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Report No: ICR00006433

IMPLEMENTATION COMPLETION AND RESULTS REPORT

(IDA 51700/IBRD 87350)

ON A

CREDIT

IN THE AMOUNT OF SDR 32.9 MILLION

(US\$ 50 MILLION EQUIVALENT)

AND AN ADDITIONAL FINANCING LOAN

IN THE AMOUNT OF US\$ 100 MILLION

TO THE

PLURINATIONAL STATE OF BOLIVIA

FOR THE

RURAL ALLIANCES PROJECT II

June 28, 2024

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 31, 2023)

Currency Unit = Bolivianos (BOB)

6.9393 = US\$1.00

1 SDR = US\$1.33

FISCAL YEAR

July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
BCR	Borrower Completion Report
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
DETI	<i>Desarrollo Económico Territorial con Inclusión</i> (Inclusive Area-based Economic Development Project)
EMAPA	<i>Empresa de Apoyo a la Producción</i> (Production Support Company)
EMF	Environmental Management Framework
EMPODERAR	<i>Emprendimientos Productivos para el Desarrollo Rural Auto-gestionario</i>
FPS	<i>Fondo de Inversión Productiva y Social</i> (Productive and Social Investment Fund)
GHG	Greenhouse Gases
GRM	Grievance Response Mechanism
IDA	International Development Association
IE	Impact Evaluation
IEG	Independent Evaluation Group
IP	Indigenous People
IPP	Indigenous People's Plan
IRI	Intermediate Results Indicator
ISR	Implementation Status and Results Report
MDRyT	<i>Ministério de Desarrollo Rural y Tierras</i> (Ministry of Rural Development and Lands)
MEFP	<i>Ministério de Economía y Finanzas Públicas</i> (Ministry of Economy and Public Finance)
MGA	<i>Marco de Gestión Ambiental</i> (Environmental Management Plan)
M&E	Monitoring and Evaluation
MS	Municipal Subprojects
MTR	Mid-Term Review
NCU	National Coordination Unit of EMPODERAR
NDP	National Development Plan
OM	Operational Manual
PAD	Project Appraisal Document
PAR	Rural Alliances Projects (I and II)
PAR II	Rural Alliances Project II (<i>Proyecto Alianzas Rurales</i>)
PAR II-AF	Rural Alliances Project II – Additional Financing
PAR II-OP	Rural Alliances Project II – Original project
PICAR	Project for Community Investment in Rural Areas
PDO	Project Development Objectives
PO	Producer Organization
PSARDI	Integrated Development Plan for the Agro-Livestock and Rural Sector
ROU	Regional Operating Unit (of EMPODERAR)
RPF	Resettlement Policy Framework
SA	Social Assessment
SDR	Special Drawing Rights
SICOES	<i>Sistema de Contrataciones Estatales</i> (Public Procurement System)
SIGG	<i>Sistema de Información Gerencial Georeferenciada</i> (Geo-referenced Management Information System)

SPO	Small Producer Organization
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TOC	Theory of Change
TTL	Task Team Leadership
UDAPE	<i>Unidad de Análisis de Política Social y Económica</i> (Unit for the Analysis of Social and Economic Policy)
UOD	<i>Unidad de Operación Departamental</i> (Departmental Operating Unit)

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P127743	Rural Alliances Project II
Country	Financing Instrument
Bolivia	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
The Plurinational State of Bolivia	Ministry of Rural Development and Land - EMPODERAR (Emprendimientos Organizados para el Desarrollo R

Project Development Objective (PDO)

Original PDO

The objective of the Project is to improve accessibility to markets for small rural producers in the Selected Areas by: (a) promoting productive alliances between different small rural producer organizations and purchasers; (b) empowering rural producer through the establishment and strengthening of self-managed grass-root organizations; (c) increasing access to productive assets, technology and financial services; (d) promoting more effective, responsive and accountable service organizations at the local level; and (e) enhancing environmental sustainability of productive practices. The Project is a follow on operation to the successful PAR I, which tested the model for improving market access.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
IDA-51700	50,000,000	49,966,402	46,175,224
IBRD-87350	100,000,000	100,000,000	99,215,336
Total	150,000,000	149,966,402	145,390,560
Non-World Bank Financing			
Borrower/Recipient	0	27,166,000	20,274,580
Municipalities of Borrowing Country	1,040,000	3,434,000	10,813,109
Local Farmer Organizations	13,500,000	13,500,000	13,966,932
Total	14,540,000	44,100,000	45,054,621
Total Project Cost	164,540,000	194,066,402	190,445,181

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
23-Oct-2012	09-May-2013	04-May-2015	30-Nov-2017	31-Jul-2023

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
13-Apr-2017	41.69	Additional Financing
24-Aug-2017	43.18	Change in Loan Closing Date(s)
16-Jan-2018	46.12	Reallocation between Disbursement Categories
28-Mar-2018	46.12	Change in Loan Closing Date(s)
27-Sep-2021	109.96	Change in Loan Closing Date(s)
19-Nov-2022	143.52	Change in Loan Closing Date(s) Reallocation between Disbursement Categories

**KEY RATINGS**

Outcome	Bank Performance	M&E Quality
Highly Satisfactory	Satisfactory	High

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	10-Jan-2013	Satisfactory	Satisfactory	0
02	09-Sep-2013	Satisfactory	Satisfactory	0
03	15-Mar-2014	Satisfactory	Satisfactory	1.47
04	26-Oct-2014	Satisfactory	Satisfactory	4.86
05	26-Apr-2015	Satisfactory	Satisfactory	10.41
06	16-Sep-2015	Satisfactory	Satisfactory	17.64
07	19-Jan-2016	Satisfactory	Satisfactory	23.18
08	27-Jul-2016	Satisfactory	Satisfactory	29.45
09	06-Feb-2017	Satisfactory	Satisfactory	39.69
10	17-Jun-2017	Satisfactory	Satisfactory	41.69
11	29-Dec-2017	Satisfactory	Satisfactory	46.12
12	27-Jun-2018	Satisfactory	Satisfactory	51.12
13	13-Dec-2018	Satisfactory	Satisfactory	51.40
14	17-May-2019	Satisfactory	Satisfactory	53.44
15	18-Dec-2019	Satisfactory	Satisfactory	59.54
16	18-Jun-2020	Satisfactory	Satisfactory	68.19
17	21-Dec-2020	Moderately Satisfactory	Moderately Satisfactory	72.48
18	25-Jul-2021	Moderately Satisfactory	Moderately Satisfactory	97.47
19	08-Mar-2022	Satisfactory	Satisfactory	123.20
20	29-Aug-2022	Satisfactory	Satisfactory	134.59
21	06-Mar-2023	Satisfactory	Satisfactory	144.62



SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 59

Other Agriculture, Fishing and Forestry 59

Energy and Extractives 2

Other Energy and Extractives 2

Transportation 3

Rural and Inter-Urban Roads 3

Water, Sanitation and Waste Management 3

Other Water Supply, Sanitation and Waste Management 3

Industry, Trade and Services 33

Agricultural markets, commercialization and agri-business 33

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	6
Social Inclusion	6
Indigenous People and Ethnic Minorities	6
Human Development and Gender	4
Gender	4
Urban and Rural Development	83
Rural Development	83
Rural Markets	46
Rural Infrastructure and service delivery	37

ADM STAFF

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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Country Context

1. **When the Rural Alliances Project II (PAR II) was appraised in 2012, Bolivia had undergone profound changes under a new national government elected in 2005.** The Government's 2006 National Development Plan (NDP) positioned indigenous rights and development opportunities for the rural poor as fundamental elements of the Plan. The new Constitution of 2009 formalized and consolidated these principles, and under the Government's second term, the legal framework for its implementation was established.

2. **Several years of sound economic performance culminated in annual growth of 5.2 percent by 2011 but poverty remained pervasive.** Prudent policies and improved prices for exports of natural gas and minerals had facilitated rapid expansion of public sector investment and subsequently, private consumption. Nonetheless, two thirds of Bolivia's population, mostly indigenous rural smallholders, still lived in poverty. Despite government's intentions, rural poverty and wellbeing remained critical socio-economic problems especially in certain regions and among the extremely poor Aymara, Quechua, and smaller lowland indigenous groups. Poverty and extreme poverty in rural areas reached 66.4 percent and 45.5 percent respectively, compared to 43.6 percent and 16.1 percent in urban areas and tended to affect men and women equally.

Sector Context and Constraints

3. **Bolivia's total population at appraisal was 11.6 million, of which 33 percent were rural: About 28 percent of the total population were employed in agriculture, and among rural residents, 71 percent.** The rural sector comprised over 870,000 production units, most of which were classified as family farms using almost exclusively household labor and management and representing the main source of household income. Over 2.7 million ha were under agricultural use, 68 percent of all rural production units had less than 5 ha (and on average, 1.5 ha per unit), and 80 percent had less than three employees and low specialization. Most Bolivian farmers sold into domestic markets. Smallholder farmers' foothold in markets was precarious due to low productivity and high production costs. Factors contributing to low productivity included: unequal land distribution and extreme fragmentation of landholdings, restrictions on the sale and lease of farmland, limited access to credit, soil erosion and low application of more advanced technologies and practices. Weak producer organization aggravated these problems: their power to negotiate input and output prices was limited, and the cost of providing them with technical assistance (TA) and market intelligence was high.

4. **Severe structural deficits depressed agricultural productivity to among the lowest in Latin America and increased transaction costs of investing in rural areas.** This was despite the importance of agriculture for GDP (10 percent in 2012) and employment (76 percent of the rural population in 2012). Challenges included difficult topography, soil erosion affecting around 20 percent of the country, agro-climatic variability, and low levels of technology and capacity. Low productivity and low population density, in turn, complicated the provision of infrastructure such as roads, bridges and water, and the delivery of TA and production support. The willingness of the private sector – including financial institutions - to invest in rural areas was, and remains, depressed by high transaction costs and risk associated with legal and linguistic barriers affecting contractual relationships between urban, formal, and often non-indigenous buyers and rural, very small-scale, and often indigenous producers. High transaction costs also hindered access to markets, technology, and credit. Agricultural credit for smallholders was restricted. Working capital availability had improved, but investment credit was limited by small farmers' lack of legal guarantees, financial



education, business planning capacity, and integration in value chains.

5. National priorities and strategies: Government acknowledged that agricultural investment was of pivotal importance to rural poverty reduction, as reflected in national plans and programs. The Productive Bolivia pillar of the National Development Plan (NDP, 2006) sought agricultural transformation, improved market access, and better productive infrastructure, creating productive opportunities for poor rural smallholders; and the Sovereign Bolivia pillar sought self-sufficiency in food production. Government's 2007 Sector Plan for the Rural Agrarian and Forestry Revolution included achieving food security and sovereignty, increasing the contribution of agriculture and forestry to rural livelihoods, and promoting sustainable natural resource use. Two important programs supported this policy: Creation of Rural Food Initiatives to reduce the vulnerability of rural communities in extreme poverty, and Self-Managed Productive Initiatives for Rural Development (EMPODERAR), an entity tasked with stimulating the smallholder sector in poor municipalities to increase agricultural production and yields, and which became the lead coordination institution for PAR I and PAR II. The NDP's follow-on Government Program (2010-2015) recognized that the agricultural sector faced critical obstacles and proposed specific forms of intervention.

6. Higher level objectives and rationale for Bank support: The Project supported the Sustainable Productive Development results portion of the World Bank Group's Country Partnership Strategy 2012-2015 (Report No. 65108-BO) which was, in turn, aligned with the Productive Bolivia pillar of the National Development Plan (see above). The World Bank had partnered with GoB in its efforts to reduce rural poverty and create economic opportunity for rural households under the first Rural Alliance Project (PAR I, P083051). The Productive Alliance instrument, designed to drive increased rural production and market engagement, proved highly successful under PAR I, injecting confidence in its expansion under a second phase. Impact evaluation of PAR I showed the Project to be highly pro-poor and inclusive - increasing household income an average 63 percent and benefiting farmers in the poorest quintile the most. Over 90 percent of its direct beneficiaries identified as indigenous, and 32 percent of households represented in Small Producer Organizations (SPO) were female-led. The World Bank's Independent Evaluation Group (IEG) confirmed these findings in its 2018 Project Performance Assessment Report.¹ PAR I served an urgent need, was efficiently implemented based on competitive and non-discretionary allocations and introduced operational innovations which influenced other government and non-government programs. PAR II sought to build on this experience, reach new producers and municipalities, and strengthen SPO's managerial capacity.

7. The Project was designed to address several constraints. As with PAR I, Productive Alliances would allow small farmer organizations and buyers to reduce risks and transaction costs by building trust between parties, increasing scale, reducing unit costs for commercial transactions, and implementing innovations. SPOs would be brought closer to formal financial institutions through pilot initiatives. The US\$100 million PAR II Additional Financing (PAR II-AF)² approved in 2017 continued to support GoB's pro-growth, pro-poverty reduction agenda with more explicit and intensified emphasis on climate resilience given Bolivia's demonstrated vulnerability – including a record-breaking drought in 2016 - high proportion of rain-fed agriculture and modest area of cultivated land under irrigation, the latter mostly with low water use efficiency.

8. Theory of Change (ToC): The ToC is constructed retroactively based on the activities and intentions expressed in the Project Appraisal Document (PAD) and the AF Project Paper. The intervention logic assumed that small-scale rural producers – including women and indigenous groups - organized and trained, could implement, manage, and sustain a Productive Alliance structured around a defined, marketable product. Armed with an Alliance (Business) Plan and a “package” of tailored project-financed technical and business development assistance, and

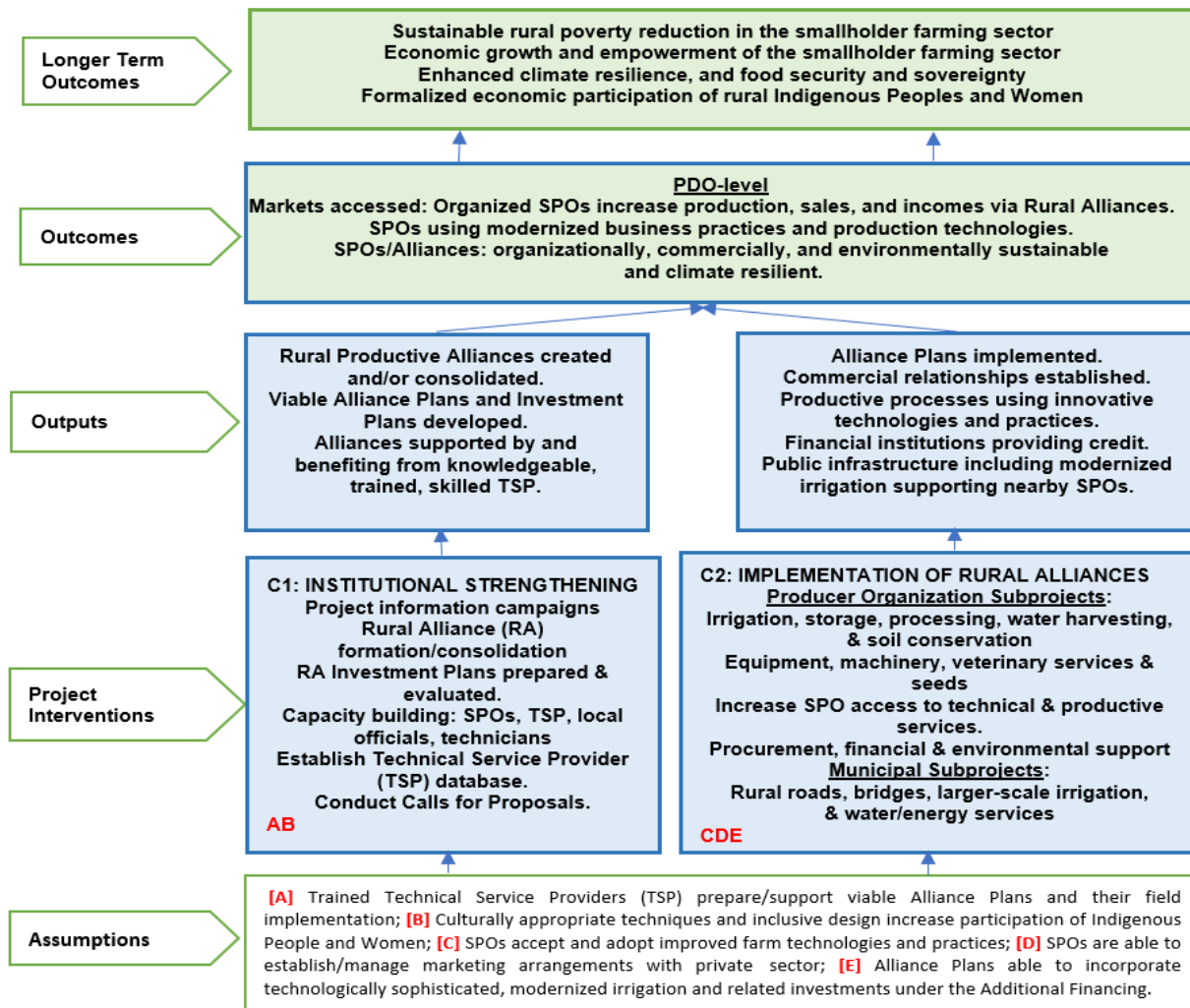
¹ Project Performance Assessment Report: Bolivia Rural Alliances Project, IEG/World Bank Report No. 132905, December 20, 2018

² For convenience, the two stages of PAR II are referred to as PAR II-OP (Original Project) and PAR II-AF (Additional Financing).



capital investments including irrigation, supported by a framework of well-trained, responsive technical and operational support services, and adhering to environmentally sound practices, SPOs would increase their production – and production quality - establish durable arrangements with markets and buyers, and increase their sales revenues and incomes. Where deemed essential to an Alliance in a certain region, the Project would invest in complementary Municipal Infrastructure - roads and bridges in the first instance, then (under PAR II-AF) larger scale irrigation schemes emphasizing water use efficiency - to improve the logistics, productivity, and climate resilience of SPO’s productive and commercial/marketing activities.

Theory of Change Diagram:



Project Development Objectives (PDO)

9. **The Loan Agreement stated the Project Development Objective as “to improve accessibility to markets for small rural producers in the Selected Areas by: (a) promoting productive alliances between different small rural producers’ organizations and purchasers; (b) empowering rural producers through the establishment and strengthening of self-managed grass-root organizations; (c) increasing access to productive assets, technology and financial services; (d) promoting more effective, responsive and accountable service organizations at the local level; and (e) enhancing environmental sustainability of productive practices”.**³

Key Expected Outcomes and Outcome Indicators

10. **The core PDO statement is treated as a single expected outcome (ICR Guidelines, 2021).** The five dependent clauses are technically the means to its achievement. Outcomes at project level were expected to be stronger, better organized, and managed SPOs – primarily indigenous and with strong gender representation – producing and selling higher volumes of better-quality products under sustainable farming systems and market arrangements, and with resulting higher family incomes. These expected outcomes remained constant throughout both project stages, with a more marked emphasis under the AF on climate resilience investments – mainly modernized irrigation - as a crucial driver of SPO productive achievement.

Table 1: Alignment of PDO and PDO Indicators (appraisal and closing)

PDO	PDO Indicators at Appraisal	PDO Indicators at Closing
Improve accessibility⁴ to markets for small rural producers in the Selected Areas	<ul style="list-style-type: none"> -Increase in the average volume of sales of the products involved in the Alliances⁵ -Producer Organizations that register income and costs and are accountable to their members. -Producer Organizations that maintain or improve their commercial relations (alliances) for at least two productive cycles. 	<ul style="list-style-type: none"> -Increase in the average volume of sales of the products involved in the Alliances. -Members of beneficiary SPOs that apply improved technologies/practices as defined in Business Plans. -Producer Organizations that maintain or improve their commercial relations (alliances) for at least two productive cycles. -Direct project beneficiaries **Direct producer beneficiaries from SPOs - of which Female beneficiaries **Direct beneficiaries of public investment subprojects (not disaggregated)

³ Drafts of the Additional Financing Project Paper show the intention to delete these clauses, but the AF Agreed Minutes of Negotiations (MN) indicate the Borrower’s request that the PDO remain unchanged. The AF MN also defined “Selected Areas” as “any of the Municipalities within any of the Borrower’s Departments selected pursuant to criteria set forth in the Project Operational Manual”.

⁴ For purposes of the ICR, “accessibility to markets” is defined in transactional terms: improvements in product quantity and quality required to attract buyers and increase sales volumes and prices as well as sales venues open to producers. To achieve market access entails the convergence of a complex set of investments, methodologies, activities, services and supporting policies/strategies. The PAD used “accessibility” while EMPODERAR used “access”. The ICR uses “access” but incorporates “accessibility” as an attribute.

⁵ The PAD defines an Alliance as an economic agreement between a group of small rural producers and other economic actors in which all contribute and gain, thereby ensuring the continuity of the agreement in the medium and long term. Each Alliance comprises an organization of small producers (SPO) and a market agent or buyer, both of whom sign an Alliance Agreement. The SPO implements the Producer Organization Subproject with differing degrees of buyer participation. A Municipal Government could also join an Alliance if it agreed to co-finance public investment infrastructure – roads, irrigation, bridges/other - to support that Alliance.



Targeted beneficiaries

11. **The Project targeted 35,000 poor rural households (around 157,000 people) of mostly Indigenous Peoples, primarily Quechua and Aymara.** The Project was characterized as an Indigenous Peoples' operation from the outset, and each component specified additional processes and activities for reaching and involving IP. 6 Direct beneficiaries of SPO Subprojects were an estimated 25,000 productive units (rural households), of which 30 percent would be represented in the SPOs by women. Municipal public works would benefit another 10,000 rural households. The target number of direct beneficiaries was increased to 48,690 by the Additional Financing (2017). Indirect beneficiaries would include rural workers (needed by the Alliances), goods and services providers, SPO buyers, and consumers. In aggregate, this represented about 12 percent of the total rural population of 1.2 million in the 120 Municipalities covered by the Project in five distinct Selected Areas.⁷ The PAR II-AF expanded project coverage to all 339 municipalities nationwide. Municipalities were identified based on potential to increase production and improve market accessibility for poor producers and selected for factors such as above average rural population growth and weight, and poverty density. Other Municipalities were included to avoid spatial gaps and ensure territorial cohesion.

12. **The expanded PAR II-AF maintained the parent project's demand-driven approach, introduced mechanisms/incentives to promote SPO demand for climate resilience investments, and further refined targeting.** The National Household and Population Census (2012) and the National Agricultural Census (2013) had resulted in changes to how GoB categorized rural poverty. The first defined criteria for level of satisfaction of basic needs and the second for the gross value of production. Rural communities were then classified by type from A-E, with Type A and B the poorest, and mostly located beyond the OP's operational area. The AF responded by enhancing targeting mechanisms for reaching/attending Type A and B communities: added dissemination campaigns, support for group formalization, more flexible counterpart funding requirements (20 percent of Business Plan cost, instead of the 30 percent required of Types C-E), and nationwide coverage. Most of the irrigation investments and more sophisticated production upgrades were expected in the latter categories, but it must be stressed that Types A-E were all poor. As with most poor rural populations, some groups/communities were better candidates for more complex activities and/or needed less preparation to participate.

Components

Component 1: Institutional Strengthening (*Appraisal estimate US\$3.79 million equivalent; actual cost US\$8.0 million*).⁸

This Component financed the creation and strengthening of Rural Alliances⁹ (RA/subprojects) in the Selected Areas through four sub-components: (a) communication and dissemination campaigns to inform local stakeholders of the Project's scope and rules; (b) institutional capacity support to strengthen small rural POs to form RAs and prepare investment plans, formalize their organizations, improve marketing and business skills, and prepare Rural Alliance Plans

⁶ The Social Assessment showed that 64% of potential project beneficiaries self-identified as Indigenous. Each of the PAD Components specified "processes and activities in relation to Indigenous Peoples" including use of locally specific indigenous languages in project dissemination campaigns; free, prior, and informed consultation; additional TA; social screening to ensure IP participation; periodic evaluation of IP subproject counterpart contributions to ensure fairness; and annual consultations on the efficacy and cultural adequacy of project interventions. The socio-economic conditions of non-indigenous rural poor were similar, the main differences being cultural, linguistic, and historical. No other differences between indigenous and non-indigenous rural poor were defined in project documents.

⁷ Selected Areas: (i) Central Valleys (Cochabamba Department); (ii) Southern Valleys (Depts. of Tarija, Chuquisaca, and Potosi); (iii) Tropic area including tropical municipalities in Depts. of Santa Cruz and Beni; (iv) Chaco area including municipalities in Santa Cruz and Chuquisaca; and (v) North area, comprising temperate and sub-tropical valleys and lowland municipalities in Depts. of La Paz and Beni. The Additional Financing maintained "selected areas" with a major focus on the very poor Altiplano region. See Map of Bolivia, Annex 8.

⁸ Actual costs include PAR II-OP (International Development Association, IDA Credit) and PAR II-AF (World Bank Loan).

⁹ Rural Alliance is synonymous with Productive Alliance throughout. The ICR uses the PAD's language in describing Components.



(RAP); (c) capacity building of Technical Service Providers (TSP) and eligible Municipalities to support RAs, and creation of a TSP database at the Departmental Operating Unit (ODU) level of EMPODERAR with outreach to expand the number of available TSP; (d) appraisal of Alliances via publication/dissemination of project activities including results of Calls-for-Proposals, the RAP, and financial, social, technical and environmental evaluations. Most Alliances would focus on primary agricultural products. An SPO would comprise 25-40 production units¹⁰, each producing a single product line.

Component 2: Implementation of Rural Alliances (*Appraisal estimate US\$52.05 million equivalent; actual cost US\$112.0 million*). This Component financed: (a) Producer Organization Subprojects to implement the RAP via: (i) on-farm infrastructure (minor irrigation works, storage facilities, community centers for product processing, water harvesting structures); (ii) soil conservation measures (terracing, land leveling, watershed treatments); (iii) equipment, machinery, veterinary supplies, seeds and other agricultural inputs; and (iv) technical support for SPO's access to financial services, business management, markets and marketing, information technology, organic certification and other technical/productive services; and (b) Subprojects supporting RA productive goals including: (i) Municipal Subprojects (rural road rehabilitation/improvement; small bridges; and works related to water, gas, electricity or other utility services), to be implemented by the *Fondo Nacional de Inversión Productiva y Social* (FPS);¹¹ and (ii) support to Producer Organization Subprojects on procurement, financial and environmental aspects.

Component 3: Project Management, Monitoring and Evaluation (*Appraisal estimate US\$8.70 million equivalent; actual cost US\$25.0 million*). This Component financed EMPODERAR's preparation, implementation, supervision and auditing of the Project, as well as implementation/supervision of the Environmental Management Framework (EMF) and Indigenous People's Framework (IPF); updating of the management information system (MIS) including design/implementation of a web-based system for tracking results indicators, and for surveys of citizen feedback; and technical studies on project-relevant themes (rural market opportunities and investment climate, and other studies as proposed by the client).

13. Reasons for Cost deviations: Overall expenditure at closing was US\$145.3 million, compared to the US\$64.5 million estimated at appraisal of the PAR II-OP primarily due to the US\$100 million Additional Financing. The AF was prompted initially by an exchange rate-related shortfall in the original IDA financing, but also driven by the priorities of a new Bolivian government including expanded national coverage and acute, demonstrated climate vulnerability. See paras 17 and 20. Expenditures by Component and Subcomponent – under the OP and AF - did not deviate significantly from initial estimates.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

14. The PDO was not revised, but the AF revised the definition of "Selected Areas". The AF increased the outcome target for the PDO Indicator: Producer Organizations that maintain or improve their commercial relations (alliances) for at least two productive cycles – from 44 percent to 85 percent; and reduced the target of 50 percent to 35 percent for the PDO Indicator "Increase in the average volume of sales of the product(s) involved in the Alliances". As detailed below, other changes occurred at PDO Indicator level and Section IB explains the rationale.

¹⁰ Production Unit means productive household when used in this ICR.

¹¹ FPS would implement Municipal Subprojects through Municipal Subproject Implementation Agreements, under technical, safeguard and fiduciary procedures agreed in the Second Participatory Rural Investment Project (P101298) with the World Bank for use in all World Bank-financed projects.



Revised PDO Indicators

15. The AF added new PDO Indicators: (a) “Members of beneficiary SPOs that apply improved technologies/practices as defined in the Business Plans”; (b) “Direct project beneficiaries” of which “Female beneficiaries”; and (c) “Beneficiaries of public investment subprojects” (households/not disaggregated); and (d) deleted the PDO Indicator “Producer organizations that register income and costs and are accountable to their members”.¹²

Revised Components

16. The PAR II-AF made only minor revisions to Components 1 and 2, chiefly to reflect the AF’s more pronounced emphasis on investments promoting climate resilience (see below).

Other Changes

17. **Additional Financing (PAR II-AF):** The AF sought to consolidate and scale up PAR II interventions, operational approach, and procedures. The Project’s geographic area was expanded from 120 to all 339 municipalities nationwide in all nine departments, targeted an additional 30,030 rural households in around 768 new Rural Alliances, and intensified the investment focus on climate-resilient production systems. Responding to the Government’s new focus under its third mandate period, the AF adopted a more strategic approach to climate resilience investments - especially modernized irrigation and more efficient water use - providing customized technology “packages” stressing greater water use efficiency and increasing the grant ceiling per beneficiary to make their technological upgrades more affordable. The AF was to open a “resilience window” to receive proposals supporting such investments, expected to absorb about 75 percent of total project funds allocated to Alliances. Modernized irrigation specifically, would absorb about 35 percent of total alliance investments (compared to 5.7 percent under the PAR II-OP); and two-thirds of the planned, additional 48 Municipal Subprojects were expected to support improved efficiency of water supply, distribution and use through larger-scale, more advanced irrigation installations, equipment, and practices.

18. The PAR II-AF also: (a) **upgraded the Results Framework** to reflect increased investment in climate resilience and adoption of climate-smart practices and technologies, adding at Intermediate Results level, the following new indicators: (i) *Alliances that apply environmental measures satisfactorily*; (ii) *Area provided with improved irrigation investments*; (iii) *Service providers to SPOs that benefit from capacity building to improve their knowledge*; (iv) *Business Plans of supported Alliances that are duly implemented*; and (v) *Management Geo-referencing Information System improved and operating*. Redundant or input-related indicators were eliminated, the RF was aligned with World Bank guidance on Corporate Indicators, and indicators’ scope and measurement were clarified; (b) **triggered two additional Safeguards** policies – OP/BP 7.50 (International Waterways) and OP/BP 4.37 (Safety of Dams); (c) **revised the institutional arrangements for implementation of Subcomponent 2.2**, delegating to the National Fund for Productive and Social Investment (FPS) the administration of financing aligned to the Municipal (public infrastructure) Subprojects; and (d) **reallocated US\$2.8 million of OP credit proceeds**, mainly from the unallocated category to Component 2 to cover (partially) an SDR to US Dollar exchange rate-related financing gap. See Section III.

19. **Restructurings:** The Project was restructured five times:

August 24, 2017 (Level 1): Processed together with the AF, allowed application of new Safeguards policies OP/BP 4.37 Safety of Dams and OP/BP 7.50 Projects on International Waterways; adjusted the Project’s Results Framework to reflect the focus on climate resilience; and revised the institutional arrangements for Municipal Subprojects.

January 16, 2018 (Level 2): Extended the PAR II-OP closing date from November 30, 2017, to March 31, 2018.

March 28, 2018 (Level 2): Extended the PAR II-OP closing date from March 31, 2018, to June 30, 2018.

¹² These variables came to be measured annually by the Beneficiary Perception Survey under PAR II-AF.



September 27, 2021 (Level 2): Extended the PAR II-AF closing date from November 30, 2021, to November 30, 2022, and updated the Loan disbursement estimates.

November 19, 2022 (Level 2): Extended the PAR II-AF closing date from November 30, 2022, to July 31, 2023.

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

20. Rationale for the Additional Financing: Key factors supporting the US\$100 million AF included:¹³ (a) **demonstrated vulnerability of the Bolivian agriculture** sector to damaging weather events such as floods in 2013, and severe drought in 2016 which affected 177,000 families, caused nationwide water shortages, and was attributed to the El Niño weather cycle, poor water management, and climate change. Drought incidence was projected to become more frequent, intense, and longer-lasting, and especially damaging to the agriculture sector where crop and livestock yields were threatened, and prices for domestic staple products were rising, affecting the rural and urban poor; (b) **PAR II-OP financing shortfall** caused by the widening USD to SDR exchange rate differential and rising costs of materials and inputs for the Alliances; (c) **weak global economic growth**, declining commodity prices and climate-related shocks challenging Bolivia's continued economic growth; (d) **the World Bank's legacy strategic partnership with Bolivia** in rural poverty reduction and in creating economic opportunities for smallholders under the Rural Alliances Projects I and II. Then-recent impact evaluation of PAR I showed it was highly pro-poor and inclusive, had improved average household agricultural income by 63 percent, and benefited farmers in the poorest quintile most. Importantly, unmet demand remained high; and (e) **Government's promotion of PAR II** as its premier national support program linking farmers to markets, and the PAR model/activities having achieved a certain maturity. These reasons, plus EMPODERAR's demonstrated implementation capacity, validated the PDO, underlined the priority of the Project's consolidation and expansion, and facilitated the decision to proceed.

21. Rationale for specific changes: (a) **Safeguards policies:** (i) Safety of Dams (OP/BP 4.37) was triggered due to the planned intensification of investment in modernized irrigation and water use efficiency which might potentially rely on storage capacity and efficient operation of existing dams and reservoirs for water supply. The AF-revised Environmental Management Framework (EMF) included all measures to comply with OP/BP 4.37; and (ii) Projects on International Waterways (OP/BP 7.50) was triggered for the same reasons as (i). The Bank approved an exception to riparian notification because irrigation sector investments via Alliance and Municipal subprojects would be of limited scale (small, on-farm parcels and small-scale, off-farm infrastructure). The proposed activities were judged unlikely to adversely affect the quantity or quality of the water flowing to downstream riparians, and the Project would not affect the water use of other riparians; (b) **Institutional arrangements:** The AF's assignment of fiduciary responsibilities to FPS to implement Sub-component 2(b) stemmed from then-recent government changes in national procurement rules which hindered implementation of the Municipal Subprojects, including: (i) cumbersome budget registration procedures under which the subproject financial resources (municipal counterpart funds and project grants) had to be formally registered by three different entities (MDRyT, EMPODERAR, and the Municipality); and (ii) new requirements for registering procurement processes under which the online national System for Public Procurement (SICOES) authorized the uploading of bidding documents only when the budget for the respective contract was already registered under the same agency which procured the bid, counteracting the existing arrangements under which FPS managed bidding for Municipal Subprojects, and delaying the Project while FPS sought waivers to continue handling

¹³ By the MTR, despite disbursement of only 28 percent, the Project had committed all budget allocated to support financial transfers to the SPOs (US\$33.8 million) through just two Calls for Proposals vs the four Calls planned, and cost per Alliance had increased sharply. The initial planned AF loan amount was US\$40 million to cover the financial needs of approved Plans; scale up project activities in departments with existing coverage and new areas; and strengthen producer networks and SPO services to members, especially in value-added activities. The Bank and GoB then agreed to expand PAR II coverage to the Bolivian Altiplano to support sustainable development of traditional production systems aligned to GoB's food security and sovereignty goals, resulting in the higher AF Loan of US\$100 million.



bids in SICOES; (c) **Expanded geographic area**: See details page 12.

22. Restructurings: (a) Extensions of the closing date allowed: (i) a smooth transition from the OP to the AF phase without a financing gap; and (ii) adequate time to complete all approved investments/Alliances and achieve the PDO; (b) Reallocations among disbursement categories under the AF permitted effective and full use of Loan resources, and at the time of AF approval, partially covered a significant financing shortfall; (c) Results Framework adjustments refined measurement methodologies, reflected contextual and implementation realities, improved indicator coverage of key (including new) investment activities, and dropped redundant and/or unmeasurable indicators.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

23. “Market access” was, prima facie, a simple PDO objective outcome achievable at project level, but it captured a convergence of important concepts, goals, and activities. The PAD PDO wording in English is “accessibility” and in Spanish “acceso” which are not synonymous but are interpreted as converging around the core idea of transactions between buyers and sellers. More fundamentally, better-organized producers with higher production and yields brought about by TA, training and investments planned and delivered according to an Alliance Plan, subsequently intensified under the AF by investments in larger-scale modernized irrigation - which added a second productive cycle capable of exploiting alternative market windows - had surpluses to sell, and receipts to show transactions took place, i.e., market access tracked via transactions. Access was also physical: project-supported infrastructure such as roads and bridges connecting the transactional parties; qualitative: products of better quality, with environmental and sanitary certification; and inclusive: improved market access for indigenous groups and women under the Project’s targeting strategy, to increase family incomes and reduce poverty.

24. The PDO governing the PAR II-OP at closing (June 30, 2018), remained closely aligned with Bolivia’s General Economic and Social Development Plan (PGDES 2016-2020) and its related Integrated Development Plan for the Agro-livestock and Rural Sector (PSARDI, 2016-2020). PSARDI called for increasing agro-livestock and rural producers’ incomes prioritizing the most vulnerable and providing them with the means and knowledge to enter markets sustainably and competitively. The BCR (2023) aligns the Project’s PDO Indicators with PSARDI Policies 2, 3 and 5: agro-livestock technological innovation; sustainable management and use of soil, water, and vegetation for agro-livestock production; and agro-livestock production supporting food security and sovereignty.

25. The PAR II-AF PDO remained consistent with Bolivia’s Economic and Social Development Plan (PDES, 2021-2025) which seeks national economic restoration by deepening GoB’s Economic and Social Community Productive model with growth driven by internal demand and public investment. The Plan coalesces around 10 strategic pillars linked to the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDG). The PAR II PDO is aligned to Axis 3 Food Security and Sovereignty; Axis 5 Technology to Strengthen and Develop Productive Capacities and Potential; and Axis 8 Sustainable and Balanced Environment. The Plan notes that Bolivia’s smallholders, especially indigenous, continue to have limited access to local markets as a stable source of income, underscoring the continued relevance of the PAR II PDO. Relevance of the PDO also derived from its design and implementation which delivered solutions to beneficiaries’ economic and social priorities, diagnosed, and implemented jointly in a participatory, collaborative way.¹⁴

26. The PDO and its supporting activities also retained relevance to the FY23-26 Country Partnership

¹⁴ The associated Bs33 billion public investment program, over half of which is for productive, strategic sectors including agriculture and 34 percent for infrastructure, irrigation, and transport.



Framework for Bolivia¹⁵ through two of its three long-term, High-level Outcomes (HLO) “Increased Climate and Economic Resilience” and “Increased Income Earnings for Vulnerable Households”. Under the former, Objective 1.1 calls for improved management of climate-related risks, expanding engagement on climate change, and addressing its environmental, disaster risk, productive and infrastructure implications, important elements of PAR II design; and addressing excluded populations through attention to regional disparities, linked to the PDO’s “selected areas” and focus on IP and women. For the latter, Objective 2.1 seeks to increase sustainable agricultural productivity (also linked to the resilience focus of HLO 1 and Objective 1.1). Objective 2.2 seeks improved connectivity, defined by the CPF to include connectivity to markets and other opportunities through transport and logistics infrastructure. The Bolivia CPF notes the World Bank’s “*strong presence in agriculture and rural development, where the impact of its interventions has been transformative and sustained*”.

27. The PDO was consistent with the WBG Climate Change Action Plan, 2021 to 2025 and accords with findings and recommendations by the WBG Country Private Sector Diagnostic (CPSD) for Bolivia.¹⁶ First, the Plan advocates a Clean, Resilient and Inclusive Development approach that sustainably eliminates extreme poverty and promotes shared prosperity. Applying the broad interpretation of “access” shows that what the Project planned to do, and did, to ensure improved market access was consistent with the WBG’s climate change commitments and contributed to the WBG’s Climate Change Action Plan goals: increasing the resilience of the food production system and supporting farmers with TA and fixed investments to increase their adaptive capacity and resilience to climate change impacts. The nature of the agricultural technologies and practices inculcated under Component 2 Producer Organization Subprojects, and ample AF resources for Municipal public infrastructure subprojects saw the intensified climate resilience focus folded into and contributing decisively to the PDO’s “*market accessibility*” framework. Second, the CPSD, in its segment on Agribusiness and Logistics, sees those sectors as presenting the most significant opportunities for private sector investment in the medium-term. The study notes that small scale farms with low productivity and low use of irrigation - despite climate vulnerability - are responsible for most of Bolivia’s agricultural and food production and singles out logistics constraints as a major development impediment. The CPSD highlights the importance of increased yields and crop intensity, and that low levels of collective action limit the market power and commercial potential of small farmers.

28. Relevance of the PDO at closing is rated **High**. The PDO expresses a single, pivotal idea whose attribution derives from a complex set of integrated activities and investments which, under the PAR II-AF, came to include intensified climate resilience primarily through irrigation and water use efficiency. The Bank’s efforts to change/update the PDO by – at minimum - dropping its dependent clauses, faced strong legal and congressional headwinds in Bolivia and could not proceed. See Section IV. The climate resilience elements were subsumed in the interpretation of what the PDO’s achievement could/would be attributed to, that is the gamut of project activities required to increase SPO’s production, market access and sustainability. Within this framework, climate resilience falls within the PDO’s dependent clause “*enhancing environmental sustainability of productive practices*”.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

29. PAR II validated the productive model and successes of its predecessor, PAR I. PAR II promoted Productive Alliances between rural SPO and buyers, increased access to productive assets and technology, and

¹⁵ Country Partnership Framework for the Plurinational State of Bolivia, FY23-FY26, World Bank Report # 181880-BO, April 14, 2023

¹⁶ WBG Climate Change Action Plan, 2021-2025: Supporting Green, Resilient and Inclusive Development, World Bank, 2021; and Country Private Sector Diagnostic: Plurinational State of Bolivia – Unlocking Private Sector Potential to Achieve a Sustainable and Inclusive Recovery, World Bank, December 2021



implemented Municipal-level subprojects in complementary public infrastructure benefiting nearby SPO. By closing in July 2023, PAR II (OP and AF) had financed 1,735 Productive Alliance subprojects – of which 1,644 were “integrated” investments (investment plus TA) and 91 were exclusively TA - totaling about US\$91.0 million equivalent. The incomes and food security of 50,989 rural families in 233 municipalities were strengthened through organization-building, capital assets and TA/training to increase domestic food availability, market access, and family incomes.

30. The PDO entailed a dominant objective and five linked goals which in aggregate were the means to achieving the core PDO “improve accessibility to markets for small rural producers in the Selected Areas”. These goals reveal the Project’s implementation logic/Theory of Change and are referenced to discuss Efficacy. The AF’s climate resilience emphasis is conflated with the “*enhancing environmental sustainability of productive practices*” portion of the complete PDO (as per PAD and AF Project Paper). To reiterate, the term “accessibility” means the articulation of SPO in sustainable transactional relationships with buyers which increase their incomes and reduce poverty. The case for Efficacy presents evidence of project achievements applying the PDO and linked Intermediate Results Indicators. These are buttressed by results from Impact Evaluation studies of both the OP and AF operations which applied in the OP case, a quasi-experimental approach with Propensity Score Matching and Treatment/Control groups, and in the AF case, complemented this approach using Difference on Difference which enabled use of the data generated by the PAR II-OP IE; and a 2022 randomized selection-based Beneficiary Perception Survey¹⁷, the Borrower Completion Report (EMPODERAR, 2023) and other supporting information. Primary results of the Impact Evaluations are synthesized in Annex 7, Part A, with further explanation of the methodology.

PDO Objective Outcome: Improve accessibility to markets for small rural producers in the Selected Areas

PDO Indicator 1: Direct project beneficiaries of which female, and beneficiaries of Municipal public investment subprojects (households) (Target: 46,434; Achieved: 50,989, 110%; Female-led 35%)

The Project reached just under 51,000 direct beneficiaries/households in 233 Municipalities nationwide: 21,010 households (41.2 percent) were beneficiaries of the 84 public investment subprojects, and 17,846 (35 percent) were female-led. “Selected Areas” were municipalities identified by MDRyT based on potential to increase the productivity and market access of small-scale producers. The AF financed more Alliances than foreseen at appraisal to achieve the aggregate PDO Indicator target due to the smaller number of members per Alliance in practice (estimated at 34 at Appraisal but averaging 26 at Closing), and an average cost per Alliance of US\$52,000 vs the estimated US\$74,000 at Appraisal. The AF targeted 27,825 direct beneficiaries which, applying a more realistic estimate of Alliance members, meant financing 1,100 Alliance Plans. A total 1,735 Alliances were financed (OP and AF) of which 1,644 integrated production and TA, while 91 were for TA only and were, under PAR II rules, Alliances which had benefited under PAR I. The BCR notes that the rigorous technical and financial scrutiny of Alliance proposals at all stages – critical to their success - led to 1,735 Alliances financed out of 4,720 proposals received. Annex 7, Section D, Table 2.

PDO Indicator 2: Increase in the average volume of sales of the products involved in the Alliances (Target: 35%; Achieved: 64%, 183% of target)

Sales volumes with PAR II increased an average 64 percent over the without-project situation, ranging from 51 percent in the Altiplano region to 69 percent in Valles. Aggregate volume of sales per Alliance before their participation in PAR II was 279,370 tons, and with PAR II, was 459,002 tons. The logic (Theory of Change) of capacity-building to improve SPOs’ organization and business management skills, investments in productive assets based on good quality Alliance (Business) Plans, and producers’ adoption of new practices inculcated systematically and

¹⁷ Evaluación del Personal Técnico del Proyecto de Alianzas Rurales II (Financiamiento Adicional): Informe Final Percepción de Beneficiarios, ECOTHESES/EMPODERAR, May 2023. This survey was conducted annually from 2019 to 2022 and applied the same 30 questions to a random sample of 449 beneficiaries to assess the performance and effectiveness of the *Facilitadores* and *Acompañantes* against their Terms of Reference as a condition for their re-contracting. The 2022 results were intended to guide renovation of contracts for the implementation of PAR III.

continuously by the TSP to each Alliance for two years, paid off in higher production and quality, improved market competitiveness and access conditions and hence, volumes sold. Producers/SPO had more to sell and of higher quality. Of 1,644 Alliances, 1,561 had sales exceeding their Plan, ranging from 93 percent (PAR II-OP) to 96 percent (PAR II-AF).

Table 2: Production, without and with PAR II

Region	No. Alliances	No. Families	Total Investment US\$	Production without PAR II (Tn)	Production Planned PAR II (Tn)	Production Achieved w. PAR II (Tn)	% Increase in Production
Altiplano	211	5,326	14,232,891	31,376	37,297	44,660	42%
Tropico & Chaco	648	17,310	47,632,436	101,949	135,968	155,621	53%
Valles	785	24,592	67,876,027	178,906	248,120	288,674	61%
Total	1,644	47,228	129,741,353	312,231	421,385	488,955	57%

Source: BCR (EMPODERAR), Nov 2023

Table 3: Average Increase in Sales without and with PAR II (Ton)

Region	No. Alliances	No. Families	Sales without PAR II (Tn)	Sales Programmed w. PAR II (Tn)	Sales achieved w. PAR II (Tn)	% Increase in Sales
Altiplano	211	5,326	27,912	35,093	42,009	51%
Tropico & Chaco	648	17,310	93,538	129,797	150,773	61%
Valles	785	24,592	157,919	229,490	266,220	69%
Total	1,644	47,228	279,370	394,380	459,002	64%

Source: BCR (EMPODERAR), Nov 2023

31. The linked Intermediate Results Indicator “SPO that obtain positive net incremental income from Alliance products” achieved 86 percent, far exceeding its target, as a direct result of the higher volumes of better-quality products sold. Average regional net income was 137% of the amount programmed in the Alliance Plans.

Table 4: Average Net Income with and without PAR II by Region

Region	No. Alliances	No. Families	Net Income without PAR II (Bs)	Net Income Programmed (Bs)	Net Income with PAR II	% Increase Net Income
Altiplano	211	5,326	59,180,977	95,045,212	141,569,344	139%
Tropico & Chaco	648	17,310	161,799,186	287,824,942	382,484,057	136%
Valles	785	24,592	274,258,673	470,889,684	651,919,407	138%
Total	1,644	47,228	495,238,836	853,759,839	1,175,972,809	137%

Source: BCR (EMPODERAR), Nov 2023

32. Data shows that “market accessibility” for key products also improved in volume terms due to the 84 complementary Municipal public infrastructure investments.¹⁸ Roads and bridges were of inestimable value in facilitating the year-round flow of production and inputs, and production increased dramatically with irrigation. The results are as follows with further details in Annex 7, Section D:

- **Roads:** Seven local roads directly benefited 21 Alliances. Considering the quantities marketed with PAR II, market access (tons) increased sharply over the without project situation, ranging from 420.5 percent for Llama meat to 478.6 percent for Quinoa. Their effects on local agro-livestock marketing chains were the main direct benefit: Producers could transport their products virtually year-round to the main urban centers, generating cost and time savings.

Table 5: Effect of Municipal Investment in Roads on Access to Markets (metric tons)

Product	Before Roads	After Roads	% Increase
Quinoa	294	1,407	478.6 %
Llama Meat	132	555	420.5 %
Ganado Ovino (Sheep)	82	384	468.3 %

¹⁸ The BCR does not provide aggregate/all Alliance data on access to markets pre- and post-PAR II by agro-livestock product.



Potato	44	205	466.0 %
Ganado Bovino (Cattle)	36	159	441.7 %

Source: BCR (EMPODERAR), Nov 2023

- **Bridges:** Increased volumes of product accessing markets, comparing the situation without and with PAR II, ranged from 156 percent for Banana up to 498 percent for Carrot. Investments in 54 bridges benefiting 125 Alliances improved local marketing chains by permitting producers year-round access to passable roads even in the rainy season. This had a positive impact, as with roads, on producers’ time and costs of production and commercialization.

Table 6: Effect of Municipal Bridge Investment on Access to Markets (metric tons)

Product	Before Bridge	After Bridge	% Increase
Carrot	2,567	12,777	498.0 %
Onion	1,091	2,645	242.4 %
Potato	1,344	3,222	239.7 %
Banana	4,715	7,366	156.2 %
Tomato	1,331	4,372	328.5 %
Plantain	1,438	5,052	351.3 %
Peach	410	1,776	433.2 %
Bovine meat	1,301	4,590	352.8 %

Source: BCR (EMPODERAR), Nov 2023

- **Irrigation:** Beneficiary producers in areas adjacent to Municipal off-farm irrigation schemes increased their production of selected crops - compared to a without-project situation - by an average 177 percent for Corn ranging up to 628 percent for Tomato, translating into higher volumes for sale. Modern irrigation, initially on-farm (benefiting 820 Alliances), and subsequently expanded by the AF via larger-scale complementary Municipal systems benefiting 1,257 families in nearby SPOs, was crucial. An aggregate 15,845 ha were provided with improved irrigation. Producers responded by expanding land under crops, and with additional, reliable water, intensified production by adding at least one additional crop cycle per year. The importance of technical training to maximize irrigation effectiveness cannot be over-stated and was delivered effectively by region including workshops guided by specialized irrigation agents Todo Riego Bolivia and Geotest.

Table 7: Effects on Production of Municipal Investments in Irrigation (metric tons)

Product	Before Irrigation	After Irrigation	% Increase
Potato	860	4,188	487 %
Tomato	732	4,597	628 %
Maize	95	168	177 %
Dairy milk	616	837	136 %

Source: BCR (EMPODERAR), Nov 2023

33. Impact evaluations show the direct, attributable effects on beneficiary households’ gross and net incomes of improved market accessibility. The following results reflect the 2nd Impact Evaluation (PAR II-AF); results for PAR II-OP are equally positive, and the results of both IEs are summarized – with methodology - in Annex 7, Part A:

- **Annual average gross income of the production unit increased by US\$2,139, or 40 percent, associated directly with improved conditions of production and commercialization.** This effect, along with better sales strategies promoted by the Project, translated into increased value of gross production. The average annual gross income for the Treatment Group was US\$6,517 vs US\$4,379 for the Control Group. PAR II-AF was a “catalyst” for positive change in income aggregates, productivity, efficiency, and profitability of rural production units.
- **Average annual net income of the productive unit increased 59 percent.** The average difference of US\$1,732 in the net income of PAR II-AF’s productive units is attributable to participation. The net annual income of Treatment



producers was US\$4,673 and Control producers US\$2,942. The IE notes that the impact on net income (59 percent) is greater than on gross income (49 percent) because the proportional increase in costs is less in relation to the increase in production and gross income. Treatment producers had lower unit costs of production, having applied/adopted TA messages to improve efficiency.

- **Labor income of primary occupation under PAR II-AF participants increased 53 percent, reflecting an average increase of US\$1,179/year.** PAR II-AF producers averaged an annual income of US\$3,418 compared to the Control group’s US\$2,239.
- **Food security was increased:** The Treatment Group’s value of own consumption increased 33 percent from an annual average of US\$146 to US\$179. The IE asserts that this increased producers’ wellbeing by reducing dependence on food markets and gave farmers greater control of food quality and quantity. See Annex 7, Section A for tables comparing gross and net income by Treatment and Control, including for the 13 main agro-livestock products supported.

34. The PAR II-OP significantly increased gross income from the main agricultural products supported:19 Potato (31 percent), Peach (31 percent), Grapes (138 percent), Coffee (44 percent) and Orange (137 percent). This is attributed to several factors: (a) **increased number of productive cycles annually (i.e., crop density)**, in some cases, two to three, doubling or tripling production volumes compared to the Control Group; (b) **regular, good quality technical support** enabling the application/adoption of improved productive practices, increasing production efficiency: cultural practices, soil and plant care practices, greater supply of water, and consequent higher yields per cycle; (c) **better marketing conditions:** better prices for and frequency of sales, predictable volumes available for sale, and new markets; and (d) **reduced unit costs of production and increased producer surpluses:** production costs increased but were proportionally of less magnitude than increased production and gross income. Further, greater technology use does not automatically imply high-cost capital goods but better implements – greenhouses, fumigators, hail nets, water tanks, pumps, and motorized cultivators.

35. The 2022 Beneficiary Perception Study validates project relevance and the Theory of Change. In response to the question: “Do you believe that up till this point in your Business Plan you have achieved the expected results?”, 20.7 percent said their results had far exceeded expectations, another 66.4 percent said results were as per their Plan, while 9 percent said they were “medium” compared to expected. Thus, 96.2 percent had achieved positive results, independent of differences between what these achievements signified to each producer interviewed. To the question: “Do you believe the training provided to the (SPO) Administration and Monitoring Committees was clear and sufficient to correctly administer – technically and financially – the Business Plan?”, 30 percent responded that they were very well-trained, another 51 percent well-trained, and 14.3 percent trained to a “medium” level.

PDO Indicator 3: Producer organizations that maintain or improve their commercial relations (Alliances) for at least two productive cycles (Target: 85%; Achieved: 97%, 114% of target)

36. Commercial relationships/Alliances took many forms, and their durability stems from several key factors. An important result underscoring the durability of the Alliances’ commercial relations is their high success rate in fulfilling their agreements, averaging 95 percent under both phases of the Project versus the 85 percent programmed. Alliance stakeholders are acutely aware that their relationships are mutually beneficial and lead to higher incomes. SPOs point to improved product quality and timeliness, increased productivity and burgeoning organizational strength and professionalism as causal factors.

Table 8: Gross Income from Alliances and Achievement of Buyer/Seller Economic Agreement

Prioritization in Sector Plan	Sales Value	Sales Value	Sales Value achieved	% Increase in Sales
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¹⁹ The PAR II-AF Impact Evaluation did not cover a similar set of data for gross income by main crops supported but PAR II-OP is illustrative.



	without PAR II (Bs)	Programmed (Bs)	with PAR II (Bs)	Value
Food Security	476,192,210	695,753,954	844,036,142	77%
Market Access (Domestic)	438,237,447	653,759,520	809,723,919	85%
Market Access (Exports)	119,633,484	170,245,502	197,224,416	65%
Total:	1,034,063,142	1,519,758,975	1,850,984,477	79%

Source: BCR (EMPODERAR), Nov 2023

37. The BCR (2023) points to other critical factors fostering Alliance durability: higher gross and net incomes and increased sustainability are attributable to producers' competitiveness measured by the average unit cost per ton with and without PAR II, by region:

Table 9: Average Unit Cost/Ton by Region, with and without PAR II

Sector Action Plan	Unit Costs Without PAR II (Ton)	Unit Costs Programmed PAR II (Tn)	Unit Costs Achieved under PAR II (Tn)	% Change in Costs
Altiplano	1,349	1117	922	-32%
Tropico & Chaco	1,150	1130	1,009	-12%
Valles	1,047	941	819	-22%
Average	1,111	1,017	889	-20%

Source: BCR (EMPODERAR), Nov 2023

The Bank and EMPODERAR facilitated Alliance buyers' participation in technical visits to their supplying producers, and to exploit opportunities for producer/buyer collaboration on the provision of TA and for buyers to be more proactive within the Alliance including supporting producers' search for new markets.

38. **The types of market agents (buyer allies) were diverse, responding to the structure of the Bolivian market for supplying food products to the consuming public.** About 78 percent were classified broadly as persons established formally or informally for commercial purposes. The former were mostly single person, registered firms (39 percent) and the latter classified as "*personas naturales*" (39 percent), established as wholesale distributors without internal taxation or company registration. Another 7.7 percent were producer associations acting as buyers, about 6 percent were Limited Liability Societies and 5 percent were Stock Companies (*Sociedades Anónimas*). Annex 7, Table 12 ranks buyers. Given that a key condition for participation was a pre-existing market/buyer, many Alliances naturally continued with that entity but under more formal arrangements and operating at higher levels/standards of supply, quality, and price. Section IV D discusses what can sustain or erode an Alliance, based on the PAR I experience.

PDO Indicator 4: Members of beneficiary SPOs that apply improved technologies/practices as defined in the Business Plans (Target: 70%; Achieved: 91%, 130%)

39. A high 91 percent of beneficiary SPO (1,496) applied improved technologies and practices as defined in their Alliance (Business) Plans, working with TSP/*Acompañantes*. Sampled beneficiaries were asked: "*As a producer, what do you think was the best support received from PAR II enabling you to continue with your productive activities?*" to which 72.2 percent responded that PAR II's improved productive technologies were the key to building and sustaining their agro-livestock activities. Another 9.7 percent valued their acquired capacity to prepare accounts/costs of production, and 9.5 percent their knowledge of Business Plan preparation – essential technologies for organized family producers seeking to professionalize their Alliances. At the farm level, typical technology "packages" included: (a) **Dairy**: sprinkler irrigation, balanced rations, forage seeds, brush-cutters, cow stalls, pumps, and TA; (b) **Peaches**: anti-hail mesh, fumigation equipment, TA in peach management/production; (c) **Potato**: sprinkler irrigation, fumigation equipment, water tanks, motorized plows/attachments, productive TA and integrated pest management (MIP); (d) **Flowers**: greenhouses, water management, TA for flower production and marketing; (e) **Onion**: irrigation, fumigators, TA; (f) **Coffee**: plantation expansion, cultivation equipment, coffee drying equipment/infrastructure and TA; and (g) **Grapes**: intercropping of grapevines/organic vegetables, preparation of own bio-pesticides, drip irrigation,



best practices TA. The Perception Study notes “*the active participation of the Facilitadores and Acompañantes opened new and higher levels of technical dialogue on production and commercialization which consolidated mutual confidence between rural actors, favoring achievement of common objectives of producers and the Project*”. The Greenhouse Gas Accounting (Annex 8) explains the technologies applied, under cropland management (annual and perennial systems), grasslands and livestock, forests, and project inputs.

40. With modernized irrigation being a crucial technological change, the Intermediate Results Indicator “Area provided with improved irrigation investments (ha)” shows an aggregate 15,845 ha under systems (99 percent of target). Some 820 Alliance subprojects with on-farm irrigation used diverse water sources such as rivers, wells, slopes, dams, and reservoirs. By implementing more technically advanced irrigation (drip and sprinkler) on the plots of producer families and training producers how to manage these systems within the framework of their Alliance, irrigation water use efficiency improved on a total 10,821 ha for crops and livestock (forage production), increasing resilience to climate change.²⁰ Complementary, larger-scale, off-farm irrigation systems implemented via 22 Municipal public infrastructure subprojects covered another 5,024 ha (aggregate 15,845 ha) of producers’ land in adjacent beneficiary areas.

Justification of Overall Efficacy Rating

41. Project Efficacy is rated **High**. The Project fully achieved its objectives. Impact evaluations for the OP and AF demonstrate that beneficiary POs increased their access to markets – as measured by production, sales, and income results - across a wide range of products and to a greater extent than non-beneficiaries, and that these results are statistically significant. Surveyed beneficiaries reported high levels of satisfaction on a well-designed set of 30 perception variables. The Project exceeded its four PDO Indicators and far exceeded, exceeded, or substantially achieved all 14 Intermediate Results Indicators (IRI). The distribution of benefits was highly equitable in terms of poverty reduction and shared prosperity, and the sustainability outlook is positive with certain caveats (Section IVD).

C. EFFICIENCY

Assessment of Efficiency and Rating

42. This analysis assessed the financial and economic merit of the Rural Alliances Project II (PAR II-OP) and its Additional Financing (PAR II-AF). The financial analysis considered the incremental benefits generated by the increased production, diversification and commercialization of agricultural systems promoted by both stages. The economic analysis took all project costs into account (see Table 1, Annex 4) and applies factors to convert financial prices to economic prices and the value of project-promoted emissions reductions and carbon sequestration. The Marginal Productivity Method is used to estimate the Net Present Value of the highest agricultural production of the Project’s investments in Rural Alliances and organizational strengthening. The EMPODERAR database at time of analysis included information on 1,735 agriculture, livestock, apiculture and pisciculture Productive Alliances totaling about 50,000 beneficiaries, for PAR II-OP and PAR II-AF.²¹ See Annex 4.

43. Results of the financial and economic analyses are positive. See Table 10 below. The financial results indicate that a significant proportion of Productive Alliances are viable in the long term, both PAR II-OP and PAR II-AF. Results of the economic analysis are also positive with Internal Economic Rates of Return for the PAR II-OP far higher than the economic discount rate (12%); and PAR II-AF results even better than the OP. While the three scenarios for

²⁰ Water use was not measured by the Project, but the modernized irrigation systems implemented, and technical training delivered, were designed to promote water use efficiency and conservation. It is recommended that new projects formally measure water use.

²¹ Includes 1,644 Model 1 plus 91 Model 2 TA subprojects (for beneficiaries of PAR I Alliances).

PAR II-OP are lower than the appraisal (PAD) estimates (see explanation, Annex 4), the three scenarios for PAR II-AF are on par with appraisal (Project Paper). Other benefits not quantifiable in this analysis but highly relevant for beneficiaries include Municipal Infrastructure investments (roads, bridges, and irrigation);²² environmental benefits; multiplier effects of forward/backward production linkages; and beneficiaries' improved food and nutritional security.

Table 10: Summary of Financial and Economic Indicators

Project	Dimension	Indicator	10 years	15 years	20 years
PAR II-OP	Financial Analysis	Number of subprojects with Net Present Value > 0	376	417	433
		Proportion of subprojects with Net Present Value > 0	65%	72%	75%
		Average Net Present Value per subproject (US\$)	\$164,639	\$240,609	\$283,717
		Average Internal Rate of Return per subproject	39%	43%	44%
	Economic Analysis	Net Present Value (US\$ million)	\$19.1	\$42.7	\$56.1
		Internal Rate of Return	19.6%	23.7%	24.9%
PAR II-AF	Financial Analysis	Number of subprojects with Net Present Value > 0	740	828	853
		Proportion of subprojects with Net Present Value > 0	66%	74%	76%
		Average Net Present Value per subproject (US\$)	\$142,529	\$205,685	\$241,522
		Average Internal Rate of Return per subproject	57%	61%	63%
	Economic Analysis	Net Present Value (US\$ million)	\$109.5	\$166.6	\$199.0
		Internal Rate of Return	38.1%	40.3%	40.7%

Source: Based on EMPODERAR data (2023).

44. The economic value of emissions reduction and carbon sequestration is estimated at 5,292,665 tCO₂eq over a 20-year period due to the implementation of project activities, which far exceeds the PAR II-AF appraisal estimate of 237,549 tCO₂eq over 20 years. Sequestration benefits derive primarily from (a) implementation of climate-smart grassland management; (b) agricultural practices and technologies in annual and perennial crop production; and (c) natural forest eco-system conservation/management linked to beekeeping. See Annex 8 for the full GHG report.

45. Sensitivity analysis: Applying a sensitivity analysis to estimate economic profitability indicators considering variations of key variables (reduction in yields and investment cost overruns) in a “with-project situation” shows that PAR II-OP is more sensitive to reductions in expected yields than PAR II-AF, which presents positive indicators in all the simulations considered. Both projects present positive profitability indicators even when increases in investment costs are simulated. See Annex 4, Table 9. A separate scenario analysis is also presented in Annex 4.

46. Administrative efficiency: While PAR II-OP allocated 19 percent of World Bank resources to finance Component 3 Project Management in 120 municipalities, the AF scaled PAR II activities to 233 municipalities nationwide and allocated 12 percent of World Bank financing to management. Calculating administrative efficiency as the amount allocated from Component 3 to each subproject, PAR II-OP allocated US\$ 13,987/subproject, while the PAR II-AF allocated US\$ 10,222/subproject, 27 percent less. EMPODERAR clearly continued to learn as it gained further experience in the design and implementation of the Alliance Plans. Extensions of the closing date were granted to counter the effects of negative events – drought, COVID and social-political - and ensure achievement of the PDO.

47. Efficiency is rated High, exceeding expectations in the Project’s sector. Further, despite lower subproject management costs, success of PAR II-AF exceeded the PAR II-OP. Even though the proportion of viable subprojects (NPV>0) is similar between the two phases in all three time-horizons, the average IRRs of PAR II-AF subprojects are higher than PAR II-OP subprojects. The same trend is observed in the economic analysis: The economic IRR is higher for the AF than PAR II-OP. This is notable given the higher risks/challenges faced by the PAR II-AF from expanding nationwide. The EFA results and decrease in administrative cost per subproject depict the improvement trend in the

²² EMPODERAR was unable to provide information to estimate benefits of the Municipal Subprojects and based on the Bank’s recommendation has prepared TORs to ensure its collection from PAR III for the end-of-Project EFA.



efficiency of Alliance Plan design and implementation, and of EMPODERAR's management of the Project.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

48. **Overall outcome is rated High.** PDO relevance was High at appraisal and maintained that relevance through closing, assessed against the key strategies of both the Bank and GoB and putting the weight on how "market accessibility" was/is interpreted based on the causal activity streams of the OP and AF projects. Efficacy is High measured by strong results for all PDO and IR Indicators; and by positive, attributable findings of methodologically sound Impact Evaluation and Beneficiary Perception studies. The High rating for Efficiency reflects rates of return which far exceed the economic discount rate, a strong increasing trend from the PAR II-OP to PAR II-AF, robust results for sensitivity and scenario analyses, and EMPODERAR's notably efficient project implementation and administration.

49. **Split Assessment of Outcome:** Consistent with the Bank's ICR Guidelines, a split assessment of outcome was considered given the reduction of the PDO Indicator target for the "*Increase in the average volume of sales of products involved in the alliances*" from 50 percent to 35 percent by the AF. This change was a rational adaptation to and acknowledgement of changed circumstances, reflecting factors beyond the Project's control, primarily: (a) **adverse weather events** including the record-breaking drought of 2016 which severely affected the agricultural production of Alliance SPOs, mandating more conservative/realistic estimates under climate change scenarios and projections; (b) **the financial shortfall** created by the unforeseen and evolving exchange rate differential between SDR relative to USD and marked increase in input and materials costs affecting subproject implementation. The estimated IDA credit in US Dollars at OP approval was US\$50 million but at AF processing had fallen to US\$45.5 million, requiring revision of original target values for several OP IRIs: The number of Alliances targeted under the OP was reduced from 645 to 550, and Municipal Subprojects from 26 to 14. However, the aggregate number of (integrated) Alliances financed reached 1,644, far exceeding target; and (c) **adjustments to the methodology for aggregating sales data** to ensure greater realism and accuracy. By closing, however, the PDO Indicator of average sales volume had far exceeded its target (62 percent vs the revised 35 percent target) and exceeded the original target of 50 percent. Given these factors, a split assessment of outcome was not conducted/presented.

E. OTHER OUTCOMES AND IMPACTS

Gender

50. **Women constituted 35 percent of the 50,989 beneficiary families who were members of SPOs.** Further, while women represented 33 percent of the beneficiaries of Municipal Infrastructure subprojects, this only includes those who participated in the counterpart contribution of associated Alliances and who participated directly in the execution of the infrastructure. Participation levels differed by type of investment: women were 41 percent of roads beneficiaries, while 35 percent and 33 percent, respectively, benefited from irrigation and bridges. Courses helped create gender awareness in implementation stakeholders, including EMPODERAR staff and technicians. It seems essential - and would be helpful - for the annual Beneficiary Perception studies to introduce questions on gender roles and participation.

Institutional Strengthening

51. **EMPODERAR initiated PAR II with significant experience of World Bank projects and throughout was able to draw on the human resources and technical capacity needed to implement the Project.** The Department-level Operational Units conducted procurement and contracting under Project review, based on the Operational Manual



and Manual of Small Producer Procurement. The 96 in-house technical personnel were selected by a specialized external firm applying/following established procurement procedures, and their performance was evaluated annually by a second firm contracted for this purpose, to justify or not, their re-hiring. EMPODERAR's further institutional evolution is evident in the Perception Study (2023) results where 93.5 percent responded favorably to the question: "Did PAR II learn from the productive experiences of the SPO?", indicating processes of continuous back and forth learning and adaptation between actors, highlighted by the study as a key strategic advantage of the Project.

52. SPOs were strengthened by systematic technical services, boosting the Alliances' sustainability by helping them to address demand from new or expanded markets, improve their incomes and asset administration, and increase the longevity of their commercial agreements with buyers.²³ The primary sources of TA were: (a) *Facilitadores*, responsible for Alliance Plan formulation; (b) *Evaluadores*, external evaluators of the Alliance Plans; and (c) *Acompañantes*, providing technical support/training in the management and execution of the Alliance Plans. The BCR (EMPODERAR 2023) explains that the Project's capacity to implement the PAR II-AF's intensified focus on irrigation and efficient use of water depended on the ability of the SPO and TSP to acquire new expertise in the identification and use of technologies, selection and adoption of technical options, and ability to discern the costs and potential for scaling up production and hence, incomes. Overall, 1,348 well-qualified service providers were contracted (27 percent women, 73 percent men) of which 402 *Acompañantes* and 946 *Facilitadores*.²⁴ The BCR notes that the AF's prioritization of irrigation and water management reduced female TSP to 26 percent, from 31 percent under the OP. The AF's Institutional Support activities were affected by the lack of specialized consultants knowledgeable in the formulation of water plans with modernized irrigation within the Alliance Plan's agronomic framework. See Section III. The Project provided intensive additional training to meet this urgent need, bolstered by FAO technical specialists, Bolivian irrigation technology firms, and an irrigation-focused TSP, the *Asistente Técnico* (see para 62).

53. Effectiveness of the TSP mechanism is evident from beneficiaries' responses to the 2022 Perception Survey: (a) 85 percent of respondents nationwide expressed high satisfaction when asked: "Do you believe the Facilitator contracted to prepare your Business Plan, achieved good quality?"; (b) Similarly, 90.6 percent of respondents believed that the "...consultant (*Acompañante*) who accompanied implementation of the Business Plan did so by working according to contract"; and (c) 88 percent of respondents agreed that "...the *Acompañante* for Business Plan implementation carried out the needed support and training SPOs were supposed to receive". The Perception Study notes that 2022 was a phase characterized by the closing of Alliance subprojects and submission of accounts for the Alliance Plans, thus these results are an important validation of the institutional model of using external consultants with a direct and recurrent relationship - and socio-cultural proximity - with members of SPO, to continuously support implementation of the Plans. The study notes this as especially true of Department-level Operations Units (of EMPODERAR, UOD) in regions with a historic scarcity (or non-existence) of continuous small farmer technical services.

54. Institutional development of SPO is also visible in Perception Study results for indications of business maturity. To the questions: (a) "With PAR II support, do you keep/maintain records of your production and sales of products?" to which 77 percent responded positively (an increase of 13 percent over the same response to this question in 2021). The study notes (i) the synchrony between the effective use of production monitoring systems and the maturity of Alliance Plan execution, since the questionnaires were applied in the late stages of Alliance completion

²³ SPOs received institution-strengthening at two points: (a) before Business Plan formulation the Facilitator trained SPO on the Project and its organizational structure; establishing Administrative and Social Control Committees; fiduciary management of subprojects and legal conditions for resources transfer; evaluation of business and market opportunities; and environmental measures for an Alliance; and (b) after signing the contract, the *Acompañante* trained the SPO in fiduciary management and procurement; monitoring of investments and production; business and market opportunities; environmental measures; record-keeping of production, income, and expenditures; operation of rotating funds and financial services; and the organizational strengthening strategies prioritized in their Plan.

²⁴ Implementation Supervision Report (ISR) # 15 (Dec 2019) notes that out of 2,465 proposals (at the opportunity evaluation stage), 2,246 had contracted a Facilitator to support Alliance Plan preparation, explaining the comparatively high number of Facilitators vs. *Acompañantes*.



and accounting, when all training for the recording and conservation of data had occurred;²⁵ and (ii) instruments for productive and commercial monitoring permitted producers to rationalize their results/efforts using data, and to make projections about effects and impacts over the short, medium and longer-term; and (b) equal numbers of beneficiaries (77 percent) responded positively to the question: “*With PAR II support, do you maintain registers/records of your production costs?*” Evidence of the SPOs’ institutional evolution is strong – typically, few small family producers/SPOs maintain such records - and further validates the efficacy of the Project’s TSP mechanism and approach.

Mobilizing Private Sector Financing

55. **Beneficiary SPOs contributed about US\$14.0 million in cash counterpart resources to the Alliances.**

Intensive project information dissemination campaigns persuaded producer groups to engage, and financial contribution to an Alliance/subproject was a requirement which distinguished PAR II from its predecessor and other rural development initiatives in Bolivia. The 2023 Perception Study shows the value that beneficiaries assigned to important elements of the Project’s design and methodology and thus their willingness to contribute their required share. Balancing this picture, however, 34 percent of SPO surveyed in 2022 said that difficulty producing the required contribution caused them to refrain from presenting proposals to participate. Further, while 81 percent of beneficiaries surveyed had no difficulty, 18 percent said external circumstances affecting their productive and commercial activities had limited their counterpart capacity. This caused delays but did not - in these cases - lead to drop-out.

Poverty Reduction and Shared Prosperity

56. **IE studies and economic/financial analyses show the positive SPO and household income effects of the Rural Alliances model in Bolivia.**

Moreover, positive rates of return on specific Alliance value chains under PAR II/AF suggest outcomes supporting shared prosperity. The AF’s multiple categories of targeting acknowledged the inclusion of certain groups (Categories C, D and E – see Section I B) better able to manage a more market-driven approach as well as more sophisticated irrigation and agricultural practices, but all categories A-E were classified as poor under the national and agricultural censuses of 2012 and 2013, respectively, and all categories benefited from Alliance investments. Women and IP were a high percentage of the beneficiary cohort. The Project was carefully targeted, and benefits reached intended groups without detectable appropriation by larger farmers.²⁶ The baseline survey for the PAR II-AF found that 73 percent of PAR II-OP participants concentrated in two Ecological Regions – Valles (48 percent) and Trópico (25 percent) - attributed to technical and economic viability of the Alliances: technical - related to types of soils and climatic conditions; and economic - related to market opportunities. The BCR (2023) reports that 100 percent of the Alliances financed were concentrated in 233 Municipalities, across nine Departments and four Ecological Regions: Altiplano (13 percent), Tropico and Chaco (39 percent) and Valles (48 percent). See Annex 7, Section C for beneficiary testimonials about their project experience.

57. **Both IE studies (PAR II-OP and PAR II-AF) demonstrate the poverty reduction effects and potential of the Alliance approach.**

Using household net income from the productive unit – including valuation of own consumption – as the variable selected to analyze the Project’s impact on poverty and inequality,²⁷ the following results were reported for, and attributable to, PAR II-AF:²⁸ (a) **19 percent reduction in households’ moderate poverty**, from 62 percent to 50 percent; (b) **21 percent reduction in the average household income deficit**, from 39 percent to 31 percent, attributed to participation in PAR II-AF. Without the Project, participating households’ income deficit would

²⁵ The study found that when <10 % of Alliance Plans were under execution, 52 percent said they did not maintain records of production/sales.

²⁶ A request for financial support meant under the PAR II-OP a limit of Bs. 16,000 per family and Bs. 21,000 under the PAR II-AF, which deterred the participation of less poor producers.

²⁷ The poverty line is calculated by the National Institute of Statistics (INE), 2021 Household Survey. Poverty measures in the (AF) IE survey did not include non-labor income such as remittances, conditional cash transfers, rentals, and other household income.

²⁸ Poverty results for PAR II-OP are also very positive and summarized in Annex 7, Sections A and B.



have been 39 percent of the value of the moderate poverty line; (c) **29 percent reduction in extreme poverty of households**, from 42 percent to 30 percent, from project participation; and (d) **favorable distributional changes** in households with incomes close to the extreme poverty line. See IE summaries Annex 7.

Other Unintended Outcomes and Impacts **NA**

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

58. The following factors were relevant to project preparation:

- **The PDO was simply stated, set at the right level of ambition, and achievable within the Project’s lifetime.**²⁹ As noted in Sections 1A and IV, however, the PDO used an outdated format which, at the Borrower’s request during negotiation of the AF, was not changed. The Bank was aware of the opportunity at the time of AF processing to update and enhance the parent PDO by removing the dependent clauses and/or adding climate or water language, but the legal and bureaucratic challenges in Bolivia were insurmountable. The implicit Theory of Change was rational based on the context, investment logic, and activities explained in the PAD. PAR II largely followed the template and implementation approach of its successful predecessor,³⁰ with notable innovations. Project design was complex, but components were clearly structured, the operational framework was rational – and from PAR I, a known quantity – and implementation sequencing and timing were reasonable (to the extent feasible at Appraisal).
- **The Results Framework was acceptable but required later adjustment in response to the changing context.** While RF indicators lacked baselines at Appraisal of the OP, the successive Impact Evaluations established baselines across all variables. Indicator targets were based – logically - on PAR I experiences, but also needed reassessment over time based on improved measurement methodology, and realism in the face of negative or changed external factors. The monitoring plan was appropriate, coalescing around the Georeferenced Management Information System (SIGG) - a technically advanced instrument introduced by PAR I - and supporting impact evaluation, the latter well-established under PAR I and built organically into the PAR II M&E framework. See M&E, Section IV.
- **Targeting was spelled out clearly in the PAD and Operational Manual and further refined by the AF.**³¹ The latter combined poverty and territoriality in revised and refined project targeting criteria more closely linked to the Ministry of Planning and Development’s official categorization of communities. See details in Section I B. The effectiveness of targeting is borne out by results of the Impact Evaluations. See Sections IIB and IIE.
- **The main risks were accurately identified, and mitigation measures were appropriate.** Project design complexity stemming from the ambitious target for rural Alliances and their management challenges for low capacity SPOs were the main risks highlighted. Reinforcement of SPO capacity and well-vetted, qualified, and systematic technical services were part of the mitigation framework and functioned well in practice. Additional details, Sections III and IV C.
- **PAR II was an innovative instrument of public policy.** The Project innovated through: (a) **organized strengthening of TSP capacity** to ensure that technical messages to producers/SPOs were current and built into

²⁹ The PDO – and PAD - used the term “small farmer” as synonymous with “poor” farmer and the PAD spells out the socio-economic and cultural characteristics of the target population. As with all poor populations, there were gradations of poverty.

³⁰ See Project Performance Assessment Report: Bolivia Rural Alliances Project, IEG Report No. 132905, December 20, 2018; and Implementation Completion and Results Report No. 3388, World Bank, February 12, 2014.

³¹ The Operational Manual included a consultative methodological framework to identify, map and assess potential beneficiaries, and for systematic consultation considering traditional governance structures, language, and women’s inclusion.



Alliance Plans, and annual performance assessments of TSP by their “clients” - randomly-sampled beneficiaries; (b) **irrigation investments for small farmers**, an innovation in Bolivia permitting increased cropping intensity, density (at least one additional cycle/year) and yields/ha, as well as off-season sales, while improving agricultural water use efficiency; (c) **giving irrigation an explicit role in building climate resilience**; (d) **financial education/literacy of SPO**, and FAO’s Financial Evaluation Manual for SPO with Alliances, enabling them to calculate profitability/other; (e) **special resilience window** for submission of Alliance Plan proposals for irrigation and water use investments; (f) **shaping demand** - in an otherwise demand-driven project - via mechanisms and incentives to support the newly-intensified climate investments and maximize project-generated climate co-benefits; (g) **mandatory beneficiary cash contributions** of 30 percent, and 20 percent for the poorest; (h) **organizational innovations**, applying a collective approach to technology use to increase productivity and incomes; and (i) **working with Municipal Governments** on larger scale complementary infrastructure to unlock productive and market access constraints affecting nearby producers. Section III discusses the TA and Credit pilots.

- **The PAR II-OP was ready to implement, benefiting from pre-established systems, formats and relationships, and stable, knowledgeable project leadership – both EMPODERAR and the Bank.** The PAR II-AF was also well-conceived and prepared, and reflected GoB’s intensified climate concerns. However, the AF under-estimated the technical, institutional, and financial complexity of introducing larger-scale irrigation works through the Municipal Subprojects and building more advanced irrigation into the Alliance Plans, and in this respect was not ready to implement. See Section III B. As noted in Section IB, the closing date of the PAR II-OP was extended twice (total of seven months) to permit a smooth transition to the AF without a financing gap, and adequate time to complete all approved investments and achieve the PDO. Notably, the third Call for Proposals netted 2,540 requests for support, exceeding AF expectations by 75 percent and obviating the need for a fourth Call.

B. KEY FACTORS DURING IMPLEMENTATION

Factors subject to the control of government and/or implementing entities.

59. **Intensive, multi-media project information campaigns post-effectiveness (PAR II-OP) saw EMPODERAR flooded with proposals, of which a high percentage passed the initial Evaluation of Opportunity.** However, manpower deficiencies affected feasibility screening quality and many approved proposals had little chance of being financed. The Project risked investing in the formulation of Alliance Plans for many non-viable proposals or supporting initiatives which lacked clarity and realism. The Bank urged the contracting of additional screening technicians, and re-evaluation of all proposals which had passed the opportunity evaluation stage to control quality and measure potential against solid technical and operational criteria: existence of a buyer, the SPO’s financing history, and business coherence of the opportunity. EMPODERAR also contracted the Independent Financing Institution (IFI) to evaluate the formulated Plans technically and financially. This tightening of feasibility criteria and control of the qualification and approval process markedly improved the rigor of Alliance design/selection, was critical to their success, and was a lesson for future operations.

60. **Implementation of the Municipal Subprojects (MS) faced procurement delays and fiscal problems, limiting their numbers.** Under the PAR II-OP, EMPODERAR performed most of the Subcomponent 2.2 (Municipal Subprojects, MS) activities: defined the MS pipeline, funded preparation of pre-feasibility and feasibility studies, and paid contractors.³² Under the **PAR II-AF**, new arrangements had the Productive and Social Investment Fund (FPS)

³² Under the PAR II-OP, Municipal Subprojects did not include off-farm (i.e., larger) irrigation investments. About 5.7% of investments under the



appraising the MS and procuring and supervising technical and safeguards aspects of their civil works. However, GoB changes in public procurement rules caused serious delays. Budget registration of the MS, comprising counterpart funds provided by municipal governments and project grants, took far longer than expected because the financial resources needed registration by three different entities - MDRyT, EMPODERAR and the Municipality; and FPS was forced under new Bolivian public administration norms to repeatedly request waivers to continue handling bids (its agreed function) in the online national Public Procurement System (SICOES). Candidate Municipalities also had to demonstrate adequate fiscal health, eliminating many Municipalities from contention, and entailing a complex, lengthy process for those that persisted. The political economy also influenced how the Municipalities were selected to participate. Whether these arrangements were satisfactory might be questioned. Alternative forms of counterpart might have brought more Municipalities into the Project: formalizing their responsibility for O&M of the investments; or having the Bank finance insolvent but needy Municipalities 100 percent, questionable on sustainability grounds.

61. Transitioning from the PAR II-OP to the AF phase was challenging, specifically regarding the new, climate resilience-related investments. EMPODERAR assessed the feasibility of mainstreaming or retrofitting resilience elements into over 100 SPO business proposals judged technically feasible under the IDA credit but not funded for lack of budget. Criteria were collaboratively identified for evaluating Alliance proposals with irrigation; preparing technical models for more complex irrigation systems and testing them under field/productive conditions; developing new instruments and operational functions in technical teams (including technical upgrading of the *Facilitadores*); and defining the strategic focus of future Calls for Proposals. This intensive effort took time, caused reduction of some RF targets for the PAR II-OP, and delayed launching of the AF investment phase. The Bank and Project agreed that the *Acompañantes* would be the main protagonists in modernized irrigation development and manage the full irrigation investment cycle. A new class of *Asistente Técnico* specialized in irrigation was also incorporated during the works execution phase, knowledgeable about the new systems and regional characteristics (soils, water quality, topography) and thus better qualified to guide/train producers in systems operation. This technician also supported the *Acompañante* in the review, implementation, and supervision of works. Irrigation also benefited from a well-designed training plan to ensure TSPs' consistent technical capacity in on-farm systems functionality, irrigation programming, O&M, fertigation preparation and dosing, and Alliances' adaptation to climate change. Ultimately, the Project met its target for "*area provided with improved irrigation investments*" achieving 15,845 ha or 99 percent.

62. The type and cost of more technologically advanced Municipal off-farm irrigation limited the total on-farm area feasible for modernized coverage. Most on-farm systems used sprinkler systems, and some Alliances also included Municipal off-farm (collective) investments. Due to the AF cost ceiling per Alliance of US\$52,000, the area feasible for coverage by more advanced irrigation systems was limited by the type and cost of the technology (highest cost/smaller area for drip and micro-sprinkler, and lower cost/greater area for sprinklers). The portion of the off-farm (Municipal) investment cost depended on the type of water source: gravitational intake from surface water sources and streams, direct intake from existing pressurized networks, groundwater/wells, and individual or collective water harvesting from reservoirs. The latter is illustrated by the Ichucata Community Dam in Raqaypampa Municipality (Cochabamba Department), benefiting 30 IP families producing potatoes with limited water harvesting and storage capacity, scarce irrigation, and no other sources nearby. The Project financed a stone dam storing 56,526 m³ of water and technically advanced irrigation with a 2,193 m distribution network and hydrants for on-farm delivery via drip and sprinkler, capable of covering 19.3 ha of land. The subproject expanded water storage capacity, promoted efficient water use, increased potato yields, enabled the community to diversify into short cycle bean and vegetable crops, and

PAR II-OP, via Alliances, supported small-scale, on-farm irrigation modernization and higher water use efficiency. SPOs installed irrigation equipment, replaced parts such as sprinklers, and built small tanks and pipe systems. The AF targeted investments more strategically, providing technology packages to improve water use efficiency, and increasing the grant ceiling/beneficiary to make the technological upgrade more affordable.



helped to reduce municipal out-migration. Annex 7, Section E shows schematic examples of Municipal irrigation systems. The Sixilla Alliance (La Paz) shows the topographic/physical challenges facing many such schemes in Bolivia.

63. A period of acute social and political unrest starting in late 2019 manifested in the State's intervention in project operations. Small farmers in SPOs were recruited to participate in political activities by broader agrarian unions and farmer federations. The new administration moved to replace experienced, trained project staff from both the national and regional offices, including the Project's National Coordinator. The Bank granted a No Objection to initiate competitive recruitment for a new National Coordinator and sought to stem the loss of the Project's technical and operational capacity, in which the Bank had worked closely with EMPODERAR to build support, referring to the Loan Agreement and Operational Manual obligations to maintain the Project's staffing capacity. Eventually, the previous National Coordinator was restored and the pressure for staffing changes eased. However, subsequent delays in transferring funds to SPO/Alliances under the AF eroded producer confidence in the Project, and affected SPOs as they entered the new agricultural cycle. The COVID pandemic further exacerbated this situation (see below). Some 204 SPOs representing 4,590 families with viable investment plans valued at around US\$11.0 million dropped out of the Project, leading EMPODERAR to generate an extended portfolio of rural Alliances to reach and achieve project beneficiary targets.

64. The PAR II-financed TA and Credit Pilot Alliances had mixed implementation experiences and results:

- **Model II Productive TA:** This pilot sought to deepen technical innovation and/or resolve specific problems in a producer's productive system, and achieved important results in generating demand, given the possibility of accessing integrated financing (TA and productive support): 91 SPO implemented TA Alliances with investments benefiting 2,933 families already benefited under PAR I. Bank supervision notes EMPODERAR's valuable work with 16 Cacao Alliances in the Northern Region, responding to an outbreak of *Monilia fungus* (Frosty Pod Rot) through the pilot's specialized TA. Even so, some SPO dropped out before signing the financing agreements despite having approved TA plans, due to lack of the required counterpart contribution.
- **Model III Credit:** While the Project created the conditions for SPO to access "individualized associative credit" from commercial banks, including by financing credit managers to assist SPO members in navigating the complex application process, the credit pilot did not thrive and is not part of PAR III. The intent was complementary investments for qualifying PAR I beneficiaries to exploit PAR II-AF's focus on modernized irrigation and water use, and involved two commercial banks, *Banco de Desarrollo Productivo* and *Banco Unión*.³³ The Project's specialized support would mitigate risks facing these institutions in providing credit to individual producer members of SPO; these were not loans to the SPO itself, which was classed as an aggregator, processor, and/or marketing agent within this framework. Success depended on its overall potential for future scale-up. The Bank urged the client to: (a) document the costs and benefits of providing this service to SPOs and develop criteria for its evaluation; (b) contract a credit specialist to lead project credit activities and develop a strategy for financial education/literacy implemented transversally across all SPO; and (c) emphasize financial management including of rotating funds. Out of 804 applicant SPO families, 206 members in 47 SPOs successfully presented the documents required by the banks.³⁴ Producers were deterred, even with structured support, mainly by the complex paperwork and unattractive financial conditions/interest rates for individual credit, around 9 to 10.5 percent depending on the region. See Annex 7, Section D, Table 18.

³³ The Model II credit pilot was launched under the PAR II-OP, but complex foundational activities saw most of its active phase during PAR II-AF.

³⁴ The 47 beneficiary SPO were producing a wide range of agro-livestock products. Investment packages supported by the TA portion included irrigation "kits", balanced rations, drying, fumigation and forage production equipment, pumps, greenhouses, water tanks, seeds, and fertilizers; and TA on MIP and animal health/sanitary standards, irrigation management, and productive practices.



65. Systematic use of the *Facilitadores* and *Acompañantes* was vital to successful project implementation.³⁵

The former's comprehensive, rigorous, and participatory management of the Alliance Plan formulation stage ensured that SPO were well-equipped for the investment phase. This contrasts with many projects attempting a Productive Alliance approach but foundering at the Business Plan formulation stage with negative reverberations along the Alliance implementation chain. TA focused on organization strengthening, design of business and marketing plans, adoption of sustainable and efficient crop and livestock management practices, increased efficiency of irrigation water use through modern equipment and systems (supported by the *Asistente Técnico*), and the enhanced management of agricultural inputs, production costs, procurement, and financial processes. The importance of local, hands-on, culturally appropriate technical support to producers cannot be over-stated. The 2022 Perception Survey responses validate the effectiveness of the *Facilitadores*. Similarly, the profile of the technical "companions" tasked with transferring organizational, business management and technological knowledge to producers continuously for two years is both replicable and scalable, and the beneficiary Perception Survey responses highlight the Project's delivery of improved technologies and farm practices. The active participation of the *Facilitadores* and *Acompañantes* "opened new and higher levels of technical dialogue on production and commercialization which consolidated mutual confidence between rural actors, favoring achievement of common objectives and the Project".

Factors subject to World Bank control:

66. The Mid-Term Review and its evaluation study influenced the course of the Project and led directly to the Additional Financing: The study (Monterrey, 2015)³⁶ concluded that project implementation was satisfactory and accelerating; relevance remained high within GoB's policies for small farmer support; Alliances were based on increasingly better definition of buyers' conditions and capacity, specifically quality, quantity, and delivery terms; subprojects were designed to achieve their short-term objectives; activities were appropriate/aligned; and acquisition of equipment was having important transformative and technological effects. The MTR also noted: (a) rising costs of construction materials and budget limitations impacting project infrastructure investments and procurement bidding and processing. The average cost of an Alliance subproject had increased from US\$50,000 to US\$59,000 and the financing ceiling per beneficiary was inadequate at Bs 12,500 and needed to be raised; (b) delays along the execution chain caused by the large number of Alliances under preparation and implementation, burdening regional technical personnel; (c) crucial importance of the Alliance Plans and need to continue filtering for success markers in proposals to ensure strong outcomes; and (d) need for continuous training of the *Facilitadores* and *Acompañantes* supporting the SPOs at all stages. The MTR also recommended simplification of procedures and improved instruments aligned to Alliance Plan cycles; enhanced TSP capacity and improved range of financial incentives aligned to their responsibilities; standard, defined procedures to ensure quality of the Municipal Infrastructure subprojects; and clarification of methodologies for monitoring RF indicators. This advice was adopted and successfully applied via the AF and over time.

Factors outside the control of government and/or implementing entities:

67. The COVID-19 pandemic hit Bolivia hard at a time of limited fiscal space to respond and had significant effects on project implementation. Project field operations virtually ceased in 2020, and 204 Alliances dropped out for lack of SPO capacity to provide agreed counterpart contributions. Subproject procurement was suspended under the nationwide quarantine; changes were introduced in the Operational Manual to re-initiate procurement and simplify procedures within the COVID context. Quotes could be presented electronically via online workshops with SPO

³⁵ PAR II's TA strategy evolved over time, initially using a specialized firm to manage TA then devolving to local, individual contracted technicians dedicated to a defined number of Production Units (productive households) and Alliances, facilitating the Project's monitoring of the Alliances' technical and financial quality over time.

³⁶ Programa de Alianzas Rurales II: Evaluación de Medio Término, J. Monterrey, Consultant, August 2015.



participation, and EMPODERAR offered full support to SPO and UODs to resolve complex cases. The *Acompañantes* reported that electronic means did not work equally well for all SPO: some SPO Committee members lacked knowledge of digital tools, many communities lacked internet coverage, some SPO lacked smartphones or computers and printers, while suppliers sent files too big to be downloaded. Commercial activities and agreements between sellers and buyers were suspended, affecting primarily the storage of primary products, the product processing sector and generalized business activities, and small producers were severely hampered. The Project tried to maintain progress, but Municipal quarantines and lockdowns prevented the Administrative Committees from quoting for goods and services, and moving goods already acquired; hindered the movement of the *Acompañantes* to farms and areas where Alliances were under execution; prevented PAR II technicians from discharging – physically and financially - completed Alliances; and disrupted SPO’s internal communications, ability to convene stakeholders, and to implement investments.

68. Severe drought in 2016 brought new urgency to Bolivia’s awareness of its national vulnerability to climate change, most notably in the agricultural sector. Climate change was resulting in glacial melt, drought, floods, forest fires, erosion, water shortages and rural conflict over the use of aquifers, damaging the Bolivian economy and heavily impacting the country’s poor, especially in rural areas. Grain and oilseed production declined by 27 percent in that year, officially ascribed to climate change and the El Niño cycle. Project beneficiary producers suffered severe losses. This situation was a key justification for the new Government’s massive re-focusing on water, and for the AF’s intensified investment in irrigation and more efficient water use, along with technologically more advanced farming practices. These measures were further vindicated by record heat and drought conditions in Bolivia in 2022-23.

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

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

M&E Design

69. The key features of M&E design were as follows:

- **The implicit Theory of Change was clear, and the Results Framework comprised indicators of sufficient relevance, coverage, and measurability to gauge project achievement of its PDO.** The PDO was stated concisely, indicated the primary targeted group and the change expected from the project interventions, and focused on an outcome achievable within the project lifetime. However, it also stated the activities contributing to those objectives, an outdated format no longer used by the Bank, and which the Efficacy analysis in Section II B – based on the ICR Guidelines (para 45) - treats accordingly.
- **The Bank proposed removing the PDO’s dependent clauses at the time of AF processing, but the Borrower insisted on their retention, an issue which delayed final negotiations.** Essentially, GoB required that modification of the AF PDO be matched by retroactive modification of the PDO for the parent operation, an extremely complicated step involving bringing a project at an advanced stage of implementation to the Bolivian Congress to request such changes. The Borrower was not willing to do this. However, the AF added new bespoke indicators on area under irrigation investment, and application of improved technologies. Water use efficiency was an assumed benefit and expected to increase dramatically. In summary, the PDO term “*market accessibility*”, while prima facie a straightforward objective outcome, in practice embodied a convergence of complex contributing factors and activities, including intensified climate resilience.
- **PAR II inherited a comprehensive, well-functioning and consolidated monitoring system from its predecessor.** Monitoring was/is based on the SIGG for planning, monitoring, and controlling implementation of the Alliance preparation and investment cycle, including SPO procurement plans, and for reporting on process and Results



Framework Indicators. Information would continue to be uploaded to the online SIGG in real time as project staff and consultants implemented activities, verified by EMPODERAR's National and Regional Units.

- **Activity and indicator reports were also linked to the financial management and reporting system.** The SIGG was also to monitor – in addition to the RF – an agreed set of process indicators at Component level to permit real-time monitoring of implementation progress and fast corrective actions; and would issue periodic and six-monthly progress reports to steer implementation. The goal was to further develop the SIGG as an open web-based Public Information System to permit disclosure of key project information.
- **The Project planned an MTR evaluation study to support potential project adjustments, as well as a final IE focused on the RF indicators and additional studies.** The IE would use a double difference analysis, complemented by ex-ante propensity score matching, and assess two key variables: household gross total income and household gross agricultural income.³⁷ Baseline surveys were to collect comprehensive information on project applicants for each Call for Proposals. Follow-up surveys would collect the same information when the Alliances closed.
- **The AF scheduled a second MTR in Year 2 to guide adjustments, and a final IE at closing** using the same quasi-experimental methodology applied to PAR I and the PAR II-OP, measuring, and comparing higher-level indicators such as household income and the poverty rate in beneficiary/treatment and control groups.
- **Other studies were planned but the agenda proved overly ambitious:** Planned studies – separate from IE - included the multiplier effects of PAR I by value chain; sector economic relations; analysis of PAR II's pilot credit activities to determine the extent to which they complemented or substituted the existing financial system; and studies on market agents and on environmental mitigation measures.

M&E Implementation:

70. Key features of M&E implementation were as follows:

- **The legacy SIGG was further refined by the time of the AF, incorporating lessons from PAR I and the PAR II-OP.** The PAR I system was gradually substituted by a new information system linked to a process of decentralization and technification of monitoring, with almost immediate data input enabling the Project to gauge implementation status in real time. The effort to achieve this at the regional level was arduous and in its initial stages, still manual; initially also, Alliance Monitoring Committees, while understanding the utility of monitoring, tended to adhere because it was an institutional requirement - there was little ownership. This changed over time, especially as subproject results became evident.
- **The SIGG was an institutionalized, multi-level and multi-user, web-based computing platform, permitting internal and external users to generate reports in real time.** The SIGG included all procedures, tools and organizational structures needed/used to generate, manage, and report technical, administrative, and financial information associated with project implementation at the local, regional, and national levels. The SIGG was used to plan, monitor, and control implementation during the Alliance cycle and to report indicators of inputs and outputs, and the Project's RF. Information/data collected was uploaded to the SIGG as activities were conducted then verified by EMPODERAR's UODs and National Coordination Unit (NCU).
- **The role of the *Acompañantes* was especially vital to the quality and timeliness of the field monitoring effort** - as became the Monitoring Committee established in each Alliance - providing continuous progress data on field implementation of each Alliance (verified by the Departmental Units and at the NCU level to ensure quality and consistency) for comparison with project design expectations/targets and building valuable experience in applying a management by results focus. EMPODERAR's high quality semestral Progress Reports reflected this effort and the strengths of the SIGG.

³⁷ At the time of PAR II-OP Appraisal, the final impact evaluation of PAR I was being planned and was delivered in 2014.



- **The AF adjusted the RF substantively and quantitatively.** New indicators reflected intensified investment in climate resilience, some targets were re-estimated, and redundant indicators were deleted. These adjustments enhanced the RF – its relevance, measurability, and realism – adapting it to changed circumstances. The PDO was not adjusted, as explained above under M&E design.
- **More generally, the Bank and EMPODERAR were well-attuned to the imperatives of strong, accurate monitoring for project management, learning, course correction and results assessment.** The primary changes were part of the AF and additional, minor adjustments were made by subsequent restructurings. The Theory of Change proved an important tool for project M&E, maintaining focus on the elements critical for project success, and whether the indicators expressed the different causal relationships and phases. While the basic thrust of the ToC was not affected by the AF’s new elements, the intensified climate focus and aligned financing expectations reoriented its center of gravity.
- **Mid-Term and IE studies (for the OP and AF) were delivered on time, and to a high standard,** with a large sample of treatment and well-selected control groups - consolidating and further validating the body of sound evidence for project achievement now available on the Bolivian Rural Alliance operations. Several rounds of beneficiary assessments closed the loop on citizen engagement, addressing the corporate commitment. The same consultant specialist prepared all studies (except the Beneficiary Perception Report) in close collaboration with EMPODERAR and the Bank.³⁸ EMPODERAR also delivered a strong BCR in 2023. The BCR and IE studies are summarized respectively, in Annexes 5 and 7 and available in SharePoint. Most of the planned complementary studies were canceled at the time of AF processing whether for lack of statistical information or because they were being done by EMPODERAR with other entities, such as the credit study with PROFIN.

M&E Utilization:

71. The BCR (2023) asserts that the Project’s M&E system played an important role in the achievement of results and hence, the Project’s objectives. The main features of M&E utilization were the following: Monitoring data and evaluation products were used very effectively. The SIGG produced, organized, stored, and disseminated a large amount of data/information permitting timely, knowledge-based decision-making, and is the foundation for M&E under the follow-on operation. It enabled the Project to plan, monitor and control project implementation; to report on progress and for fiduciary, transparency, and accountability purposes; to support preparation of the AF and project restructurings; to provide the basis for the Project’s adaptation to changing circumstances and support government strategies; and to strengthen and guide the work of Bank supervision missions, and preparation of the Bank’s ICR, the Borrower’s IE studies, the BCR, and PAR III.

Justification of Overall Rating of Quality of M&E

72. **Quality of M&E - assessing design, implementation, and utilization - is rated High.** EMPODERAR and the Bank team took M&E seriously from the start, adjusting as indicated by the context and building on its strong track record under PAR I. To recap, the Project conducted two, methodologically sound impact evaluations with baselines, a well-designed Perception Study (four-year comparative series), monitored progress and fiduciary compliance/performance using a sophisticated MIS (the SIGG) and reported updated six-monthly progress information in a well-designed standard format, and prepared strong MTR and Borrower Completion Reports. Using the same experienced consultant to prepare the MTR and IE studies proved advantageous, and evaluation products – including the separately prepared 2022 Perception Study - are of a consistently high standard. In aggregate, this system has

³⁸ The Loan Agreement governs selection of project personnel, including contracting of a specialized firm to select personnel and another firm to conduct annual evaluations of these personnel (via beneficiary Perception Surveys) under Bank-approved TORs.



enabled a virtually seamless transition of M&E into the follow-on PAR III, under implementation since 2022.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

73. The Project was classified as Category B and triggered the following: (a) **Environmental Safeguards** policies: Environmental Assessment OP/BP 4.01, Natural Habitats OP/BP 4.04, Forests OP/BP 4.36, Pest Management OP 4.09, and Physical Cultural Resources OP/BP 4.11. The AF added two policies: Projects on International Waterways OP/BP 7.50, and Safety of Dams OP/BP 4.37; and (b) **Social Safeguards** policies: Indigenous Peoples OP/BP 4.10, and Involuntary Resettlement OP/BP 4.12. Compliance is discussed below.³⁹

74. Environment (including Safeguards): The Project team refined instruments used under PAR I to assess and monitor the Alliances' compliance with environmental issues: key mitigation measures to identify short- and long-term environmental risks were built into the Alliance investment plans and climate change mitigation was incorporated into environmental management. The World Bank environmental safeguards specialists visited the field regularly to assess the application of safeguards instruments in subprojects. Oversight of Environmental Monitoring Plans and the environmental status of 1,644 Alliance Plans in different macro-regions nationwide was a massive challenge. Even so, environmental safeguards compliance ratings were uniformly Satisfactory until 2019 when downgraded to Moderately Satisfactory (MS) for Environmental Assessment (OP/BP 4.01), Forests (OP/BP 4.36) and Pest Management (OP 4.09). Ratings were restored to Satisfactory in June 2020 following successful implementation of an Action Plan⁴⁰ but downgraded again in 2023 as discussed in para 78.

75. Compliance under individual safeguards was generally strong with late exceptions: (a) **Natural Habitats** (OP/BP 4.04): 1,502 Alliance Plans were implemented in modified habitats and 142 plans in permitted zones of municipal, departmental, and national Protected Areas (PA). Of the 70 Municipal Infrastructure subprojects, 67 were implemented in modified habitats outside PAs and three in PAs (anthropic zones). None of these converted or degraded natural habitats. However, as explained in para 78, the rating was downgraded in 2022; (b) **Pest Management** OP/BP 4.09: Beneficiaries of the 703 Alliance subprojects involving pest management used integrated management methods of control; agricultural practices less favorable to pests; soil preparation; shade management areas; disease free seeds and plants; productive diversification and use of agro-forestry systems; fertilization, crop rotation, and irrigation; pest resistant plant varieties requiring less pesticide or dependence on pesticides; and applied permitted (Class III and Class IV) pesticides. Field monitoring of MIP practices was overseen by the *Acompañantes*, and results were validated by Environmental Analysts in EMPODERAR; (c) **Forests** OP/BP 4.36: This safeguard was consistently rated Satisfactory until downgraded for non-compliance with the Exclusion List in 2022 (see para 78 below); (d) **Physical Cultural Resources**, OP/BP 4.11: This safeguard was consistently rated Satisfactory through closing. PAR II did not finance any Alliances or Municipal Infrastructure with activities entailing the elimination or alteration of a physical cultural resource; (e) **Safety of Dams** OP/BP 4.37: 820 Alliance subprojects with on-farm plot irrigation used rivers, wells, small dams, and spillways to source water. A single Alliance (potato) with severe water scarcity financed a small reservoir with a 14.5-meter dam and water distribution/irrigation system built under the Municipal Subproject category and benefiting 30 Indigenous families (see para 67). The dam design and construction pose no risk and were agreed and executed in full consultation with and participation of beneficiaries and local authorities.

76. Social (including Safeguards): The Project had a Satisfactory compliance record for implementation of Social Safeguards policies. The Project team refined PAR I instruments to assess and monitor Alliances' compliance

³⁹ Public consultations (12 workshops) in March 2012 on environmental and social aspects of the Project encompassed the municipalities to be covered by the Project. The Environmental Assessment (EA) report and Environmental Management Framework (EMF) reflect the results of these consultations and were disclosed by the Government and World Bank on August 2, 2012.

⁴⁰ Training workshops; agreements with expert institutions in pesticides and toxic waste management; publication/dissemination of educational materials; stronger oversight of the Environmental Verification Lists and Subproject Environmental Plans; Certification of Compatibility of Use for existing Alliance Plans in National Protected Areas; and standardization of information in Alliance Plans for agro-forestry subprojects.



with social issues and promoted social assessment of the Alliance Plans including the use of guidelines to assess SPO capacity. Capacity building was a core activity of Social Safeguards oversight. The Municipal Infrastructure Subprojects executed by FPS also used participatory processes, and dialogue with local stakeholders was fully recorded. Compliance with individual safeguards was as follows: (a) **Indigenous Peoples OP/BP 4.10**: PAR II, as with PAR I, was designed and implemented as an IP project, following policy guidelines, and not requiring specific Indigenous Peoples Plans (IPP). Most of the target population in Selected Areas identified as indigenous and met other key criteria of the Bank's Operational Policy 4.10, ensuring proper integration of IP into the Project and focused attention for especially vulnerable groups. All Municipal Infrastructure subprojects were intended to open access to markets, schools, and health centers, and to shorten distances traveled to market. Of a total 50,989 beneficiary families, 33,227 were indigenous (65 percent); (b) **Involuntary Resettlement OP/BP 4.12**: None of the 1,735 Alliances and 84 Municipal subprojects resulted in the displacement of communities and indigenous peoples, no lands were purchased using PAR II funds, and no subprojects were in areas under tenancy dispute. Most Municipal Subprojects were implemented on lands covered by the Environmental Management Plan; in cases where small pieces of beneficiary land were essential for the viability of a Municipal Infrastructure Subproject, the owners ceded it voluntarily after open consultation in line with Bank safeguard policies.

77. Subprojects in Protected Areas: In mid-2022, the Project's compliance with OP/BP 4.04 (Natural Habitats) was downgraded to MS based on a preliminary assessment of eight Municipal Infrastructure subprojects being implemented by FPS. At the Bank's request, EMPODERAR and FPS prepared a report on the eligibility of these subprojects for Loan financing. In December 2022, the Bank communicated non-compliance and consequent ineligibility of five of these subprojects under the Loan Agreement. In the first quarter of 2023, the Bank additionally downgraded the Project's compliance with OP 4.01 (Environmental Assessment), OP 4.36 (Forests) and Exclusion List in six of these Municipal bridge construction and road improvement subprojects, and with OP 4.10 Indigenous Peoples for inadequate consultations with minority IP in one area. After the receipt of an Environmental and Social Audit of these five PAR II Municipal subprojects, conducted by EMPODERAR under Terms of Reference satisfactory to the Bank, and further review, the Bank confirmed in February 2024, that the five subprojects totaling US\$0.73 million were ineligible for Loan financing.

Procurement:

78. Procurement ratings were almost uniformly Satisfactory throughout both phases of the Project. At Effectiveness, the main concerns were limited institutional capacity for procurement and frequent turnover in project staff, along with an assessed substantial risk of potential collusion between bidders in procurement of goods and works, which did not materialize. Bank fiduciary staff trained 40 EMPODERAR staff in the Bank's procurement guidelines. The geographic dispersion of POs in rural areas had implications for the availability/supply of goods and technical services with the specifications required by Alliances. Procurement planning for and processing of SPO subprojects began to exhibit problems in 2015, prompting an independent procurement audit which led to downgrading of the procurement rating to Moderately Satisfactory (MS) for about one year while EMPODERAR addressed defined issues. Ratings were subsequently upgraded and remained Satisfactory through Closing. One issue which arose in that period involved delayed migration of the PAR II Procurement Plan into STEP (Systematic Tracking of Exchanges in Procurement) under the AF, including updating contract awards and implementation data – 200 out of 539 activities were still pending by mid-2021 - but STEP came to be used routinely by EMPODERAR and FPS.⁴¹ The PAR II-AF retained PAR II-OP's experienced procurement staff and Procurement Post Reviews found that involved agencies had enough staff with the right skills and behaviors and a satisfactory procurement track record. EMPODERAR's regional offices received adequate procurement support from headquarters, and there was no evidence of mis-procurement.

⁴¹ The archive explains that STEP migration delays arose from the very large quantity of activities under procurement, and the resignation of the Procurement Specialist.



Financial Management:

79. **Ratings were uniformly Satisfactory except for a one-year period from June 2020 to July 2021.** EMPODERAR put sound FM arrangements in place and continued to enhance them over time. Interim Financial Reports (IFR) were submitted on time and without qualifications, external audits were timely and Unqualified, and the SIGG's alert system monitored the Alliance subprojects. Ratings were downgraded to MS in June 2020 due to the delayed transfer of resources from the Ministry of Economy and Public Finance (MEFP) to Alliances/beneficiary SPO (which affected the entire Bank portfolio in Bolivia at the time), extensive technical reviews by the new administration, low disbursements – 27 percent within 12 months of Closing – and a significant backlog of unfinished Alliance subprojects. EMPODERAR executed a time-bound Action Plan to accelerate the flow of funds. The BCR (2023) notes that the disruption of technical staffing and overall project coordination were also factors in the disbursement lag and associated delays in physical implementation, along with weakness in the FM arrangements under FPS-assigned categories (weak management/monitoring of the Municipal Infrastructure subprojects). FPS overcame these issues by March 2022, preparing more precise cash flow forecasts for requesting advances to the Designated Account, and more timely documentation of expenditures to the Bank. The final FM supervision states that FM management arrangements adhered to World Bank standards, and there were no shortcomings affecting the capacity to provide timely and reliable information to manage and monitor project implementation. The exit rating was Satisfactory.

80. **Grievance Response Mechanism (GRM):** The Project had - and has retained under the follow-on PAR III - a website (<https://www.empoderar.gob.bo/public/>) holding relevant project information including contacts within all Departmental Units of EMPODERAR. The Project also incorporated a mechanism to receive complaints and queries through WhatsApp, letters, and/or meetings promoted by the Regional Offices to interact with beneficiaries. A well-maintained public information system was linked to the GRM and regularly provided technical and administrative information on implementation progress and results achieved nationwide. The GRM system continuously incorporated recommended improvements - use of a centralized phone line and improved registration and analysis of complaints and queries in a virtual information system linked to the SIGG. Project-affected people could access any of these tools and could also rely on regional operators to channel their concerns. The 2022 Beneficiary Perception study shows 63 percent of beneficiaries found PAR II's response to their suggestions and complaints very adequate, and another 28 percent found the process moderately adequate, signaling the need for attention. Over the project lifetime, 444 complaints and queries were received, all of which were resolved and reported.

C. BANK PERFORMANCE

Quality at Entry

81. Key features of quality at entry were as follows:

- **PAR II was strategically well anchored and justified, and its methodological approach had been tested and evaluated under PAR I.** Technical, financial, and economic aspects of its design, modelled largely on the earlier operation, were grounded in experience. Given continued and pervasive high rates of rural poverty, specifically gender and ethnicity-based, indicators were disaggregated accordingly and as noted earlier, the Project was for all intents an Indigenous Peoples' operation. The Operational Manual included a consultative methodological framework to identify, map and assess potential beneficiaries, and for systematic consultation considering traditional governance structures, language, and women's inclusion. Institutional arrangements for project implementation and management justifiably remained with EMPODERAR and its UOD. Project preparation was managed by the PAR I Task Team Leader whose reserves of experience – including the design of PAR I - ensured the integrity of PAR II. A seamless transition into the follow-on operation was expected.
- **PAR II design reflected lessons of PAR I, a pilot which proved the viability of improving access to markets via alliances between producers and buyers.** Bank supervision of PAR I had focused on close monitoring, adaptive



evaluation, and partnership with the Government. Many operational lessons were translated immediately into procedures and instruments, subsequently adopted in PAR II design. These included using self-selection instruments transparently: PAR II required an upfront beneficiary cash contribution of 30 percent of each subproject financing tranche; supporting existing and new SPOs to find better buyers, avoiding situations where an SPO's increased productive capacity outgrew its existing buyer arrangements; reducing the risk of SPO fading after alliance financing ended including piloting credit access for specialized TA and innovation to help SPO and their members continue to grow; and tailoring institutional development plans – potentially including rotating funds - enabling SPO to better serve their members post-project. Also, given that the only significant delays under PAR I affected Municipal Infrastructure investments, PAR II streamlined their identification, clarified institutional roles and responsibilities, and delegated procurement from the municipalities to FPS. However, this did not resolve the delays affecting such investments.

- **Quality at entry of the AF was further reinforced by refining and/or deepening key elements of its parent operation including targeting** (see below): Climate resilience was supported using mechanisms and incentives to promote SPO demand for modernized irrigation and water use efficiency, as well as climate smart farming practices and technologies; and, given the AF's geographic expansion, seeking economies of scale of Alliance investments to avoid fragmentation of initiatives and impacts. The Alliances received an unusual degree of well-structured support from contracted, trained TSP, detailed in earlier sections. Further, Subcomponent 4 of Component 1 would ensure that Alliance Plans were adequately appraised for financing, a crucial lesson from PAR I and PAR II-OP, along with customized implementation support.
- **PAR II-OP was well targeted throughout (see Sections I B and III) with further improvement under the AF** to inter alia, reduce the risk that the expanded project area could result in geographic fragmentation of project activities, as noted above. The AF introduced more finely differentiated criteria for selecting beneficiaries integrating poverty and territoriality.⁴² PAR II complemented another Bank-supported, EMPODERAR-coordinated project, the Community Investment in Rural Areas Project (PICAR, P107137) serving the very poorest rural communities and municipalities with investments in basic infrastructure and services and using a classic Community Driven Development approach.
- **M&E, as with other elements of project design, built on established systems** including the SIGG, accessible online to internal and external users, and used to plan, monitor, and control implementation of the Alliance cycle, report on process and results indicators and on financial management and procurement. See Section III (M&E) for details.
- **Overall implementation risk was rated Moderate** despite certain specific risks (Operating Environment, Implementing Agency, and Project) being deemed substantial, because experience showed that operational risks could be successfully managed. Project design complexity stemmed from the ambitious target for Rural Alliances and their technical, administrative, and financial management by low-capacity beneficiaries. Reinforcing existing SPO social accountability measures and incorporating them into the Project's control and monitoring systems was expected to mitigate this risk. Furthermore, EMPODERAR had demonstrated strong fiduciary and operating capacity under PAR I. Attracting and maintaining qualified, experienced staff was the main hurdle for projects in Bolivia, managed under PAR I and sustained for PAR II via procedures for personnel recruitment, selection, evaluation, and continuous performance monitoring.

⁴² PAR II-OP used criteria to determine geographical focus using a combination of growing market demands (demographic growth as a proxy) and poverty levels; and expanded these criteria to include information collected from the Vulnerability Analysis and Mapping (VAM 2003) leading to coverage of 120 municipalities. The AF was an opportunity to reach small-scale producers with surplus production, poor or in vulnerable situations, in all 339 municipalities. The AF defined beneficiary characteristics more clearly, applying a combination of production unit size by region and type of system (using national definitions); agriculture as main source of income; and level of actual or potential collective action. Beneficiaries needed to belong to a formalized group of producers or have potential to do this; the Project would help groups formalize. Beneficiary counterpart was reduced to 20% for the poorest groups.



Quality of Supervision

82. Notable aspects of supervision were as follows:
- **The Project was supervised 6-monthly as per Bank norms but from 2020 to 2022, all Bank supervision was virtual because of rigorous COVID-19 lockdowns in Bolivia and the Bank's own travel restrictions.** Turnover of Bank Task Team Leadership (TTL) was moderate. The TTL who prepared and supervised PAR I, also prepared and launched supervision of PAR II-OP. From 2014 to closing July 31, 2023, the Project had three experienced TTLs, the third of which also prepared the follow-on PAR III. The solid Bank team and continuity of project leadership in EMPODERAR, benefited the PAR II operations technically, operationally, and institutionally.
 - **Supervision focused on development impact and compliance.** The development potential of the PAR approach was proven and validated by IE and the Bank's Independent Evaluation Group. The Bank ensured consolidation and continuity of PAR I's established M&E model, and adjusted RF Indicators as deemed necessary, but could not – for reasons explained earlier - modify the PDO. The 2015 MTR evaluation confirmed that PAR II had high relevance; beneficiary producers felt empowered by participatory diagnoses of their constraints, organizational/managerial capacity-building of their administrative and monitoring committees, and investments in their Alliances; and the Alliances were having important multiplier effects on local economies. The AF MTR (August 2020) was delayed by pandemic conditions and focused on COVID impacts on project operations, and on beneficiaries' subproject implementation and counterpart capacity. Project risks were realistically rated Substantial reflecting national political, governance and institutional turmoil, and fiduciary risk stemming from decentralized procurement under stressful conditions. The supervision of Safeguards compliance, Procurement and Financial Management was rigorous throughout.
 - **The AF and subsequent restructurings effectively addressed factors impeding progress, adapted/responded to GoB's changing priorities, and ensured achievement of the PDO.** The Bank responded effectively to the political and social challenges arising from the political transition in 2019 and 2020, and the 2020 COVID pandemic. See Section III. In the former case, the Bank adopted a strong fiduciary position stressing the Legal Agreement and Operational Manual requirements for the hiring and replacement of project staff, requested IFRs through the date of the Project Coordinator's resignation, and intensified support to ensure the rapid execution of the external audit and ex-post procurement review, ensuring fiduciary clarity as the Project transitioned to new management. Regarding pandemic conditions, a survey in 2020 of beneficiaries with approved Alliances revealed that 15 percent of SPO would be unable to fulfill their cash counterpart obligations due to COVID-related setbacks. The Bank worked with EMPODERAR to find solutions which included drawing on an extended portfolio of approved subprojects and in some cases substituting investments likely to implement rapidly.

Justification of Overall Rating of Bank Performance

83. **The Bank's performance is rated Satisfactory:** There were only minor shortcomings in quality at entry, and supervision overall was strong. This rating is based primarily on PAR II's successful expansion and refinement of the high-performing PAR I operation; well-documented outcomes indicative of strong project management for which the Bank shares credit with EMPODERAR; the Bank team's high-quality technical inputs especially in modernized irrigation with FAO support, and operational and financial responsiveness to the Client's changing strategies and priorities; and strong oversight of already well-established M&E which ensured rigorous, well-designed MTR, IE and beneficiary perception studies on which to assess project achievements.

D. RISK TO DEVELOPMENT OUTCOME

84. Development outcomes are most likely to be affected by the following:
- **Producer organizations are not guaranteed to continue working with the original buyers nor within original Alliances, but this could be a positive development.** Surveys conducted by the Bank's Independent Evaluation



Group (IEG, 2018)⁴³ several years after closure of PAR I – and strongly indicative for PAR II due to its similar investment model, target populations and other factors - found that when Alliances collapsed, it was mainly because the SPO partnered with a new buyer or reverted to the free market in lieu of forming a new Alliance. Sellers' price dissatisfaction was the main catalyst: higher spot market prices; climate-related commodity price shocks; and/or an SPO's inability to meet volume targets, either because the buyer was unable to afford the seller's total offering, or the seller could not meet quality standards. Alliance age was also a factor: SPOs with older Alliances were more likely to switch buyers. Alliance survival also depended on the trust between seller and buyer rather than signed agreements, which are generally not legally enforceable. Finally, the Alliance was never intended as an end, per se: If the knowledge, skills, and experience created by the Alliance lead to a sustained improvement in producer incomes due to improved market access, these outcome could outlive the demise of the Alliance. SPOs showed strong awareness that the Alliances lead to higher incomes, and point to improved product quality, and increased productivity and organizational strength as causal factors. Further research into market dynamics on SPO longevity and commercial arrangement is warranted.

- **SPO's resilience to decline depends on membership stability:** This means the extent to which an SPO increases its membership post-project or remains stable. IEG found that this can vary regionally, and by crop and livestock activity/focus. Producers during the COVID-19 period had difficulty coming up with their counterpart contribution to the Alliance while the severe drought of 2016 disrupted production and the time producers could devote to their Alliance subproject. These factors, along with lack of experience, weakened some Alliances' viability and sustainability and were largely beyond the Project's control. SPO sustainability is also responsive to producers' perception that working collectively, acquiring new skills and knowledge, and exploiting cost savings on group purchase of inputs including TA, have proven, tangible, material advantages.
- **A perennial risk to development outcome is the cessation of project funding and absence of funding from other sources, post-project.** The much larger follow-on PAR III (US\$300 million) finances similar investments nationwide using a two-tiered approach – productive alliances and community alliances – designed to continue and expand the benefits of PAR I and II. In terms of other sources, and as discussed earlier, the PAR II Credit pilot was intended to test and facilitate SPO access to formal commercial bank financing.⁴⁴ Despite 47 SPO-based PAR II investments in the Model II credit scheme, overall demand was low and results inconclusive; PAR III is not financing its scale-up. While the PAD mentions Revolving Funds, as with PAR I they did not develop. IEG's 2018 report found such funds are not well-regarded in Bolivia. Further, little credit is provided by buyers, and few offer this service. Some producers organize their own internal credit arrangements and SPO loan facilitation for members seems to be prevalent. IEG also reported that in some regions, banks reach out to SPO, trusting their creditworthiness and capacity to supervise/ensure repayment. Overall, however, SPO still face constraints in accessing financing for basic or complementary, expansion-related activities and the credit pilot did not perceptibly move the needle.
- **Climate change is an intensifying risk:** Bolivia is already experiencing the effects of greater climate variability and more extreme climate events. The Global Climate Risk Index ranks Bolivia number 10 of 178 countries in terms of impacts of climate-related hazards. With just 11 percent of cultivated land under irrigation, droughts pose a significant threat to the livelihoods of vulnerable farmers practicing rainfed agriculture (PAD, PAR II). The Project put 15,845 ha under modernized irrigation and the productive results are clear, but this is a fraction of what is needed, and the costs are comparatively high. The risk that the larger Municipal systems will not be adequately maintained is mitigated by the two-pronged TA delivered by the *Acompañantes* covering the

⁴³ Project Performance Assessment Report: Bolivia Rural Alliances Project, IEG Report No. 132905, December 20, 2018.

⁴⁴ The PAD states the following in response to the context of credit as an obstacle facing small farmers: "To reduce risk that the Alliances dwindle after Alliance financing ends, a new line of financing would be implemented by the Project.....aimed at SPOs that prove resilient and wish to grow, with a focus on TA co-financing for introducing or consolidating innovations and for linking them to formal financial institutions to facilitate their graduation from the Project or other donor support".



infrastructure itself and the productive side. TSPs prepared a maintenance manual for each system which entailed inter alia, collecting a management fee from the SPO, and designating persons responsible for the system. PAR III will invest significantly more resources in public infrastructure (US\$113 million) including investments promoting adaptation to climate change through climate-resilient, resource-efficient, and energy-efficient infrastructure such as irrigation.

V. LESSONS AND RECOMMENDATIONS

85. The following lessons emerge from the PAR II experience:

- **The Alliance model is a proven vehicle for capital accumulation and market access for small-scale producers which, in turn, can significantly reduce poverty.** Defined and replicable factors breed success: quality of the Alliance Plan preparation process including rigorous scrutiny/filtering at the upstream Evaluation of Opportunity stage; link to capable and experienced “facilitators”; assiduous follow-up by the decentralized, Departmental Operational Units (of EMPODERAR) on the technical and operational performance of the *Acompañantes* and careful monitoring of their workload; and continuous training of and/or engagement with the “officials” of the Alliance – TSPs, SPO leadership, market agents – and the producers, and systematic learning and feedback through the exchange of experiences and lessons.
- **Complementary Municipal public infrastructure investments – roads, bridges, and irrigation systems – can be crucial to improving small producers’ production and sales.** PAR III accordingly includes municipal investments focused on climate resilient, resource-efficient, and energy-efficient infrastructure. However, given the varying levels of municipal fiscal capacity in Bolivia, –the requirement for municipal cash counterpart contribution can severely limit participation in more vulnerable areas of the country. Alternatives are needed for means-tested municipalities with pressing need for such infrastructure to enable their participation. Options might include up-front O&M agreements in lieu of cash contributions, a sliding scale of contributions or, in the neediest cases, the Project’s payment of 100 percent of infrastructure cost bearing in mind potential sustainability issues. While tangible contributions in cash are consistent with the principle of subsidiarity, thus avoiding potential distortions in a grant-based approach, solutions are needed to include poorer municipalities.
- **Well-organized, multi-functional and targeted technical services, carefully selected, trained by the Project when needed, and quality-controlled through well-designed beneficiary surveys, have clear advantages.** The system of permanent *Facilitadores* for SPO evaluation/Business Plan preparation and *Acompañantes* for diverse forms of technical support to producers - including organization, marketing, and business practices - was validated by major increases in production and sales volumes, and high ratings from surveyed beneficiaries. TSPs’ direct, recurrent relationship with and socio-cultural proximity to members of SPOs contributed to the success of this framework. This system is replicable, scalable, and sustainable, and is recommended for Productive Alliance projects involving organized small-scale producers.
- **Membership of and participation in SPOs – and hence their stability - are driven by and responsive to producers’ perception that working collectively has important material and social benefits.** At the Alliance level, producers see buyers’ risks and costs reduced and hence their own market risks, promoting consolidation of the commercial relationship. Even so, the demise of an Alliance does not entail collapse of the SPO. At SPO level, SPOs’ provision of support to members including financial transparency also reduces producers’ risks and costs. At the farm level, producers see their profitability/incremental incomes increasing, and link that perception to environmental sustainability attributed to modernized farm technologies and practices. It is important that similar projects understand and promote these drivers of SPO survival and growth.
- **The PAR projects continue to demonstrate the high value of institutionalized, well-designed, and well-executed M&E.** The Project’s SIGG, used to plan, monitor, report and control project implementation permitted timely, informed decision-making, and resulted in a large corpus of good quality data invaluable for the BCR, ICR and design/preparation of the follow-on PAR III. The *Acompañantes* played a crucial role in data collection



and field input. Similarly, EMPODERAR has embraced high-quality, well-planned, and systematic IE with baselines, enabling repeat validation of the project methodology and approach over time and the confidence to innovate within an established and successful framework of support to SPO. The approach to M&E is not unique but demonstrates that establishing and sustaining sound M&E practices and systems, and working with proven M&E professionals, pays off and merits continued advocacy to sector teams and project leadership.

- **The Alliance model can generate a “triple win” by increasing production, decreasing the carbon footprint, and building resilience.** The combination of TA to adopt climate-smart agricultural technologies and practices, fixed investments to increase producers’ adaptive capacity, and ample resources for larger-scale municipal infrastructure explicitly designed to combat/mitigate climate events created a more resilient food production system with transformative and sustainable social and economic benefits. Climate resilience objectives should be stated explicitly in project PDOs and supported by activities capable of maximizing such impacts.
- **Rural water resource conservation and efficient use are a high priority for Bolivia given its acute climate vulnerability.** PAR II’s focus on modernized irrigation for small farmers was innovative in Bolivia, as was investment in complementary, larger-scale systems with Municipal counterpart financing. This approach has a high productive pay-off and has been continued under PAR III. Similar approaches should be tested and/or expanded more aggressively in Bolivia and other countries with significant populations of small farmers facing climate risks. In projects which impose a cost ceiling per SPO subproject/Alliance, however, the area feasible for more advanced irrigation can be limited by the type and cost of the technology. The portion of the off-farm investment also depends on the water source, and this may also limit the total on-farm area feasible for modernized coverage.
- **The Alliance model is not static and represents a dynamic opportunity to innovate public policy.** As noted, PAR II demonstrated an effective, systematic approach to TA; the benefits of partnering with Municipalities to unlock productive and market constraints on small farmers; mechanisms and incentives to shape farmer demand/buy-in for intensified climate investments; giving irrigation investments an explicit role in building small farmers’ climate resilience and capacity to increase cropping intensity; and establishing a special “resilience window” for submitting/financing Alliance proposals for irrigation and water use investments. Other innovations including organizational (collective use of technology), and educational (farmer financial and technological literacy) are also good candidates for testing and scale-up within the Alliance approach. The Alliance model lends itself to scale-up/improvement of design and methodology over time, thereby generating greater administrative efficiency.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: To improve accessibility to markets for small rural producers in the selected areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increase in the average volume of sales of the product(s) involved in the alliances	Percentage	0.00	50.00	35.00	64.00
		15-Jan-2013	23-Oct-2012	31-Jul-2023	31-Jul-2023

Comments (achievements against targets):

Exceeded: Achieved 182.8 percent of target

The PAD target was 50%, reduced to 35% by the Additional Financing.

Results: An aggregate 279,370 tons was produced without-project vs 459,002 tons with PAR II, an increase of 64 %.

The result is calculated by subtracting the annual volume of sales of the Alliance product in a with-project situation, minus the total volume of sales of that product in a without-project situation. Result is divided by the total volume of sales of that product in a without-project situation. This value is multiplied by 100 to find the incremental value.



The final target was re-estimated by the AF based on information available at that moment on 104 Business Plans with completed implementation, and by considering the perspectives of parties/stakeholders in Bolivia's agricultural sector suffering the effects of severe drought and climate change. The original target of 50% was considered too ambitious in this context.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Producer organizations that maintain or improve their commercial relations (alliances) for at least two productive cycles	Percentage	0.00	70.00	85.00	97.00
		15-Jan-2013	30-Nov-2017	31-Jul-2023	31-Jul-2023

Comments (achievements against targets):

Exceeded: Achieved 114 percent of target

This indicator was calculated by counting the total number of SPOs under Alliance Model 1 (Producer Organization Subprojects) that were able to maintain or improve their commercial relationships (with commercial partners/buyers) for at least two productive cycles, divided by the total number of SPOs financed by the Project. This value was then multiplied by 100.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Members of beneficiary SPOs that apply improved technologies/practices as defined in the business plans	Percentage	0.00	70.00		91.00
		02-May-2017	30-Nov-2017		31-Jul-2023



Comments (achievements against targets):

Exceeded: Achieved 130 percent of target

This indicator focused on climate resilience practices/technologies, and was calculated by counting the total number of direct beneficiaries that applied improved technologies and/or practices (e.g., efficient water use and management, soil conservation and management, crop and livestock management etc). The calculation methodology was developed using a simple, random sample of beneficiaries of the Business Plans and counting how many producers apply at least one improved practice or technology. That total of producers applying such measures is divided by the total number of producers benefiting from the Business Plans. This ratio was multiplied by 100.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	0.00 02-May-2017	46,434.00 30-Nov-2017		50,989.00 31-Jul-2023
Female beneficiaries	Percentage	0.00	30.00		35.00
Beneficiaries of public investment subprojects (there is no disaggregation) (households)	Number	0.00	10,360.00		9,918.00

Comments (achievements against targets):

Exceeded: Achieved 110 percent of target

This indicator was calculated by multiplying the average number of households for each SPO (35 for Alliances under Models 1, 2 and 3), and 140 for Regional TA subprojects.



Female beneficiaries are measured as women-led households represented in SPOs receiving alliance/subproject investment financing.

For beneficiaries of public investment subprojects, the indicator was calculated by multiplying the average number of households benefiting from each public investment subproject (350 for local roads and bridges, and 80 for irrigation).

A.2 Intermediate Results Indicators

Component: Component 1- Institutional Strengthening

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1.1 Producer organizations that receive assistance to be formalized	Number	0.00 15-Jan-2013	300.00 30-Nov-2017	1,150.00 31-Jul-2023	1,282.00 31-Jul-2023

Comments (achievements against targets):

Exceeded: Achieved 114.5 percent

This indicator was calculated by counting the number of POs that receive direct technical support to be formalized/legalized in order to participate in the Alliance models.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1.2 Alliances with signed	Number	0.00	645.00	1,200.00	1,643.00



financial agreement for project support		15-Jan-2013	30-Nov-2017	31-Jul-2023	31-Jul-2023
<p>Comments (achievements against targets): Exceeded: Achieved 137 percent</p> <p>Calculated by counting the number of SPOs of Model 1 Alliances (678) that complete an agreement to be supported.</p>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1.3 SPOs that receive training and support for organization strengthening	Number	0.00 15-Jan-2013	1,290.00 30-Nov-2021		1,413.00 31-Jul-2023

Comments (achievements against targets):
Exceeded: Achieved 109.5 percent of target

Calculated by assuming that 100% of the project-supported SPOs (Models 1, 2 and 3; and TA subprojects) receive training and technical support to consolidate their organizations.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1.4. Service providers to SPOs that benefit from capacity building to improve	Number	0.00 02-May-2017	477.00 30-Nov-2021	514.00 31-Jul-2023	991.00 31-Jul-2023



their knowledge					
Female Service Providers to SPOs that benefit from capacity building to improve their knowledge	Number	0.00 02-May-2017	300.00 31-Jul-2023		256.00 31-Jul-2023
<p>Comments (achievements against targets): Exceeded: Achieved 193 percent of target</p> <p>Female service providers benefiting from capacity building were 256 or 85.3% of target.</p>					

Component: Component 2- Implementation of Rural Alliances

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.1 Business Plans of supported alliances that are duly implemented.	Percentage	0.00 02-May-2017	85.00 30-Nov-2021		86.00 31-Jul-2023
<p>Comments (achievements against targets): Exceeded: Achieved 101 percent of target</p> <p>Calculated by counting the number of Model 1 Alliances financed by the Project that satisfactorily complete the investment business cycle, divided by the total number of Model 1 Alliances financed by the Project (target 678). Multiply value by 100.</p>					



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.2 Supported alliances that fulfill their commercial aims in the framework of agreed arrangements	Number	0.00 15-Jan-2013	85.00 30-Nov-2017	661.00 30-Nov-2021	1,176.00 31-Jul-2023
<p>Comments (achievements against targets): Exceeded: Achieved 178 percent of target</p> <p>NOTE: The PAR II-AF converted the unit of measurement from a percentage under the PAR II-OP (85%) to a number (661).</p>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.3 Producer organizations that obtain positive net incremental real income from Alliance product(s)	Percentage	0.00 15-Jan-2013	80.00 30-Nov-2017		86.00 31-Jul-2023
<p>Comments (achievements against targets):</p>					



Exceeded: Achieved 107.5 percent of target

Calculated by subtracting the net income (Total Income - Total Cost) that SPOs obtain annually in a with-project situation, less the Net Income (Total Income - Total Cost) versus the without-project situation. Then, the number of SPOs that obtain a positive Net Income (with-project) - Net Income (without-project) is calculated and divided by the total number of SPOs, multiplied by 100. To report the value in real terms, the price is fixed for a base year.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.4 Producer organizations whose leaders are periodically accountable to their members	Percentage	0.00	80.00	80.00	91.00
		15-Jan-2013	30-Nov-2017	30-Nov-2021	31-Jul-2023

Comments (achievements against targets):

Exceeded: Achieved 113.7 percent of target

Calculated assuming that at least 80% of SPO leaders are periodically accountable to members via meetings, communications, sharing of business advice, general information sharing, financial accountability, responding to members needs/complaints.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.5 Executed public investment subprojects	Number	0.00	19.00	52.00	84.00
		15-Jan-2013	30-Nov-2017	30-Nov-2021	31-Jul-2023



Comments (achievements against targets):

Exceeded: 161.5 percent of target

The Project implemented 84 Municipal (public infrastructure) subprojects: 14 under PAR II-OP (Bridges) and 70 under PAR II-AF (Bridges, Roads, Irrigation Systems, Retaining Wall). See Main Text.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.6 Alliances that apply environmental measures satisfactorily	Percentage	0.00 15-Jan-2013	80.00 30-Nov-2017		100.00 31-Jul-2023

Comments (achievements against targets):

Exceeded: Achieved 125% of target

Calculated by assuming that 80% of the SPOs that are required to apply environmental measures as per their Business Plans, apply them properly.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.7 Area provided with	Hectare(Ha)	0.00	15,960.00		15,845.00



improved irrigation investments		02-May-2017	30-Nov-2021		31-Jul-2023
<p>Comments (achievements against targets): Substantially achieved: 99 percent of target</p> <p>Calculated by counting the improved crop area under irrigation that is incorporated with the direct support of the Project (SPOs Model 1). Virtually all Alliance investments incorporated some form of irrigation which explains the final result, since the 22 Municipal investments in irrigation, albeit off-farm and larger scale, could not alone meet this target. The BCR states that irrigation investments benefited 19,726 families.</p>					

Component: Component 3- Project Management, Monitoring and Evaluation

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
3.1. Management Geo-referencing Information System improved and operating	Percentage	0.00 15-Jan-2013	100.00 30-Nov-2021		100.00 31-Jul-2023

<p>Comments (achievements against targets): Achieved 100 percent of target</p> <p>Reported by evaluating the level of development and functioning of the computing platform modules (online and offline modules) associated with the GIS.</p>					
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Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
3.2. Project's Public Information System installed and operating	Percentage	0.00 15-Jan-2013	100.00 30-Nov-2017		100.00 31-Jul-2023
3.2.1. Grievances responded within the stipulated service standards for response times	Percentage	0.00	100.00		100.00
3.2.2. Members of beneficiary SPOs that expressed satisfaction with the support provided by the Project, via alliances	Percentage	0.00	80.00		87.00
<p>Comments (achievements against targets): Achieved 100 percent of target</p> <p>Reported by evaluating the level of development and functioning of the whole modules of the computing platform.</p> <p>Re sub-indicator for Grievance Response: Standard response period should not exceed 30 days since date of receipt of the claim. Indicator is calculated by counting total number of grievances responded to by the project during the 1st 30 days through the module for interaction with beneficiaries of the Information System, divided by the total number of grievances received. This is multiplied by 100.</p> <p>Re beneficiary satisfaction: Indicator result is measured through surveys of beneficiary producers carried out at MTR and at project closing. The level of satisfaction is measured considering: (i) quality of service received by beneficiaries; (ii) results achieved by the beneficiaries as a consequence of project implementation.</p>					



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
3.3. Collaborative/strategic partnerships with public and private institutions established	Number	0.00 02-May-2017	106.00 30-Nov-2021	94.00 31-Jul-2023	79.00 31-Jul-2023
<p>Comments (achievements against targets): Substantially achieved: 84 percent of target</p> <p>Calculated by considering that one strategic alliance is established for each public investment subproject (48), regional TA subprojects (9), and 3 Model 3 Alliances (credit, 37).</p>					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Improve accessibility to markets for small rural producers in the Selected Areas	
Outcome Indicators	<ol style="list-style-type: none"> 1. Increase in the average volume of sales of the products involved in the Alliances (%): 62% (177% of target) 2. Producer Organizations that maintain or improve their commercial relations (Alliances) for at least two productive cycles (%): 97% (114% of target) 3. Members of beneficiary SPOs that apply improved technologies/practices as defined in the Business Plans (%): 91% (130% of target) 4. Direct project beneficiaries (#): 50,989 (110% of target) <ul style="list-style-type: none"> -Female beneficiaries (%): 35% (117% of target) -Beneficiaries of Public Investment Subprojects (# HH): 9,918 (95.7% of target)
Intermediate Results Indicators	<p>Component 1: Institutional Strengthening</p> <ol style="list-style-type: none"> 1. Producer Organizations that receive assistance to be formalized (#): 1,282 (114.5% of target) 2. Alliances with signed financial agreement for project support (#): 1,643 (137% of target) 3. SPOs that receive training and support for organization strengthening (#): 1,413 (109.5% of target) 4. Service providers to SPOs that benefit from capacity building to improve their knowledge (#), of which: 991 (193% of target) <ul style="list-style-type: none"> -Female service providers (#): 256 (85.3% of target) <p>Component 2: Implementation of Rural Alliances</p> <ol style="list-style-type: none"> 1. Business Plans of supported Alliances that are duly implemented (%): 86% (101% of target) 2. Supported Alliances that fulfill their commercial aims in the framework of agreed arrangements (#): 1,176 (178% of target) 3. Producer Organizations that obtain positive net incremental income from Alliance products (%): 86% (107.5% of target) 4. Producer Organizations whose leaders are periodically accountable to their members (%): 91% (113.7% of target) 5. Executed public investment subprojects (#): 84 (161.5% of target) 6. Alliances that apply environmental measures satisfactorily (%): 100% (125% of target) 7. Area provided with improved irrigation investments (Ha): 15,845 ha (99% of target)



	<p>Component 3: Project Management, Monitoring and Evaluation</p> <ol style="list-style-type: none"> 1. Management Geo-Referencing Information System improved and operating (%): 100% (100% of target) 2. Project’s Public Information System installed and operating (%): 100% (100% of target) 3. Grievances responded within the stipulated service standards for response times (%): 100% (100% of target) 4. Members of beneficiary SPOs that express satisfaction with the support provided by the Project, via Alliances (%): 87% (108.7% of target) 5. Collaborative/strategic partnerships established with public and private institutions (#): 79 (84% of target)
<p>Key Outputs by Component (Linked to the achievement of the Objective/Outcome 1)</p>	<p>Component 1: Institutional Strengthening</p> <ol style="list-style-type: none"> 1. Events to formalize and train POs (121 OP/525 AF) 2. Total beneficiaries of PO formalization events (24,854) 3. # Alliances evaluated and approved for signature (2,164 OP & AF) 4. # Beneficiaries of SPO training/support for organization strengthening (69,737) 5. # Information events for women’s groups (85 OP/150 AF) 6. # Trainings (average) per <i>Facilitador</i> and <i>Acompañante</i>: 5 & 13 7. Average # members per Alliance: (33 families OP/26 families AF) <p>Component 2: Implementation of Rural Alliances</p> <ol style="list-style-type: none"> 1. # Business Plans approved for Model 1 Alliances: (762 OP/1402 AF) 2. # Business Plans approved for Model 2 Alliances (Productive TA): (42 OP/129 AF) 3. # Business Plans supported for implementation (1,735 Integrated Investments (Model 1) and 91 Productive TA (Model 2). 4. Beneficiaries satisfied with their results based on expected commercial outcomes/arrangements in Business Plans: 20.7% well above expectations and 66.4% achieved as expected (aggregate 87%). 5. % increase in overall production volume due to the Project: (57% or 176,724 tons), ranging from 42% to 61% depending on Ecological Region. 6. Gross increase in production volume due to the Project: 109,154 tons (312,231 tons without project/488,955 tons with project). 7. # Alliances with sales exceeding Business Plan expectations: 1,561 out of 1,644 (95%)



- 8. # of Small Producer Organizations participating in the Project: 1,735
- 9. # Bridges constructed via Municipal public investments: 54
- 10. # Roads constructed via Municipal public investments: 7
- 11. # Irrigation systems constructed via Municipal public investments: 22
- 12. # Alliances in full compliance with environmental safeguards: 1,735
- 13. # Alliances benefiting from irrigation investments (on-farm or off-farm): 1,735

Component 3: Project Management, Monitoring and Evaluation

- 1. Project technical personnel, and *Facilitadores, Acompañantes* and *Evaluadores* trained to input activity data into the SIGG in real time.
- 2. SIGG information available in public information module of the web page EMPODERAR, <https://empoderar.gob.bo>.
- 3. Grievance Response Mechanism receiving and processing on time, all complaints, and enquiries.
- 4. Public is made aware of and accessing the Public Information System.
- 5. Annual Perception Surveys capturing Alliance beneficiaries' opinions about Technical Support Services.
- 6. EMPODERAR establishes contact with strategic partners to collaborate on the Project.

Objective/Outcome 2 ⁴⁵ NA

⁴⁵ The PDO statement is taken as a single Objective Outcome and not unpacked, as mentioned in Section I of the Main Text.



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Norman Bentley Piccioni	Task Team Leader(s)
Patricia De la Fuente Hoyes	Financial Management Specialist
Mary Lisbeth Gonzalez Gomez	Social Specialist
Maria Ruth Llanos Vda De Navarro	Social Specialist
Tuuli Johanna Bernardini	Social Specialist
Adam John Behrendt	Social Specialist
Supervision/ICR	
Edward William Bresnyan, Griselle Felicita Vega	Task Team Leader(s)
Julio Sanjines Gonzales	Procurement Specialist(s)
Tatiana Perez Guerra	Financial Management Specialist
Mohammad Ilyas Butt	Procurement Team
Rahmoune Essalhi	Procurement Team
Maria Ruth Llanos Vda De Navarro	Team Member
Rosario Monroy	Team Member
Carla Albertina Jerez Abascal	Procurement Team
Angela Maria Caballero Espinoza	Social Specialist
Prem Jai Vidaurre De La Riva	Environmental Specialist
Imke Oetting	Social Specialist
Anna 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		
FY12	10.500	65,056.24
FY13	12.316	54,339.53
Total	22.82	119,395.77
Supervision/ICR		
FY13	5.025	37,970.68
FY14	8.145	50,555.96
FY15	41.248	191,824.00
FY16	34.777	153,274.06
FY17	33.355	96,435.48
FY18	20.981	120,893.90
FY19	21.619	134,498.66
FY20	22.984	135,485.49
FY21	29.362	162,725.28
FY22	26.098	134,873.64
FY23	21.871	157,907.82
FY24	17.688	111,566.83
Total	283.15	1,488,011.80

ANNEX 3. PROJECT COST BY COMPONENT

A. Aggregate Total Project Cost by Component⁴⁶

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (%)
Institutional Strengthening	8.63	8.00	92.7
Implementation of Rural Alliances	160.67	157.05	97.7
Project Management, Monitoring and Evaluation	19.94	25.05	125.6
Total Baseline Cost	189.24	190.10	100.5
Physical Contingencies	--	--	--
Price Contingencies	5.65	--	--
Front-end Fee	0.25	--	--
Total	195.14	190.40	97.60

B. Total Project Cost by Component: PAR II Original Project

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (%)
Institutional Strengthening	3.60	2.80	77.8
Implementation of Rural Alliances	46.85	37.80	8.7
Project Management, Monitoring and Evaluation	8.44	8.80	104.3
Total Baseline Cost	58.89	59.33	100.7
Physical Contingencies	--	--	--
Price Contingencies	5.65	--	--
Total	64.54	59.33	92.0

⁴⁶ Source: Borrower Completion Report, EMPODERAR, Nov 2023. Slight variations between these and Data Sheet numbers are due to rounding.



C. Total Project Cost by Component: PAR II Additional Financing

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (US\$M)
Institutional Strengthening	5.03	5.18	103.0
Implementation of Rural Alliances	113.82	109.34	96.1
Project Management, Monitoring and Evaluation	11.50	16.25	141.3
Sub-Total	130.35	130.77	100.32
Front End Fee	.25	--	--
Total	130.60	131.02	100.3

ANNEX 4. EFFICIENCY ANALYSIS

Ex - Post Economic and Financial Analysis

Bolivia - Rural Alliances Project II (PAR II) and Additional Financing (AF)

Introduction:

The Ministry of Rural Development and Lands (MDRyT) of the Plurinational State of Bolivia implemented the Rural Alliances Project second phase starting in May 2013 under the EMPODERAR Program of the MDRyT. To strengthen results and expand coverage to a greater number of beneficiaries, the PAR II Original Project (PAR II-OP) was designed for a total of US\$ 64.54 million, with financing of US\$ 50 million from the World Bank (International Development Association). PAR II-OP was implemented from 2013 to 2018 and benefited more than 23,000 families in rural areas of the country by financing 545 Productive Alliances and 14 communal subprojects in 120 municipalities. In March 2017, the World Bank approved an Additional Financing (PAR II-AF) loan of US\$ 100 million to scale PAR II-OP activities throughout the country with emphasis on promoting on-farm irrigation investments and climate smart agriculture⁴⁷. The Project included three components, financed (by closing) as per Table 1 below.

Table 1. PAR II-OP and PAR II-AF Financing/Investment Structure by Component.

Component	World Bank Financing			SPO, Munics. & Gov. US\$ million	Total US\$ million
	PAR II US\$ million	AF US\$ million	Subtotal US\$ million		
Component 1. Institutional Strengthening	2.8	5.0	7.8	0.0	7.8
Component 2. Implementation of Rural Alliances	34.0	83.2	117.2	45.0	162.2
Component 3. Project Management	8.7	11.5	20.2	0.0	20.2
Front end Fee	0.0	0.3	0.3	0.0	0.3
Total	45.5⁴⁸	100.0	145.5	45.0	190.5

Source: World Bank and BCR (EMPODERAR, 2023)

Total cost of the PAR II-OP and PAR II-AF was US\$ 190.5 million. World Bank financing totaled US\$ 145.5 million, US\$ 45.5 million from PAR II-OP and US\$ 100 million from PAR II-AF, equivalent to 76% of total cost. Local producers' organizations (SPO), Municipalities and the Borrower contributed US\$ 45.0 million (24% of total cost). The AF closed on July 31, 2023.

Objective

The objective of this analysis is to assess the financial and economic merit of the Rural Alliances Project II and its Additional Financing.

⁴⁷ World Bank, 2017. Project Appraisal Document, Additional Finance Rural Alliances Project II.

⁴⁸ According to Project Paper AF (World Bank 2017) the PAR II experienced a budget gap due to the unexpected fluctuation in the exchange rate between SDR relative to the US\$, which reduced the value of the Credit from US\$50 million to US\$45.5 million.



Methodology

Quantified benefits of the Project

The financial analysis considered the benefits generated by the increased production, diversification and commercialization of agricultural systems promoted by PAR II and AF. The economic analysis – which takes all project costs into account (see Table 1) - applies factors to convert financial prices to economic prices. To ensure consistency and comparability, the same conversion factors used in the ex-ante economic evaluation of PAR II-OP in the Project Appraisal Document were applied.

The financial and economic benefits correspond to the increase in production, diversification, and improved accessibility to markets for small rural producers (subproject level), which were achieved thanks to the project's investments in implementation of rural alliances and organizational strengthening.

To estimate the expected benefits of the implementation of rural alliances, a comparison is needed of the situation that producers would be in *without project*, with the future situation (current situation) *with project*, i.e., investments to improve productive capacity. The Marginal Productivity Method was applied, consisting of the estimation of the Net Present Value of the highest agricultural production resulting from the project's investments in implementation of rural alliances and organizational strengthening. It is based on a theoretical agricultural production function which states that yields per hectare depend on a set of productive factors. More specifically:

$$y_j = f(X)$$

Where:

y_j= yield per hectare of crop j

X= Matrix of productive factors per hectare (labor, capital, etc.)

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 factor that is available at a constrained level that limits the increase of yields, regardless of whether the other productive factors are available at levels that would increase production. Therefore, the improvement in rural alliances and organizational strengthening obtained in the situation with project has allowed farmers to increase, diversify and connect with buyers of their agricultural production compared to the situation without 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

Assumptions

This method assumes that output and input prices are exogenous, meaning that they are not affected by the expected increase in production. It is also assumed that output and input prices will remain constant over time, 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.

The financial analysis considered the total amount provided by PAR II-OP and PAR II-AF at the investment plan level. It also considers non-monetary and monetary contributions (counterpart) from beneficiaries, Municipalities, and the Borrower, for the implementation of the investment plans. In terms of benefits, items destined for self-consumption and sale were considered, to represent the total value of production of the subproject.

In the construction of flows, both incremental costs and benefits were estimated considering the market prices of inputs and outputs. Following the assumption of the 2012 PAD, an evaluation horizon of 10 years was considered. A flow of investments, incremental costs and income was built according to the years of initiation and implementation of each plan. After the subproject is finished, costs and income are kept constant: the productivity and efficiency improvements due to the project are maintained over time (sustainability principle). The financial and economic discount rate applied to all future cost and benefit flows was 12% per year, following the assumption in the ex-ante analysis of the PAR II-OP PAD (2012). 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 project's financial and economic Net Present Value (NPV). 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.

Specific conversion factors were used for this analysis to adjust financial prices to economic prices. Following the assumptions considered in the ex-ante analysis of the PAR II-OP PAD, an economic conversion factor of 0.88 was assumed for input, products, and services prices and 0.64 for labor.

In addition to the NPV, the analysis presents other standard measures, 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 IRR greater than 12% 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.

The EFA was conducted on all subprojects (Productive Alliances) supported by PAR II-OP and PAR II-AF. To this end, the analysis worked with the EMPODERAR database, which contains updated information at the subproject level of the situation with and without the project, in terms of productive structure, income and beneficiaries, among others. It includes investment costs, differentiating according to financing



source: PAR II-OP or PAR II-AF, Municipalities, beneficiaries, and Borrower. These subprojects completed implementation of the investment phase and obtained results for at least one production cycle. Given that PAR II-OP and PAR II-AF implemented productive alliance subprojects between 2013 and 2022, investments, operation and maintenance costs, and product prices were adjusted to their equivalent value in 2023 US dollars.

The EFA considers that the Project’s incremental benefits are generated gradually over time. It was considered that producers go through a three-year learning process until their systems generate all net benefits accounted in the project database. It was assumed that in year 2 beneficiaries get 60% of the highest possible net income from the subprojects, 80% in year 3, and 100% in year 4 onwards. To account, among other things, for depreciation and amortization, an annual reinvestment cost was also assumed. This corresponds to an annual 5% of the total investment cost in the with-project case, applied all years.

Incremental net income Cash Flow takes the following form:

$$Cash\ Flow_t = (\pi_t^{project} - \lambda\xi)\gamma_t - \pi_t^{no\ project} \text{ for } t > 1$$

where:

- $\pi_t^{project}$ gives the net income at time t with project
- $\pi_t^{no\ project}$ gives the net income at time t without project
- ξ represents total investment cost
- λ represents the reinvestment cost. In the calculations, it is assumed that $\lambda = 0.05$ (ie. 5%);
- γ_t is the learning factor. We have $\begin{cases} \gamma_2 = 0.6 \\ \gamma_3 = 0.8 \\ \gamma_t = 1 \text{ for } t \in [4; 20] \end{cases}$

It should be noted that this analysis does not include a counterfactual, and therefore it is not possible to isolate the effect of the Project from other influences⁴⁹.

The database included information on 1,747 Productive Alliance subprojects totaling almost 50,000 beneficiaries, for both PAR II-OP and PAR II-AF. The average number of beneficiaries per Productive Alliance is 28.

⁴⁹ The Impact Evaluation of PAR II-OP in 2022 applied a methodology to estimate the counterfactual scenario, and from there measure impact through changes in beneficiary well-being attributable to the Project. See Javier Monterrey, 2022. Evaluación de Impacto del Programa de Alianzas Rurales – Financiamiento Inicial (PAR II – FI).

Table 2. Subprojects and Beneficiaries of PAR II-OP and AF.

Department	PAR II-AF			PAR II-OP			PAR II-OP + PAR II-AF		
	Subprojects	Beneficiaries	Beneficiaries per subproject	Subprojects	Beneficiaries	Beneficiaries per subproject	Subprojects	Beneficiaries	Beneficiaries per subproject
Beni	46	1161	25	37	1141	31	83	2302	28
Chuquisaca	174	4619	27	99	3925	40	273	8544	31
Cochabamba	151	4732	31	96	3427	36	247	8159	33
La Paz	163	4320	27	163	4647	29	326	8967	28
Oruro	123	3143	26				123	3143	26
Pando	85	1199	14				85	1199	14
Potosí	120	3187	27	3	71	24	123	3258	26
Santa Cruz	121	3111	26	136	3722	27	257	6833	27
Tarija	142	4008	28	88	3260	37	230	7268	32
Total	1125	29480	26	622	20193	32	1747	49673	28

Source: Based on EMPODERAR, 2024

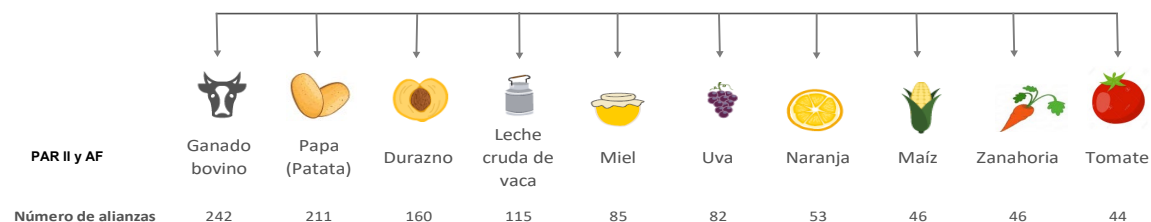
Considering PAR II-OP and AF, 65% of subprojects were Productive Alliances in the agriculture sector. Livestock (Ganado bovino) was the most supported product.

Table 3. Number of subprojects by sector of PAR II-OP and AF

Sector	AF	PAR II	Total	Proportion
Agriculture	756	380	1136	65%
Apiculture	49	39	88	5%
Livestock	300	194	494	28%
Pisciculture	20	9	29	2%
Total	1125	622	1747	100%

Source: Own elaboration, based in EMPODERAR, 2024

Figure 1. Number of Subprojects by product for PAR II-OP and AF.



Source: EMPODERAR, 2022. Presentation on Project Progress, Mission, November 2022.

Results

Financial Analysis

To capture the medium and long-term effects, a financial analysis of the incremental net benefits was carried out considering three evaluation horizons: 10, 15 and 20 years. The following table summarizes the results.

Table 4. Profitability Indicators of Financial Analysis

Project phase	Indicator	10 years	15 years	20 years
PAR II-OP	Number of subprojects with NPV>0	376	417	433
	Proportion of subprojects with NPV>0	65%	72%	75%
	Average NPV per subproject (USD)	\$164,639	\$240,609	\$283,717
	Average IRR per subproject	39%	43%	44%
	Average EAP per beneficiary (USD)	\$812	\$990	\$1,067



AF	Number of subprojects with NPV>0	740	828	853
	Proportion of subprojects with NPV>0	66%	74%	76%
	Average NPV per subproject (USD)	\$142,529	\$205,685	\$241,522
	Average IRR per subproject	57%	61%	63%
	Average EAP per beneficiary (USD)	\$1,013	\$1,207	\$1,290
PAR II-OP & AF	Number of subprojects with NPV>0	1,116	1,245	1,286
	Proportion of subprojects with NPV>0	65%	73%	75%
	Average NPV per subproject (USD)	\$150,059	\$217,579	\$255,892
	Average IRR per subproject	51%	55%	56%
	Average EAP per beneficiary (USD)	\$945	\$1,133	\$1,214

Source: Own elaboration, based on EMPODERAR, 2024

Considering PAR II-OP and AF together, it was found that 65%, 73% and 75% of subprojects are viable using a timeframe of 10, 15 and 20 years.⁵⁰In the case of PAR II-OP, it was found that 65%, 72% and 75% of subprojects are viable considering a timeframe of 10, 15 and 20 years, respectively. For the AF, the analysis shows that 66%, 74% and 76% of subprojects are viable considering a timeframe of 10, 15 and 20 years, respectively. These results can be considered as positive, since a significant proportion of rural alliances are viable in the long term.

PAR II-AF has been more successful than PAR II-OP. Even though the proportion of viable subprojects (NPV>0) is almost the same between the two stages in all three time-horizons, the average Financial IRRs of PAR II-AF subprojects are higher than PAR II-OP subprojects. This is worth noting, since the AF faced a higher risk scenario than PAR II-OP, as the PAR II-AF expanded the geographic area from 120 municipalities to all 339 municipalities of the country – of which in practice, 233 Municipalities had benefited by closing - with possible fragmentation of initiatives and inefficiencies of subproject design and implementation, among other challenges. When these results are compared with the ex-ante analysis, it is found that the ex-post EFA Internal rates of return (IRRs) are much higher than in the ex-ante analysis (see Project Paper, Table G.6 – Financial and Economic Indicators for PAR II-AF).

This ICR analysis shows Financial IRRs of 39% and 57% for the PAR II-OP and PAR II-AF respectively, higher than the originally estimated results. (Table 4 above). Specifically, the ex-ante EFA analysis for PAR II-OP calculated an average Financial IRR of about 32% (see PAD, PAR II-OP, Annex 6.) while the financial IRR in the ex-ante EFA analysis for the PAR II-AF was estimated at 29% (see Project Paper, PAR II-AF, Table G.6 – Financial and Economic Indicators).

This difference could be explained by the intrinsic nature of ex-ante financial analyses, which tend to be more “conservative” to avoid making over-optimistic predictions about the financial viability of a project as well as to account for several risks and adverse impacts that may occur during the implementation phase. The ex-ante analysis states: “Some productive parameters and assumptions were adjusted to generate conservative indicators” and “the overall returns calculated for the Project are conservative (...)”⁵¹. In any case, the results obtained in the ex-post analysis indicate the good performance of the Project, since the results estimated during design of both Projects were exceeded.

⁵⁰ The proportion of subprojects that were not viable is due to the flow of net benefits not compensating for the initial investment, because the increase in product returns was not large enough. When performing a percentile analysis, it is observed that 13% of the products presented an increase in yield less than 15%.

⁵¹ World Bank, 2017. Project Appraisal Document, Additional Financing Rural Alliances Project II.

The following section analyzes the financial viability by macro-region. Table 5 shows that both Amazonia and Yungas y Chapare have higher failure rates (NPV<0) compared to other macro-regions. There are two potential explanations for these discrepancies:

- (1) **Adverse and damaging weather events.** The AF Project Paper mentions floods in 2013 and a severe drought in 2016, which affected 177,000 families. The El Nino weather cycle and poor water management make Bolivia particularly exposed to these types of events. Bolivia's agriculture sector is thus extremely vulnerable, and agricultural losses during these adverse events were concentrated in the Santa Cruz Department (i.e., proximity with Amazonia region) and livestock losses occurred in the Orure Department (i.e., proximity with Yungas y Chapare). It is also likely that the level of preparation to face extreme climatic events is lower in Amazonia and Yungas and Chapare, compared to the other macro-regions.
- (2) **The nature of PAR II AF and its geographical expansion.** The AF Project Paper mentions that while under PAR (both PAR I and PAR II) the geographic areas in which projects operated had multiple scaling up opportunities to improve productivity and resilience to climate change, and could cover many beneficiaries, the AF provided an opportunity to reach a greater number of small-scale producers, poor and in vulnerable situations. Clearly, these are subprojects that are more prone to failure (NPV<0).

Table 5. Proportion of Subprojects with positive and negative NPV, divided by Macro-region – PAR II-OP & AF

Macro region	10 years		15 years		20 years		Total subprojects
	NPV < 0	NPV > 0	NPV < 0	NPV > 0	NPV < 0	NPV > 0	
Altiplano	29,00%	71,00%	23,38%	76,62%	22,51%	77,49%	231
Amazonia	49,41%	50,59%	43,53%	56,47%	40,59%	59,41%	170
Chaco	35,64%	64,36%	28,19%	71,81%	27,13%	72,87%	188
Chiquitania y Pantanal	17,80%	82,20%	14,41%	85,59%	10,17%	89,83%	118
Llanuras y Sabanas	11,11%	88,89%	11,11%	88,89%	11,11%	88,89%	9
Valles	33,83%	66,17%	23,83%	76,17%	20,99%	79,01%	810
Yungas y Chapare	42,22%	57,78%	38,33%	61,67%	36,11%	63,89%	180
Total (%)	42,22%	65,42%	27,02%	72,98%	24,62%	75,38%	100%
Total number of projects	590	1116	461	1245	420	1286	1706

Source: Own elaboration, based on EMPODERAR, 2024

If results are divided by sector, Table 7 shows that agriculture is the most “vulnerable” category, as it has the highest failure rate in terms of financial viability (28% in a 20-year horizon) among the four categories considered⁵².

Table 6. Proportion of Subprojects with positive and negative NPV, divided by category – PAR II-OP & AF

Category	10 years		15 years		20 years		Total subprojects
	NPV < 0	NPV > 0	NPV < 0	NPV > 0	NPV < 0	NPV > 0	
Agriculture	39,10%	60,90%	30,81%	69,19%	28,20%	71,80%	1110
Apiculture	26,51%	73,49%	18,07%	81,93%	18,07%	81,93%	83
Livestock	27,69%	72,31%	21,49%	78,51%	19,01%	80,99%	484
Pisciculture	0,00%	100,00%	0,00%	100,00%	0,00%	100,00%	29

⁵² Agriculture sectors likely have a higher rate of non-viable subprojects due to climate risk/vulnerability, explaining failure rates. Variations in climate variables (temperature, precipitation) can affect agriculture to a greater extent than other sectors. Livestock production systems for example, may have a higher capacity to face adverse climatic conditions.



Total (%)	34,58%	65,42%	27,02%	72,98%	24,62%	75,38%		100%
Total number of projects	590	1116	461	1245	420	1286		1,706

Source: Own elaboration, based on EMPODERAR, 2024

Table 7 shows that there is a particularly high failure rate in three subsectors: Cocoa, Bean and Orange. This table only considers a 10 year-horizon, and it is therefore likely that failure rates will fall over time⁵³.

Table 7. Proportion of Subprojects with positive and negative EAP after 10 years, divided by Subcategories: PAR II-OP & AF⁵⁴

Subsector	10 years		Total number of subprojects
	NPV < 0	NPV > 0	
Cocoa	83,72%	16,28%	43
Coffee	53,85%	46,15%	26
Onion	48,57%	51,43%	35
Peach	43,04%	56,96%	158
Flowers	30,77%	69,23%	39
Cattle	26,89%	73,11%	238
Sheep cattle	20,00%	80,00%	20
Pig cattle	40,00%	60,00%	20
Bean	73,91%	26,09%	23
Raw cow's milk	30,91%	69,09%	110
Lettuce	9,52%	90,48%	21
Calls	27,78%	72,22%	36
Corn	39,13%	60,87%	46
Apple	55,00%	45,00%	20
Honey	18,33%	81,67%	60
Natural honey	47,83%	52,17%	23
Orange	62,75%	37,25%	51
Pacu	0,00%	100,00%	27
Potato (Potato)	24,51%	75,49%	204
Quinoa	50,00%	50,00%	30
Tomato	29,55%	70,45%	44
Grape	26,83%	73,17%	82
Carrot	27,27%	72,73%	44
Total (%)	34,36%	65,64%	100%
Total number of subprojects	481	919	1400

Economic Analysis

The economic analysis applies the same methodology and assumptions as the financial analysis and differs in its use of conversion factors to adjust market to economic prices. To compare the results with the ex-ante analysis, the same conversion factor of 0.88 for input, products, and services prices and 0.64 for labor was assumed. The economic analysis also considers total investment cost, as presented in the earlier Table 1.

GHG Results: The economic analysis also includes the economic value of emissions reduction and carbon sequestration, estimated as 5,292,665 tCO₂eq over a 20-year period (see ICR Annex 8, Greenhouse Gas Accounting) given by the implementation of project activities. The sequestration benefits derived mostly

⁵³ However, please note that because the sample size for each subcategory is relatively small (43, 23, 51, respectively), one should not necessarily assume statistical significance of the results presented in Table 7.

⁵⁴ Please note that only subcategories that contain more than 20 subprojects are considered in this table. This is done to simplify the analysis and at the same time avoid unnecessary and statically insignificant observations.



from implementation of climate-smart grasslands management, application of climate-smart agriculture practices and technologies in annual and perennial crop production, natural forest ecosystem conservation, and its management linked to beekeeping activities. The value of carbon was estimated considering the shadow price of carbon proposed by the World Bank, 2017⁵⁵: a range of US\$40-80 per ton of CO₂eq, with an annual incremental rate of 2.25%. This shadow price of carbon is consistent with achieving the core objective of the Paris Agreement- to keep temperature increase below 2 degrees. Table 9 considers a shadow price of US\$40 per ton of CO₂eq, with an annual incremental rate of 2.25%.

The PAR II-OP had positive returns, since the economic IRR was 22.5%, 27.0% and 29.2% for a 10-year, 15-year and 20-year horizon, respectively, far higher than the economic discount rate (12%). For the PAR II-AF, results obtained were better than PAR II-OP, since the economic IRR was 39.1%, 41.3% and 41.9% for a 10-year, 15-year and 20-year horizon, respectively. This is aligned with results obtained by the financial analysis and shows the learning process and improvement in the efficiency of design and implementation of investment plans by the Executing Entity, EMPODERAR. See Table 8.

Table 8. Economic Profitability Indicators.

Project	Indicator	10 years	15 years	20 years
PAR II-OP	NPV (US million)	\$27.2	\$59.3	\$102.9
	IRR	22.5%	27.0%	29.2%
PAR II-AF	NPV (US million)	\$114.3	\$176.6	\$227.1
	IRR	39.1%	41.3%	41.9%
PAR II OP & AF	NPV (US million)	\$141.6	\$235.9	\$330.0
	IRR	32.8%	35.7%	36.6%

Source: Own elaboration, based on EMPODERAR, 2024

The economic analyses carried out in the PAR II-OP PAD of PAR II-AF Project Paper were based on a sample of rural alliances and municipal subprojects from PAR I and PAR II, respectively, that allowed extrapolation to all subprojects. Profitability indicators were estimated considering constant input and product prices, constant real exchange rate and 100% of investment costs 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. The ex-ante internal economic rate of return of PAR II-AF was estimated to be 32%. In the case of the PAR II-OP, the ex-ante EIRR was estimated to be 56.5% for Rural Alliances and 28.2% for Municipal Subprojects⁵⁶.

The ex-post analysis presented an economic IRR of 39.1% for the PAR II-AF, higher than the 32% estimated in the Project Paper. For PAR II-OP, even though the ex-post analysis showed a very positive result of 22.5%, it is significantly lower than the EIRR estimate presented in the PAD. One reason that could explain this situation is that the ex-post analysis only includes the benefits of the Productive Alliances and the costs of the Municipal Subprojects, but not their benefits due to the absence of information. In the ex-ante EFA, the incremental benefits of the Productive Alliances and the Municipal Subprojects were considered. See Table 9 below. Although there are differences in certain assumptions, the results of the ex-post EFA are broadly aligned with the results of the ex-ante EFA for both projects.

⁵⁵ Guidance Note on shadow price of carbon in economic analysis, 2017. <http://documents.worldbank.org/curated/en/621721519940107694/pdf/2017-Shadow-Price-of-Carbon-Guidance-Note.pdf>

⁵⁶ The PAD does not include an aggregate economic IRR.



Table 9. Economic Profitability Indicators.

		EFA PAD - OP (2013)	EFA PP - AF (2017)	EFA ICR (2023)
Result: Economic Internal Rate of Return (10 years)		56.5% (Rural Alliances) 28.2% (Municipal Subprojects)	32%	22.5% (PAR II-OP) 39.1% (PAR II-AF)
Source of information		17 Rural Alliances modeled based on information from PAR I 2 Municipal Subprojects based on information from PAR I	21 Rural Alliances modeled based on information from PAR II 8 Municipal Subprojects	Primary information collected by EMPODERAR that included 1,747 Rural Alliances from PAR II and AF
Type of quantified benefits		Agriculture benefits	Agriculture benefits	Agriculture benefits Carbon sequestration
Costs		Total Cost of the Project (USD 50 million)	Total Cost of the Project (USD 100 million)	Total Cost of the Project (USD 100 million) Total Cost of the Project (USD 50 million)
Economic parameters	Economic discount rate	12%	12.67%	12%
	Conversion factor unskilled rural labor	0.64	0.47%	0.64
	Conversion factor for products, inputs, and services	0.88	Unknown	0.88
	Timeframe	10 years	10 years	10, 15 and 20 years

Source: Own elaboration, based on EMPODERAR (2024), World Bank (2012) PAD PAR II and World Bank (2017) PP AF.

Unquantifiable benefits: Several other economic benefits not considered/quantified in this analysis are nevertheless highly relevant for, and valued by, beneficiary families:

- Municipal Subprojects were not accounted due to lack of information: rural road rehabilitation or improvement, small vehicle and pedestrian bridges, irrigation systems. These investments increase rural connectivity, decrease travel time to commercialize products, avoid product losses, and/or access services; and permit higher production, productivity, and sales.
- Environmental benefits, related to decreased erosion because of the implementation of efficient irrigation systems, allowing considerable reduction in surface water runoff.
- Increase in productivity and cultivated area in families that did not participate in the Project but were assisted by an extensionist trained by the Project.
- Multiplier effect on other links in the economy due to forward and backward production linkages
- Improvement in food and nutritional security of beneficiary families.

For all the above, the ex post economic analysis of PAR II-OP and PAR II-AF underestimates the real impacts on beneficiary families, as it is not able to quantify a series of highly valued benefits. Therefore, these results should be considered as the lower limit of project benefits.

The economic analysis applies the same methodology and assumptions as the financial analysis and differs in its use of conversion factors to adjust market to economic prices. To compare the results with the ex ante analysis, the same conversion factor of 0.88 for input, product, and services prices and 0.64 for labor was assumed. This analysis also considers total investment cost, as presented in the earlier Table 1.

GHG results: The economic analysis also includes the economic value of emissions reduction and carbon sequestration, estimated in 5,292,665 tCO₂eq over a 20-year period from implementation of project activities. The sequestration benefits derived predominantly from the implementation of climate-smart



grassland management, application of climate-smart agriculture practices and technologies in annual and perennial crop production, natural forest ecosystem conservation, and its management linked to beekeeping activities. The value of carbon was estimated considering the shadow price of carbon proposed by the World Bank, 2017⁵⁷: a range of US\$40-80 per ton of CO₂eq, with an annual incremental rate of 2.25%. This shadow price of carbon is consistent with achieving the core objective of the Paris Agreement of keeping temperature rise below 2 degrees. The results presented in the following table consider a shadow price of US\$40 per ton of CO₂eq, with an annual incremental rate of 2.25%. (See Annex 8 report on Greenhouse Gas Accounting for more details).

Both phases had very positive returns. The PAR II-OP had positive returns, since the economic IRR was 22.5%, 27.0% and 29.2% for a 10-year, 15-year and 20-year horizon, respectively, which is higher than the economic discount rate (12%). For the PAR II-AF, results obtained were better than PAR II, since the economic IRR was 39.1%, 41.3% and 41.9% for a 10/15/20-year horizon, respectively. This is in line with results obtained from the financial analysis and shows the learning process and improvement in the efficiency of design and implementation of investment plans by the Executing Entity, EMPODERAR.

Sensitivity and scenario analysis

Sensitivity: To assess the robustness of the economic results, a sensitivity analysis was carried out to estimate economic profitability indicators considering variation of key variables: reduction in yields, investment cost overruns and shadow price of carbon in “with project situation”. Table 10 shows that the PAR II is more sensitive to reduction in expected yields than AF, which presents positive indicators in all the simulations considered. Both projects present positive profitability indicators even when increases in investment costs are simulated.

⁵⁷ Guidance Note on shadow price of carbon in economic analysis, 2017.
<http://documents.worldbank.org/curated/en/621721519940107694/pdf/2017-Shadow-Price-of-Carbon-Guidance-Note.pdf>



Table 10. Sensitivity Analysis

Project	Variable	Variation	10 years		15 years		20 years	
			Net Present Value (Million US\$)	Internal Rate of Return	Net Present Value (Million US\$)	Internal Rate of Return	Net Present Value (Million US\$)	Internal Rate of Return
PAR II-OP	Reduction in expected yield	-5%	(\$2.90)	10.80%	\$14.80	16.30%	\$24.80	18.10%
		-10%	(\$24.80)	0.60%	(\$13.10)	7.90%	(\$6.50)	10.20%
		-15%	(\$46.80)	-	(\$41.00)	-	(\$37.00)	-
	Investment cost overruns	5%	\$18.70	19.41%	\$42.40	23.62%	\$55.80	24.89%
		10%	\$18.50	19.27%	\$42.10	23.51%	\$55.50	24.79%
		20%	\$17.70	19.00%	\$41.40	23.30%	\$54.80	24.59%
Shadow price of carbon	US\$0 per tCO2	\$19.1	19.5%	\$42.7	23.7%	\$56.1	24.9%	
	US\$80 per tCO2	\$35.3	25.5%	\$75.9	30.0%	\$149.6	32.5%	
AF	Reduction in expected yield	-5%	\$79.50	31.40%	\$128.60	34.20%	\$156.40	34.90%
		-10%	\$49.60	24.50%	\$90.50	28%	\$113.70	29.10%
		-15%	\$19.60	17.20%	\$52.50	21.70%	\$71.20	23.10%
	Investment cost overruns	5%	\$109.00	37.91%	\$166.10	40.13%	\$198.56	40.57%
		10%	\$108.53	37.77%	\$165.60	40.01%	\$198.10	40.45%
		20%	\$107.50	37.50%	\$164.70	39.76%	\$197.10	40.20%
Shadow price of carbon	US\$0 per tCO2	\$109.4	38.0%	\$166.6	40.2%	\$199.0	40.6%	
	US\$80 per tCO2	\$119.2	40.2%	\$186.6	42.5%	\$255.2	43.1%	
PAR II-OP & AF	Reduction in expected yield	-5%	\$76.70	23.70%	\$143.40	27.30%	\$181.30	28.40%
		-10%	\$24.70	15.90%	\$77.40	20.10%	\$107.30	22.10%
		-15%	(\$27.20)	-	\$11.40	13.30%	\$33.30	15.40%
	Investment cost overruns	5%	\$127.80	30.86%	\$208.60	33.72%	\$254.37	34.40%
		10%	\$126.90	30.73%	\$207.70	33.60%	\$253.60	34.29%
		20%	\$125.30	30.45%	\$206.10	33.46%	\$251.90	34.06%
Shadow price of carbon	US\$0 per tCO2	\$128.6	31%	\$209.3	33.8%	\$255.1	34.5%	
	US\$80 per tCO2	\$154.6	34.6%	\$262.5	37.5%	\$404.9	38.6%	

Source: Own elaboration, based on EMPODERAR, 2024

Scenario: In addition, a scenario analysis was performed under a pessimistic and a positive scenario to evaluate the economic performance of the Project. The pessimistic scenario consisted in reduction of 10% of yields and investment cost overruns of 10% in with-project situation. The positive scenario consisted of an increase of 10% in yields in with-project situation, and no cost overruns. The base scenario is the one presented in Table 11. For the pessimistic scenario, while the PAR II-OP presents negative economic returns in the three time horizons, the PAR II-AF still presents positive economic-profitability indicators.



Table 11. Scenario Analysis

Project	Variable	Description	10 years		15 years		20 years	
			Net Present Value (million US\$)	Internal Rate of Return	Net Present Value (million US\$)	Internal Rate of Return	Net Present Value (million US\$)	Internal Rate of Return
PAR II	Pessimistic scenario	Yields: 10% decrease Investment cost: 10% overrun Shadow price of carbon: US\$0 per tCO2	-\$25.5	0.3%	-\$13.8	7.7%	-\$7.1	10.0%
	Base scenario		\$27.2	22.5%	\$59.3	27.0%	\$102.9	29.2%
	Optimistic scenario	Yields: 10% increase Investment cost: no overrun Shadow price of carbon: US\$80 per tCO2	\$79.3	40.6%	\$131.8	43.2%	\$212.2	44.1%
AF	Pessimistic scenario	Yields: 10% decrease Investment cost: 10% overrun Shadow price of carbon: US\$0 per tCO2	\$48.6	24.31%	\$89.5	27.9%	112.8	28.85%
	Base scenario		\$114.3	39.1%	\$176.6	41.3%	\$227.1	41.9%
	Optimistic scenario	Yields: 10% increase Investment cost: no overrun Shadow price of carbon: US\$80 per tCO2	\$179.1	52.8%	\$262.6	54.2%	\$340.5	54.4%
PAR II & AF	Pessimistic scenario	Yields: 10% decrease Investment cost: 10% overrun Shadow price of carbon: US\$0 per tCO2	\$23.1	15.71%	\$75.8	20.4%	\$105.7	21.9%
	Base scenario		\$141.6	32.8%	\$235.9	35.7%	\$330.0	36.6%
	Optimistic scenario	Yields: 10% increase Investment cost: no overrun Shadow price of carbon: US\$80 per tCO2	\$258.4	48.1%	\$394.5	49.8%	\$552.8	50.3%

Source: Own elaboration, based on EMPODERAR, 2024

Administrative efficiency

Implementation of the PAR II and FA was efficient. While PAR II-OP allocated close to 19% of the resources received from the World Bank to finance Component 3 Project Management, the AF allocated only 12%, despite scaling up activities nationwide and financing a significant number of much more complex investments in modern irrigation systems. If administrative efficiency is calculated inter alia, as the amount allocated from C3 Project Management to each subproject, PAR II-OP allocated US\$ 13,987 per subproject, while the PAR II-AF allocated US\$ 10,222 per subproject. This represents a reduction of 27%.

The results of the EFA show that the AF was more successful than PAR II. Even though the proportion of viable subprojects (NPV>0) is almost the same between the two projects in all three time-horizons, the average IRRs of PAR II-AF subprojects are higher than PAR II-OP subprojects. The same trend is observed in the economic analysis: the economic IRR is higher for the AF than PAR II-OP. This is worth noting, since the AF faced a higher risk scenario than PAR II, as the AF expanded the geographic area from 120 municipalities nationwide – reaching 233 Municipalities by closing, almost double the PAR II-OP - with the potential for fragmentation of initiatives and inefficiencies of subproject design and implementation.

Clearly EMPODERAR, the project Executing Entity, was learning as it gained experience in the design and implementation of the Alliance Plans. The EFA results and the observed decrease in the administrative cost per subproject depict the improvement trend in the efficiency of the design and implementation of investment plans and of the administrative management by EMPODERAR.



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

A. Executive Summary of the Borrower Completion Report (EMPODERAR, 2023) (World Bank translation)

The main objective of the Rural Alliances Project II (PAR II) was to "improve market access for small rural producers in specific areas of the country, through the implementation of a productive-rural alliance model." PAR II consolidated a rural development approach based on the opportunities offered by both the agricultural and non-agricultural markets, thus making it easier for small, organized producers to gain access on more favorable terms through Alliances established with the market actors themselves.

The PAR model has been widely accepted by rural producers, a fact that is clearly evidenced in the results of the Calls for financial support requested by the Alliances. PAR II received a total of 4,720 requests for financing from producer organizations (SPOs), double the number expected in the initial design of the project.

Formulated on the experience of PAR I, PAR II included design elements to optimize the development approach through new instruments and intervention models, responding to the climate context, proposed a rethinking under an Additional Financing of the logic of intervention in Alliance Plans, giving greater relevance to the co-financing of technified irrigation and water management for livestock, thus taking action to address climate change. PAR II also recognized the importance of public infrastructure to facilitate the connectivity of producers to markets and incorporated a subcomponent to support the construction of Municipal infrastructure.

The Project had two phases: an Initial Financing (PAR II IF, Loan Agreement 5170 – BO), effective on May 9, 2013; and the second an Additional Financing (PAR II AF, Loan Agreement 8735 – BO), which became effective on February 8, 2018. Once the effective date was achieved, the Project needed up to three months to have the financial resources to start its implementation.

One of the strengths of the Project was its capacity to execute, which was seriously limited by unforeseen conditions: (i) Social conflicts as a result of a crisis and political intervention that paralyzed the country from August to October 2019; and (ii) The health emergency as a result of the COVID 19 pandemic that forced the entire country to enter a rigid quarantine from March to June 2019 and until November with controlled or rigid quarantines according to the levels of infection in each municipality. Despite this context, the Project managed to engage by generating complementary demand and rapid implementation with producer organizations by applying corrective measures to recover a portfolio of Alliances that was abandoned by producers due to political conflicts and the health emergency.

PAR II rates high for relevance, efficacy/effectiveness, efficiency, impact, and sustainability. In the development of the final report, a detailed justification is presented, after a self-evaluation exercise applying specified criteria. PAR II financed investments in capital goods and technical assistance to the Alliances, which represented a solution to their production problems, through activities closely related to the objectives proposed by the producers to enable them to meet the challenges and demands they face and translate them into business opportunities.

The Project capitalized on opportunities to boost income generation and market access, supporting environmental sustainability and resilience to climate change, thus contributing to the country's economic growth. PAR II has driven investments aligned with the World Bank's Climate Change Action Plan 2021-2025,



focusing on environmentally responsible sustainable development. These investments have strengthened the resilience of producers, as evidenced in the impact assessments, which have shown a reduction in poverty under both phases, as well as a boost to the growth of communities through an increase in productive capacities.

The strategies implemented by the Project have generated significant improvements in productivity, diversification, and adoption of more sustainable practices. The results obtained have promoted a climate-smart and economically more profitable agricultural sector. A reduction in unit costs of production and an increase in the productive yields of beneficiary families have been observed, which has contributed to food security and has responded to the sector's technological transformation strategy.

PAR II stands as a catalyst for the local economy and a transformative agent for agricultural production and marketing systems. Participants have been transformed from subsistence producers, guided by the satisfaction of basic needs, to entrepreneurial producers with substantially more profitable economic units, driven by the identification and exploitation of market opportunities. These transformations are rooted in the promotion of associativity and cooperation among the members of the Alliances, thus laying the foundations for inclusive and sustainable economic development. The participation and associativity fostered by the Rural Alliances Program (PAR) enable individual interests to converge towards a common good, especially in the agricultural field.

Relevance: Design

The producers benefited responded to the targeted group, of those who are organized and have business opportunities; in this sense the evaluation of business opportunity was the most important filter for the groups that did not have conditions to receive financial support. The Project had the capacity to exceed the programmed number of beneficiaries from 46,434 families to 50,161 (the achievement exceeds the target by 8%) despite the significant abandonment rate faced due to the social conflicts and the health emergency already mentioned; the Project's capacity to react was demonstrated and managed to meet the needs and priorities of the Small Producer Organizations (SPO). It should be noted that producers are the ones who prioritize their demands in response to the business opportunity they perceive.

The Project not only generated important results in terms of productive capacity, in meeting the demand and investment requirement per beneficiary family, but it was also relevant with respect to the conditions of financing as a loan from the World Bank, improving productive capacities and contributing to economic growth in the different regions of the country.

Región	No. Alianzas	No. Familias	VBP SIN PAR Bs.	VBP Programado PAR Bs.	VBP Logrado PAR Bs.	Incremento % VBP
Altiplano	211	5326	141.868.589	169.760.102	218.561.582	54%
Trópico y Chaco	648	17310	372.195.290	549.868.043	645.282.081	73%
Valles	785	24592	643.686.102	904.367.147	1.096.248.458	70%
Total general	1.644	47.228	1.157.749.981	1.623.995.292	1.960.092.120	69%
Familia			24.514	34.386	41.503	69%
Precio promedio tonelada			3.708	3.854	4.009	8%

Execution of PAR II proved to be of high relevance by implementing business plans with needed investments for producers and solving priority problems for beneficiaries, ratifying their opinions in the annual Perception Survey of December 2022 (100% of the Alliances had concluded their investments) conducted on a random sample of



beneficiaries supported by the Project. Some 96.2% have acknowledged that that the Project achieved positive results which demonstrates in a very general way the relevance and validity of the Project as an instrument to support the development of the rural economy.

Relevance: Objectives

PAR II is valued as a highly relevant program because it contributes to solving 6 of the 9 structural problems identified by the PSARDI (Integrated Development Plan for the Agro-Livestock and Rural Sector, 2016-2020). The contribution made by PAR II is as follows:

Problem 1: The technical assistance and accompaniment provided by the PAR II facilitators to all Alliances promoted process innovation, which consisted of the introduction of new or significantly improved methods of production, distribution, and marketing, which represent positive changes in the practices and techniques used in the production units.

Problem 2: PAR II invested in Alliances that, once the production process had been improved (and had become more technically efficient), were/are formally and continuously linked with buyers, improving marketing and distribution chains. The investments of PAR II support production, as mentioned in the PSARDI's problem statement.

Problem 3: Although there is no directly observable indicator of the quality of the products obtained by the Alliances, the consolidation of business relationships and the sales they made/make are indirect measures of better quality. The hypothetical opposite situation, if the products were not improved, the sales relationships would not materialize as the facts demonstrate they have.

Problem 4: PAR II succeeded in transforming traditional and subsistence modes of production into enterprises guided by market opportunities, which are technically and economically viable. For this reason, PAR II managed to increase production volumes and clearly contributed to better productivity.

Problem 5: The accompaniment of the work of the Alliances is periodic and permanent, acquiring the importance and role of continuous technical assistance, with demonstrative effects that even managed to fulfill the demonstration role permitting rapid adoption and appropriation by the producers.

Problem 9: All the alliances managed to successfully conclude their commercial relationships, which indicates that the greater volume of production they obtained, with better quality products, more amply supplied the domestic market and contributed to the food security of the urban markets that are the main recipients of the Alliances' production.

Efficacy/Effectiveness of Results

The project intervention was highly effective, and demonstrated in its indicators and studies of impact and perception of beneficiaries that the results of the investments by the producers were achievable in the short term, the producers expressed their satisfaction with the results achieved and, inter alia, producers care about maintaining their irrigation systems and other investments because of the profit it generates for them. PAR II was/is highly effective because it has managed to meet its objectives and expected results. The program aims to improve market access and the increase in sales volume, the increase in commercial relationships of the Alliances and the number of direct beneficiaries demonstrate that the PAR II had a high degree of achievement.

Achievement of the Results Framework measures the extent to which the objectives of the Project were achieved, including intermediate indicators. **(See results, Annex 1 A of the ICR).**

Producers opine that the Alliance Plans in their formulation already consider a specific solution to the productive



problem raised by producers in their assemblies, thus defining the necessary investments to solve the problem. The Alliances have goals classified as operational (investment, purchasing and contracting stage) and strategic (business operation stage, yields, increase in marketed volume, reduction of losses, reduction of unit costs, etc.). Some 72.2% of the beneficiaries consulted at the national level considered that the Improvement in production technology was/is the best contribution received from PAR II to continue with their production activities. In second place, with 9.7% are those who consider that it has been learning to keep accounts of production costs, and in third place, with 9.5% who say that it has been knowing the steps to develop a Business Plan. Considering that the Acompañante was one of the main arms of the organizational and technical strengthening of the SPOs, producers had a positive perception of these service providers and in the 2022 evaluation it reached 88%; producers considered that the Acompañante to help them implement the Business Plan met/met the support and training needs that the SPO members needed to receive. This trend stands out in the UODs of regions where continuous technical support has historically been scarce or non-existent.

The representatives of the Alliances and their respective committees consider that the knowledge acquired will be used not only for the implementation of their partnership plans, but also for their communal and local initiatives. They claim that they now know the results that must be achieved and that the programming and execution of milestones allows them to closely monitor their investments. There is a high level of satisfaction among the beneficiaries regarding their investments and expected and achieved productive results in the pilot partnerships. The technical staff of the Operational Units recognize that the organizational strengthening component is an important part of achieving the sustainability of SPO and Alliances, and what remains for the closure of the Project must be well used. One of the aspects noted by the departmental operators is that producers invest with auditable resources and with proven results, which allowed other unforeseen contributors such as YPFB to co-finance Alliances by accepting the instruments of the Project and leveraging their resources to achieve results.

Efficiency

The correct application of the efficiency criterion, which relates inputs to results, implies assessing whether the available resources have been well used, for which it is necessary to have an independent position and a comparative perspective with other programs with similar characteristics. Both independence and comparability are elements that cannot be provided by PAR II as executor. Therefore, this paragraph provides information that allows us to assess PAR II's efficiency, which we consider to be high, based on the achievement of results exceeding those expected, but with the same resources.

The Project's intervention in the implementation of the Alliance Plans of producer organizations achieved a high level of efficiency. Although at the beginning there were difficulties in finding local capacity to facilitate the preparation of Alliance plans with modernized/technified irrigation, the operational capacity achieved by the project and the local capacity developed in the different regions made it possible to demonstrate that in the course of 6 months the portfolio of approved Alliances had recovered the 204 Alliances abandoned by producers unable to contribute their counterpart share due to economic hardship brought on by the social/political disturbances.

The need to plan for Alliances with modernized irrigation rapidly became apparent and required extraordinary effort. Training events for facilitators were intensified, with FAO support, which made it possible to generate new local capacities and define investments of good quality and, above all, to meet the expectations of beneficiaries. Many of these trainings required efforts by the technical staff of the operational units to "train-



work" (learn by doing) with the consultants.

Important results were achieved regarding the production capacity achieved and translated into sales to meet the demand of the market agent. Importantly, the Project managed to increase production by 57%. The plan was to increase production by 109,154 tons to justify the investments in accordance with the financial evaluation of the 1,644 Alliance Plans financed. The Project enabled production increases totaling 176,724 tons, 16% more than programmed, and greater efficiency in the cost of production capacity created per ton and foreseen in the Alliance Plans, reducing the average \$US 1,189 per ton to \$US 734 per ton (US\$129 million investment including counterpart, comparing the planned increase in the tons of agricultural products produced with what was achieved). The activities programmed by the producers and the investments of the Project, the physical, human, time, and economic resources, were transformed into important results that exceeded the goal of 35% increase in average sales. The project managed to increase sales by 64% on average.

To achieve and exceed the results expected by the producers (programmed), it needs noting that the formulation of Alliance Plans cost more than initially programmed, for two reasons: (i) more studies were carried out than programmed; and (ii) the unit cost was increased due to the technical requirements incorporated to achieve Alliance Plans with adequate technical quality. Hydraulic plans had to be generated in most cases individually for each SPO member accompanied by their agronomic plans, for part of the production strategy of their Alliance Plans. The project was able to finance this higher cost by reducing the budget for external evaluation of a financial institution's unit cost to specialized individual consultants. The evaluation of the Alliance Plans underwent a strategic shift from the PAR II Initial Financing to the Additional Financing, from a specialized company to individual consultants, from which it can be concluded that it was better because of the ease of coordinating with a local consultant for each operating unit, dedicated to a defined number of Alliance Plans, and who contributed to the review of the technical and financial quality of the Alliance Plans.

Considering that the Project had the appropriate logistical conditions to operate, the trained and experienced personnel, the necessary financial resources and the appropriate instruments for the investments to achieve their expected results, the internal problems that caused delay in the execution of Alliances once the financing agreements had been signed, were mainly related to the capacity of the members of the SPOs to contribute their counterpart resources in a timely manner, in most cases due to external factors that affected their productive and commercial activities. The extensions of time required due to paralysis faced by the Project under the pandemic health emergency and social conflicts do not reduce the reality that within the actual implementation times of the project all the process goals and results were achieved and with the desired quality.

Sustainability

The main indicator of the sustainability of an Alliance is whether the producer improves his income as part of an SPO and the market agent (buyer) also generates the expected profits, due to the economic agreement with the seller. As a first scenario, with the following table we can see that the producer improved his average net income substantially, by 38% above what was programmed (a family average of Bs. 18,077 programmed against Bs. 24,900 achieved).



Región	No. Alianzas	No. Familias	I.Netos SIN PAR Bs.	I.Netos Programado PAR Bs.	I.Netos Logrado PAR Bs.	Incremento % I.Netos
Altiplano	211	5.326	59.180.977	95.045.212	141.569.344	139%
Trópico y Chaco	648	17.310	161.799.186	287.824.942	382.484.057	136%
Valles	785	24.592	274.258.673	470.889.684	651.919.407	138%
Total general	1.644	47.228	495.238.836	853.759.839	1.175.972.809	137%

The net income and above all the sustainability of the Alliances, in addition to the productive capacity and the economic agreement (Alliance) is related to the level of competitiveness of the producers. For this, it is important to measure the average unit cost per ton that the producers have in the different regions.

acción del Plan sectorial	Costos U. SIN PAR Tn	Costos U. Programado PAR Tn	Costos U. Logrado PAR Tn	Incremento % Costos
Altiplano	1.349	1.117	922	-32%
Trópico y Chaco	1.150	1.130	1.009	-12%
Valles	1.047	941	819	-22%
Promedio	1.111	1.017	889	-20%

To the extent that lower unit costs are achieved, related to the improvement of their yields, conclusions can be reached about the technology adoption achieved by the beneficiary families of PAR II.

Again, based on the opinions of the producers, regarding the rating they would give to the sustainability conditions of their alliances: Question 27 of the beneficiary satisfaction study: *Do you think you are qualified to execute the activities of the Project/Business Plan and the resources, complying with the requirements and procedures of PAR II?* At the national level, in the 2022 Perception Survey, 81% felt qualified to operate their Alliance Plans, and of this percentage, 30% of the beneficiaries surveyed considered that they felt Very Well Qualified to execute the activities of the Business Plan and the resources, complying with the requirements and procedures of PAR II, 51% felt Trained to fulfill these tasks and 14.3% felt Moderately Trained. The same order with the same topics were reproduced in all the UODs of the country, which permits the conclusion that these are consolidated trends regarding the valuation of the contribution received from PAR II so that producers linked to the market improve their production activities.

The impact assessment study also verifies that the beneficiary producers generated higher incomes than those who were not supported by the Project. Producers will remain organized if their income generated is greater than what they achieve individually, so the strengthening they are receiving for their organizations to provide them with services to reduce unit costs and optimize sales in volume are important for them and in any case, with the hope that it will allow them to increase their income. Further, producer organizations have members with different production scale, but the Alliance Plan finances their needs in capital goods that the entire group acquires in order to maintain the Alliance and thus fulfill its agreement with the buyer.

Question 3 of the beneficiary Perception Study, *“Why did you decide to become a member of a Producer Organisation and apply for support from the PAR?”*, most of the beneficiaries consulted in 2022 acknowledged that the main reason for associating and approaching PAR II was because *“it offers opportunities to improve economic income”*, and secondly, because *“producers are looking for ways to produce and produce more”*. It



should also be considered that producers' level of participation, from the process of formulating Alliance Plans for decision-making and defining their investments and approving them in their assembly, to the acceptance and conformity of the discharges executed by the monitoring committee for each milestone, shows a notable degree of producer appropriation and ownership.

One of the important messages received from the interviewed beneficiaries is to recognize that there are producers who make important efforts to comply with their counterpart contribution because that effort helps all of them, but they do not abandon the organization and the opportunity to make investments. These counterpart contributions also facilitate their appropriation/ownership of the Alliance Plan and the goods acquired. Question 13, "*Were there problems in delivering the partners' counterpart to the Producer Organization?*" The trend showed that the financial contribution in cash resources represents a limitation. This aspect, being one of the requirements that identifies PAR II, is disseminated as a necessary condition to advance in the development of rural productive enterprises.

On the other hand, the intervention of the Project produced positive effects on the beneficiaries, considering that the productive capacity created will be used in the natural interest of the producers to maximize their income. The capacities generated from training and strengthening will contribute to the sustainability of the Alliances. The main concerns that producers have regarding their productive future are non-measurable external factors such as climate change.

The participation of women from the initial formulation of the Alliance Plan was decisive, because they play a strong role in the management of family resources and the commercialization of the product, demonstrating a great capacity to negotiate and determine the market alliance. The role of men entails a greater productive component, their time is distributed in ensuring good production and participation in their grassroots organizations, from the organic to the groups of irrigators, who mainly define the management and administration of the water resources. The SPO Monitoring and Management Committees are composed of men and women in an open manner. Alliances of women producers are managed very successfully, developing all the capacities required to implement an Alliance Plan under the same conditions as everyone else.

Producers have satisfactorily implemented their environmental measures, as presented in the performance indicators. The Alliances interventions contributed to improving producers' knowledge of the environment and climate change, as part of a local development process, so it is expected that these mitigation measures and the improved conditions of resilience to climate change will be applied on a permanent basis.

The incorporation of the irrigation and water management system in the investments as a priority for the Additional Financing was an important contribution to the issue of climate change as it was strongly related to productivity, the management of post-harvest losses and the efficient management and use of water. Since its formulation, the Project was a Category 4, meaning that its activities did not lead to irreversible or non-mitigable negative impacts, as they were small investments, their interventions were specific/localized and did not require transformational changes in the use of land or the use of resources. The elaboration of the Alliance Plan incorporated, from the diagnostic base, the analysis of the environmental component that limited or determined the fall of the Alliances, therefore, it was a decisive factor when financing an Alliance Plan.

Conclusions

The Project enhanced and took advantage of opportunities for income generation, access to markets,



supporting environmental sustainability and resilience to Climate Change, thus contributing to the country's macroeconomic stability. The results of the Project contributed to promoting a climate-smart and more profitable agricultural sector, environmentally sustainable, competitive to the extent that it managed to reduce the unit costs of production and increase the productive yields of the beneficiary families and contributed to food security in response to the productive technological transformation strategy of the sectoral plan.

PAR II encouraged and facilitated the inclusion of small-scale producers who were/are ready to participate in the market and lack the economic conditions to make investments. By achieving an immediate effect on the gross value of production and food security, the Project improved the country's development conditions by: (i) contributing to food security; (ii) promoting the main activity of agricultural and rural producers through greater market access and competitiveness; and (iii) improving resilience through investments and adoption of climate-smart agricultural practices.

PAR II promoted investments that respond to the World Bank's Climate Change Action Plan 2021-2025, with a focus on environmentally sustainable development, generating resilience in producers. This can be verified in impact assessments of the effects it had on poverty reduction in its two phases and boosted the growth of communities by generating better productive capacities. After the political conflicts and the health emergency, the Project had the opportunity to recover operational capacity and achieve all the results programmed in its design, also allowing producers to recover their productive capacity and improve their conditions of adaptation to climate change. The important results achieved in the Gross Value of Production contributed to the economic and social recovery that was needed, and that continue to challenge the country.

The investments achieved by PAR II, in addition to generating an important multiplier effect on the economy, and strengthening value chains in the agricultural sector, promoted the broad adoption of climate-smart agricultural practices. This was achieved not only by producers, but also by the project's Technical Service Providers through their implementation of organizational strengthening and the development of local capacities. One of the important and recommended conclusions for implementing productive technological transformation processes is the inclusion of specialized productive technical assistance – as in the case of PAR II - in irrigation, water use efficiency and climate-smart/resilience practices as integral parts of the Alliance Plans.



B. Letter from the Borrower commenting on the World Bank’s draft ICR



ESTADO PLURINACIONAL DE
BOLIVIA

MINISTERIO DE
DESARROLLO RURAL Y TIERRAS

La Paz, 12 de junio de 2024
EMPODERAR/ PAR III/ UCN/ PyP/ 048-2024

RECIBIDO

Señora
Camille Nuamah
REPRESENTANTE RESIDENTE
BANCO MUNDIAL
Presente. –

13 JUN 2024

FIRMA Hrs. 08:36

REF.: COMENTARIO AL INFORME FINAL DE EJECUCIÓN DE RESULTADOS (ICR) CONVENIO DE PRÉSTAMO NO. 8735 – BO PROYECTO DE ALIANZAS RURALES II (PAR II).

Estimada Camille:

Se ha revisado el Informe Final de ejecución de Resultados (ICR) y nos encontramos complacidos y agradecidos por cómo se presentaron los resultados en el documento y las conclusiones arribadas por el equipo que trabajo del Banco.

Refleja el esfuerzo realizado por la Coordinación Nacional y las Unidades Operativas Departamentales del PAR II demostrando el compromiso para lograr los resultados de los indicadores de los Objetivos de Desarrollo del Proyecto y de los objetivos de la cuarta política de Seguridad Alimentaria del Plan Sectorial de Desarrollo Integral – Sector Agropecuario.

Aporte del PAR II a la política de Seguridad Alimentaria del Sector Agropecuario

OBJETIVOS DE LA POLÍTICA 4 DEL PSDI	APORTE DEL PAR II FA
Desarrollar las capacidades productivas a nivel de los productores agropecuarios, pesqueros y forestales, priorizando la producción campesina, comunitaria y familiar, incrementado su producción.	<p>Consolidación de la infraestructura productiva y de apoyo a la producción.</p> <p>Fomento de la competitividad de los procesos productivos de los pequeños productores.</p> <p>Incorporación de la participación de las mujeres en la población económicamente activa del área rural.</p> <p>Promoción e incremento de las inversiones para la transferencia de tecnología y asistencia técnica, orientada a mejorar la disponibilidad de alimentos.</p>



Incrementar la producción y productividad agropecuaria, promoviendo el manejo sostenible de los recursos naturales, a fin de lograr alimentos en calidad y cantidad suficientes para el consumo de la población vulnerable del país.

Inversiones productivas sostenibles mediante alianzas productivas rurales que permiten incrementar la producción de alimentos atendiendo los requerimientos del mercado.

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ESTADO PLURINACIONAL DE
BOLIVIA

MINISTERIO DE
DESARROLLO RURAL Y TIERRAS

	Promoción e incremento en las inversiones mediante transferencia de tecnología y asistencia técnica, orientada a mejorar la disponibilidad de alimentos.
Implementar acciones que permitan a la población contar con los recursos económicos y con los alimentos necesarios para satisfacer las necesidades nutricionales básicas	Financiamiento a productores en inversiones en bienes de capital, permiten un incremento de los ingresos familiares y reducen la incidencia de la pobreza moderada y extrema.
Desarrollar acciones para la reducción de las vulnerabilidades ante riesgos de desastres y efectos del cambio climático.	Gestión agropecuaria frente al Cambio Climático, a fin de apoyar la reducción de las vulnerabilidades del sector agropecuario ante los efectos del cambio climático a través de mecanismos de adaptación, mitigación y/o mecanismos conjuntos para la seguridad alimentaria con soberanía. Promoción e incremento de inversiones en infraestructura pública complementaria a las inversiones productivas.

Resaltamos el buen desempeño del equipo del Banco Mundial, cuya participación fue importante desde el diseño, la supervisión periódica a lo largo de toda la ejecución hasta la preparación del cierre; como la participación de especialistas de la FAO en el seguimiento y el fortalecimiento técnico del Proyecto. Esta interacción, permitió fortalecer las capacidades gerenciales y técnica con el desarrollo y articulación del diseño hidráulico con el agronómico en la elaboración y ejecución de los subproyectos.

Los estudios anuales de percepción de satisfacción de beneficiarios y las evaluaciones de impacto de ambos financiamientos, considerados solo como practica del programa EMPODERAR para valorar sus intervenciones:

- El primero, se refleja en un documento que permite evidenciar a lo largo de la ejecución del PAR, que las partes afectadas han estado y están satisfechas con el desempeño en la atención y operación del Proyecto y sobre todo de los resultados que han alcanzado con relación a sus expectativas.



- El segundo documento, demuestra mediante la evaluación de impacto que los resultados alcanzados además de los impactos positivos logrados validan el modelo de alianzas rurales. Creemos que el éxito del proyecto parte desde su diseño, que permitió entre otros, un importante aporte en la reducción de la pobreza extrema y moderada.

La priorización en de inversiones en riego y manejo del agua (más del 70 %) y la falta de proveedores de servicios capacitador en la mayoría de los Departamentos del país obligó al Proyecto a intensificar las capacitaciones y generación de capacidades en potenciales profesionales para la formulación y acompañamiento de planes de alianzas.



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PROGRAMA
EMPODERAR

PROYECTO



ESTADO PLURINACIONAL DE
BOLIVIA

MINISTERIO DE
DESARROLLO RURAL Y TIERRAS

Un último comentario reiterado, pero importante es que se tuvo los instrumentos ambientales y de cambio climático adecuados para generar capacidades resilientes a los productores apoyados ante el cambio climático, al promover la adopción de prácticas climáticamente inteligentes, que entre otros permitió una reducción neta de emisiones de Gases Efecto Invernadero.

Sin otro particular, me despido cordialmente,

Jhonny Delgadillo Aguilar
Coordinador General
MDRVT - EMPODERAR



ANNEX 6. SUPPORTING DOCUMENTS

Project Appraisal Document (Report No: 71702-BO)

Project Paper – Additional Financing (Report No: PAD2175)

Environmental Management Framework, World Bank, August 2, 2012

Environmental Assessment, World Bank, August 2, 2012

World Bank Project Archive (SharePoint)

Borrower Completion Report: Proyecto de Alianzas Rurales II, EMPODERAR, November 2023

Programa de Alianzas Rurales II, Evaluación de Medio Término, EMPODERAR/Javier Monterrey August 2015.
(Mid-Term Review Report, PAR II).

Evaluación del Personal Técnico del Proyecto de Alianzas Rurales II (Financiamiento Adicional), Tomo III:
Informe Final Percepción de Beneficiarios, ECOTHESES S.R.L./EMPODERAR, May 9, 2023

Evaluación de Impacto del Programa de Alianzas Rurales – Financiamiento Inicial (PAR II – FI), Javier Monterrey,
La Paz, November 30, 2022

Evaluación de Impacto del Programa de Alianzas Rurales – Financiamiento Adicional (PAR II – FA), Javier
Monterrey, La Paz, October 2023

Six-monthly Progress Reports, EMPODERAR, 2013-2023.



ANNEX 7. ADDITIONAL SUPPORTING INFORMATION

A. Summary of Impact Evaluation: PAR II-OP (Monterrey, November 2022)

Methodology: The baseline for this study was generated from the Impact Evaluation of PAR I in 2014, which demonstrated important results for indicators of beneficiary wellbeing based on information from beneficiary families (Treatment) and a Control group surveyed in 2014, and information from potential beneficiaries of the PAR II- AF which is considered the AF baseline. While a Treatment group was measured in 2014, no before/after analysis was done on that group because the differences in income from such comparison could be explained by numerous effects experienced by the Treatment group, including the effects of participating in the program. Measurement of change in incomes would be contaminated by multiple factors and would not measure the causal relationship between the program and incomes.

The parity approach used statistical techniques to construct a control/comparison group. For each producer in the Treatment group, the methodology sought comparable producers as similar as possible using a four-phase approach: estimation of a regression model; estimation of probability of participating in the program, or propensity; estimated values similar to the propensity score; and testing of the difference in results indicators using as a criterion the match obtained from the previous phases.

The study details how the baseline for the AF was established, including the formula used to determine the sample size. To estimate an increase of 35% in producers' gross income – aligned to the AF target for PDO Indicator #1, *"Increase in the average volume of sales of products involved in the alliances"* - with 95% confidence and 80% statistical strength/power, a sample of 5,278 producers was needed, divided equally between treatment and control, that is, 2,639 producers per group. The baseline collected information from 2,337 producers participating in the AF. Some erosion of the sample was experienced: 302 producers were not questioned. Successful interviews were conducted with 88.6% of that sample. This group would become the Treatment for the AF Impact Evaluation.

For purposes of the PAR II (Initial) Impact Evaluation: (a) the **Treatment Group** comprised 2,849 participating producers previously questioned from the PAR I baseline in 2014. Total participants in 2014 were 3,826 of which 74.5% were located and questioned in 2022; (b) the **Control Group** comprised 2,639 producers whose alliances were abandoned, producers who intended to participate, had an enterprise, a technically and economically viable opportunity, but for various reasons did not culminate in formal participation. Such producers had very similar characteristics to actual beneficiaries but were unable to complete the process for participating. Of these, 2,490 were effectively located and questioned/interviewed' and (c) **PAR II AF Baseline**, comprised 2,639 producers with approved alliances whose information would reflect the situation prevailing before full participation in the AF. Some 2,337 producers were located and interviewed, 88.6% of the sample. Questionnaires were developed, similar to those used for PAR I but with improvements in how questions were phased and optional responses, to improve the quality of information collected. Questionnaires comprised two parts: (i) observation and analysis of the household of sampled producers (demographic, education, activities, income) with implications for poverty, inequality, and wellbeing; and (ii) observation of the Agricultural Productive Unit (production, sales, consumption, losses, and costs of production), aligned to themes such as productivity, revenues, efficiency, and mode of production.

The study details how field work was conducted and supervised, as well as how the analysis-maintained



consistency and controlled quality. Processing and analysis of data used Stata software. The conditions and technical limitations affecting the questionnaires, the impact evaluation and baseline are also detailed, including the fact that participants in the AF had access to water for irrigation whereas beneficiaries of the PAR II initial operation mostly did not.

Principal Findings re participation:

- **There was an inverse relationship between size of the household and probability of participating.** Those with larger households participated less. The higher the number of household members, the greater the dependency rate and economic burden, suggesting reduced capacity to pay the beneficiary counterpart contribution required under PAR II.
- **There was an inverse relationship between the quantity of crops and animal species produced and likelihood of participation in PAR II.** More diversified producers had less propensity to participate.
- **There was a positive relationship between the quantity of subproducts or derivatives and participation in PAR II.** Those with more subproducts were 5.6% more likely to seek participation in the project.
- **Where the required counterpart contribution was higher, the probability of participating was less.** On average, an increase of just 1% in the beneficiary contribution reduced by 45% the propensity to participate, indicating the high sensitivity of participation to the amount required in beneficiary counterpart. This indicates high aversion of producers to risks involved in participation in a subproject, and preference for keeping their resources secure.

PAR II-OP Impact on Incomes:

PAR II-OP was highly effective in increasing different aggregates of its beneficiaries' incomes. These changes are attributable to the Project and statistically significant:

- **Return to labor increased on average US\$535/year, equivalent to 22%.** Producers participating in PAR II had an annual income of US\$3,012 compared to non-participants' (Control Group) US\$2,477. The activity supported was the producer's principal occupation. They produced more and sales conditions improved, resulting in a statistically significant increase in return to labor (labor income) of their primary occupation.
- **Labor income of secondary occupation declined by 27%.** Control group households complement their incomes with other, non-agricultural activities (commerce, transport, or artisanal products). Reduction of secondary income of US\$141/year is a favorable indicator for PAR II, because it indicates that participants obtained higher incomes from production supported by the project and left off engaging in other complementary, secondary activities.
- **Total returns to labor (sum of primary and secondary income) increased 13%** due to participation in PAR II. The Project's effect on labor income is US\$394, the difference between the positive effects of the primary occupation (US\$535) net of the secondary (US\$141).
- **Average gross income of the productive unit increased US\$1,877 per year, due to PAR II.** This is equivalent to an increase of 40% in gross revenue/income. This indicates that the improved conditions for production and commercialization (consolidation of sales at better prices and with defined periodicity of sales) impacted favorably on PAR II participants. Control Group producers showed average gross revenues of US\$4,653/year, while the Treatment had US\$6,530/year. Considering that the parity method is intended to compare the income of pairs of very similar producers, participation in PAR II is the only significant difference



- between both groups and the difference in incomes of 40% is the Treatment effect, interpreted as the causal effect of PAR II.
- **Participation caused a 48% increase in net revenue of the production unit.** Participation produced an average annual difference of US\$1,722 in net revenue of the participating group. On average, average net annual income of the Control Group was US\$3,623 and in the Treatment Group, US\$5,345.
 - **The relative impact of PAR II-OP is greater at the net revenue level (48%) compared to gross revenue (40%).** This 8-percentage point difference in relative impact is because the proportional increase in costs is less than the increase in production and gross revenue, meaning that on average, the unit cost of production is less for the Treatment producers who were more efficient due to the technical assistance they received from PAR II.
 - **Reduction of 29% the value of own consumption in the Treatment group, to an average annual of US\$104 to US\$74.** This result indicates that beneficiary producers prioritized the sale of their production, above/before own consumption. This result confirms that PAR II transformed the mode of production towards more technologically advanced/modernized units, technically more efficient and economically more profitable, with greater orientation towards markets and exploitation of opportunities.
 - **Positive impact on gross and net aggregate income/revenues and on own consumption, which increased by 39% and 45% respectively.** The project increased gross revenue/income, reduced unit costs, increased net income and reduced own consumption. All these results are statistically significant.
 - **PAR II-OP had no impact on level of employment which remained at an annual average per productive unit of 4.2 persons.** Participating producers employed on average the same number of persons as the Control group.

In summary, increase in gross and net revenue of the productive unit, reduced own consumption, and reduced unit costs of production indicate productive transformation in PAR II beneficiaries/Treatment group. Treatment producers transformed agro-livestock self-employment based on necessity towards technically more efficient units, economically more profitable and with a market orientation. Besides positive impacts on revenues/income, participation in PAR II promoted a transformation in the mode of agro-livestock production, while also promoting association and cooperative activity between producers, which impacted on confidence between peers and resulted in greater social solidarity and mutual support, which is favorable for the consolidation of economic growth and local inclusion.

Impact based on Ecological Region:

- **Surveys of PAR II-OP for the PAR II AF Baseline found a concentration of PAR II participants (73%) in two Ecological Regions – Valles (48%) and Trópico (25%).** This is mainly due to the technical and economic viability of the Alliances, technical viability being related to types of soils and climatic conditions, while economic viability is related to market opportunities.
- **High heterogeneity of the Treatment effect based on ecological region.** PAR II-OP increased gross and net revenues of participating producers in all ecological regions. However, even though the treatment effect was positive and statistically significant, the Altiplano's sample size (7 alliances) limited the possibility of generalizing the impacts region wide.
- **Beneficiaries increased their gross revenues by 120%, 110%, and 47% in Amazonia/Tropico, Chiquitania/Pantanal, and Chaco, respectively, the highest of the Treatment group.** The magnitude of the impact in each ecological region is explained by diverse factors: type of



product supported; sales prices; soil quality and irrigation technology. Valles also showed a positive impact, but lower at 15%.

- **PAR II caused an increase in net revenue of producers in Tropico Chiquitania/Pantanal and Chaco where beneficiaries showed increases in net revenues of 194%, 144%, and 46% respectively.** The magnitude of the effect is statistically significant and evidence of the high effectiveness of the project for improving conditions of production and commercialization. Valles showed an increase of 13%.
- **PAR II caused larger increases in production efficiency in Tropico, and Chiquitania/Pantanal, where the unit cost of production increased in lesser proportion than net revenue and produced a strong impact on net revenue.** When the effect of the Treatment is greater on net revenue, this shows that the increase in production exceeds the increase in costs, which reduces unit costs of production and is the indicator which permits the assertion that production became more efficient.

Impact of PAR II-OP on gross revenues of the main crops supported:

PAR II-OP caused significant increases in gross revenues of the main agricultural products supported: Potato (31%), Peach (31%), Grapes (138%), Coffee (44%), and Orange (137%). These large increases from the Treatment are explained as follows:

- **Increased number of productive cycles in the same agricultural year,** which in some cases were two or three cycles. This doubled or tripled production volumes compared to the Control Group.
- **The Project's technical support permitted the application of improved practices in productive processes in the same productive cycle, which increased productive efficiency:** correctly implemented cultural practices, soil and plant care practices, greater supply of water and efficiency of use, all of which allowed for higher yields in the same productive cycle.
- **Better commercialization conditions:** better prices, greater frequency of sales, reliable/predictable volumes available for sale and new markets.
- **Reduced unit costs of production and increased producer surpluses:** Even though production costs increased, proportionally they were of lesser magnitude relative to the increased production and gross revenues. Agricultural productive technification in some cases defines a new production function and in other cases means moving towards a new phase of performance of the production function. Technification does not necessarily mean acquisition of high-cost capital goods but rather the use of better implements such as solar tents, use of nets to prevent hail damage, and use of fumigators.
- **PAR II significantly increased the gross revenue of the primary livestock products supported,** such as cattle (71%), chickens (490%), and swine (44%). The Treatment effect refers mainly to the live sale of the livestock mentioned, and generally does not include slaughter which is a later step in transformation which is not assumed by the beneficiary and his/her Alliance.
- **PAR II significantly increased the gross revenues of the main subproducts supported, e.g., dairy/milk (57%) and honey (1066%).** The main reason for such elevated results for subproducts is because beneficiaries initiated production of these products at small and medium scale compared to the Control Group who prepared subproducts artisanally in very small quantities for own consumption. The increases in revenue are very high because of the scale of production and because the revenues are valued at market prices.
- **Participation in PAR II increased volume of production by 76% and modified the destination**



of production: increased the proportion of sales by 7%, reduced own consumption by 6% and reduced storage of product by 26%. PAR II led to increased production and transformation in where product went. Produce more, sell more, store less and self-consume less, increasing the supply of food products and contributing to the objective of food security.

Yields of the main products supported by PAR II:

The study describes the application of Propensity Score Matching to two cases.

- **Potato:** PAR II producers obtained higher yields compared to the Control Group, especially in parcels with upgraded technology or which lacked irrigation. The Treatment effect on potato yields is significant but of low magnitude. Increased revenues are explained by improved economic conditions of commercialization resulting from project support.
- **Peach:** Significant increase in yields of peaches compared to the Control especially on parcels of land using traditional irrigation. Higher yields reflect higher technical efficiency in production.

PAR II-OP impact on monetary poverty and income inequality:

Results re poverty are based on the poverty line calculated by the National Statistics Institute for the Household Survey, 2021. The most important results are the following:

- **PAR II reduced moderate poverty of households by 11%, from 57% to 46%.** The incidence of moderate poverty without the project would be 57%. The difference is attributable to PAR II.
- **PAR II reduced the income deficit in participating (Treatment) households by 3%, from 35% to 32%.** In the absence of the project, participating households would have an income gap/deficit equivalent to 35% of the moderate poverty line.
- **PAR II reduced extreme poverty of households by 5%, from 35% to 30%.** This difference is attributable to PAR II.
- **PAR II did not produce statistically significant changes in the extreme poverty gap.** This is because PAR II impacts were not distributed in equal proportion across the distribution of disposable income. The lowest income levels are generally more difficult to be impacted because they are associated with important deficits in variables such as soil quality, access to roads, quality of inputs, quality of manual labor etc. There was a tendency to increase income inequality by 2 percentage points on the Gini Index.
- **PAR II produced favorable distributive changes in households whose income is close to the extreme poverty line.** These Treatment households experienced a significant increase in their income levels due to participation in PAR II.
- **PAR II reduced poverty because Treatment households produced more, sold a greater proportion of their production under more favorable conditions (better prices, better timing).** Poverty reduction was a function of price and quantity. The benefits of participating in PAR II exceeded the productive sphere and entered the sphere of wellbeing of participating households.
- **PAR II contributed positively to macro-objectives:** Higher production volumes contributed to food security and import substitution of agricultural goods; better commercialization conditions contributed to higher incomes and reduced poverty. Treatment households transitioned from subsistence activities towards economic activities oriented towards taking advantage of market opportunities. Technical assistance contributed to improving production processes and

represented a gain in factor productivity.

Table: Impact on monetary poverty and income inequality

Indicator	Treatment	Control	Impact	Household Survey 2021
Incidence of moderate poverty	0.46	0.57	-0.11	0.40
Moderate poverty gap	0.32	0.35	-0.03	0.17
Incidence of extreme poverty	0.30	0.35	-0.05	0.17
Extreme poverty gap	0.26	0.25	0.01	0.07
Gini Index	0.53	0.51	0.02	0.49

Note: Indicators are calculated in households.

Moderate poverty line by household: US\$3,361/year

Extreme poverty line by household: US\$1,828/year

B. Summary of Impact Evaluation Study of Additional Financing (Monterrey, October 2023)

The 2023 Impact Evaluation uses information from the baseline survey taken in 2022 and an endline survey in mid-2023 and applies the same methodological format already established for the earlier studies. This study evaluates family income, employment, area of crops under modernized irrigation, adoption of climate smart technologies, and productive yields. This evaluation applied two methods: (a) Before-After Comparison and (b) Propensity Score Matching.

Before-After Comparison: A representative sample was selected as a baseline and questionnaires were applied. The same producers were subsequently re-surveyed using the same methodology and questionnaires. Before and after data was compared using statistical methods to determine if the changes in key variables were statistically significant. The main focus was income: employment and yields (*rendimiento*) were not studied due to certain limitations in this particular methodology including that there might have been other external factors influencing results, making direct and exclusive attribution to PAR more difficult, e.g., climatic factors (water availability extreme temperatures, droughts and floods affecting agro-livestock production); prices, which can be affected by economic and political factors; government policies different from PAR such as credit which some PAR beneficiaries might have accessed; and/or biases in producers' responses whereby producers do not accurately remember pre-project data. The reason for selecting before-after is its low cost, simplicity, and ability to evaluate real changes in the same producers over time. Also, each household was assigned an identification code for rapid and effective comparison.

Propensity Score Matching: This evaluation used parity with a Kernel (or density) distribution to overcome arbitrariness associated with determining the quantity of observations to make the parity and comparison. Having formulated the Treatment and Control, differences were tested in indicators of impact to determine changes which had occurred due to PAR II-AF participation. Parity was carried out in four phases: (a) A regression model was estimated for the PAR II-AF; (b) based on the initial step, the probability of participating in the project was predicted (Propensity Score); (c) similar Propensity Score values were found, permitting assessment of the sensitivity of the impact measures according to the matching criteria used, to confirm that the measure was consistent and robust; and (d) the difference was



tested in results indicators using the parity obtained from the previous steps.

The study methodology ensured that the sample was of optimal size to measure a 20% increase in gross income/revenue, with a 95% level of confidence. Similarly, the study sought to estimate an optimal sample for the PAR III baseline to measure a 30% increase in gross income, with 95% confidence and 80% statistical power; define criteria for sample distribution by Ecological Region; and define the methodology for sample selection and carry out the selection of the sample of Alliances and producers.

Results of the Impact Evaluation

Impact of PAR II-AF on the main indicators of income:

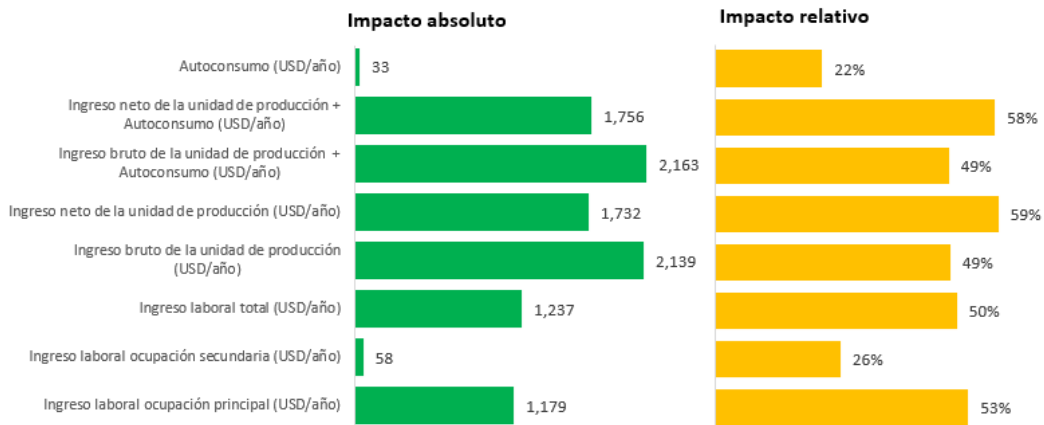
- **PAR II-AF had a positive impact on labor income of participants, which increased 53%.** The project produced an average increase of US\$1,179/year in the labor income of primary occupation. PAR II AF producers averaged an annual income of US\$3,418 compared to the Control US\$2,239. Most PAR II-AF producers saw their project activity as main source of income. Their production increased and their conditions of sale improved, resulting in a statistically significant increase in labor income.
- **Labor income of the secondary occupation also increased 26%, an indirect effect of PAR II-AF.** Households complemented their incomes by developing other economic activities: commerce, transport, or artisanal manufactured goods. Increased income from these other activities is an indirect effect of the project since it derives from the impacts mentioned earlier. Increased agricultural income generated an increase in purchasing power of farmers, promoting increased consumption of goods and services.
- **The increase in labor income reached 50%, attributable to the direct effects of participation in PAR II-AF, which increased labor income of the primary occupation;** and from the indirect effects caused by increased demand from other sectors, generating increased income in the secondary occupation.
- **Participation in PAR II-AF increased annual average gross income of the production unit by US\$2,139, an increase of 49%.** This is associated directly with improvements in conditions of production and commercialization of participants. Optimization of productive conditions suggest improved efficiency and productivity of the resources employed in productive units. This effect, along with improved sales strategies promoted by PAR II, translated into increased value of gross production. This increase reflects more efficient resource allocation, improving the profitability of productive activities and strengthening the financial position of participants.
- **PAR II-AF generated an average increase of 59% in net income of the productive unit.** Participation caused an average difference of US\$1,732 in net income of PAR II AF productive units. The net annual income of Control group producers amounted to US\$2,942, while Treatment producers reached US\$4,673. The impact on net income (59%) is more significant than on gross income (49%). This difference is because the proportional increase in costs is less in relation to the increase production and gross income. This also implies, on average, that the unit cost of production is lower for the Treatment producers, due to their greater efficiency achieved from the TA provided by PAR II-AF. This result underlines PAR II's capacity to not only increase gross incomes but also optimize cost structures, thereby strengthening operational efficiency of rural production units.
- **The statistical significance of these results confirms the consistency and robustness of the**



findings, confirming that PAR II-AF triggered significant impacts in fundamental economic aspects of rural productive units. They have also induced structural improvements manifested in cost optimization and increased own consumption, resulting in improved wellbeing of producers and their households.

- **PAR II- AF participation caused a 33% increase in the value of own consumption in the Treatment group, from an annual average of US\$146 to US\$179.** This suggests favorable impacts on food security of Treatment producers. This increased producers’ wellbeing as follows: reduced dependence on food markets and was able to protect farmers from price volatility and periods of scarcity; increased farmers’ food security as they had greater control of the quality and quantity of the foods they ate; improved the health of farmers and their families due to access to fresh and nutritional foods.

Graphic: Absolute and relative impact of PAR II-AF on income aggregates



Fuente: Elaboración propia con base en la encuesta de evaluación de impacto de PAR II-FA

- **PAR II AF had no impact on employment which remained at an annual average of 3 persons per productive unit.** Both the Treatment and Control groups maintained similar levels of employment.
- **PAR is a catalyst for local economies and can transform production and commercialization systems:** Subsistence level farmers have transitioned to entrepreneurial, more efficient producers, with more profitable productive units able to exploit market opportunities. All these changes are embedded in association and cooperation between alliance members which promotes a convergence of individual interests around a common good, particularly in the agricultural context.

Impact by Ecological Region:

The IE analyzed whether there were geographical differences in the Treatment effects.

- **Gross income of productive units increased in all Ecological Regions, with the greatest increase in Valles (54%), followed by Altiplano (47%).** Yungas, Chapare and Trópico registered 28%, Chaco 23% and Amazonia 17%.
- **Net income of productive units also increased in all Ecological Regions, with the highest observed in Tropic (77%), and Valles (67%).** Chaco recorded 34%, Yungas and Chapare 29% and Amazonia 16%.

PAR II-AF impact on gross income of the main products supported:



- **Cattle producers saw a significant impact, their annual average gross income increasing US\$1,357, or 32%.** The net income effect was even greater, increasing US\$1,497 or 51%. The fact that net income increased even more than gross income reflects reduced unit costs of production derived from project participation. Producers’ productivity and efficiency improved.
- **Potato producers saw their gross income increase an average US\$2,025 annually or 48%.** In net profit terms, annual income increased US\$1,086 or 38%. Even though the effect on net income was less than on gross, the data show a substantial improvement. Their incomes and net margins improved, due to better technologies and agricultural practices adopted under PAR II- AF.
- **Milk producers saw gross annual income improve by US\$2,236 or 46%.** However, the effects on net profits were minimal, increasing just US\$66/year or 2% indicative of expanding production costs. Even so, PAR II- AF had positive impacts on gross revenues in the milk sector.
- **Peach producers registered average annual increase in gross income of US\$2,071 (45%)** and in their net profits, demonstrating a wide impact of the project on their sales, as well as productive efficiency.
- **Honey producers’ gross incomes rose US\$1,190 annually (26%) and their net incomes US\$1,043 (35%).** While these are moderate increases, the effect of project participation was positive on margins in the honey business for PAR II- AF producers.
- **Maize producers saw an average increase of US\$2,184 annually (50%) in gross income and US\$1,7022 (58%) in net income.** This suggests productivity and efficiency gains in this important crop, because of project participation.

Impact of PAR II-AF on monetary poverty:

The variable selected to analyze the project’s impact on poverty and inequality is household net income from the productive unit, including the valuation of own consumption. This is believed to represent disposable income most appropriately. The poverty threshold is the poverty line calculated by the National Institute of Statistics (INE) 2021 Household Survey. The IE notes that poverty measures in the IE survey did not include non-labor income such as remittances, conditional cash transfers, rentals and other income received by the household, which increase a household’s wellbeing level.

- **PAR II-AF reduced households’ moderate poverty by 12%, from 62% to 50%.** This is attributable to participation in PAR II-AF.
- **Participation reduced the average household income deficit by 8%, from 39% to 31%.** Without the project, participating households would have had an income deficit equivalent to 39% of the value of the moderate poverty line. Their income deficit was reduced due to PAR II-AF.
- **Participation reduced extreme poverty of households by 12%, from 42% to 30%.** The difference is attributable to participation in PAR II-AF.
- **PAR II-AF resulted in favorable distributive changes in households whose incomes were close to the extreme poverty line.**

The table below is extracted from the IE (Monterrey, 2023):

Table: PAR II-AF impact on monetary poverty and income inequality

Indicator	Treatment	Control	Impact	Household Survey 2021



Poverty (moderate)

Incidence	50%	62%	-12	40%
Gap	31%	39%	-8	17%

Poverty (extreme)

Incidence	31%	42%	-12	17%
Gap	23%	28%	-4	7%

Note: Indicators are calculated in households.

Poverty reduction is the result of price and quantity effects. PAR II overall reduced poverty because participating households’ volume of production increased, they sold a higher proportion of their production and under more favorable conditions (better prices, better periodicity).

PAR II contributed to macro-objectives: higher volumes of production contributed to food security and import substitution of agricultural goods; better conditions of sale contributed to improving incomes and reducing poverty. Participating households transitioned from subsistence-related activities towards economic activities with a market orientation. Technical assistance contributed to improving production processes and represents a gain in total factor productivity. Further, the project’s integrated, collective focus contributes to sustainability and the creation of shared value, aspects which are crucial in the promotion of sustainable and inclusive economic development.

Observations from the PAR II-AF Baseline (from the PAR II-OP operation):

- **PAR II-AF participants had smaller households than the average prevailing in rural areas:** average 2.9 members vs general average of 4.23 members. Household size is indicative of labor availability to work productive units. With small household size, impacts on job creation are unlikely to be large, but higher labor productivity is likely. Most family members were/are unpaid laborers, and contracting of workers did not occur due to increased cost. While there was no PAR II impact on jobs, there was significant impact on labor productivity.
- **Most PAR II-AF producers farmed just one product,** the one supported by the Project, on an average of 1.67 hectares.
- **PAR II-AF participants reported an average annual income of US\$2,883 for their primary occupation, lower than the general average declared by rural households** of US\$3,662, or 27% higher than PAR II producers.
- **Total labor income of PAR II-AF participants was 20% lower than general rural households.** The National Household Survey shows rural households with average labor income of US\$3,787 vs PAR II-AF producers US\$3,139.

C. Beneficiary Testimonials

The project not only conducted annual evaluations to measure beneficiary satisfaction but also gathered testimonials from vulnerable beneficiaries examples of which are cited below:

September 28, 2023

Hydroponic lettuce producer in the Department of Cochabamba, Municipality of Sacaba, Arturo Ríos:

"We used to plant directly in the soil, and the main issue was always water scarcity. We barely planted two to five rows; the water was pumped from the well and quickly ran out. We took our project to PAR, and from there, we started. In 2019, our request was approved. It hasn't been easy due to the challenges in the state, setbacks, the project took us time, but in reality we have changed. We had never known



about this technical aspect (hydroponic cultivation). The support changed a lot for us; we couldn't have done it alone. Thanks to PAR, they supported us, and thanks to them, we have learned about hydroponic lettuce production in greenhouses. I no longer work in construction; now I am dedicated to lettuce production."

September 28, 2023

Hydroponic lettuce producer in the Department of Cochabamba, Municipality of Sacaba, Vanesa López:

"It had been observed that the water consumption for soil irrigation is no longer sufficient. Seeing the need to save water from our wells because the water level decreases every day, we presented a project profile to PAR for water use improvement, with hydroponic lettuce production. It helps us to have an income that depends on us; it involves less strenuous and more controlled work, helping all women and older people. PAR has been a great help because if one wants to undertake this alone, it is very costly. The project helped us with a counterpart and guidance to produce hydroponic lettuce, and since it is less strenuous work, it empowers women."

September 29, 2023

Rose producer in the Department of Cochabamba, Municipality of Quillacollo, Potrero community, Florencio Aranibar Vásquez:

"Thanks to the EMPODERAR - PAR II Program, we have improved our production by 65%. My family and I have always planted flowers, but not of this quality. We planted flowers in open fields with little profit. We worked to survive, not to live well. That's how we started working with roses, seeing that flowers were being smuggled in at that time, and we thought why can't we produce flowers like in other countries? We heard about PAR I through the media 10 years ago, and many colleagues have benefited. That's how we approached PAR II, and now we produce better than abroad. PAR has helped us implement infrastructure and technical aspects to produce a good product. We provided a counterpart, and as we contributed our counterpart, we appreciated the Ministry's support. In this project, each of our families has benefited; they feel satisfied, they have been able to live decently, send their children to school, and have good food and clothing; it is the only income we have."

September 29, 2023

Tomato producer in the Department of Cochabamba, Municipality of Vinto, José David Reyes Otalora:

"A year ago, when they gave us the projects, we started planting tomatoes. The 20 families are planting various varieties, there is more profitability than open-field agriculture because it takes less time, and drip irrigation facilitates us by just turning on the faucet, and through fertigation, we can make improvements. We would need more greenhouses and a pool to irrigate more areas; there is much better profitability than open-field agriculture."

May 10, 2022

Milk producer in the Department of Oruro, Municipality of Caracollo, Florinda Tola Copa:

"We have benefited from the PAR Program; it has helped us build stables and feeders for the cows. Before, we poured barley on the ground, and the cows didn't take advantage of it. They also gave us a 3000-liter water trough so that the cows drink clean water, and they gave us stables and feeders so that the cows do not suffer from the weather. With the infrastructure, we protect them from the cold and the wind; the stable is important for those of us who have cattle, camelids, and sheep."

May 12, 2022



Lettuce producer in the Department of La Paz, Municipality of Palca, Patricia Apaza Tacuña:

"We presented a solar tent project; we are 30 women and 4 men. We hired a bricklayer to build the tent; we participated in workshops for seedlings, production, and sales. Many sisters did not believe that help would come from the State, and with the sisters, we have seen our tents become a reality. The sisters have been encouraged, and they want to have their own money and move forward, so they are excited about sales. We want to have a direct sales contract. Now the sisters are more excited about the drip irrigation that they are going to install for us."

May 19, 2023

Tomato producer in the Department of Chuquisaca, Municipality of Yotala, Dominga Perca:

"We have done well with tomato production; tomatoes allow us to harvest for 7 months; it is an excellent alternative because nowadays it is difficult to find work, and entrepreneurship provides jobs, income, and support for families, especially women because we can be close to our children and generate our income. With the bridges, we are happy because they facilitate us to transport our production like tomatoes and broccoli. We are very grateful for the construction; we no longer suffer crossing the river with our tomatoes on our shoulders. This side was forgotten; now, with the bridge that PAR will inaugurate soon, many communities will benefit."

May 19, 2023

Carnation producer in the Department of Chuquisaca, Municipality of Yotala, Teresa Azurduy Quispe:

"With PAR II, we have built these greenhouses; our lives have changed a lot because we have many needs. Women know about the family budget; it has helped a lot in studies and food. Women have been empowered with PAR II; we produce carnations and take them to the cities of Sucre, Potosí, and Santa Cruz for sale. With what we are producing, there is benefit for families in this sector, especially since it is very dry, and there are times when it does not rain, so these greenhouses are better, especially for women. Drip irrigation systems are installed because we water with little water, and we do not waste it."

D. Tables linked to Main Text Presentation:

Table 1: Participation in Organizational and Informational Events

Tipo de evento	Financiamiento inicial		Financiamiento adicional		
	No. Eventos	No. Participantes	No. Eventos	No. Participantes	
Eventos para gobiernos municipales	59	2.340	170	6.528	El ciclo inicia con la difusión del proyecto a organizaciones sociales y gobiernos municipales, quienes nos permiten llegar a grupos de productores
Eventos para organizaciones sociales y otros actores	34	3.625	254	9.553	
Informativos a organizaciones de productores	121	4.652	535	20.202	Los productores se informan del Proyecto y sus características de financiamiento
Informativos a grupos de mujeres	19	1.014	50	1.860	
Facilitación para el llenado de formularios	85	2.952	150	4.433	Los interesados en presentar solicitudes de apoyo financiero participan en eventos de capacitación para el llenado de formularios
Total	318	14.583	1.159	42.576	

Source: BCR, EMPODERAR, Nov 2023.

Table 2: Number of Proposals for Participation by Activity

No. of Proposals	PAR II-Initial	PAR II-AF	Aggregate
Agriculture	888	2,055	2,943
Beekeeping/Honey	96	104	200
Livestock	620	837	1,457
Fish Farming	48	72	120
	1,652	3,068	4,720

Source: BCR (EMPODERAR) Nov 2023

Table 3: Effect of Municipal Investment in Bridges on Access to Markets by Volume (ton)

Product	Before Bridge	After Bridge	% Increase
Carrot	2,567	12,777	498.0 %
Onion	1,091	2,645	242.4 %
Potato	1,344	3,222	239.7 %
Banana	4,715	7,366	156.2 %
Tomato	1,331	4,372	328.5 %
Plantain	1,438	5,052	351.3 %
Peach	410	1,776	433.2 %
Bovine meat	1,301	4,590	352.8 %

Source: BCR (EMPODERAR), Nov 2023

Table 4: Effect of Municipal Investment in Roads on Access to Markets (ton)

Product	Before Roads	After Roads	% Increase
Quinoa	294	1,407	478.6 %
Llama Meat	132	555	420.5 %
Ganado Ovino (Sheep)	82	384	468.3 %
Potato	44	205	466.0 %
Ganado Bovino (Cattle)	36	159	441.7 %



Source: BCR (EMPODERAR), Nov 2023

Table 5: Proposals Approved under the PAR II-Initial and PAR II-AF

Category of Investment	No. Proposals	Approved by Evaluation	Rejected by Evaluation
PAR II-Initial	1,652	971	681
Technical Assistance	77	42	35
Integrated Investment	1,575	929	646
PAR II-AF	3,068	1,853	1,215
Technical Assistance	178	129	49
Integrated Investment	2,890	1,724	1,166
Total:	4,720	2,824	1,896
Percentage discarded		40%	

Source: BCR (EMPODERAR), Nov 2023

Table 6: Amounts Financed by Type of Investment (Bs)

Financing/Alliance Model	No. Subprojects	Amount Executed PAR (Bs)	Amount Executed by POs (Bs)	Total Amount Executed (Bs)
PAR II- Additional Financing	1,132	405,263,326	172,465,030	577,728,356
Technical Assistance (only)	69	2,835,529	1,218,877	4,054,406
Integrated Investments	1,063	402,427,797	171,246,153	573,673,950
PAR II – OP	650	264,858,527	98,219,431	363,077,958
TA for Access to Credit*	47	46,233,711	-	46,233,711
Technical Assistance	22	580,974	259,599	840,572
Integrated Investments	581	218,043,843	97,959,833	316,003,676
Total:	1,782	670,121,853	270,684,461	940,806,314
Total in US\$	1,782	97,685,401	39,458,376	137,143,778

*Amounts not disbursed by the project are amounts solicited from the financial system.

Source: EMPODERAR 2024

Table 7: Sales classified by Sector Planning Priority and Support to Public Policies, with and without PAR II

Prioritization by Sector Plan	Sales without PAR II (Tn)	Sales Programmed (PAR II (Tn))	Sales achieved under PAR II (Tn)	% Increase in Sales
Food Security	112,028	154,549	186,533	67%
Market Access (Domestic)	147,944	214,451	242,372	64%
Market Access (Export)	19,398	25,379	30,096	55%
Total:	279,370	394,380	459,002	64%

Source: BCR (EMPODERAR), Nov 2023

Table 8: Average Prices per Ton, with and without PAR II

Priority in Sector Plan	Average Price without PAR II (Bs/Tn)	Average Price Programmed (Bs/Tn)	Average Price Received with PAR II (Bs/Tn)	% Increase in Price
Food Security	4,251	4,502	4,525	6%
Market Access (Domestic)	2,962	3,049	3,341	13%
Market Access (Exports)	6,167	6,708	6,553	6%
Total	3,701	3,854	4,033	9%

Source: BCR (EMPODERAR) Nov 2023

Table 9: Yields per Production Unit with PAR II Investments, TA, and Technology Adoption

Priority Sector Plan	Yields without PAR II	Yields Programmed	Yields with PAR II	% Yield Increase
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	(Prod Unit/Tn)	(Prod Unit/Tn)	(Prod Unit/Tn)	
Ha/Tn	13.65	17.73	21.63	48%
Food Security	14.55	22.59	36.94	88%
Market Access (Domestic)	14.06	17.02	18.38	37%
Market Access (Exports)	11.79	14.93	15.36	38%
Heads Cajas/Tn	0.89	1.01	1.11	39%
Food Security	1.05	1.18	1.30	38%
Market Access (Domestic) ⁵⁸	0.02	0.03	0.03	48%

Source: BCR (EMPODERAR) Nov 2023

Table 10: Number of PAR II Alliances with Sales Exceeding Planned

PAR II Stage	# Alliances Supported by PAR II	# PAR II Alliances with Sales exceeding Planned	%
Additional Financing	1,063	1,020	96
Original Project	581	541	93
Total:	1,644	1,561	95

Source: BCR (EMPODERAR), Nov 2023

Table 11: SPO Strengthening Activities under the PAR II-AF

Organization Strengthening Activities	Men	Women	Total	Entity Responsible
Updating of Statutes and Regulations	8,094	4,511	12,605	Org. Strengthening Analyst
Organization Strengthening (Admin. & Social Control Committees)	8,536	3,701	12,237	Acompañante
Canvas Model (software)	7,291	4,189	11,480	Org. Strengthening Analyst & Acompañante
Basic Accounting (cash flow)	7,175	4,202	11,377	Alliance Accountant & Acompañante
Evaluation of Services delivered to SPOs	5,740	3,310	9,050	Alliance Official & Acompañante
Financial Education	5,547	3,195	8,742	Alliance Accountant and Fiduciary Analyst
Obtaining PJ, Cta. Cte, SIGEP	1,613	677	2,290	Org. Strengthening Analyst
Strengthening of Gender Focus	931	520	1,451	Fiduciary Analyst and Org. Strengthening
Structuring of Input Funds (Rotating Funds)	209	131	340	Alliance Official and Acompañante
Whats App Management	104	61	165	Acompañante
Total:	45,240	24,497	69,737	

Source: BCR (EMPODERAR), Nov 2023

Table 12: TA Alliances: Access to Credit and Productive TA

Technical Assistance Model	No.	No. Families
1. Technical Assistance	153	804
Formally closed/finalized	47	206
With Opportunity	5	17
In Proposal Stage	19	-
Abandoned	82	581
2. Productive	255	4,934
Formally Closed/Finalized	91	2,933
Prioritized	9	207
With Opportunity	13	299
In Proposal Stage	51	45
Abandoned	91	1,450
Total	408	5,738

Source: BCR (EMPODERAR) Nov 2023

Table 13: Types of Buyers in Alliances and Participation in PAR II

Type of Buyer	%
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⁵⁸ Beekeeping/Honey Units



Persona Natural: (Unregistered/Informal)	38.9
Single Person (Registered/Formal)	38.9
Producer Association	7.7
Limited Liability Society	5.9
Sociedad Anonima	5.1
OECOM	2.5
Sociedad Accidental	0.4
Cooperative	0.5
Public Company	0.1
	100.0

Source: BCR (EMPODERAR) Nov 2023



Section E: Municipal Irrigation Schemes – Schematic Examples (Source: FAO, 2020)

1. Sixilla Alliance

ALIANZA: SIXILLA
“PRODUCCIÓN Y COMERCIALIZACIÓN DE DURAZNO
BAJO RIEGO TECNIFICADO EN LA COMUNIDAD DE
SIXILLA ALTA”
LA PAZ

20 beneficiarios

4,12 ha totales,
3,15 ha a tecnificar

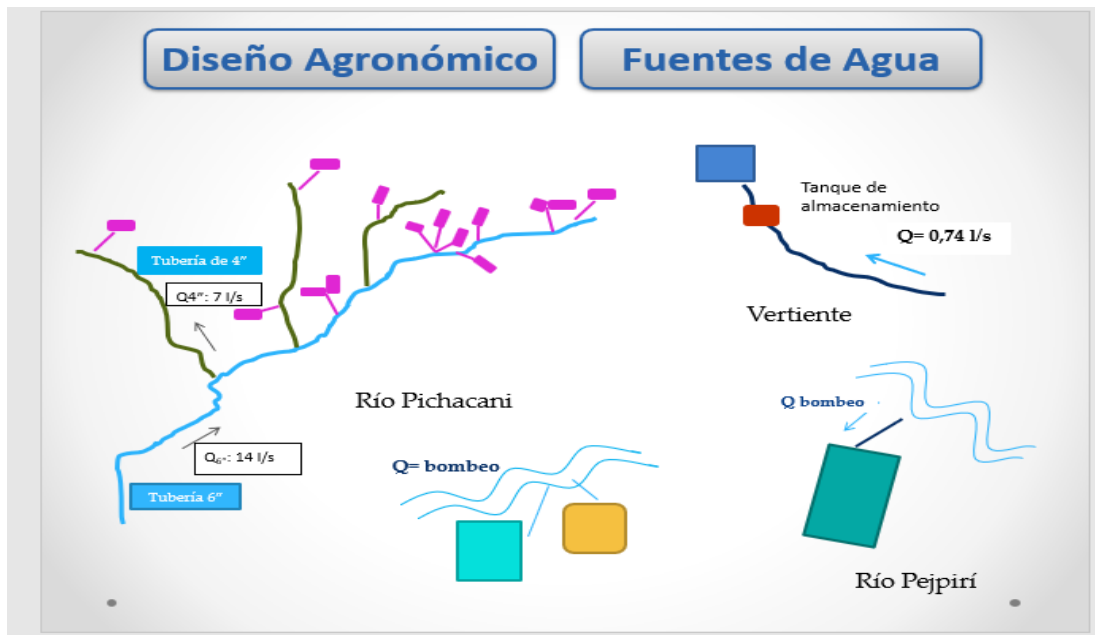


Grupo	N° de Beneficiarios	Superficie Total (ha)	Superficie a Tecnificar por grupo (ha)	Superficie a Tecnificar por beneficiario (ha)
1	3	0,36	0,36	0,12
2	8	1,77	1,60	0,20
3	4	0,64	0,36	0,09
4	4	1,12	0,60	0,15
5	1	0,23	0,23	0,23
	20	4,12	3,15	

Se dividieron los beneficiarios en 5 grupos en función del área a tecnificar por cada uno.

Única fuente de agua, vertiente, conducen el agua a través de un canal rectangular revestido, y luego a las parcelas por medio de canales de tierra.

2. Schematic Layout



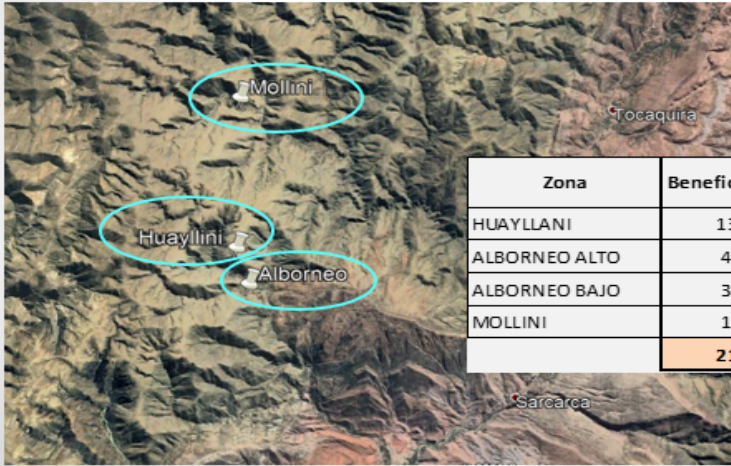
3. Potosí: Santa Rosa de Cuchilluni Alliance – Irrigated Peaches using Drip Irrigation



ALIANZA: SANTA ROSA DE CUCHILLUNI
“PRODUCCIÓN DE DURAZNO BAJO RIEGO
TECNIFICADO POR GOTEO”
POTOSÍ

21 beneficiarios

6,4 ha totales,
2,6 ha a tecnificar

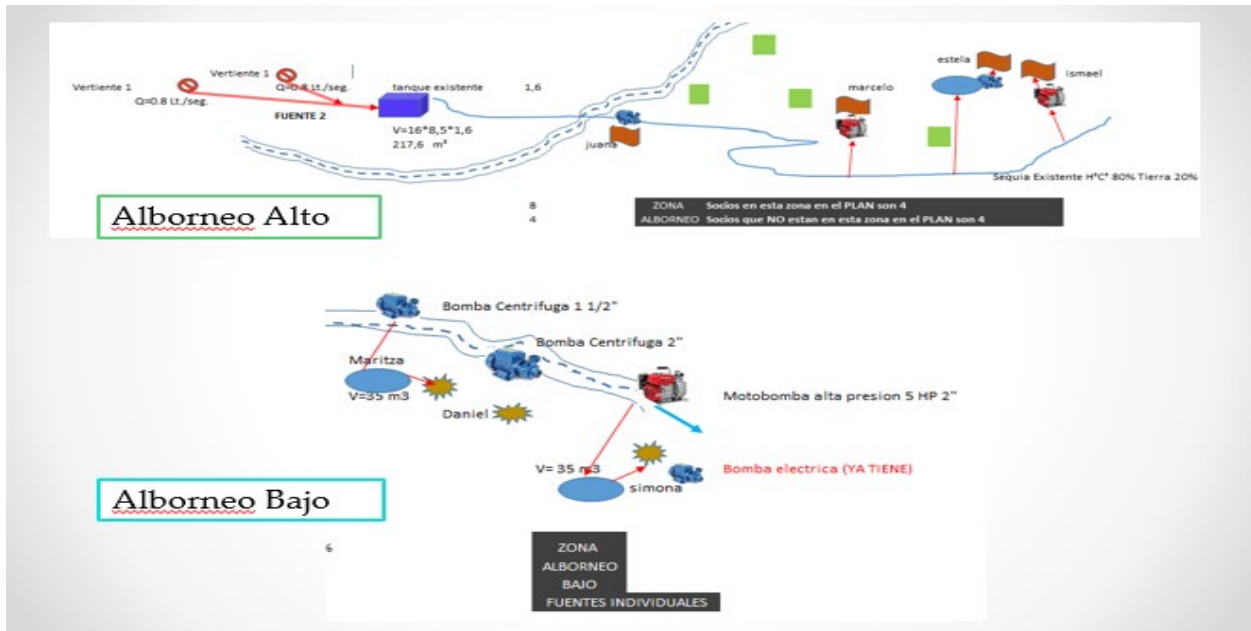
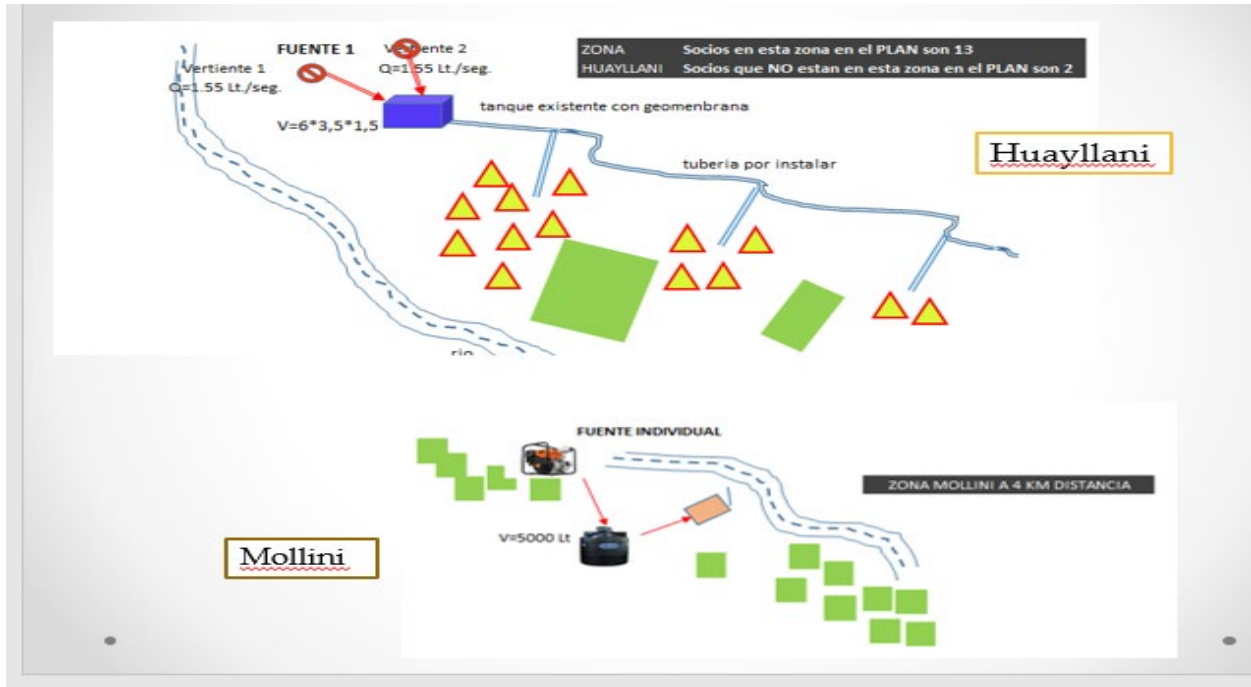


Cada zona tiene su propia fuente de agua

Zona	Beneficiarios	Sup. Actual Gravedad Ha	Sup. Tecnificar Goteo Ha
HUAYLLANI	13	3,95	1,373
ALBORNEO ALTO	4	1,43	0,881
ALBORNEO BAJO	3	0,73	0,284
MOLLINI	1	0,29	0,064
Total	21	6,4	2,6

Esquema General





F: The Alliance Investment Cycle:⁵⁹

⁵⁹ Extracted from the BCR (EMPODERAR, Nov 2023) to show the process for accessing PAR II financing for an Alliance.



The Project established a six-step process for guiding the Alliance investment cycle from initial information campaigns to completion and closing of a subproject, as follows:

- **Step 1: Establishing relationships with potential beneficiaries – including producers, buyers, and goods/services providers** - through initial diffusion campaigns via workshops and mass media to announce and explain the project's goals and conditions for participation. A focus of the communication and consultation strategy was to ensure that project execution met beneficiary expectations and that information dissemination and consultation were ethnically and culturally sensitive and supportive, given the high proportion of IP in the Project's target population.
- **Step 2: Evaluation of the proposed business opportunity where the Project, to inform preparation of the Alliance Plans, evaluate proposals received using basic criteria of market opportunity.** Application of the Exclusion List to identify economic initiatives eligible for financing and which complied with environmental and social safeguards applicable to PAR II. For market opportunity, all favorable elements were identified to determine whether a market could be exploited to satisfy the needs of potential clients. This implied aspects of time, space, and proponent beneficiaries' actual capacity to satisfy those requirements. Market opportunities for specific products were confirmed, but above all, the pre-existence of buyers. This was not a straitjacket - the Project agreed to recognize even an informal middleman if that relationship was working well.
- **Step 3: The Evaluation of Opportunity was followed by formalization of the producer organization if it did not already have legal identity.** By this point, potential beneficiaries had accepted PAR II financing conditions. The Project provided model statutes for legal conformation. Notably, the Project did not assume any of the costs of obtaining legal status or opening bank accounts. At this point, beneficiaries collectively, in assembly, defined their administrative and monitoring functions (Administrative Committee, and Social Control Committee) for the investments and business operations, through specific regulations and guides provided by the Project. Both Committees were an obligatory part of the SPO directorate and producer vigilance groups. The Project promoted the presence of at least one woman in both Committees.
- **Step 4: During formulation of the Alliance Plan, to determine capacity to manage the business, the SPO had to conduct an institutional self-diagnosis** to show the requirements for management of a business contract in administrative, financial, organizational, commercial, and technical terms. During formulation of the Alliance Plan, the SPO defined their achievements and specified strengthening activities for management of the business, establishing targets for improving productivity, competitiveness and achieving environmental sustainability. The consultant Facilitators were an essential factor in the life of a SPO because they organized and rationalized the productive and commercial expectations of the group when they presented their request for PAR II support. The Facilitators designed and input into documents the techniques and technologies proposed/needed by producers.
- **Step 5: Each Alliance was accompanied continuously for two years by a professional embedded in the Project's beneficiary-project nexus – the Acompañante.** This was a consultant paid by the Project who was associated permanently with the Operational Units, and with whom they planned and implemented their Alliance Plans in compliance with PAR II procedures. Through this two-year technical support mechanism, important information and technical messages were provided to SPO members during the one-year investment phase and the first year of the operational phase.
- **Step 6: The final step in the Project's relationship with beneficiaries was closure of the Alliance and**



the financing agreement.⁶⁰ The Alliances were developed in two phases: (a) implementation of investments – established in milestones - in the initial context of organization of the producers (ex-ante situation, without PAR II). Required goods, works and services were executed in this phase as the means to achieve substantial improvements in primary production; and (b) the operational stage where the effects and results of the application of technologies and accomplishment of the business plan. The culmination of both stages constituted closure of the Alliances, with an assembly of SPO members where they expressed their conformity with the investments and validated the results attained.

⁶⁰ The Alliance was a subproject but also a business with a life beyond the PAR II financing contract.



ANNEX 8. GREENHOUSE GAS (GHG) ACCOUNTING

COUNTRY: Bolivia RURAL ALLIANCES PROJECT II

Background and Methodology

The Project aimed to improve accessibility to markets for small rural producers in the selected areas by (a) promoting productive alliances between different small rural producer organizations and purchasers; (b) empowering rural producers through the establishment and strengthening of self-managed grass-root organizations; (c) increasing access to productive assets, technology, and financial services; (d) promoting more effective, responsive and accountable service organizations at the local level; and (e) enhancing environmental sustainability of productive practices.

The total project cost was US\$190,445,181. This amount includes the Rural Alliances Project II (PAR II) and its Additional Financing project (AF). In the context of this report, the term "the project" will be used to refer to both initiatives. The project involved three components (C): (C1) activities under this component were focused on the preparation and implementation of subproject proposals (rural productive alliances); (C2) supporting alliance proposals and public infrastructure subprojects (municipal subprojects); and (C3) supported the administration and monitoring, such as the adjustments required to the Project's Georeferenced Management Information System (SIGG, for its acronym in Spanish), and a public information system. The following carbon balance is an ex-post exercise focused on Component 2, which concentrates on actions directly related to GHG fluctuations and seeks to obtain a carbon balance after project closure.

Considering the diversity of activities this initiative covered, the Carbon-balance Tool (EX-ACT), version 9.4.1, developed by the Food and Agriculture Organization of the United Nations (FAO), was used. This tool assisted in assessing the Project's GHG emissions and sequestration activities. EX-ACT allowed an **evaluation of the Project's net carbon balance**, defined as the net balance of CO₂ equivalent, that would be emitted or sequestered as a result of project implementation compared to a 'without project' scenario (business as usual). EX-ACT estimations, the GHG stock changes (emissions or sinks), are expressed in **equivalent tons of CO₂ per ha and year**.

This ex-post GHG analysis reflected the Project's implementation actions by taking advantage of the database collected through the available information sources, particularly the Georeferenced Management Information System (SIGG), which makes it possible to extract accurate data on the different selected models (typologies of productive alliances financed during implementation).

This ex-post greenhouse gas accounting was carried out considering the project's boundaries. The Project offered demand-led support to strengthen business plans (productive alliances or subprojects), which have predefined objectives and may include equipment, machinery, tools, small infrastructure, goods, materials, training, and technical assistance for its implementation. From a methodological perspective, this GHG balance used the same project models, assumptions, and specific data as the economic and financial analysis (EFA). The technical boundary is explained below.

Major Analysis Assumptions

This analysis considers the following assumptions with implications for GHG fluxes:



(a) The timeframe for project implementation was six years, and the capitalization phase was 14 years; thus, the analysis period was set for 20 years.

(b) This analysis contemplated that subprojects were implemented throughout the entire country. Consequently, the climate and soil type were defined for Bolivia's whole territory using the Earth Map⁶¹ tool, prioritizing the conditions of the territories where a greater number of alliances were executed. Table 1 below contains the parameters identified and used.

Table 1. Climate and Soil parameters

Climate:	Warm Temperate	Most of the project implementation territory.	Source: Earth Map. IPCC Climatic Zones 2010. 2024.
Moisture:	Dry		
Soil Type:	High-activity clay soils (HAC)	54% of the project implementation territory.	Source: Earth Map. Soil - IPCC Soil classes (HWSD 2.0) 2022.

It should be noted that the present analysis's accuracy can be improved by performing parallel GHG calculations to reflect the particular and precise climatic, moisture, and soil type characteristics of each ecoregion. However, this approach has not been employed at this time because the database provided by the SIGG would need a complete reorganization to provide aggregated data for each ecoregion in Bolivia. The project team intends to obtain an update on this analysis once the data restructuring is completed.

(c) "Tier 1" coefficients were used, considering the absence of "Tier 2" data at the country level, time limitations, and access to information. This means that the EX-ACT estimation's default "Tier 1" coefficients were applied. The construction of 'without project' and 'with project' scenarios was based on the most representative technical references taken from the SIGG, as well as the opinions of experts who worked in implementing this project. The Excel files used for this exercise and the one employed in the EFA analysis contain all data and assumptions on the calculations developed.

(d) Data about the use of inputs (fertilizers, pesticides, fungicides, herbicides) was obtained from the SIGG.

(e) Within the framework of C2, the present analysis accounts for the following subproject activities (Table 2), which represent the sum of 1,721 productive alliances, counting the figures of areas (ha) and size of the herds of different animal species under three scenarios: baseline, without project, and with project scenario. The project's successful technical assistance and training investment was also reflected in the change of certain practices and technologies under the "with project scenario."

⁶¹ <https://earthmap.org>



Table 2. Project subproject typologies and areas.

Activity type	Baseline scenario				Without project				With project			
	ha	heads	Production (t/year)	m2 (civil works)	ha	heads	Production (t/year)	m2 (civil works)	ha	heads	Production (t/year)	m2 (civil works)
Dairy cattle	28,807	25,927			28,807	25,927			28,807	29,037		
Cattle meat	50,658	50,658			50,658	50,658			50,658	66,492		
Sheep	11,883	29,707			11,883	29,707			11,883	44,113		
Goat	776	2,328			776	2,328			776	2,567		
Swine		16,844				16,844				25,684		
Llama	5,408	16,225			5,408	16,225			5,408	22,674		
Laying hens		67,033				67,033				88,300		
Broilers		1,878,454				1,878,454				2,665,071		
Crops annual	63,006				63,006				63,006			
Crops perennials	9,054				9,054				9,054			
Beekeeping	5,176				5,176				5,176	10,352		
Irrigation	0				0				11,548			
Aquaculture			179				179				384	
Infrastructure				0				0				1,651

(f) The Ex Act results were calculated using the default (linear) dynamics of change.

Specific inputs for the analysis and assumptions

The present analysis used most of the same sources and data as the project ex-post economic and financial analysis. It included the detailed budget file, the EFA analysis documents, technical documents, and studies the project implementation team carried out. These inputs thoroughly assessed the project's technical approaches during its implementation.

The following paragraphs summarize the primary data used for the analysis and their information sources. The EX-ACT Excel and EFA files included in the project documentation provide more details and calculations.

Table 3. Summary of input data for ex-port GHG accounting

Direct contributions (Ex Act modules)		Description
Cropland management	Annual cropping systems remaining annual systems	C2 subprojects focused on strengthening diversified production for self-consumption and sales. The total production area was equivalent to 63,006 ha. The implementation of these subprojects involved the appropriate measures to recover the productive capacity of the agroecosystem (e.g., no-tillage, practices for increasing soil organic matter, retaining crop residues, use of manure, compost, integrated pest management, reduction of synthetic chemical inputs by 17% (herbicides, insecticides, and fungicides), and 5% for fertilizers, complemented with nutrient management, etc.). These production areas remained the same under the without and with project scenarios. Data was collected by using the SIGG.
	Perennial systems remaining perennial systems	C2 subprojects promoted the adoption of climate-smart practices and technologies (CSA) in 9,054 ha of perennial crops. All subprojects benefited from technical assistance and knowledge-generation activities. The technical advice specifically oriented to producers contributed to adopting prioritized resilience and mitigation practices and technologies. The main implemented CSA alternatives included no-tillage, agroforestry systems, integrated pest management, reduction of synthetic chemical inputs by 17% (herbicides, insecticides, and fungicides), and 5% for fertilizers, complemented with nutrient management, crop residue retention, and no biomass burning, that allowed the accumulation of carbon in the agricultural soil. All data was collected by using the SIGG.



Grassland and Livestock	Grassland systems remaining grassland systems, livestock, and manure management	The ex-post GHG analysis considered the implementation of subprojects for bovine, sheep, goat, swine, llama, and poultry production. These initiatives were also supported by specialized technical assistance for implementing climate-smart livestock production management. Table 2 (above) shows the estimated area under these typologies of subprojects and the evolution of livestock herds at the baseline, without, and with project scenarios. This analysis contemplates several positive changes observed in grasslands due to improvements in grassland management. Source: SIGG.
Forest	Forest degradation and management	Alliances focused on honey production, harvesting forest products, and conservation of natural ecosystems positively affected the conservation of ecology areas. Honey producers and related activities promote conservation and appropriate management to prevent forest degradation of at least 5,176 hectares. This conservation approach was part of the terms and conditions that allowed this type of subproject funding. Source: SIGG.
Inputs	Liming, fertilizers, pesticides, and animal feed	<p>The GHG analysis took into account the same crop budgets used for the project's economic and financial analysis, which considered the production systems and the improvements promoted. These production improvements resulted in higher yields, increased resilience, and lower GHG emissions, which were linked mainly to less utilization of agricultural inputs like pesticides, herbicides, and insecticides.</p> <p>Agricultural alliances involved technical support to ensure more efficient use of farm inputs and the application of alternative methods to meet plant nutrient demands and reduce the need for synthetic agrochemicals. The total quantity (tons per year) of utilized inputs like fertilizers (urea, other N-fertilizers, phosphorus, and potassium) was obtained through the SIGG. Due to the report space limitations, detailed data about these calculations is provided in the supporting documentation of this report.</p> <p>This balance does not include emissions related to the use of concentrated animal feed because the emission coefficients (Tier 2) required for Ex-Act are still being identified according to each feed source.</p>
	Irrigation, buildings	This carbon balance includes 1,651 m ² of infrastructure linked to bridge construction and small-scale irrigation infrastructure. In addition, this calculation involves 11,548 ha of sprinkler irrigation. Source: all data come from the SIGG.

Results

The Rural Alliances Project II resulted in a net reduction in GHG emissions. The total estimated net carbon balance resulting from GHGs emitted or sequestered during the project implementation and capitalization period (20 years) brought a mitigation benefit of (-) 5,292,665 tons of CO₂ equivalent (tCO₂-e) compared to a business-as-usual baseline scenario. This is equivalent to annually reduced GHG emissions of 1.5 tCO₂-e per ha. The primary outcomes of this GHG analysis are summarized in Table 4, which shows the results of the carbon balance performed.

Table 4. Results of the ex-ante GHG analysis in tCO₂-e



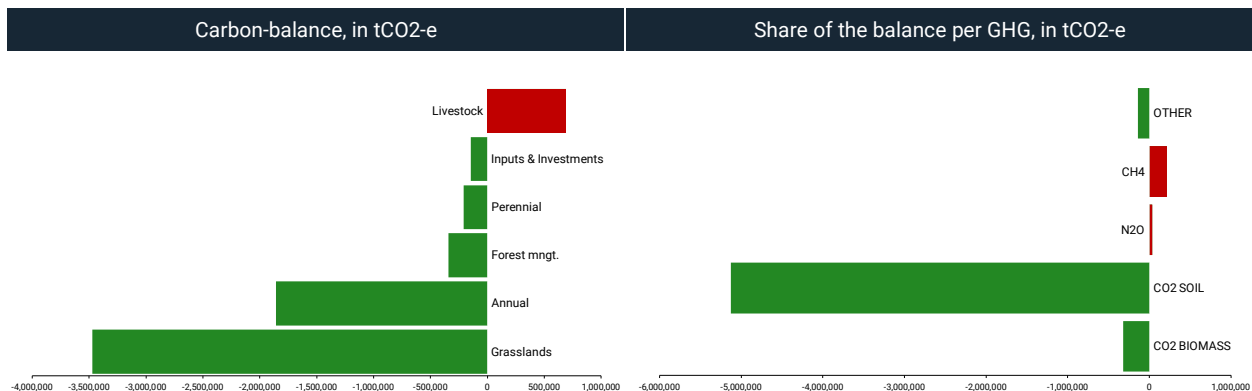
DETAILED RESULTS

Project name Rural Alliances Project II	Project duration (in years)	Total area (ha) 174,768	Global warming potential
Continent South America	Implementation Phase 6	Mineral soil 174,768	CO ₂ 1
Country Bolivia	Capitalization Phase 14	Organic soil 0	CH ₄ 29
Climate Warm Temperate	Total Duration of Accounting 20	Waterbodies 0	N ₂ O 265
Moisture Dry			

GROSS FLUXES <small>In tCO₂-e over the whole period analysis</small>				SHARE PER GHG OF THE BALANCE <small>In tCO₂-e over the whole period analysis</small>					AVERAGE ANNUAL EMISSIONS <small>In tCO₂-e/yr</small>		
PROJECT COMPONENTS	WITHOUT	WITH	BALANCE	CO ₂ BIOMASS	CO ₂ SOIL	N ₂ O	CH ₄	ALL NON-AFOU EMISSIONS*	WITHOUT	WITH	BALANCE
Land use changes	0	0	0	0	0	0	0	0	0	0	0
Deforestation	0	0	0	0	0	0	0	0	0	0	0
Afforestation	0	0	0	0	0	0	0	0	0	0	0
Other land-use	0	0	0	0	0	0	0	0	0	0	0
Annual	838,481	-1,016,995	-1,855,476	0	-1,455,271	20,113	-420,318		41,924	-50,850	-92,774
Perennial	-243,818	-450,164	-206,346	0	-198,117	-4,375	-3,854		-12,191	-22,508	-10,317
Flooded rice	0	0	0	0	0	0	0		0	0	0
Grasslands & Livestock	80,904	-3,391,151	-3,472,054	0	-3,472,054	0	0		4,045	-169,558	-173,603
Livestock	3,248,546	3,937,931	689,385			34,829	654,556		162,427	196,897	34,469
Forest mngt.	342,174	0	-342,174	-320,713	0	-7,375	-14,086		17,109	0	-17,109
Inland wetlands	0	0	0	0	0	0	0		0	0	0
Coastal wetlands	0	0	0	0	0	0	0		0	0	0
Fisheries and aquaculture	40,419	79,779	39,360	0	0	2,453	0	36,907	2,021	3,989	1,968
Inputs & Invest.	1,567,865	1,422,505	-145,359	0	0	-5,695	0	-139,664	78,393	71,125	-7,268
Total emissions, tCO₂-e	5,874,571	581,905	-5,292,665	-320,713	-5,125,442	39,949	216,298	-102,757	293,729	29,095	-264,633
Total emissions, tCO₂-e/ha	33.6	3.3	-30.3	-1.8	-29.3	0.2	1.2	-0.6			
Total emissions, tCO₂-e/ha/yr	1.7	0.2	-1.5	-0.1	-1.5	0.0	0.1	0.0			

The implementation of the Project resulted in several carbon sources and sinks. The main carbon source came from livestock raising. More specifically, those subprojects allowed for an increase in the number of animals thanks to improvements in the production and pasture management systems. The sequestration benefits derived predominantly from implementing climate-smart grassland management, applying climate-smart agriculture practices and technologies in annual and perennial crop production, natural forest ecosystem conservation, and its management linked to beekeeping activities. In addition to the reduction of the total quantities of inputs (fertilizers, herbicides, fungicides, and insecticides) per ha. Figure 1. contains specific details.

Figure 1. Project GHG sources and sinks





ANNEX 9. MAP OF BOLIVIA

IBRD 33374

