



1. Project Data

Project ID P124181	Project Name UY Sust.Mgmt Nat Res & Climate Change	
Country Uruguay	Practice Area(Lead) Agriculture and Food	
L/C/TF Number(s) IBRD-80990,IBRD-87940	Closing Date (Original) 01-Mar-2017	Total Project Cost (USD) 63,331,542.74
Bank Approval Date 17-Nov-2011	Closing Date (Actual) 16-Nov-2021	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	49,000,000.00	0.00
Revised Commitment	64,000,000.00	0.00
Actual	63,331,542.74	0.00

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2. Project Objectives and Components

a. Objectives

As per the Project Appraisal Development (PAD, 2014) and Loan agreement (LA, 2012) the Project Development Objective (PDO) of the Uruguay Sustainable Management of Natural Resources and Climate Change Project was ***“to promote farmer adoption of improved environmentally sustainable agricultural and livestock practices that are climate smart”***.

The PDO was modified when the project received Additional Financing (AF) in November 2017. As per the ICR (paragraph 17), the revision aimed to simplify the PDO by deleting the term ‘environmentally sustainable’



which was not clear or precise to measure outcomes. The revised PDO was **“to support Uruguay’s efforts to promote farmer adoption of climate smart agricultural and livestock practices and improved natural resource management practices in project areas”** (ICR, paragraph 17; AF Project paper Section III).

This review agrees that the revised PDO was more well-defined, therefore will be used to assess the extent to which the revised objective of this project was achieved. The PDO will be divided into two parts, and will be referred to in Section 4 as Objectives 1 and 2 as follows:

Objective 1: To promote farmer adoption of climate-smart agricultural and livestock practices in project areas

Objective 2: To promote farmer adoption of improved natural resource management practices in project areas

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

30-Nov-2017

c. Will a split evaluation be undertaken?

Yes

d. Components

The project consisted of four components (PAD, ICR):

Component 1: Establishment of an Agricultural Information and Decision Support System (IDSS; SNIA in Spanish, for *Sistema Nacional de Informacion Agropecuaria*) (Appraisal cost: US\$6.20 million; Actual cost: US\$9.54 million. This component aimed to generate and integrate agriculture and climate-related information by supporting the following activities: (a) establishment of an online, public information system that integrated dispersed information on agriculture, natural resources management, and climate information for farmers, service providers, rural insurance, agricultural research and policy institutions; (b) improved methodologies and spatial resolutions for seasonal climate forecasts and early warning systems; (c) improved real time monitoring of climate, vegetation and other variables relevant to agriculture ; (d) simulation and evaluation of impacts of introducing adaptation technologies and policies; (e) training for General Directorate of Renewable Natural Resources (RENARE, later DGRN), National Institute of Agricultural Research (INIA) and the National Meteorological Directorate (DINAMA), as well as farmers and advisors; and (f) advice for improved targeting of Ministry of Livestock, Agriculture and Fisheries (MGAP)’s assistance to farmers.

Once this system would be functional, the Additional Financing aimed to: (a) establish full interoperability by integrating and upgrading the system covering livestock traceability, agro-chemical use, soil; (b) expand the system dissemination nationwide; (c) link farmers to SNIA and making information on climate, soil, agrochemicals and water layers available for risk management and early warning (ICR, paragraph 19).



Component 2: On-Farm Investments for Climate-Smart Agriculture and Livestock Management (Appraisal cost US\$31.10 million; Actual cost: US\$38.38 million). This component would finance demand-driven subprojects based on investment proposals submitted by individual farmers, groups, and producer organizations to an evaluation committee. Beneficiary contribution of a minimum of 20 percent was provided by family farmers, POs, and artisanal fishers, while 50 percent was contributed by medium-scale producers. The technical assistance and investments would aim to: (a) reduce farm vulnerability to extreme climatic events; b) improve farm productivity and sustainability; c) increase the availability of water resources for irrigation and livestock consumption; d) promote adoption of an integrated approach to natural resources management practices in agriculture and livestock production systems, including improved water use efficiency and generation of biodiversity benefits in natural pastures; and v) promote the adoption of energy efficiency measures and the generation of cost effective and clean biomass energy in the agriculture sector.

Under AF, the component name would be revised as *Territorial Interventions and on-farm investments for Climate Smart Agriculture and Livestock Management*. Demand-driven investments to reduce pollution from dairy production, increased access to water (irrigation) for crops and livestock to strengthen resilience, water storage infrastructure to improve water use efficiency and savings, expansion of the pilot on indexed agricultural insurance for livestock were added and would be scaled up.

Component 3: Capacity Building and Training (Appraisal cost; US\$9.30 million; Actual cost: US\$12.4 million). This component aimed to build the capacity of farmers and technical staff of advisory service providers on integrated natural resources and water management practices. Staff of RENARE would be supported to develop the MGAP's web-based services related to land and water use, conservation and management, social mapping and cartography. Technical assistance would also be provided to improve the operational capacity of RENARE on water resources management and grasslands, on legal and policy issues, and on dissemination of activities.

Component 4: Project Management, Monitoring and Evaluation (Appraisal cost; US\$5.90 million; Actual cost: US\$9.41 million). This component would finance: (a) PMU operations to coordinate and manage the project; (b) project's Monitoring and Evaluation (M&E) system; (c) coordination and supervision of Component 3 training activities; and (d) design and implementation of a communications strategy to disseminate results and lessons.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project costs: The total project cost at approval was US\$55 million (ICR, annex 3) which was revised with the additional financing and amounted to US\$102.2 million (Project Paper – Additional Financing 2017). The actual cost at closing was US\$69.73 million (ICR Data Sheet and communication with TTL). According to the ICR, due to the government's fiscal austerity measures, US\$27 million was cancelled under additional financing in May 2021.

Financing: Per the Financing Agreements (FA, 2012 & FA Additional Financing 2018), IBRD credit (Credit No's: 80990, 87940) of US\$91 million was estimated to finance the project. At project closing, Bank financing amounted to \$63.33 million. Several factors led to the deviation on financing. According to the ICR (paragraph 15), the differences were mainly due to: (a) inadequate annual Government allocation to the



project from 2014 to closing which led to slow implementation and disbursements; (b) economic downturn that affected exports and other shocks (droughts); (c) reallocation of loan resources under AF; and d) government's austerity measures leading to AF cancellation of US\$27 million.

Borrower Contribution: Borrower contribution during appraisal was estimated to be US\$6 million. At project closing, it amounted to US\$6.4 million.

Dates: The project was approved on November 17, 2011 and became effective on February 24, 2012. The Mid-term Review (MTR) was conducted on November 10, 2014. The original closing date was March 01, 2017, but with extension and additional financing, it closed on November 16, 2021.

Restructurings and additional financing: The project was implemented over a period of 9.5 years and went through six restructurings (including AF). Detailed information of the changes is provided in Annex 1C of the ICR.

First Restructuring: In August 2014, as part of the first restructuring, the project's Results Framework was revised to better reflect the project's outputs and outcomes (ICR, Annex C). Three original PDO indicators were deleted, and 4 new PDO indicators were added. Out of the 21 Intermediate Results Indicators (IRI), except 1 IRI that was not changed, others were either deleted or revised, and added. In addition, two targets were revised, and one additional safeguard policy (OP 4.09 Pest Management) was included to allow activities related to Integrated Pest Management (IPM).

Second Restructuring: In March 2015, the Loan Agreement was revised to include preparation grants as eligible expenses that would allow the project to partially finance preparation of subprojects (e.g., use of consultant services to carry out feasibility studies), particularly those of smaller family farms to incentivize them to participate in the project (Restructuring Paper 2015).

Third Restructuring: The Budget Act of 2015-2019 had reduced financial resources allocated to MGAP, following which the Government requested the Bank to extend the project. A restructuring was done in August 2016 which extended the project's closing date by 6 months to June 30, 2018.

Fourth Restructuring and additional financing: The project was provided additional financing in November 2017 which included the following changes: (a) increased investments by adding resources to each of the four components, along with changes in component names to scale up successful agro-environmental activities and piloting new CSA technologies and practices; (b) PDO was revised; (c) Results Framework was modified by adding gender-disaggregated data, replacing indicators that had already been met or modifying indicator wordings and redefining some indicators; (d) PDO indicators and IRI targets were scaled up; (e) additional financing of US\$42 million was made available, and some unallocated resources were reallocated, and (f) a six-month extension was made of the closing date of the original loan from June 30, 2018 to December 31, 2018. The closing date of the AF would be November 16, 2021 (AF, paragraph 1, 12)

Fifth Restructuring: This restructuring (December 2018) revised the definition of an IRI which was found to be difficult to measure. Further, targets for one of the indicators increased due to the revision of the indicator. Further, because of the challenges faced by the Government on limited fiscal space, WB financing for one of the expenditures increased from 80% to 100%.

Sixth Restructuring: The final restructuring took place in May 2021 (six months before the closing date) which reduced the cost across the components by US\$27 million due to the loan cancellation of



undisbursed funds. Targets were reduced for 2 PDO indicators/sub-indicators and 3 Intermediate Results Indicators/Sub-indicators.

Based on the changes introduced at the final restructuring that reduced the targets of the PDO indicators, a split evaluation will be conducted in assessing the achievements of the project in Section 4 of this review.

3. Relevance of Objectives

Rationale

Country and Sector Context. When the project was appraised, Uruguay enjoyed steady growth and quickly recovered from the 2001-02 financial crisis. With increased domestic demand and exports, the country's real GDP grew at an average of 5.5 percent during 2003-2010. The agriculture sector comprising crops, livestock and forestry played an important role in this growth by contributing 10 percent to the country's GDP and 65 percent of exports (PAD, paragraph 4). Uruguay has a comparative advantage in livestock production and agricultural products such as soybeans, dairy, and forestry. Yet, these sectors were vulnerable to external shocks such as prices, foreign demand, and domestic shocks from weather-related events and diseases. The country's drought in 2009 caused economic losses to the beef industry totaling US\$0.75-1.0 billion and to the agriculture sector, around US\$340 million (ICR, paragraph 3). Due to climate change, the country has been experiencing weather-related events – increased frequencies of floods and droughts – negatively impacting rural livelihoods and production. Studies showed that temperatures in Uruguay were expected to increase, along with other weather events such as rainfall, winds, storms, hailstorms, etc. (PAD, paragraph 7). This has negatively impacted the country's natural resources base, with more than 80 percent of arable lands affected by soil erosion (PAD, paragraph 10).

Government Strategy. While the country had enjoyed growth during project appraisal, the country's economic situation deteriorated starting in 2014 due to the global economic downturn, particularly with the decline in dairy prices in the country's main trading partners – Brazil and Argentina (ICR, paragraph 7). As a result of low international prices, Uruguay's sector debt continued to increase when the Government decided to readjust its policies to put greater focus on water use and quality (effluent management), risk management, livestock GHG emissions, and investment promotion, which were addressed through the Additional Financing of the project (ICR, paragraph 7). Consequently, Uruguay became a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and adopted the national response plan to climate change in November 2017. The project's investments, which focus on adaptation and mitigation, are relevant for achieving the targets set for agriculture under the country's Nationally Determined Contributions (NDCs). The project is aligned with several other strategies and plans for climate change mitigation and adaptation of the country (e.g., National Strategy for Bioeconomy to protect watershed resources, National Plan on Water, Agointeligente strategy, Sustainable Dairy Pans, Soil Use Management Plans, etc. (ICR, paragraph 23). Finally, the project investments are also relevant for making Uruguay competitive in sustainable production and maintaining its reputation as a 'green producer' (Uruguay Natural) in the products it exports (CPF 2010).

Bank Strategy. During project appraisal and closing, relevant Bank strategies for the project were: (a) FY2010-2015 Uruguay Country Partnership Strategy; and (b) FY2016-2020 Uruguay Country Partnership Framework. Due to the COVID-19 pandemic, the new CPF was still under preparation at project closing. Therefore, the FY2016-20 was the governing strategic document when the ICR was



prepared (ICR, paragraph 22). Under the FY2010–2015 strategy, the project was well aligned with the Pillar 3 of “Protecting the Environment, Mitigating the Effects of Climate Change, and Strengthening Family Agriculture” by supporting investments in climate-smart agriculture, livestock, and water resources management to enhance productivity and reduce vulnerability to climate shocks. The focus on sustainable management of natural resources and climate change remained important under the Bank’s consequent strategy approved in 2016, which contributed towards Pillar 1 on “Building resilience to external and domestic shocks.” In particular, the project activities were relevant in meeting one of the strategy’s objectives: Increasing sustainability and efficient use of resources.

Prior Bank experience. The Bank has had experience working in the NRM and livestock sector in the country. The design of demand-driven sub-projects financed by this project was based on a pilot experience under an earlier project - Integrated Natural Resources and Biodiversity Management Project (*Proyecto Producción Responsable*, PPR). Further, some of the incomplete sub-projects under the earlier project were transferred and financed under the new project, which scaled up activities nationwide with a focus on the northern and north/central regions (PAD, Annex 2).

In summary, the project’s objectives aligned well with the Government and World Bank strategies and addressed some of the challenges related to sustainable agro-livestock productivity and climate change in the country. Some of the project activities were built on prior Bank experience. However, some aspects of the PDO (‘environmentally sustainable’) and intended outcomes were not clearly defined, leading to a revision of all PDO indicators during implementation. The relevance of this project’s objectives is rated by this review as Substantial.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To promote farmer adoption of climate-smart agricultural and livestock practices in project areas.

Rationale

Theory of Change (ToC). The ICR provided a retrospective Theory of Change (ToC) for the project (page 4). To achieve the objective, farmers, producer organizations, the Ministry of Livestock, Agriculture and Fisheries (MGAP) and other sector staff, and technical service providers on project activities will be provided training. Areas of training would include water, soil, natural grasslands, information technology, etc. Along with training, technical assistance, diagnostic, planning, and management tools, information systems like IDSS (SNIA) and financing of sub-projects in areas of water use efficiencies (water technologies) for crops, water interventions for dairy and cattle production, water quality improvements in the watershed, etc. will be implemented. These activities would support technology transfer and be expected to lead to farmer adoption of climate-smart and livestock practices. Along with improved practices and Government decision-making



based on updated information systems, the farm and livestock sector would be more resilient to climate events.

Outputs

As per the ICR (Annex 1), the project achieved the following key outputs:

- Number of activities (as actions) financed under subprojects promoting sustainable natural resources management: 7,910 (93% of target)
- Percentage of farmers who benefited from actions that contribute to reducing soil and water pollution in prioritized river basins: 39 percent (98% of target)
- Area provided with new/improved irrigation or drainage services: 1,172 ha (39% of original target)
- Number of IDSS/SNIA users: 155,000 (103% of target)
- Number of Climate Smart on-farm subprojects funded by the project: 3,363 (84% of original target)
- Number of people (farmers, agro-livestock professionals/technicians) trained in project objectives: 8,065 (101% of original target)

Outcome

To promote farmer adoption of climate-smart agricultural and livestock practices in project areas, the following PDO indicators were measured:

- Farmers adopting improved agriculture technology: 5,533 (79% of original target). Technologies adopted included water and soil management and conservation, irrigation, sustainable extensive livestock production, and dairy production.
- Data products (e.g., drought early warning system, water deficit, etc.) generated by the interoperability of IDSS/SNIA and made available to users: 34 products (113% of original target)
- Number of decisions made by the public sector based on information from the IDSS: 13 (162% of target). Examples of some of the decisions were: the declaration of an agro-livestock emergency, the design of an indexed insurance for water deficits in agro-livestock activities, the determination of support for producers affected by floods, etc.
- Climate Change Adaptive Capacity Index (%): 0.39 (130% of original target). This multi-criteria index measures technology solutions adopted by producers and the changes registered in adaptive capacity over time. The variables in the index weighted combinations of activities in each Call for Proposals linked to livestock, dairy farming, and water supported by the project.

The project nearly met or surpassed the original targets of several outputs, except for the following outputs: (a) Area provided with new/improved irrigation or drainage services: 1,172 ha (39% of original target); (b) Number of Climate Smart on-farm subprojects funded by the project: 3,363 (84% of original target). As per the ICR (paragraph 28), the irrigation target was not met due to inadequate government budget resources, which impacted the call for proposals for water activities. Regarding outcomes, all targets were met while there was a shortfall on the PDO indicator “Farmers adopting improved agriculture technology.”

The outcomes for this objective were assessed based on the project’s M&E and several evaluation studies MGAP conducted on subprojects financed during the project period. The project fully funded some sub-projects, while others were partially financed through other donors such as IADB and Adaptation Fund. As the



evaluation studies did not present results based on the source of financing, some of the higher-level results of sub-projects used by the ICR can only be partially attributed to project interventions.

The results of the two evaluation studies, which were 100 percent financed by the project, are described below (detailed results of the other sub-projects are provided in the ICR- Annex 4 and 7).

- The *Estrategias Asociativas de Agua para la Producción (EAAP)* supported irrigation and water use technologies to efficiently use and manage water to reduce climate vulnerability in the agro-livestock system. There were 21 sub-projects financed, out of which seven sub-projects were analyzed. In assessing impacts, the evaluation study covered treatment and control groups and included baselines. The results were: (a) EAAP feedlot animals (Treatment) had higher weight compared to animals in the control group; (b) irrigation subprojects where incremental yields could be calculated showed strong results, ranging from 52 percent to 450 percent.
- The Call for Proposal financed by the project was the *Convocatoria de la Cuenca del Rio Santa Lucia (CCSL)*, which aimed to improve water quality in the Santa Lucia Watershed. The technologies adopted focused on effluent reduction, capture, treatment, reutilization systems, and nutrient recycling to improve water quality and quantity. The evaluation study measured dairy activities' contribution to Eutrophication (a process when the body of water becomes enriched with nutrients and minerals harmful to the ecosystem) and Global Warming. The study showed there was: (a) a reduction in potential eutrophication of 172,080 kg of PO4 equivalent per year, 51 percent from a baseline of 337,920 kg of PO4 equivalent; and (b) a 2.5 percent increase in GHG emissions or 198,549 kg of CO2. According to the ICR (paragraph 30), though there was an increase, this represented less than 500th of 1 percent of net agro-livestock sector emissions.

While these evaluation studies are sound and have yielded positive results, this review notes that the target for one of the PDO indicators, "Farmers adopting improved agriculture technology," was not achieved, considering the project's long duration (9.5 years). Further, the indicator of 'area under improved irrigation and drainage practices' was also not achieved, which was critical in the adoption and effectiveness of several technologies promoted by the project. The ICR provided several reasons for the under-achievement of this indicator, such as global and national economic conditions starting in 2014 resulting in economic and financial pressures on farmers suppressing demand for participation, recurrent drought, budget constraints, and austerity measures of the Government, cancellation of 65% of the AF which halted progress (paragraph 41, 52). While most of these events were outside the project, the budget shortages could have been envisaged as it was a recurrent problem faced by the project for several years (ICR, Annex 3, Section 3).

Given the shortcomings in achieving the outcomes, the efficacy of the first objective is rated as Modest pre-restructuring.

Rating
Modest

OBJECTIVE 1 REVISION 1

Revised Objective

To promote farmer adoption of climate-smart agricultural and livestock practices in project areas.



Revised Rationale

The objective did not change, but there were changes to the PDO Indicator and two Intermediate Results Indicator targets at the restructuring six months before the closing date. Some targets were increased, while a few (listed below) reduced the level of ambition of the original objective. The key indicator changes (see ICR, Annex 1) were:

- PDO indicator two targets (# of farmers adopting improved agricultural technology) was reduced from 7,000 to 5,700;
- IRI indicator target (Climate-smart on-farm subprojects funded by the project) was reduced from 4,000 to 3,400.
- The target for IR Indicator (Area provided with new or improved irrigation or drainage services, ha) was reduced from 3,500 ha to 1,800 ha.

The ICR notes that the project revised the targets when the Government proposed to cancel the remaining loan balance in May 2021. Nonetheless, at project closing, both the revised IRI indicator and PDO were nearly met – 3,363 subprojects financed (99%); 5,533 farmers adopted improved agricultural technology (97%) though there was still a shortfall with the irrigation target – 1,172 ha of land with new/improved irrigation or drainage services (65.1% of revised target). Given that the revised PDO indicator target was met, this review rates the revised objective's efficacy as Substantial.

Revised Rating

Substantial

OBJECTIVE 2

Objective

To promote farmer adoption of improved natural resource management practices in project areas.

Rationale

Theory of Change (ToC). To achieve the objective of farmer adoption of improved NRM practices, sustainable land management practices would be promoted through training and TA to farmers, producer organizations, MGAP and other sector staff, and technical service providers on practices to increase land quality and restore degraded lands, and enhance linkages between protected areas, forest land, grasslands, and agricultural land (ICR, paragraph 36). Soil Management Maps (PUMS) and Sustainable Dairy Plans (SDPs) would be prepared, requiring farmers to adopt biophysical soil management, precision fertilizer application, improved grassland management, water systems for cattle, etc.

Outputs

As per the ICR (Annex 1), the project achieved the following key outputs:

- Soil Management Plans (PUMS) for agricultural producers with more than 100 ha under cultivation monitored by RENARE and presented in digital format (%): 96 percent (128% of original target)
- % Area of the country with cartographic (Soil Maps) updated; 85 percent (113% of target)



- Monitoring of Soil Management Plan Implementation (% of audited): 70 percent (175% of target)

Outcome

- Land area under sustainable landscape management practices (ha): 2,703,647 ha (75% of original target)

According to the ICR (paragraph 36), “Sustainable landscape management practices refers to a combination of at least two technologies/approaches to increase land quality and restore degraded lands, for example, agronomic, vegetative, structural, and managerial measures that, applied in combination, increase the connectivity between protected areas, forest land, grasslands, and agricultural land.” In terms of interventions, the project promoted the use of Soil Management Plans (PUMS) to address the hydraulic erosion of soils, leading to reduced agricultural land productivity (ICR, paragraph 38). MGAP staff trained technicians and producers on implementing PUMS on their land, which was monitored through a fully digitized system supplemented by visits from extension workers.

In assessing the results of project interventions, several approaches were followed. The digital system was able to produce maps and showed real-time compliance progress. In addition, extension works verified the results on the ground by visiting the farmers. Further, as hydraulic erosion of soils was one of the main causes of soil degradation in the country, a study was conducted in 2020 based on satellite imagery of selected agricultural areas, available soil maps, rainfall as well as water flow data that estimated water-caused soil erosion on farmers field from 2000 to 2020. According to the ICR (paragraph 38), the study found that the fields selected - particularly those that implemented PUMS - had decreased water-caused erosion per land unit.

At project closing, targets for all output indicators were met. There was a moderate shortcoming in achieving the original target for the PDO outcome indicator. The ICR (paragraph 36) provided the following explanations for not achieving the target: (a) there was a smaller than expected average size of beneficiaries’ farm properties under a demand-driven approach; (b) due to adverse economic conditions and droughts, fewer producers than expected submitted proposals to participate; (c) project’s continued challenge with budget constraints.

Given the substantial achievement of the outcome targets, the efficacy of the second objective is rated as 'substantial' pre-restructuring.

Rating

Substantial

OBJECTIVE 2 REVISION 1

Revised Objective

To promote farmer adoption of improved natural resource management practices in project areas.

Revised Rationale



The objective did not change, but there were changes to the PDO indicator and IRI targets at the restructuring six months before the closing date. Some targets were increased, while a few (listed below) reduced the level of ambition of the original objective. The key indicator changes were:

- The target for the PDO indicator (Land area under sustainable landscape management practices, ha) was reduced from 3.6 to 2.8 million ha
- The target for IRI (Area of the country with soil maps updated) was reduced from 75% to 45%. At the time of the restructuring, the project had already achieved 70 percent (93 percent of the target for the IRI), and as per the ICR (Table 2.2(b), Annex 1), it was not clear why the target was reduced to 45 percent.
- The project nearly met the revised target outcome indicator “Land area under sustainable landscape management practices” (97 percent).

Given that the revised targets were met, this review rates the achievement of the second objective as Substantial.

Revised Rating
Substantial

OVERALL EFFICACY

Rationale

Before the restructuring, the first objective was rated as Modest, and the second objective was rated as Substantial based on the achievement against the original targets; this review rates the overall efficacy of pre-restructuring to be Substantial with moderate shortcomings.

Overall Efficacy Rating

Substantial

OVERALL EFFICACY REVISION 1

Overall Efficacy Revision 1 Rationale

Following the final restructuring, the targets for key outcome indicators were revised and substantially met. This review rates the revised efficacy rating to be Substantial.

Overall Efficacy Revision 1 Rating



Substantial

5. Efficiency

An Economic and Financial Analysis was not conducted during project appraisal citing difficulty in determining ex-ante costs and benefits of investments that the project would make given the demand-driven nature of activities. Nonetheless, economic returns were calculated based on a sample of subprojects financed under a project (Integrated Natural Resources and Biodiversity Management Project) under implementation then. The calculations were based on farm models, including the cost of incremental on-farm productive investments and recurrent expenditures for adopting sustainable agricultural production systems promoted under the project (PAD, paragraph 37). The analysis estimated the economic returns to exceed 18 percent. Further, an EIRR was calculated for the activities funded under Additional Financing, which had estimated the EIRR to be 17.5 percent and an NPV of US\$44 million.

Ex-post

The ICRR stated that due to an absence of an ex-ante EFA, there was a gap in the information available to prepare an ex-post EFA. Nonetheless, an ex-post EFA was conducted based on data from several impact studies conducted by the Office of Agricultural Planning and Policy (MGAP), the project's M&E, and Borrower's Completion Report. For the EFA, estimates were calculated from benefits generated under Component 2's Calls for Proposals (7 out of 9 subprojects that had data), including scenarios of 'with' and 'without' project interventions. Specifically, yield changes that the project's M&E unit monitored were used for sample areas before the project and during project implementation. In the absence of a control area, the 'without project' scenario was taken as the situation before the project was implemented (ICR, Annex 4, paragraph 8). All project costs (including additional financing) were included even though quantifiable benefits were only assessed for activities under Component 2. Based on this information, a financial analysis was undertaken for all seven projects, which showed positive results (See details, ICR, Annex 4).

Further, the economic analysis aggregated the net incremental benefits of all sub-projects derived from the financial models. It covered a 20-year period with an opportunity cost of capital of 12 percent. Based on this methodology, the project's EIRR was 16.5 percent, with an NPV of US\$11.5 million. A sensitivity analysis was conducted, which confirmed the robustness of the results and the financial viability of the project.

Administrative and Institutional Efficiency: The project was implemented over nearly ten years with six restructurings, including an AF that revised and scaled up some targets. The ICR stated that the project was technically and operationally complex, which this review concurs with. Further, the project periodically faced challenges with limited or delayed budget allocation from the Government. As a result, activities such as Calls for Proposals were delayed, or critical project officials were not hired on time.

In summary, despite the limitation on budget and implementation delays that the project faced, the ERR of 16.5 percent was reasonable, and some of the delays were also attributed due to the scaling up of the activities during the AF. The Efficiency is rated as Substantial.



Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	16.50	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The Outcome Rating is based on a split rating assessment.

1. *Substantial rating for Relevance of the PDO:* The project’s objectives were well aligned with both Government and World Bank strategies for Uruguay. There were shortcomings in defining certain aspects of the PDO and intended outcomes, which were subsequently revised. The relevance of the PDO was rated as Substantial.
2. *Substantial ratings for Efficacy:* The efficacy rating was substantial before the restructuring, with moderate shortcomings. Following the restructuring that reduced targets, the efficacy rating was substantial against the revised objective/targets.
3. *Substantial Rating for Efficiency:* While the project did not have an ex-ante EFA to compare, the financial and economic analysis conducted by the project was sound, with a positive EIRR (16.5 percent)

Based on the split evaluation, the overall outcome is “Moderately Satisfactory.” Since less than 1% was disbursed post-restructuring, increased weightage is given against the original targets. Details on the derivation of this rating are provided in the table below.

Rating Dimensions	Original Objectives	Objectives at Sixth Restructuring (May 2021)
1. Relevance of Objectives	Substantial	
Efficacy - Objective 1	Modest	Substantial
Objective 2	Substantial	Substantial
2. Overall Efficacy	Substantial (with moderate shortcomings)	Substantial
3. Efficiency	Substantial	
Outcome Rating	Moderately Satisfactory	Satisfactory
Outcome Rating Value	4	5



Amount Disbursed	US\$62.99 million	US\$0.34 million
Disbursement (%)	99%	1%
Weight Value	3.96	0.05
Total Weights	4.01 (4)	
Overall Outcome Rating	Moderately Satisfactory	

a. Outcome Rating
Moderately Satisfactory

7. Risk to Development Outcome

The ICR (Paragraph 70) discussed several risks, out of which the key ones that could potentially impact the project’s sustainability are highlighted below:

- 1. Financial risk.** While there was a commitment from the Government to continue with climate actions related to water quality, strengthening of the National Agriculture Information System or Sistema Nacional de Informacion Agropecuaria (SNIA), animal traceability and NRM, etc., the ability of MGAP to continue with these actions are not certain given the budget cuts of most Ministries including of salary cuts of technical consultants who have been instrumental in project implementation.
- 2. Technical risk.** The potential financial constraints that may impact the continued engagement of contracted specialists to support activities such as maintaining SNIA are mentioned by the Borrower Completion Report as potentially high risk.
- 3. Institutional risk.** The project’s support in building the capacity of rural organizations yielded some good results in strengthening the organizations’ social capital. However, the evaluation report found that investments in training on building human capital may not sustain when the project’s technical teams cease their activities.
- 4. Stakeholder risk.** MGAP mainly financed project activities, though a few activities, such as PUMS and SDPs, were completed in collaboration with the private sector. Further, the call for proposals included beneficiary contributions. To sustain the achievements of project activities, similar engagements, and continued ownership by the private sector and beneficiaries to continue adopting improved practices for climate actions will be required.

8. Assessment of Bank Performance

a. Quality-at-Entry

As highlighted in Section 3, the project was well aligned with the country and sector strategies. It aimed to address climate vulnerabilities the country faced related to natural resources such as soil and water. Given that the activities to be financed by the project were cross-cutting, the project appropriately made one agency (MGAP) the lead agency, with cooperation arrangements planned with other agencies to collaborate under the Inter-Ministerial Coordination Committee.

During project appraisal, key institutional, stakeholder, and project risks (which included climate-related stress at the farm level) were identified and were determined to be low. However, the key risk the project



confronted on budget allocation from the Government that impacted project implementation was excluded. Risks such as inadequate budget allocations, the electoral cycle, technical staffing, and economic downturns, which had a significant influence on the Project, were not identified. The ICR notes that the mitigation measures also tended to be generic. An economic recession or weak global markets impacted farmer commitment and were also not identified (ICR, paragraph 52). The M&E design (discussed in Section 8) was weak, and the project had to revise the RF and the PDO. Overall, the project design was technically and operationally complex consisting of several sub-projects, some of which were pilot tested across resources. Finally, the ICR (paragraph 52) indicated that the project's readiness was incomplete because the transition from the predecessor project was not smooth as planned. With the closing of the earlier project, the contract of the technical staff had come to an end, and they had to be re-hired, which the project appraisal did not pay attention to.

Based on the above-mentioned assessment, Quality at Entry is rated Moderately Unsatisfactory. This rating reflects several shortcomings, including project design, M&E, limited assessment of possible risks, and implementation readiness at project entry.

Quality-at-Entry Rating

Moderately Unsatisfactory

b. Quality of supervision

During implementation, the Bank supervised the project consisting of 20 staff missions (ICR, paragraph 68). The ICR notes that the missions were well-staffed. Fiduciary and safeguards supervision was regular and rigorous. The Aide Memoirs and Implementation Status and Results reports were comprehensive. The Bank was proactive, and several restructurings were processed in response to client demand. The RF, including all the PDO indicators, was revised to allow the project to monitor project activities better and measure impacts. The Bank also processed an AF, which increased targets and scaled up activities that showed results. The ICR also notes that even though the AF may have been over-dimensioned given the government budget situation, it nevertheless provided flexibility to adapt to new approaches and GOU priorities, clarify the PDO, potentially scale up activities with demonstrated results, leverage additional innovation, and where possible, complete lagging investments.

The Bank conducted the MTR on time, and the project took the recommendations provided on board. However, during implementation, there was a high turnover among Bank TTLs, and the project was managed by six TTLs. The ICR noted that these changes from the Bank may have affected the quality and consistency of Bank assistance to the borrower (ICR, paragraph 53). Thus, the Quality of Supervision was rated Moderately Satisfactory.

Overall, the Bank's performance is Moderately Satisfactory.

Quality of Supervision Rating

Moderately Satisfactory



Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

A Theory of Change (ToC) was not included in the PAD as it was not required at the time of project appraisal. The RF developed at project appraisal had included three PDO indicators and 21 intermediate outcome indicators (PAD. Annex 1). The RF was found to be weak as the intended outcomes were not clearly defined and all PDO indicators were revised. Four new PDO indicators were introduced during the project's first restructuring. According to the Restructuring Paper (2014), the revisions were made to improve the measurement of project's results and its achievements. Several Intermediate Indicators were either revised, amended, or eliminated as they were not well-aligned to the PDO. Further, the original PDO was not clear, particularly the term "environmental sustainability" which was difficult to measure and was revised during the project's fourth restructuring.

Overall, this review agrees with the ICR that the M&E design of the project had several shortcomings, with a weak Results Framework that required revision of the PDO and multiple changes with indicators over the project period.

b. M&E Implementation

At an early stage of project implementation in 2014, the project made a timely decision to revise the RF and change PDO indicators and Intermediate Indicators. The other significant revisions were made during the fourth restructuring based on lessons from the project and in response to Government's resilience strategy. According to the ICR (paragraph 56), even with the revisions of the indicators in 2014 and 2017 (AF), "some indicators still had high monitoring value but limited evaluative use." Also, one of the PDO indicators on 'people trained' was output oriented. Further, the ICR notes that the project could have better measured the outcome of some interventions, such as those that measure GHG emissions, water use efficiency and savings, and farm productivity.

During appraisal, it was envisaged that the project would conduct an impact evaluation. The project planned to collect a baseline for one of the programs. Still, as per the ICR (paragraph 57), due to the pilot's complexity and the project's demand-driven nature, a formal impact evaluation was not administered.

c. M&E Utilization

The project used various evaluation studies conducted by MGAP that assessed the results of the sub-projects. Further, the project used innovative technologies such as satellites and drones to monitor results on the ground (e.g., soil quality), supplemented by extension workers' validation visits.

In summary, M&E quality is rated Modest. The M&E at design had significant shortcomings, leading to the revision of all PDO and several intermediate indicators. The PDO also had to be revised to drop the



"environmentally sustainable" dimension. While M&E implementation progressed well, the project's final restructuring, which reduced the targets, was conducted just six months before closing.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

Two safeguard policies were triggered at project appraisal: Environmental Assessment (OP/BP 4.01) and Natural Habitats (OP/BP 4.04). An additional safeguard policy (Pest Management OP 4.09) was triggered when the project received Additional Financing. Further, under AF, two more safeguard policies were triggered - Involuntary Resettlement (OP 4.12) and Projects on International Waterways (OP 7.50).

Environmental Safeguards: According to the PAD (paragraph 47), the project was not expected to impact the environment negatively. Instead, the project activities related to natural resources management, especially on-farm soil, and water management, would have a positive environmental impact. During project preparation, the MGAP prepared an Environmental and Social Management Framework (ESMF), which included a detailed assessment of environmental and social aspects relevant to the project. The ESMF included environmental screening procedures and developed a negative list of investments not to be financed by the project. (PAD, paragraph 49). During project implementation, environmental safeguards compliance was consistently rated as Satisfactory. No negative environmental impact was reported, or safeguard actions were required. The project consistently complied with Bank's safeguard policies with environmental action plans developed for all subprojects with negative potential, monitored until completion (ICR, paragraph 61). Towards the later stage of the project, an MIS was also developed for monitoring social and environmental safeguards.

Social Safeguards: The PAD (paragraph 46) stated that the project was not likely to have any negative social impacts. The project provided financing and technical assistance to family and medium-scale farmers to adopt technologies that would help them increase farm productivity and be resilient to climate variability and shock, which was expected to yield positive results. During project preparation, a social assessment reviewed gender issues, resettlement, land title, and tenure issues. On gender, the M&E system would include relevant indicators and monitor its progress. Further, during project preparation, consultations were held with key agriculture and livestock sector stakeholders who strongly support the project. During implementation, the project consistently complied with social safeguards. The project's participatory approaches of consultations with local people and its own monitoring helped mitigate any adverse impacts that could have occurred. Finally, the Grievance Response Mechanism (GRM) was operational and was responsive to queries or grievances received from project beneficiaries, including broader citizens, which were resolved

b. Fiduciary Compliance



Financial Management: During project implementation, there were no significant financial management issues reported, which affected the performance of the project though a few times, delays were experienced. FM compliance was rated either Moderately Satisfactory or Satisfactory through most of the project period, except in 2014, when it was downgraded to Moderately Unsatisfactory because of a non-renewal of the project accountant’s contract, which caused delays. The Bank closely monitored the country-wide financial transfers for sub-projects and provided technical support to strengthen the PMU’s FM team’s capacity. Even so, in 2018, due to the delays, the project faced in the execution of subprojects, financial management reporting was delayed, which was exacerbated by the delayed budget allocation from the government due to its austerity measures. Other than that, audit reports were prepared on time, were unqualified, and there was no evidence of misuse of project funds.

Procurement: As per the ICR (paragraph 64), the project was rated Satisfactory for Procurement until 2018, when the rating was reduced to Moderately Satisfactory when the Procurement Plan was not updated on time. At the start of the project, the PMU had weak procurement capacity as procurement staff working in the predecessor project were on a contract basis and were let go. Hence, from the Bank, periodic training was provided to PMU on Bank policies and guidelines and procurement processing and contracting. While the procurement functions and processes improved, the PMU did not always adopt the processes advised (e.g., the “commercial practices” method of procurement) (ICR, paragraph 64). Towards the later part of the project, the procurement plan was again delayed due to the Pandemic and the Government restrictions on the procurement of new equipment. As a result, the project’s procurement rating at closing was Moderately Satisfactory.

c. Unintended impacts (Positive or Negative)

None

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Moderately Satisfactory	There were moderate shortcomings in efficacy prior to final restructuring.
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Substantial	Modest	There were significant shortcomings in M&E Design.
Quality of ICR	---	Substantial	

12. Lessons



The ICR included six lessons. This review has highlighted the following four with some adaptation of language with broader applicability.

Sustainability and use of the digital information system (DSS/SNIA) that the project helped establish should be built based on long-term financial investment and Government commitment. During project implementation, the DSS/SNIA project was developed and made interoperable with other databases in the country. Stakeholders in the field used it to make decisions about their farming practices. There was also evidence that Government's decisions and declarations (e.g., emergencies) used information from this system. For such a system to be more effective and increase utilization, outreach and communication activities should be constantly held. Further, longer-term financial investments are needed to retain technical teams of various skill sets to manage and maintain such a system requiring periodic updates and innovations.

Digital traceability systems can have multiple usages besides phytosanitary monitoring and control. Uruguay's cattle traceability system is globally recognized. The SNIA system has also incorporated the traceability of honey, rice, and fruit containers. Based on Uruguay's experience, such traceability system's use can be enhanced for phytosanitary monitoring and control and as a monitoring tool in measuring progress towards international goals, enforcing laws and policies, and promoting a country's products in international markets.

To promote a country as a 'green/sustainable producer,' greater collaboration between public and private sector agencies is needed. This project was led by MGAP, which invested in technologies and practices that aimed to promote and retain Uruguay's reputation as a sustainable/green producer. To get an independent assessment of MGAP practices, increased collaboration with agencies such as the Ministry of Environment with the mandate for monitoring environmental issues (e.g., water quality emissions, among others) is essential. Further, private sector buy-in is critical, and they would also need to be a key partner to take responsibility for promoting sustainable intensification and climate adaptation.

Pilot projects can benefit from good quality impact evaluation. MGAP conducted impact evaluation studies of Call for Proposals. Considering that the project financed many pilots that attempted to demonstrate proof of concepts related to technologies and practices in water and land resources management, irrigation, livestock management, dairy, etc., the impact evaluation was helpful not only for assessing results but also for document learnings so that future interventions can be improved.

IEG adds the following lesson:

During project preparation, greater effort is required in designing a Results Framework with measurable PDO and outcome indicators. In this project, soon after implementation, it was recognized that several PDO and Intermediate Results Indicators were weak in reflecting the project's outputs and outcomes. All PDO indicators had to be revised; most IRIs were changed, deleted, or revised as part of the project's first restructuring. Such situations can distract the project and delay project activities, while projects with good results frameworks can focus on project implementation and achieving results.



13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR was a detailed document, which provided adequate information about the project, the various restructurings and the revisions that were made to the indicators and targets. The information was also adequately presented in tables in the Annex. IEG noted that there was a discrepancy between the project costs included in the main text of the ICR and the annex which was corrected by the team following communication with IEG.

The ICR reported on the outcomes and outputs based on the project's M&E and summarized well the evaluation studies conducted by MGAP. The document candidly reported on the shortcomings in the project design, such as design issues related to M&E and Bank performance during implementation. The lessons included in the ICR were comprehensive and were based on project experience.

Overall, the Quality of the ICR is rated Substantial since shortcomings were minor.

a. Quality of ICR Rating Substantial