 to derive new 24,000 target.	**Revised** Number of people reached by Environmental Education Program. Target: 24,000 **Reason:** Minor rewording to simplify	**No change** Number of people reached by Environmental Education Program. Target: 24,000
3.	Beneficiaries directly trained by the project including 800 rural laborers and youth, as well as members from the 84 Micro-Catchment Development Committees and 39 Municipal Steering Committees	**Target values changed:** 61 Micro-Catchment Development Committees (from 84) 27 Municipal Steering Committees (from 39) **Dropped:** 800 rural laborers and youth **Reason:** NA	**DROPPED:** 61 Micro-Catchment Development Committees 27 Municipal Steering Committees **Reason:** (i) Micro-catchments were discontinued under AF. Selection of target areas came to be based on poverty mapping, not MC areas; and, (ii) Municipal activities were cancelled after the 2013 restructuring	---	---
4.	At least 600 Community Development Groups, 73 Indigenous Community Associations, 84 Micro-Catchment Development Committees, and 55 Municipal Steering Committees established and strengthened. In addition, establishment of the National Coordination Committee.	**Target values changed** 420 Community Development Groups (from 600) 45 Indigenous Community Organizations (from 73) **Added:** 17 Social Organization Technicians operating in project area over life of project to facilitate training and strengthening of local	**DROPPED:** -420 Community Development Groups -45 Indigenous Community Groups -National Coordination Committee established -Municipal Steering Committees **Reason:** (i) 1st 2 measured under Component 2; (ii) National	--	--

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
		organizations **Reason:** NA	Coordination Committee not established under OP; (iii) Municipal activities cancelled after 2013 restructuring (see #3 above)		
5.	Participation of Stakeholders (male and female farmers, rural youth, indigenous peoples, rural laborers) in meetings of project-supported groups (CDG, MDC, IA, and MSC)	**Revised** Word "Strong" added before "participation"	**DROPPED** Covered under other IR Indicators.	---	---
6.	---	---	---	**New:** Number of Indigenous Communities which gain access to water and/or electricity due to the Project Target: 60 **Reason:** Introduced in 2017 to capture the social or non-income benefits of the Project	**No change** Number of Indigenous Communities which gain access to water and/or electricity due to the Project Target: 60
7.	---	---	---	**New:** Number of Indigenous people to whom a formal identity card has been provided Target: 4,000 **Reason:** Introduced in 2017 to capture the social or non-income benefits of the Project	**No Change** Number of Indigenous people to whom a formal identity card has been provided Target: 4,000
8.	---	---	---	**New:** Number of Indigenous Communities that have received land titling support Target: 80 **Reason:** Introduced in 2017 to capture the social or non-income benefits of the Project	**No change** Number of Indigenous Communities that have received land titling support Target: 80
Component 2: Rural Extension and Adaptive Research/OUTCOME – Small-scale farmers and indigenous communities planning and implementing sustainable agriculture and rural development activities at the farm, community and micro-catchment levels, with technical support from rural extension and research institutions.					
9.	Elaboration and execution of: -84 Micro-Catchment Devt Plans; 12,600 Farm Investment Proposals, including investments in income generation, land titling, rural home improvements, food security, and improved land and NRM practices. -At least 60 Indigenous	**Target values changed and new sub-indicators added** -61 Micro-Catchment Devt Plans (from 84) -9,150 Farm Investment Proposals (from 12,600) -480 Community Investment Proposals (New)	**DROPPED:** -61 Micro-catchment Devt Plans **Reason:** AF moved to poverty mapping, away from micro-catchments -1200 other producers trained in sustainable production practices **Reason:** Redundant/unclear	--- **No change** Number of producers trained as promoters in sustainable	--- **No change** Number of producers trained as promoters in sustainable

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
	Community Development Plans, including investments in income generation, land titling, rural home improvements, food security, and improved land and natural resources management practices. -39 Municipal Investment Proposals developed and implemented with the communities to support the improved management of natural resources (e.g., improvement of existing rural roads, establishment of nurseries, construction of facilities for recycling pesticide containers).	-45 Indigenous Community Investment Plans (from 60) -Municipal Investment Plans (dropped – 39 to 0) **Added:** -600 producers trained as promoters in sustainable production -80 percent of beneficiary small-scale farmers trained in diversification and new technologies -1200 other producers trained in sustainable production practices -1800 Indigenous beneficiaries trained by extension agents (including -1650 Indigenous people, and 150 Indigenous promoters) -At least 80 percent of small-scale farmers and 80 percent of Indigenous communities assisted regularly by rural extension agents, by PY05 -87 rural extension agents working in the project area, including 84 at the micro-catchments, and 3 in Indigenous communities. **Reason:** NA **NOTE:** The June 2013 Restructuring dropped Sub-component 2 - Adaptive Research because related activities had not started, and it was judged that they could not produce the expected results by the planned Closing	-1800 Indigenous beneficiaries trained by extension agents (including 1650 Indigenous people, and 150 Indigenous promoters) **Reason:** Numbers can be disaggregated under indigenous, youth and women beneficiaries -At least 80 percent of small-scale farmers and 80 percent of Indigenous communities assisted regularly by rural extension agents, by PY05 **Reason:** Irrelevant for monitoring -87 rural extension agents working in the project area, including 84 at the micro-catchments, and 3 in Indigenous communities. **Reason:** Irrelevant for monitoring **Change target value:** -9150 Farm Investment Proposals changed to: 30,000 families/farms with Investment Proposals (9,150 from OP and 20,850 from AF) **Reason:** Changed to reflect scaled-up activities under AF -480 Community Investment Proposals changed to: 2,000 Community Investment Proposals financed and implemented (480 from OP and 1,520 from AF) **Reason:** Scaled up to reflect AF -45 Indigenous Community Development Plans changed to: 130 Indigenous Community Development Plans financed and implemented (45 from OP and 85 from AF) **Reason:** Scaled up to reflect AF	production and financial/commercial matters Target: 2,500 **No change** Percentage of beneficiary, small-scale farmers trained have adopted diversification and new sustainable technologies to increase production and productivity Target: 80 percent **No change** but Indicator moved to Component 3 below because it refers to investment. Same target. **Revised:** Indicator moved to Component 3 below because it refers to investment. Target reduced to 1200. **Revised:** Indicator moved to Component 3 below because it alludes to investment. Target increased to 180. **No change**	production and financial/commercial matters Target: 2,500 **No change** Percentage of beneficiary, small-scale farmers trained have adopted diversification and new sustainable technologies to increase production and productivity Target: 80 percent --- --- --- **No change** 2500 producers trained as promoters in sustainable

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
		Date if started at that point.	**Continued/Revised:** -600 producers trained as promoters in sustainable production adjusted to: 2500 producers trained as promoters in sustainable development and financial and commercial matters **Reason:** Incorporated the new skills for commercial orientation of producers -80 percent of beneficiary small-scale farmers trained have adopted diversification and new sustainable technologies to increase production and productivity **Reason:** Adds "have adopted" to denote use of training to take the next step.	2500 producers trained as promoters in sustainable development and financial and commercial matters **No change** 80 percent of beneficiary small-scale farmers trained have adopted diversification and new sustainable technologies to increase production and productivity	development and financial and commercial matters **No change** 80 percent of beneficiary small-scale farmers trained have adopted diversification and new sustainable technologies to increase production and productivity.
10.	3200 farms diversify commercial activities	**Dropped** Folded into other IR Indicators	---	---	---
11.	Producers organized for purposes of marketing in 30 percent of the targeted micro-catchments	**Dropped** Folded into other IR Indicators	---	---	---
12.	At least 13,500 small-scale farmers and 73 indigenous communities assisted by rural extension agents	**Dropped** Folded into other IR Indicators	---	---	---
13.	About 17,100 men and women beneficiaries directly trained by the Project including: 13,500 small-scale farmers; 1650 indigenous communities; 1200 medium-scale producers (with more than 20 ha); 600 community promoters; and, 150 indigenous community promoters.	**Dropped** Folded into other IR Indicators	---	---	---
14.	20 on-farm technology validation trials implemented	**Dropped** Reason: Agricultural research activities largely dropped	---	---	---
15.	9 market studies for new products (3 for new indigenous products)	**Dropped** Reason: Fled into other indicators	---	---	---

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
16.	16 feasibility studies for the development of new products	**Dropped** Reason: Relevance	---	---	---
17.	6 studies aimed at addressing specific issues raised by indigenous communities (2 on land tenure)	**Dropped** Reason: Relevance	---	---	---
18.	5 demand-driven studies aimed at addressing specific issues raised by micro-catchment and indigenous communities, including 3 studies to overcome technical, socio-economic and environmental problems, and 2 studies to generate awareness of environmental issues.	**Dropped** Reason: Relevance	---	---	---
19.	2 policy harmonization studies developed	**Dropped** Reason: Relevance	---	---	---
20.	Base studies and proposal for follow-up operation developed.	**Dropped** Reason: Relevance	---	---	---
Component 3: Sustainable Rural Development Fund/OUTCOME – Small-scale farmers and indigenous communities implement investments designed to achieve improved incomes, rural home improvements, food security, animal health and reduced environmental degradation.					
21.	Projects stemming from Farm Investment Proposals implemented to increase productivity and adopt sustainable productive systems in 12,600 farms; diversify production in 3,200 farms; improve living conditions in rural homes through water supply and sanitation in 65 percent of project homes; and, improve access to markets for 100 producer groups.	**Revised:** -# Farm Investment Plans reduced to 9,150 -12,000 ha under sustainable productive practices (from 12,600) -65 percent of beneficiary HH with subprojects to improve homes **Reason:** More realistically attainable targets (RP 2013) **Moved:** **-**Diversification of production -Market access for producer groups See Component 2, Item 9 above. These indicators folded into/included in other indicators.	**Revised:** Family farms with investment proposals Target: # Farm Investment Plans/Proposals increased from 9,150 to 30,000 **Reason:** Reflects AF scale-up (9,150 from Original Project and 20,850 from AF) **Dropped:** -Hectares under sustainable productive practices (12,000 ha) **Reason:** Already included under other indicators -Beneficiaries with rural home improvements (65 percent) **Reason:** Included under other indicators	**No change** Family farms with investment proposals Target: 30,000 family farms	**No change** Family farms with investment proposals Target: 30,000 family farms
22.	480 Community Investment Proposals implemented in water	**Revised** Target changed to 440	**Revised** Number of Community Investment	**Revised** Number of Community	**No change** Number of Community

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
	supply facilities, agro-processing and artisanal micro-enterprises, equipment for improved agriculture and land titling assistance.	Community Investment Proposals **Reason:** More realistic target	Proposals financed and implemented Target: 2,000 **Reason:** Aggregate of 480 (Original Project) and 1520 (Additional Financing)	Investment Proposals financed and implemented Target reduced: 1,200 **Reason**: More realistic estimate.	Investment Proposals financed and implemented Target reduced: 1,200
23.	At least 60 indigenous communities benefited through subprojects from Indigenous Community Development Plans in land titling (when required), improvement of rural homes, food security, improved production systems and sustainable land management practices, and income generation.	**Revised** Target reduced to 45 Indigenous Community Development Proposals, from 60. **Reason:** More realistic target	**Revised:** 130 Indigenous Community Development Plans financed and implemented (45 from Original Project and 85 under the AF) **Reason**: Target changed to reflect RF scale-up	**Revised** 180 Indigenous Community Development Plans financed and implemented Reason: Revised target of 180 based on progress	**No change** 180 Indigenous Community Development Plans financed and implemented
24.	39 municipalities receive support for the implementation of subprojects stemming from Municipal Investment Plans, in improvement of rural roads, establishment or improvement of nurseries (fruits and trees), and construction of recycling facilities for agro-chemicals.	**Dropped** **Reason:** Municipal activities canceled by this Restructuring	**---**	**---**	**---**
25.	Natural resources management practices improved in the 84 micro-catchments and 73 indigenous communities including 12,000 ha under sustainable land management practices, and 5,000 ha of forests recovered through re-forestation with native species or natural regeneration.	**No change**	**Revised** Indicator revised to "6,000 hectares under good forestry practices". Target increased from 5,000 in PAD to 6,000 ha by AF **Reason:** NRM in catchment areas was de-emphasized under the AF in favor of stronger emphasis on markets and social development. The 12,000 ha under sustainable practices was dropped because already included under other indicators	**No change** 6,000 hectares under good forestry practices.	**No change** 6,000 hectares under good forestry practices
26.	---	**---**	**Revised:** Number of families/farms with investment proposals Target increased: 30,000 Investment Proposals **Reason:** Original PAD target was	**No change** Number of families/farms with investment proposals Target: 30,000 Investment Proposals	**No change** Number of families/farms with investment proposals Target: 30,000 Investment Proposals

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
			9,150, increased to 30,000 to reflect scaled up activities under AF.		
27.	---	---	**Revised:** Number of Indigenous Community Development Plans financed and implemented Target: 130 **Reason:** Changed at the time to rationalize duplication of results in different indicators under the PAD RF; and to reflect the 85 Plans under the AF added to the original target of 45 Plans.	**Revised** Number of Indigenous Community Development Plans financed and implemented Target: 180 **Reason:** Target increased to 180 to reflect progress	**No change** Number of Indigenous Community Development Plans financed and implemented Target: 180
28.	---	---	**New:** Percentage of subprojects that complete disbursements and investment targets estimated in their management plan Target: 80 percent **Reason:** The Project needed to improve its disbursement execution to achieve AF outcomes on time	**No change** Percentage of subprojects that complete disbursements and investment targets estimated in their management plan Target: 80 percent	**No change** Percentage of subprojects that complete disbursements and investment targets estimated in their management plan Target: 80 percent
29.	---	---	**New:** Percentage of subprojects that achieve 80 percent of their intended results from their Investment Plan Target: 80 percent **Reason:** Subprojects needed to have specifically quantified SMART indicators	**No change** Percentage of subprojects that achieve 80 percent of their intended results from their Investment Plan Target: 80 percent	**No change** Percentage of subprojects that achieve 80 percent of their intended results from their Investment Plan Target: 80 percent
30.	---	---	**New:** Percentage of subprojects that are functional 2 years after their closing date Target: 75 percent **Reason:** Put in place to monitor sustainability	**No change** Percentage of subprojects that are functional 2 years after their closing date Target: 75 percent	**No change** Percentage of subprojects that are functional 2 years after their closing date Target: 75 percent
31.	---	---	---	**New:** Number of families with improved housing (toilets, ovens, roof etc.) Target: 8,000	**No change** Number of families with improved housing (toilets, ovens, roof etc.) Target: 8,000
Component 4: Animal Health Improvement/OUTCOME – Animal Tracking and Information System (SIGOR) improved and covering the whole range of livestock units, laboratory					

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
facilities for high safety, biotery lab and beef chemical residues analysis functioning efficiently, and field operations of both SENACSA and the Vice-Ministry of Livestock Production established and functioning efficiently to ensure high national standards of animal health.					
32.	SIGOR system with improved coverage incorporating 4 new units reaching 76 local units; online information available for 100 percent of information load with an average registering delay of 2 to 4 days instead of current figures of 25 percent load and 1 month registering delay; information on livestock movements available within a week instead of current delay of about 1 month; livestock units registration covering 100 percent of cases compared to current figures of about 95 percent.	**No change**	**Revised** SIGOR (Geographic Information System for SENACSA and Regional Offices) local units connected Target: Yes/No **Reason:** SIGOR Indicator divided **NOTE:** The AF refers only to "SIGOR local units connected" and "SIGOR online coverage" to summarize this indicator, interpreted to mean its division into two indicators.	**No change** SIGOR (Geographic Information System for SENACSA and Regional Offices) local units connected Target: Yes/No	**No change** SIGOR (Geographic Information System for SENACSA and Regional Offices) local units connected Target: Yes/No
33.	---	**---**	**Revised:** SIGOR online coverage Target: Yes/No **Reason**: PAD SIGOR Indicator divided.	**No change** SIGOR online coverage Target: Yes/No	**No change** SIGOR online coverage Target: Yes/No
34.	New high safety laboratory providing high quality and safe pathogen agents sample processing and vaccines analysis.	**No change**	**DROPPED** **Reason**: NA	**---**	**---**
35.	Biotery laboratory producing high quality and adequate quantities of biological inputs for the high safety laboratory and other demanding laboratories	**No change**	**Revised:** Biotery Lab improved/rehabilitated Target: Yes/No	**No change** Biotery Lab improved/rehabilitated Yes/No	**No change** Biotery Lab improved/rehabilitated Yes/No
36.	Chemical residues analysis laboratory using 100 percent of its potential instead of current performance of 10 percent of potential	**No change**	**No change**	**DROPPED** Reason: NA This indicator was retained by the AF but is not shown in the 2017 Restructuring Paper and did not continue to be monitored in ISRs.	**---**
37.	Improvement of animal health control practices on 22 internal movements control posts and 6 border livestock entries control posts; cool chain involving management of vaccines	**No change** This Indicator was retained under the 2013 Restructuring.	**DROPPED** The AF Project Paper appears to have dropped this Indicator, and it was not monitored subsequently in ISRs.	**---**	**---**

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
	functioning adequately throughout the whole country; a complete vaccination coverage of small-scale farmers with livestock units within the 84 micro-catchments; and adequate training program for SENACSA staff extended to the whole country.				
38.	Provision of high- quality genetic material of cattle, sheep, milk cows and goats to small livestock units in the 84 micro-catchments	**DROPPED** **Reason: NA**	**----**	**---**	**---**
39.	Small-scale farmers and indigenous communities of the 84 micro-catchments trained in animal health management, genetics, artificial insemination, and livestock and pasture management.	**NOTE:** Not mentioned in 2013 Restructuring Paper	**DROPPED** As the AF shifted away from a micro-catchment approach to poverty zones/mapping, it is assumed this was dropped (but not mentioned in PP).	**---**	**---**
40.	Improvement of high- quality pasture availability in the 84 micro-catchments through provision of improved pasture seeds to sow 0.25 ha in each livestock unit	**NOTE:** Not mentioned in 2013 Restructuring Paper	**DROPPED** As the AF shifted away from a micro-catchment approach to poverty zones/mapping, it is assumed this was dropped (but not mentioned in PP).	**---**	**---**
41.	Promotion of alternative enterprises such as poultry, pig and honey production among small-scale farmers as a way to diversify risks.	**NOTE:** Not mentioned in 2013 Restructuring Paper and presumed dropped	**NOTE:** Not mentioned in AF PP	**---**	**---**
Component 5: Project Management, Monitoring and Evaluation/OUTCOME – Project management structure established, functioning and able to effectively execute project activities and integrate them with the activities of other sustainable rural development programs.					
42.	Project Management Unit established in MAG and facilitating effective project implementation by FY01	**No change** Indicator retained by the 2013 Restructuring but not monitored in ISRs.	**NOTE** Not mentioned in AF Project Paper/ not monitored in ISRs	**---**	**---**
43.	Effective collaboration and coordination undertaken through MAG in a systematic manner with other projects and initiatives, including the GEF/WB-proposed Paraguay Biodiversity, the WB's Indigenous Land Regularization Project, KfW's Natural Resource	**DROPPED** Indicator not mentioned in 2013 RP and not monitored in ISRs	**NOTE** Not mentioned in AF PP/or monitored in ISRs	**---**	**---**

No.	Original Results Framework (PAD)	1st Restructuring post-MTR June 2013	Additional Financing Nov 2013	4th Restructuring July 2017	Final Version measured at Closing Nov 2020
	Management, FIDA's Paraguay Rural, and IDB's Modernization of Agricultural Public Management				
44.	Annual Operating, Procurement, and Disbursement Plans prepared and submitted throughout the life of the Project.	**DROPPED** Not mentioned in 2013 RP	**NOTE** Not mentioned	---	---
45.	Management Information System designed and operating from PY01	**No change**	**NOTE** Not mentioned	---	---
46.	Geographic Information System operational and providing technical information and mapping for project implementation from early PY01	**No change**	**NOTE** Not mentioned	---	---
47.	System to monitor project activities, results and impacts fully operational in PY02 and participation of local stakeholders and local project staff	**Revised** Based on 2013 Restructuring RP, this Indicator is presumed to include: "M&E system established" and "Baseline studies undertaken".	**NOTE** Not mentioned	---	---
48.	Project implementation and M7E reports prepared and submitted to the World Bank, MAG and to the project management throughout the life of the Project	**DROPPED** Not mentioned in 2013 RP	**NOTE** Not mentioned	---	---
49.	Project communication and dissemination strategy elaborated in PY01 and implemented, including: one communication and dissemination strategy designed and implemented; 3 launch workshops; 10 informational workshops at departmental level; two national promotional campaigns; 15 department and local level campaigns; and, 5 animal health campaigns at department level.	**No change**	**NOTE** Not mentioned	---	---

A7.3-Summary of Findings from IICA (2020) Report

This report provides a comprehensive analysis of the Project including the context at concept stage, the definition of its objectives and implementation strategy, the challenges faced, and changes processed during the life of the Project, a rigorous analysis of its results and impacts, as well as the performance of the implementers, and reflections on the sustainability of the results achieved and the main lessons learned throughout the process.

Chapter 1: Context and Description of the Project presents the main challenges facing the Paraguayan agricultural and rural sector at project design, which focused on the magnitude of rural poverty, environmental deterioration and reduced agricultural productivity of small-scale family farms. The formulation of PRODERS, completed in 2007, sought to establish strategies and support instruments to transform these areas, promoting a sustainable improvement in the quality of life of the peasant and indigenous communities. The main objective of PRODERS was *to "sustainably improve the socio-economic status of small producers and indigenous communities in the Project area, through the support of actions, in order to strengthen their community organization, self-management, and access to markets and value chains".* To achieve this objective, the Project was structured into 5 components: 1. Community Organization Training and Development; 2. Rural Extension; 3. Sustainable Rural Development Fund (SDF); 4. Improvement in Animal Health; and, 5. Project Management, Monitoring and Evaluation. The chapter describes the implementation strategy through these five components and the adjustments that were processed to achieve the defined goal.

Chapter 2: PRODERS, discusses the results and uses the lens of Relevance, Efficiency, and Efficacy criteria for evaluating. The PRODERS, from its inception to the closure, remained relevant to the country's development objectives, aligned with national, sectoral policies and the World Bank's Partnership Strategy with the country. The fostering or competitiveness of Family Agriculture and Indigenous Communities, through key investments, technical assistance and new technologies for crop, soil and water management, as well as livestock production, positioned it as a key part of the National Government's strategy to reduce poverty and achieve the country's social development.

The analysis of the Efficacy of the Project, is measured in terms of the fulfillment of its objectives and the extent to which the achievements are attributable to the activities or actions supported by the operation, make it possible to affirm with reasonable confidence that the PRODERS achieved its objectives and that the measured results are attributable to the actions implemented by the Project.

Measuring the six (6) main indicators shows that, the Project, through its intervention strategies (Peasant, Indigenous and Family by Family Strategies) led to an income increase of at least 30 percent for 28,172 beneficiaries in a universe of 53,768 (52.3 percent), exceeding the defined target of 10,000 beneficiaries. This increase in productive income explains the achievements in combating poverty measured by indicator 2, where 28,180 beneficiaries, 52.4 percent of the universe, were above the poverty line at the close of the Project, far exceeding the target set at 10,000 beneficiaries. The two results mentioned are linked to the increase in land productivity in beneficiary farms, where 32.2 percent of the farms increased their productivity by at least 25 percent, also exceeding the expected target of 25 percent of the farms. Average farm productivity grew AMONGST beneficiaries of all intervention strategies, where maize productivity Increases boosted the increased productivity of peasant farms, and cassava productivity boosted increased productivity in indigenous communities and FxF farms.

On the other hand, the remaining three development indicators defined for the Project show that 249,662

direct beneficiaries were reached compared to 225,000 planned and the participation of women beneficiaries far exceeded 40 percent set as a target, with 52.7 percent of total beneficiaries being women. The defined targets for increases in the associative capacity of beneficiary organizations were also met, however these needed further clarification and discussion which are provided in the document.

The evaluation of efficiency evaluates the use of the resources invested in the implementation of PRODERS, through the financial evaluation of the Project. The net present value (NPV) of all investment plans as a whole for 10, 15 and 20 years (with discount rate of 12 percent) is positive, with an internal return rate (IRR) of 25.7 percent, 31.5 percent and 32.5 percent respectively. The benefit-to-cost ratio (B/C) of the project for the 10-year horizon is 1.21. This means that the amount invested in the Project in 10 years, will produce 1.21 times the cost of the investment. The same ratio for 15 and 20 years is 1.39 and 1.46 respectively.

There are other very positive results of the Project highlighted in this chapter such as Productive Diversification, Food Security, Diversification of Marketing Channels, with an emphasis on agricultural fairs, as well as the remarkable results obtained for vulnerable groups such as rural women and indigenous communities.

Chapter 3 addresses Project Management and its Performance including its costs, the challenges faced in relation to the Project's M&E, the strengths and weaknesses in the preparation and implementation of the Project, as well as the positive and negative factors that could impact the results achieved.

Chapter 4, 5 and 6 delves into the implementation of the World Bank's Social and Environmental Safeguards and their impact on outcomes; the challenges they face in ensuring the sustainability of the results achieved and reflecting the main lessons learned from PRODERS.

In conclusion, based on the evidence of this report the Project has had positive results, analyzed from the perspective of its objectives and indicators, as well as about the efficient use of resources. It is confirmed that there are transformative experiences of the socioeconomic and productive fabric, which could be replicated and other practices that have room for improvement.

PRODERS has been characterized with objectives that are not only economic and productive, but also social and cultural. It has acted in an integral way to improve the living conditions of the rural population and its roots. The Project leaves greater installed capacity and resilience in beneficiary organizations and sets the way for future interventions.

A7.4-Key tables utilized in discussion in the Efficacy section from the IICA report

Indicator 1

Table 1.1- Number of farms that had a greater than 30 percent increase in income

		Número de Fincas de la muestra			Número de Fincas beneficiarias PRODERS	
		Total 1/	Number in sample with an income increase of at least 30 percent *(2020 prices)*	percent del total de talleres 2/	Total	cuyo Ingreso incrementa al menos 30 percent (a precios 2020)
Peasant Communities	**PIF**	69	29	42 percent	10.226	4.298
	PIC	66	34	52 percent	31.097	16.020
Indigenous communities	**PICI**	50	37	74 percent	7.876	5.828
Community Plans		**185**	**100**	**54 percent**	**49.199**	**26.146**
Individual	**FxF**	460	204	44 percent	4.569	2.026
TOTAL PRODERS		**645**	**304**	**47 percent**	**53.768**	**28.172**
						52,4 percent

Table 1.2- Income change of the sample of beneficiary sample by strategy type

	Ingresos promedio anual por Finca			
	Income Before (PYG)	Income adjusted by CPI (PYG)	Income in 2020 (PYG)	Change income "Before" -2020
PIF	9,675,043	12,627,896	17,015,804	34,7
PIC	13,432,307	15,274,530	18,466,598	20,9
PICI	4,939,968	5,611,511	11,612,754	106,9
FxF (*)	16,624,366	18,308,247	21,362,189	16,7
TOTAL (weighted average)				**35,8**

Indicator 2

Table 2.1-Farms above poverty Line by strategy type

		Number of households in sample					
		Sample			PRODERS beneficiaries		
		Total sample	Above the poverty line	percent	Total	Above the poverty line	percent
Peasant Communities	**PIF**	344	216	**62,8 percent**	10226	6.421	

	PIC	331	196	**59,2 percent**	31097	18.414	
Indigenous communities	**PIC I**	250	63	**25,2 percent**	7876	1.985	
TOTAL, Plans		**925**	**475**		**49199**	**26.820**	**54,5 percent**
Individual	**F x F**	460	137	**29,8 percent**	4569	1.361	
TOTAL PRODERS		**1.385**	**612**		**53.768**	**28.180**	**52,4 percent**

Table 2.2-*Before* and after comparison of beneficiaries on poverty line

	Number of households in sample above the poverty line					**Proportion of (in percent)**		**Variation in the poverty rate (percent)**
	Total sample	**No of farms**		**percent of the sample**		**100- (percent of farms above the sample**		
		Before	**After (2020)**	**Before (percent)**	**After (percent)**	**Before (percent)**	**After (percent)**	**"After" - "Before"**
PIF	344	203	216	59,0	62,8	41,0	37,2	-3,8
PIC	331	185	196	55,9	59,2	44,1	40,8	-3,3
PICI	250	45	63	18,0	25,2	82,0	74,8	-7,2
PI (*)	**925**	**433**	**475**	**46,8**	**51,4**	**49,5**	**45,5**	**-4,0**
F x F	460	87	137	18,9	29,8	81,1	70,2	-10,9
TOTAL PRODERS (*)	**1.385**	**520**	**612**	**37,5**	**44,2**	**52,2**	**47,6**	**-4,6**

Indicator 3

Table 3.1-Farms that achieved productivity greater than 25 percent

	No of farms			**(percent)**	**Total farms benefitting from PRODERS**	**No of farm beneficiaries**
	Total in sample	**With Maize and/or Cassava**	**Increase in Productivity >= 25 percent**	**With increase in productivity >= 25 percent**		**With an increase in income >= 25 percent**
PIF	69	62	28	45,2 percent	10.226	4.618
Maíze		49	26	53,1 percent		
Cassava		56	16	28,6 percent		
PIC	66	54	18	33,3 percent	31.097	10.366
Maíze		45	14	31,1 percent		
Cassava		45	13	28,9 percent		
PICI	50	48	7	14,6 percent	7.876	1.149

	Maíze		44	3	6,8 percent		
	Cassava		48	7	14,6 percent		
Total Investment Plans.		185	164	53		49.199	16.132	32,8 percent
	Maíze		138	43			
	Cassava		149	36			
FxF		460	399	103	25,8 percent	4.569	1.179
	Maíze		358	81	22,6 percent		
	Cassava		326	95	29,1 percent		
Total PRODERS		645	563	156		53.768	17.312	32,2 percent

Table 3.2Variation in area cultivated, production and yield per hectare in maize and cassava

		Area cultivated -ha		Production- Tonne.		Yield Ton/ha		Variation "before"/2020		
		Before	2020	Before	2020	Before	2020	Area	Production-	Yield
PIF	Maíze	45	49	80	108	1,8	2,2	8,8	34,7	23,8
	Cassava	51	57	861	919	16,8	16,2	10,7	6,7	-3,6
PIC	Maíze	47	59	92	127	2,0	2,2	25,1	37,7	10,0
	Cassava	50	58	875	983	17,7	17,1	16,2	12,4	-3,3
PICI	Maíze	21	33	60	96	2,8	2,9	55,3	59,9	3,0
	Cassava	23	38	480	825	20,6	21,6	64,5	71,9	4,5
FxF	Maíze	325	362	560	625	1,7	1,7	11,5	11,5	0,1
	Cassava	306	285	4.225	4.063	13,8	14,3	-6,9	-3,8	3,3

Indicator 4

Table 4.1-Drect Beneficiaries

Plan	Beneficiaries with farm titles	Medición actual			Medición previa		
		Average number of members per household (workshops)	Total direct beneficiaries	percent	Average number of members per household (MAG)	Total direct beneficiaries	percent
PIF	10.226	4,25	43.461	17,4	4,0	40.904	16,9
PIC	31.097	4,49	139.626	55,9	4,0	124.388	51,5
PICI	7.876	5,10	40.168	16,1	6,0	47.256	19,6
FxF	4.569	5,78	26.409	10,6	6,3	28.785	11,9
Total	**53.768**		**249.662**	**100**		**241.333**	**100**

Table 5.1- Female Beneficiaries

Strategy/Plan	Number of community Plans	Number of beneficiaries of sub-project	Women Beneficiaries of sub-Projects	
			Number	percent
PIF	472	10.226	4.351	42,5
PIC	712	31.097	16.292	52,4
PICI	180	7.876	3.969	50,4
F X F	-	4.569	3.735	81,7
Total	**1.364**	**53.768**	**28.347**	**52,7**

Indicator 6

Table 6.1

	Sample from workshops			PRODERS Beneficiaries	
	Total community organizations and indigenous organizations evaluated in workshop	Community organizations and indigenous organizations that completed the criteria	Proportion	Total community organizations and indigenous organizations (PIC y PICI)	Total Community organizations and indigenous organizations that completed the criteria
	a	b	c = b/a	D	e = d*c
PIC	66	56	84,8 percent	711	603
PICI	50	31	62,0 percent	180	112
Total	**116**	**87**		**891**	**715**

Table 6.2-Categoriztion according to formalization-Criteria explained in text

PLANS	Incipient		Development		Consolidated		TOTAL
	No	*percentage*	No	*percentage*	No	*percentage*	
PIF	**23**	*33,3 percent*	**32**	*46,4 percent*	**14**	*20,3 percent*	**69**
PIC	**4**	*6,1 percent*	**49**	*74,2 percent*	**13**	*19,7 percent*	**66**
PICI	**27**	*54,0 percent*	**23**	*46,0 percent*	**0**	*0,0 percent*	**50**
	54	*29,2 percent*	**104**	*56,2 percent*	**27**	*14,6 percent*	**185**

Indicator 13 and 14

Table 13.1-Percentage of beneficiaries who were trained who adopted diversification practices and new sustainable technologies to increase production

Strategy	Sample from workshops			PRODERS Beneficiaries		
	Total farms evaluate din workshops	Model farms that were trained and have adopted the practices	percent	Total beneficiaries PIF, PIC y PICI	Total that were trained and have adopted the practices	Proporti on
	A	B	c = b/a	d	e = d*c	f = e/d

PIF	69	60	87,0 percent	10.226	8.892	
PIC	66	54	81,8 percent	31.097	25.443	
PICI	50	39	78,0 percent	7.876	6.143	
Total	**185**	**153**		**49.199**	**40.478**	**82,3 percent**

Table 13.2- Hectares under which specific practices were adopted

Practices Applied		**Total *(Org.+Cis)***			**Organizations *(Org.)***			**Indigenous Communities *(CIs)***		
		Ha	**Org/CIs**	**Families**	**Ha**	**Org**	**Families**	**Ha**	**Cts**	**Families**
Soil Improvement	Green Manure	9.829	695	24.958	9.155	619	22.030	674	76	2.928
	Soil Liming	5.803	291	8.199	5.480	273	7.425	323	18	774
	Subsoiling	49	4	53	49	4	53	-	-	-
Forestry Practices	Agroforestry	383	33	1.304	379	32	1.252	4	1	52
	Reforestation	4.762	821	26.315	4.732	798	25.492	30	23	823
	Natural Regeneration	192	20	265	192	20	265	-	-	-
	Forest Enrichment	87	19	282	87	19	282	-	-	-
	Others	5	11	249	0,5	6	38	4,5	5	201
Traditional	Soil Conditioning	4.651	199	5.892	2.830	127	2.695	1.821	72	3.197

Indicator 17-Number of sub-projects that are functioning 2 years after the closing date based on the workshop data

Planes	**Sample from workshops**				**PRODERS Beneficiaries**		
	Total farms evaluated in workshops	**Total sub-projects evaluated that have closing date before 2017**	**Sub-projects that are still functioning two years after closing date (only those that ended before 2017)**	**percent**	**Total Sub-Projects**	**Total Sub-projects that are still functioning two years after closing date**	**Proportion**
	A	**b**	**C**	**d =c/b**	**E**	**f = e*d**	**g = f/e**
PIF	69	60	51	85,0 percent	472	401	
PIC	66	20	18	90,0 percent	712	641	
PICI	50	12	0	0,0 percent	180	0	
Total	**185**	**92**	**69**		**1.364**	**1.042**	**76,4 percent**

A7.5-Summary of findings from review conducted by FAO in 2016

The Republic of Paraguay signed Loan Agreement 7503 with the International Bank for Reconstruction and Development for the financing of the Paraguay Sustainable Rural Development Project on June 24, 2008, which was approved by National Law No. 3734 in June of 2009. The objectives of the Project are:

i. Strengthen the capacity of the organizations involved for their active participation in decision-making bodies, as well as the technical and administrative capacity of those responsible for implementing the Project.

ii. Provide the project beneficiaries with capacities, knowledge, skills and attitudes necessary to improve their production and marketing systems in a sustainable and environmentally compatible manner;

iii. Provide financial resources to the beneficiaries to implement social, economic / productive, and environmental investments in farms and peasant and indigenous communities.

In mid-2013, a restructuring of the project was carried out based on the evidence found in the Mid-Term Review carried out in February of the same year. A series of modifications were proposed to simplify project design and implementation to accelerate investments. Although many of the necessary adjustments were addressed through improvements in the Operations Manual, a modification was made to the results framework and the project components.

Subsequently, at the end of 2013, the provision of an Additional Financing (AF) for US$100 million was approved for the project, also called Phase 2 (Loan 8316), to cover costs associated with the expansion of activities. The justification for the expansion is that the new government that was entering declared the reduction of poverty as one of its priority objectives. Considering that more than two thirds of the rural population live in poverty and is dedicated to agriculture, as well as the “menu” of intervention activities in the territory offered by PRODERS, it was requested to increase the scale of the project in terms of budget and territorial coverage. In addition, adjustments were made both at the Development Objective (PDO) level and at the Component level.

The World Bank requested FAO, through the FAO / CP, to carry out an evaluation of PRODERS Loan 7503, which includes the period between June 2009 and December 2015

The Project is in line with what is proposed in the National Development Plan of Paraguay 2030, specifically with the strategies "Poverty reduction and social development", "Inclusive economic growth", as well as with the Agrarian Strategic Framework from period 2014-2018 and its six axes. Likewise, the project contributed to the third and fourth pillars of the EAP, as it has focused on the Departments of San Pedro and Caaguazú, which are two of the poorest in the country.

Regarding the Effectiveness Subdimension, the result indicators and intermediate indicators that were defined in the restructuring of the project were evaluated. In this regard, the Project Executing Unit does not have information to determine compliance with the goals of the project's results indicators. Although efforts have been made to measure these indicators, the technical requirement, and the lack of information (due to a weak monitoring and evaluation system, lack of digitization and systematization of existing information, as well as the need to collect new primary information in field) has made it difficult

to monitor and control these results. From the evaluation of the intermediate indicators and the results obtained from the samples selected to analyze the Efficiency Subdimension, it can be said that there is evidence that some goals of the project's results indicators have been achieved. However, it is necessary to carry out a structural evaluation regarding their effective achievement, which would allow for conclusion on whether the goals were achieved or not. This includes, among other elements, systematizing existing information (surveys and censuses), as well as collecting primary information to characterize the project situation of the beneficiaries through the application of surveys specially designed for this purpose on a sample that is statistically significant.

The evaluation of the Efficiency Subdimension is based on the economic and financial analysis of the investment sub-projects, based on the gathering of primary information from a sample of sub-projects with a margin of error of 1.5 percent and a reliability of 90 percent. In financial terms, fifteen of the seventeen investment sub-projects that make up the sample were viable (NPV> 0). The two investment sub-projects that were financially unviable were from the Indigenous Communities Investment Plans (PICI). These results reflect the different investment approach of the PICIs compared to the PIFs and PICs. The PICIs had a higher proportion of social investments not aimed at generating income compared to the PIF and PICs. It was also found that the PICI subprojects that were financially viable are highly sensitive to changes in cost and income determinants. PIFs, on the other hand, are not as sensitive to increases in costs and income, and on average they can resist changes of around 20 percent.

The economic analysis of the entire project shows a NPV of US$1.16 million, which indicates that PRODERS was an economically advantageous public investment for Paraguayan society. However, the sensitivity analysis indicates that an increase of more than 1 percent in costs or a decrease of 1 percent in income would make the sum of updated flows of incremental net benefits at social prices negative.

It should be noted that the economic evaluation was carried out on the productive component and does not incorporate the benefits associated with social and environmental investments, therefore the effective impact received by the beneficiaries is being underestimated. Among others, benefits have been generated due to improvements in health, nutrition, and life expectancy due to the increase in the availability of food, improvements in access to drinking water, as well as a decrease in morbidity and costs for treating diseases that are contagious through consumption of contaminated water. Likewise, there are benefits for improving the conditions of their homes, which also have an impact on the health and well-being of families. Other economic benefits that the beneficiaries receive are the improvement of soils, reduction of erosion and capture of CO2 from the environment. With this, it can be considered that this estimate corresponds to the lower limit of the economic benefits achieved by the project.

The report also analyses risk to accomplishment of the PDO. It is considered that, in the case of the results of indigenous communities, the process of creating social capital is in an initial phase that the project has collaborated in gestating and developing. It is necessary to continue supporting the process of social, environmental, and productive cohesion of the communities, in order for them to have the capacities to self-manage in a collaborative way, in such a way as to ensure that the results are maintained over time. In the case of small producers, although they have a better condition of social and socio-productive capital so the support they need: technical assistance, transfer of capacities and organizational strengthening, considering an approach to improve the conditions of commercialization, access to markets, value chains, etc. An important element for obtaining and maintaining the results of the project, both for small

producers and for indigenous communities, is road connectivity, since it significantly determines the viability of physically having services, inputs and taking products to the marketing points.

In the analysis of the World Bank's Performance Dimension, in its Input Quality Subdimension, it is considered that a project was designed that recognizes the critical relationship that exists in the rural world with respect to the poverty status of a significant proportion of its population. inhabitants, who have unsatisfied basic needs and low productive and social capital, with the opportunities offered by the development of sustainable agriculture as the basis of their living conditions. The project was not without challenges for its implementation from a technical and institutional point of view, due to the wide range of activities to be carried out in the territories. The main finding about the quality of the entry was the overestimation of the goals, as well as the wide dispersion of activities to be implemented in the territories.

Regarding the Supervision Subdimension, it can be indicated that from the beginning of the project execution year 2009 until December 2015, fourteen missions were developed to support the implementation.[45]. The missions were made up of a professional team with expertise in various areas and duly reported, and included working meetings with the PRODERS team to assess progress and challenges, as well as meetings with relevant stakeholders for project management and field visits. The project had two Project Managers from the World Bank (TTL) from 2009 to 2015. Two deficiencies in supervision are recognized: the completion of the Mid-Term Review in February 2013, just 10 months from the date of project closure (December 28, 2013), which concludes that the project performance is unsatisfactory, and the weak monitoring and evaluation system, and general project management. Although the monitoring and follow-up system was reviewed in all missions, its weaknesses, and the actions required to correct the situation were defined, it could not be overcome. This partly explains the low monitoring and the lack of information to evaluate some intermediate indicators and project results indicators analyzed in the Effectiveness Subdimension.

In the analysis of the Borrower Performance Dimension, it is considered that the Government has supported the project from the beginning, because it has been consistent with the national and sectoral development strategy. The project has been positioned as a good tool to contribute to the development of the territories where it is implemented. It is considered of first importance within the strategy of the National Government to reduce poverty and achieve the social development of the country. The positive positioning of the project is mainly due to i) its broad territorial presence in the departments with the highest poverty rates in the country, to ii) implementation of social and productive investments that are consistent with two of the pillars of the unsatisfied basic needs approach, aimed at overcoming poverty, since iii) explicitly considers the indigenous component within its implementation strategy. However, the high turnover of the General Project Coordinator, with five people in charge during the implementation period in the analysis period (June 2009 to December 2015), has meant a decrease in the efficiency of the project and its capacity to manage its management, due to the “cost” of learning for new people who arrive and some changes in implementation criteria, which hinder the continuity and fluidity of the execution of activities

[45]It should be noted that as of 2014, Loan 8316 came into operation, so since that year the objective of the missions was to supervise both loans. In sum, seven missions were carried out between 2009-2013 (supervision of Loan 7503), and seven missions between 2014-2015 (supervision of Loan 7503 and Loan 8316).

Regarding the Performance Subdimension of the Implementing Agency, it is considered that it was designed to have all the human resources and capacities to respond to the technical, administrative, fiduciary requirements and to the project schedule. However, two important gaps are identified. The first is the high turnover of project personnel, which permanently faced repeated changes in strategic personnel of key middle managers in the implementation. This situation may be a factor that has weighed on the efficiency of the project due to the time in which the positions are left without responsibility and the cost of learning for new people who arrive. The second gap is linked to a deficiency in the implementation of the monitoring and evaluation system. This situation makes difficult the monitoring, evaluation and planning of its physical and financial management, as well as the systematic measurement of the indicators of the Results Framework and other project achievements. Both elements have threatened the proper execution of the project, which is shown in that, to date, the implementing agency has not carried out an effective monitoring or evaluation of the Project's Results Indicators. Having a good monitoring and evaluation system is highly relevant for a project that is not only complex in its implementation given the wide variety of activities that it must develop, but also because, for at least two years, Loans 7503 and 8316 were present operating and making disbursements simultaneously,

Among the lessons learned from the project is that the demand-oriented decentralized implementation approach of the project, through the social organizations of rural territories themselves, which are in charge of defining their own needs with a view to investments in farms and in their organizations, is a positive aspect of the project development strategy, since it improves the sustainability of the results and promotes the creation and strengthening of the communities' social capital. However, organizational strengthening and a strong monitoring and evaluation system are essential elements for the implementation of a project in a decentralized manner.

Likewise, a demand-oriented production development project, with good technical assistance and organizational strengthening, provides families with the means to expand agricultural production, link them to markets, and have social services, and thereby contribute to overcoming poverty measured by income and / or by the unsatisfied basic needs approach. To quantify the impact generated in overcoming poverty, it is necessary that the projects consider the determination of baselines that characterize the beneficiaries in their situation without a project.

It is recommended that future projects give relevance to the insertion in markets and value chains on the part of indigenous communities and small producers. Likewise, it is necessary to give continuity to the development of technical capacities (to maintain increases in efficiency - productivity) and managerial (for the self-management of resources and the use of opportunities).

It is of prime importance to have a good basic technical background when designing a project like this, since without the proper information goals and activities can be overestimated in the project formulation phase. Likewise, it is worth highlighting the need to have a project implementation agency with full technical, administrative, and legal capacities, and with management systems (financial, monitoring and evaluation) that generates information that allows effective monitoring of the activities and indicators of the project. project, especially in a complex project like this (territorial scale of intervention, decentralized implementation approach, wide range of investments in the territories).