ADAPTATION FUND

Project Completion Summary

In accordance with the project agreement, implementing entities are required to submit a project completion report within six (6) months after Project completion, and the final project progress report (PPR) is considered as a project completion report. While the PPRs meet technical requirements, the information is reported by year and its format is not ideal to convey the overall information and knowledge to wider and more general audiences. To supplement this, implementing entities are requested to prepare a project completion summary.

A project completion summary is intended to cover an entire project life in a reader friendly format by compiling submitted single-year PPRs. It also gives implementing entities an opportunity to express and share insights from project implementation, findings, challenges etc. which may not be presented by PPRs and captured by a final evaluation report.

A project completion summary consists of narrative information (Section A) and financial information (Section B). Any other information (Section C) can be added to the report as an option. Most of the contents can be filled in by copy-and-paste from the submitted PPRs. The completion report should be no more than 20 pages (excluding annexes).

ADAPTATION FUND

Project Completion Summary

Section A: Project result and performance

1. Basic information

Title of project/programme	TF 015041 - INCREASING CLIMATE RESILIENCE AND ENHANCING SUSTAINABLE LAND MANAGEMENT IN THE SOUTHWEST OF THE BUENOS AIRES PROVINCE
Project/Programme category	Regular Project/Programme
Project period (if the project was granted an extension, include the original as well as the revised completion date)	Effectiveness: May 21, 2015 Original closing date: December 30, 2018 Actual closing date: September 30, 2019
Country(ies)	ARGENTINA
Sector(s)	Agriculture and Environment
Implementing entity name	The World Bank
Type of implementing entity (MIE, NIE or RIE)	MIE
Executing entity(ies)	Ministry of Environment and Sustainable Development (MAyDS)
Amount of financing approved (USD)	4,296,817
Project contact(s)	Alejandra Moreyra, National Director and Secretary of Environmental Policy in Natural Resources, Ministry of Environment and Sustainable Development amoreyra@ambiente.gob.ar Vanina Pietragalla, Project Coordinator, Ministry of Environment and Sustainable Development vpietragalla@ambiente.gob.ar Tuuli Bernardini, Senior Environmental Specialist, Task Team Leader - The World Bank tbernardini@worldbank.org
Date of report	July 6, 2020

2. Key milestones

Project inception	June 2015
Mid-term review (if applicable)	April 2017
Project completion	September 30, 2019
Terminal evaluation	March 31, 2020; delayed submission on July 6, 2020
If any, delay in implementation and reasons for delay	The initial project implementation suffered heavy delays as the first disbursement took place in March 2015, almost a year after project effectiveness. The Project Implementation Unit (PIU, later Project Team, PT) was established and became legally operational within the then Secretariat of Environment and Sustainable Development (SAyDS) in July 2015. These delays were due to slow bureaucratic processes coupled with issues related to the change of the responsible SAyDS authorities in December 2014. After the Government of Argentina (GoA) administration changed in December 2015, the SAyDS was upgraded to MAyDS in early 2016, and the PIU settled down under the National Directorate of Forests, Territorial Planning and Soil. The PIU included coordinating, technical, fiduciary and communications personnel and was supported by SAyDS/MAyDS staff, including the responsible authorities. It suffered of early lack of experience and executing capacity. Since early 2016, the implementation started to gain speed once the PIU had accumulated initial experience and lessons learnt. Thereafter, the PIU developed a strong working relation with the beneficiary municipalities and other key local actors and, during the final year of implementation when it was able to disseminate interesting results, strengthened coordination and collaboration with other related national and provincial institutions and programs. Later during implementation, delays in the implementation of certain promoted agricultural practices were experienced in 2017 and 2019 due to seasonality factors and climatic conditions. GoA austerity measures introduced in 2018 posed significant budget restrictions limiting project allocations in the national budget, notwithstanding they were derived from an international grant. A 9-monts project extension was approved by the Adaptation Fund (AF) in July 2018 until September 30, 2019 to compensate for the initial delays and allow sufficient time to complete the activities and maximize project results in terms of their systematization and dissemination.

3. Project overview and description

The project objective was to contribute to reduce climate and human vulnerability of the agro-ecosystems in the Southwest of the Buenos Aires Province (SWBA) by increasing the adaptive capacity of key local institutions and actors and piloting and disseminating climate resilient and sustainable land management practices. The project aimed to benefit farmers and families engaged in small and medium-sized agricultural-cattle production on dry lands within the direct and indirect intervention zones in the municipalities (counties) of Puan, Villarino and Patagones and nine other municipalities comprising the SWBA, respectively. Additionally, local technical institutions implementing the Specific Intervention Sites (SISs) and other partner organizations working on related aspects at the national level benefited from and contributed to a comprehensive set of capacity building and institutional strengthening measures promoted by the project.

Project components

Component 1: Reducing Institutional and Community-level Vulnerability (AF contribution US$1.026 million) sought to improve the response and planning capacity of local institutions and communities by promoting people's engagement in data collection and analysis from interinstitutional to household level. It aimed to develop institutional tools to promote climate resilience and create an Information and Early-Warning System (IEWS) for climate change and desertification for the SWBA in cooperation with the relevant technical institutions together with promoting behavioral changes between the targeted sociocultural and productive ecosystems.

Component 2: Implementing Adaptation Measures in Productive Agroecosystems (AF contribution US$2.291 million) aimed to pilot climate-smart adaptation interventions in 11 SISs in three different Geographic Intervention Areas (GIA) within the targeted municipalities: arid, semiarid, and irrigated GIA. The SISs were led by technical institutions (paragraph 13). During preparation, a set of potential climate adaptation measures suitable to the biophysical conditions of the local productive environment and expectations of farmers were initially assessed and collated by the National Institute of Agricultural Technology (INTA). The final selection of the specific measures to be piloted in each SIS was planned and conducted through a participatory approach during project implementation.

Component 3: Applying a Participatory Approach to Knowledge Management and Monitoring and Evaluation (AF contribution US$0.140 million) aimed to build the capacity of targeted farmers and partner organizations in project monitoring, adaptive management, and dissemination of lessons learned to create public awareness and ownership of the project. People were to be trained and provided with proper tools to participate in developing and tailoring local and even farm/household-specific adaptation strategies. As applicable/relevant, all activities were to contemplate a gender-sensitive approach to adaptation.

Component 4: Developing a Sustainability Strategy (AF contribution US$0.194 million) aimed to establish the necessary institutional- and community-level agreements for the piloted measures to be sustained beyond project closure. It contemplated both regulatory and material needs to create an institutional and policy framework to support continuation of key activities by relevant stakeholders as well as a commitment to continue with a dissemination strategy. Continued financing to scale up successful initiatives was to be sought through institutional arrangements that would enable linking the measures to the Development Plan of the Southwest of Buenos Aires Province (PDSO), adopted pursuant to provincial law 13647/2007.

Participatory planning processes were used to identify, pilot and disseminate concrete adaptation measures focusing on sustainable land management (SLM) practices, collection and efficient use of water for irrigation, and improved crop, pasture and livestock management to promote climate resilience, including establishment and implementation of three municipal plans for sustainable forage production and conservation of natural pastures and a municipal plan for reforestation. The project evolved through strong and partly unprecedented intersectoral and interinstitutional collaboration and learning process and succeeded in (i) creating an enabling political, social, and economic framework to facilitate adoption, sustainability, continuity, and further development of the piloted adaptation efforts; and (ii) bolstering and finetuning a set of adaptation measures identified and chosen through institutional and community-level participation and capacity building.

4. Results and key outcomes

Beyond the present Project Completion Summary, the project counts with a World Bank Implementation Completion and Results Report (ICR)[1] and a project-contracted Final and Results Evaluation conducted by a consulting firm CEIS Consultora in Spanish, both submitted to the Adaptation Fund (AF). The latter concluded the project having achieved satisfactory results in line with the AF goal, impacts and objectives (Section 5.4, paragraphs 240–270). In terms of the AF core impact indicators, the project contributions were measured through **Number of beneficiaries (direct and indirect) and Number of Early Warning Systems**. The project also contributed to increase ecosystem resilience to climate change, measured through **Natural habitats protected or rehabilitated**. The specific contributions through outcomes and core indicators are presented below:

Number of beneficiaries (direct and indirect): This indicator was not measured consistently during the project implementation and it is impossible to report a definite number of direct and indirect beneficiaries. One of the project indicators monitored the number of direct beneficiary producers, which resulted a total of **427 producers (374 men and 43, 10 percent women)**. Additional numbers that can be reported are the following, taking into account that the participants/implied people can overlap: A total of 3,569 visitors (and 7,354 visits) were registered in one of the websites of the project's Information and Early Warning System (IEWS); 2,172 persons benefited of training provided by/through the project; and regarding the 11 SISs, MAyDS reported a total of 1,020 direct beneficiaries and 2,516 indirect beneficiaries (see Table 5.3. Summary of the SISs and Practices Implemented in annex 5 of the World Bank ICR).

Outcome 1: Reduced exposure to climate-related hazards and threats: This was measured through the core indicator **No. of Early Warning Systems.** The project developed and implemented an Information and Early Warning System (IEWS, *Sistema de Información de Alerta Temprana, SIAT* in Spanish), available and operating online[2]. It covers the geographical areas of the direct beneficiary municipalities of Villarino, Patagones and Puan. Until June 2020, the IEWS has produced 14 quarterly reports that are disseminated through different channels, including, among other, websites of the National Meteorological Service (SMN) and INTA, local rural radios, INTA extensionists and the beneficiary municipalities. Satisfaction with the IEWS was measured

[1] Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/637051585941092818/implementation-completion-and-results-report-icr-document-adaptation-fund-increasing-climate-resilience-enhancing-sustainable-land-management-in-the-southwest-of-the-buenos-aires-province-p125804

[2] See for example at the website of the National Meteorological Service (SMN): https://siat-soba.smn.gob.ar/

high (87-96 percent rated it as good or very good), while about 95 percent of the respondents indicated that they considered the IEWS recommendations in their decision making[3]. The project financed the installation of 12 new automatic weather stations that have enriched the availability of real-time climatic data in a 300 km radius (see map in annex 7 of the ICR). This higher resolution information has significantly improved localized measurement of the Normalized Difference Vegetation Index (NDVI) and helped develop a dynamic and innovative localized drought index. This information was incorporated into a platform financed by the project and hosted by the SMN to provide updates on drought information every five days based on various indexes (NDVI and drought and fire index). Furthermore, the IEWS team participates in the National Drought Protocol led by the National Secretariat of Agroindustry as part of its Agricultural Risk Management Program. Specifically, it provides local field data observations with a fine resolution that helps validate the information generated at the national level with higher resolution. In general, the IEWS serves as an example for other regions nationally, within the Latin American and Caribbean Region, as well as globally.

Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses: Ten institutions incorporated a variety of actions to address climate adaptation as per the results reported under the new institutional commitments (see annex 1 of the ICR), including municipal plans for sustainable forage production and conservation of natural pastures and reforestation, instituted by municipal decrees. This is a key accomplishment through substantial support provided to the municipalities in designing the plans and investing in the necessary equipment to operationalize their implementation. Likewise, the immediate benefits generated from on-farm geomembrane reservoirs in the two irrigated SISs resulted in the establishment of a revolving fund to further promote their construction. Furthermore, the Ministry of Social Development continued working toward formalizing a national social program to promote creation of green jobs following a successful collaboration it piloted with the Argerich tree nursery in the Municipality of Villarino, National Roads Agency, and a cooperative Foresta Ltda., created and supported during project implementation.

Further, 10 local public employees in the three municipalities and the four technical institutions were trained on aspects related to planning and monitoring. In general, municipalities and technical institutions recognized that longer-term monitoring of soil quality is key to generate solid evidence of the benefits from SLM approaches and to secure political support to promote and replicate good practices. The municipal plans integrated key features promoted by the project, including SLM and climate adaptation measures, planning processes, and consideration of M&E aspects. They introduced requirements for a baseline soil measurement and visual observations as part of the selection process of beneficiary farmers. The municipalities recognized the project's valuable contribution in supporting the systematization of information and building their analytical capacity to better inform long-term policy decisions. A total of 12 institutional representatives from national, provincial, and local governments participated in a Green Employment Course provided by the International Labour Organization (ILO) in October and November 2018 for 12 days. Further, the project prompted Villarino and Patagones to join the Argentine Network of

[3] These values are based on surveys done by the project with 86 respondents in 2018 and 51 in 2019.

Municipalities to Confront Climate Change to continue and broaden their engagement with the climate change agenda.

Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress: As detailed in the ICR, based on measuring of select soil quality factors, the productive agroecosystems in nine out of the 11 Specific Intervention Sites (SISs) in three different Geographic Intervention Areas (GIAs), arid, semiarid, and irrigated GIA within the targeted municipalities, demonstrated a trend toward maintaining or improving conditions to withstand climate variability. Further, the project identified 41 adaptation practices and prioritized 14 of them through a participatory approach with local farmers and relevant stakeholders based on soil degradation and key climatic issues faced in the three GIAs. The 14 practices piloted in the 11 SISs followed known principles of SLM associated with climate change adaptation as depicted in figure 2 in the ICR. The SISs also evaluated strategies for diversification of agricultural activities to strengthen farmers' climate resilience. The practices promoted by the SISs were not new, but they had not been tested in the SWBA due to lack of seed capital, equipment, and systematized technical support. In the absence of field-based functioning evidence from these practices, the business-as-usual scenario was to continue the use of traditional tillage practices and overgrazing and further degrading the already fragile soil in the project area.

Outcome 7: Improved policies and regulations that promote and enforce resilience measures: The project supported the establishment and implementation of nine policies/initiatives in the municipalities of Puan, Villarino and Patagones: two protected areas (Puan and Villarino); an Environmental Agency (Villarino); a strengthened municipal tree nursery (Puan); a pilot program of green employment with a road-side afforestation plan aimed at reducing wind erosion based on a strengthened municipal tree nursery (Villarino); three Municipal Plans on Sustainable Forage Production established by decree; and a honey extraction plant established by the Carlos Spegazzini Agrarian School with bee keepers and support by the Municipality of Patagones.

5. Issues, challenges and mitigation measures

Environmental and social risks

The project activities were aligned with environmental and social good practices complying with the World Bank's applicable safeguard policies in a satisfactory manner throughout the implementation period. The project's overall need for environmental and social risk management was limited, and no safeguards-related performance issues were observed nor environmental, social, or occupational health and safety incidents took place during implementation. As the location of the SISs was not known during project preparation, an Environmental and Social Management Framework (ESMF) was prepared and all the WB safeguards were triggered for precautionary purposes. During implementation, some of the SISs[4] were classified in areas as Category II ("yellow zone") of natural habitats under the provincial forest law[5] and their productive activities were subjected to a close joint review by the PIU and the WB Task Team. A project-financed final assessment of the two SISs confirmed that their

[4] The 'Patagones Rangeland/Monte Biome SIS' and 'San Jose Dryland SIS'.
[5] Sustainable forestry and silvopastoral and tourism exploitation are permitted in these areas but require a conservation plan or sustainable management plan approved by the OPDS. However, the OPDS has not yet regulated the preparation and submission of such plans.

productive activities were consistent with the provincial forest law.[6] As part of said assessment, the project generated a template for sustainable management plans for livestock and/or fruit production in the referred Category II areas, which the Provincial Sustainable Development Agency (OPDS, *Organismo Provincial para el Desarrollo Sostenible*) can use to advance operationalizing the forest law implementation.

Gender considerations

Gender considerations were transversal to the project activities. Regarding gender, a special focus on gender work was included in the project design due to women's vulnerability to climate change,[7] and the project intended to promote gender-sensitive participatory approaches and adaptation strategies. However, as implementation started, few women were engaged in project-related productive activities in the field and the project did not develop a gender plan. The lack of specific gender focus was not considered a barrier to meet the project objectives, while gender focus would have required specialized efforts in which the over demanded PIU was not able to invest. Women were, however, overall well represented at the decision-making level within the participating institutions. The project also focused on fostering family-related activities such as fairs of local producers, and the pilot initiative of creating green employment in Villarino included a strong gender focus. The gender-disaggregated indicators show that approximately 10 percent of the beneficiary producers were women, as well as three of the 10 public employees targeted for project-related capacity building. Out of the 916 people trained and gender disaggregated (19 percent of the total of the trained people), 329 (36 percent) were female.

Other risks

The project implementation faced other risk and challenges particularly in terms of administrative and thus operational delays. The initial implementation delays caused by changes in institutional, administrative, and political circumstances affected the PIU structure planned during project preparation and delayed operations. The PIU's lack of experience with WB rules and procedures particularly related with procurement also delayed the initial implementation phase. Later during implementation, GoA austerity measures introduced in 2018 posed significant budget restrictions limiting project allocations in the national budget, notwithstanding they were derived from an international grant. To overcome some of these issues, the project took several important actions, including: (i) collaboration with other institutions experienced with WB procedures to prompt project implementation until the PIU was fully operational; (ii) close collaboration between the PIU and the WB Task Team to overcome the learning curve required with the WB procedures; (iii) hiring of two consultants to be in charge of the field work in the territory to help build the participatory approach and overcome the limited participation by OPDS; (iv) close interinstitutional coordination of the field activities to maximize the resource use during the austerity period; and (v) preparation of a set of standardized templates for the implementation and monitoring and reporting of the field activities linked to capacity-building activities of the key participating technical institutions and local stakeholders. The SAyDS/MAyDS was instrumental in securing that the PIU had the enough staffing for the project tasks.

[6] *EcoLatina report: Sistematización de las experiencias demostrativas de producción agropecuaria sustentable de cuatro sitios pilotos llevados a cabo en los partidos de Villarino y Patagones.*
[7] The original Project Paper indicated that studies in Argentina have identified women's vulnerability to climate impacts and a need for their active participation in adaptation strategies.

The project design was sound from a technical perspective but ambitious in scope for the small grant size. The project aspired to implement integrated and comprehensive actions without enough consideration of the limited resources and timeframe. The design included participatory and bottom-up planning processes to promote awareness and build ownership and lasting change in farmer behavior. While the approach proved appropriate to engage in a targeted territory and help solve root causes of the identified problems, the actual process and facilitation required more effort than originally envisioned to create robust and well-articulated initial arrangements and avoid dispersion of the project activities. This became evident during the Mid-term Review, when necessary adjustments in project's results framework were identified to concentrate efforts and resources in the most strategic and promising work fronts such as the IEWS. Overall, the actual conditions for project implementation resulted more complex than assumed during project preparation.

6. Lessons learned

The following compiles lessons learnt from the WB ICR and the project-financed Final and Results Evaluation.

The project design covered an integrated approach to climate adaptation but proved too ambitious for the available resources and implementation period. The project design incorporated a multifaceted approach to addressing negative impacts of climate change, and the range of factors to be taken into consideration did not allow concentrating efforts on critical nodes of action with a potential for greater impacts. The breadth of the project development objective (PDO) got reflected in a dispersion of efforts particularly during the first year of the actual project implementation. Further, a verification of the achievement of the PDO would require a far longer implementation period than what the project duration allowed.

Measuring the effectiveness and adequacy of climate adaptation is challenging. A careful balance of specific, measurable, achievable, relevant, and time-bound (SMART) indicators and other adequate methods and tools is required to capture the full range of benefits of climate adaptation in local contexts. Particularly, the use of indicators relying on biophysical properties should be carefully considered given the longer monitoring periods required. Such properties should also be complemented by social/economic variables to capture the full range of lasting/transformational results.

When pursuing intersectoral and institutional collaboration, it is good to show results before proceeding with formalizing the arrangements. A key lesson learned in the development and establishment of the IEWS in the SWBA is that it pays off to first work through informal interinstitutional collaboration arrangements e.g. between local and national stakeholders. As the IEWS had proved viable and useful in practice, engaged champions within the participating institutions needed less efforts to promote the formalization of interinstitutional collaboration arrangements for a long-term commitment with their respective authorities.

Successful solution of complex problems, such as man-made land degradation and adaptation to climate change in productive systems, **requires putting technical capacities and minimum financial incentives in place to demonstrate how production practices and technologies can address these issues** while generating additional benefits to farmers.

Adequate resources and strong local presence are required for projects that promote rural change. Territorial projects promoting rural change need to have strong presence in the field to successfully carry out integrated and innovative pilot activities, such as those promoted by the

project. Managing local engagement, ownership, and a diverse set of pilot investments and agreements requires committed and socially skillful champions both at the national and local level. In case of the project, strong commitment by the PIU, at both the national and local level, was key to promote innovative collaborations.

A participatory approach in project design and implementation pays off and needs to be carefully planned and resourced. The project invested a lot of effort in coordinating and creating trusting relationships with the participating institutions, municipalities, and beneficiaries. Establishing a common vision and shared objectives across diverse but related actors is needed to effectively plan and align the activities needed to achieve them. Sharing of challenges and successes provides an ideal setting for ideas on harnessing synergy among sectors and programs and broadening collaboration, for example around the Argerich tree nursery in Villarino. Participatory planning needs to be conceptualized, systematized, and properly resourced among key project activities. This type of approach is crucial to establish long-term interinstitutional collaboration and behavioral changes needed to build climate resilience. Capable and locally trusted personnel located in the field and working in permanent contact with local authorities, technical institutions and beneficiaries bear a critical role in engaging stakeholders and building commitment and ownership, as well as in solving issues in an efficient manner, serving as a messenger between the local and central actors.

Adaptive management responses are needed in countries prone to quick and constant macro-context changes. The project implementation proved more challenging than expected due to constant changes in institutional, administrative, political and macroeconomic circumstances. Continued and frank communication between the GoA, PIU and World Bank was crucial to timely identification of the necessary adjustments in project management to respond effectively to the changing situations.

Direct contracting of key technical national institutions is recommended to build capacity under grant operations. The World Bank procurement rules require careful analysis of any direct contracting but, as proved by the project, it is worth the effort for the development and ownership effect when working with national technical institutions. The project initially approached the SMN to review the technical specifications of the project-financed meteorological stations. Later, it contracted the SMN to develop the drought index and support the development of an online platform to upgrade the IEWS infrastructure.

Strategies to replicate and scale up actions that prove successful in pilots should be clearly defined. The project succeeded in showcasing the viability of an interesting set of climate adaptation measures for agricultural systems in semiarid and arid conditions. These measures have the potential to be replicated nationally and internationally. In case of the World Bank, linking small pilot type operations to an investment project is an option to secure replicability. Further, projects should engage in early and strategic intersectoral and interagency exchange to explore options for replication and scale-up of successful pilot results.

7. Innovation: description of any innovative practices or technologies that figured prominently in this project

The project was prepared at a time when the climate change discourse in Argentina was still focused on defining the national agenda. It promoted an innovative approach to strengthen this dialogue while also building capacity at the national, provincial and local levels. **A participatory approach was key to secure active engagement and a strong ownership of key local actors representing various sectors and a diverse set of institutions.** In this context, the key

contributions attributable to the project are: (i) its role in establishing strong and unprecedented interinstitutional dialogue and collaboration across local stakeholders to address climate change variability and change**;** (ii) creating an enabling environment through resources, tools and knowledge to install a growing climate agenda in the local sphere in technical, political and institutional terms with local stakeholders leading the actions; (iii) demonstrating and disseminating on the feasibility of local solutions to enhance climate adaptation and SLM in fragile arid and semi-arid agroecosystems; and (iv) strengthening the local policy/institutional framework to address climate related actions while supporting the national and provincial policy agenda.

Promotion of climate adaptation measures does not necessarily require a lot of innovation in terms of the subject matter. Rather, it requires (i) participatory approach that creates ownership of the project activities and harnesses the local know-how to a maximum, and (ii) smart and integral communication and overall intervention strategies that motivate targeted stakeholder groups to adjust their productive approach to be more environmentally focused and oriented to longer-term sustainability instead of short-term gains. These are no minor targets. The IEWS filled an important information and knowledge gap that combined with the practices promoted by the project and provided an integral framework for addressing climate vulnerability in the project area.

An effective tool to track field-level activities and support informed decisions at all levels was key to facilitate results monitoring. The project promoted the use of a "Field Planning Template" to capture specific information on each SIS and was then reinforced by a respective baseline study. The information collected e.g. on the beneficiaries, local soil conditions and productive conditions was used to capture key aspects to be monitored during project implementation and to present the results achieved at the end. A template was also elaborated to conduct monitoring and evaluation by the responsible agencies, through which each SIS reported advances on their site-specific activities using specific indicators and comparing them to the baseline data e.g. on the soil conditions. This helped to build practical capacity on monitoring and evaluation procedures that were integrated into the municipal plans for sustainable forage production and conservation of natural pastures.

8. Description of the vulnerable communities and social groups affected by the project, and how they have been engaged and empowered

Prior to the approval of the project, small and medium cattle and horticulture **farmers in the SWBA had tried diverse coping strategies in response to worsening climate conditions but in most cases, they did not enhance** but rather decreased resiliency of the agroecosystems. The lack of an adequate political, social, and economic framework was a key limiting factor in supporting identification and adoption of appropriate climate strategies. Climate-related information was also scarce to guide local decision making. Lack of a coordinated system between local technical institutions at the sub-regional level to support farmers in addressing climate change was another barrier for efficient action on the ground.

The project actively engaged with farmers and local actors in the territory to identify viable and acceptable solutions to address the root causes of the problem rather than impose solutions. The practices promoted by the project were not new, but they had not been tested in the region due to lack of seed capital, equipment, and systematized technical support. The project provided the means and coordination needed to generate field-based functioning evidence to validate and convince practices. The participation of local technical institutions was important to validate the work but also to engage farmers more successfully. Many of the direct beneficiaries of the project

were already working with the participating technical institutions and interested in new solutions to address increasing productivity constraints due to environmental degradation and increasing climate variability. The active participation of the municipalities was also strategic to strengthen their decision-making capacity and develop programmatic actions to support project outcomes beyond its closure.

9. Description of how long-term institutional and technical capacity for effective adaptation has been strengthened

The project supported the establishment and initial implementation of three municipal plans for sustainable forage production and conservation of natural pastures and a municipal plan for reforestation. Many project activities strengthened the relationships between the municipalities and the local technical institutions (INTA and the National Southern University, UNS) that engaged in supporting the implementation of the municipal plans. These interlinkages provide a strategic sustainability framework and a degree of scalability for key project activities within and beyond the SWBA.

The project leaves behind functioning local teams that will provide continuity to the project-supported actions. This is proven by the technical, institutional, and material capacities at the national, provincial, and local levels, as evidenced by 17 institutional agreements that were consolidated during project implementation: SMN, INTA, Center of Renewable Natural Resources in Semiarid Zones (CERZOS)- National Center of Scientific and Technical Research (CONICET), and UNS participating in the IEWS (4); a municipal ordinance on a municipal plan for sustainable forage production and conservation of natural pastures signed and operational in the municipalities of Puan, Villarino and Patagones (3); the national Ministry of Social Development, National Roads Agency and municipality of Villarino participating in the pilot program on green employment on road side forestation (3); a municipal Nature Reserve (protected area) established in Puan and Villarino (2); and a municipal Environmental Agency created and functioning in Villarino (1); Carlos Spegazzini Agrarian School established a honey extraction plant with bee keepers and municipal support in Patagones (1); a collaboration agreement established between the Foresta cooperative and a major supermarket cooperative called Cooperativa Obrera (1); an agreement between the INTA Prohuerta program and the National Ministry of Health and Social Development for financing a part of the water reservoirs under a new program of the Development Corporation of the Colorado River in Bonaerense Valley (CORFO) for efficient water use (1); and the Assembly Act of CORFO with a compromise to establish a new program to support financing of water efficiency measures by its members that started implementation in 2019 (1). Particularly, the development and steady improvement of the IEWS and its continuity after the project closure is an inspiring example of the installed capacities in each of the areas covered by the project.

10. An overview of complementarity and/or coherence of with other climate finance sources in the context of this project (synergies with other projects, national plans etc.)

The GoA is transitioning its approach to agricultural emergencies to an ex ante integrated risk management system. This approach is based on the necessity to (i) improve agriculture risk information systems for better decision making; (ii) enable farmers to adopt better risk management technologies and instruments (including off-farm works and infrastructure); and (iii) reform the agricultural emergency system to respond better and faster to family farmers. The scope of the project was consistent with (i) and (ii).

The World Bank Integrated Risk Management in the Rural Agroindustrial System (GIRSAR) Project in the agricultural sector incentivizes and finances adoption of climate-related information systems and climate-smart agriculture technologies and practices at the regional and value chain level. It presents a strategic potential and remarkable opportunity to replicate, scale up, and further develop many of the project results. Further engagement is recommended to explore the related potential both internally and in interinstitutional terms.

Important project contributions in national processes. The project activities within the national implementation framework of the United Nations Convention to Combat Desertification (UNCCD) have contributed importantly to the initial design of a National Drought Plan. The IEWS team participates in the National Drought Protocol led by the National Secretariat of Agroindustry as part of its Agricultural Risk Management Program. Specifically, it provides local field data observations with a fine resolution that helps validate the information generated at the national level with higher resolution. The Argentine Foreign Ministry showcased the project at a high-level event as a key action in face of climate change in the agricultural sector during the G20 summit in Buenos Aires in late 2018.

11. Sustainability, scalability and replicability

The strong ownership and commitment shown to the IEWS by the participating technical institutions is a key foundation for its continuity and replication/scale-up potential. The contributing institutions have institutionalized their collaboration with the IEWS. This will ensure that a valuable decision-making tool both for producers and their supporting technical and municipal entities continues to exist. Within the province of Buenos Aires, the IEWS can be expanded to additional municipalities[8] under the current institutional framework and supported by the project-financed infrastructure, and the expansion is already underway.

Linking project-promoted investments to municipal plans for sustainable forage production and conservation of natural pastures and for reforestation was strategic to sustain the activities in the medium term. Relationships between the municipalities and the local technical institutions (INTA and UNS) are in place for continued support for the implementation of these plans. These interlinkages provide a strategic sustainability framework and a degree of scalability for key project activities within and beyond the SWBA. However, scaling up the project results to other municipalities in the SWBA remained to be seen at the project closure. The limited collaboration between the project and the provincial government may affect the scalability of project activities within the province of Buenos Aires. The strong involvement and ownership of INTA and SMN may offset potential continued disinterest on the part of provincial authorities.

Project results led to establishment of a program to support financing of construction of geomembrane reservoirs for systems of efficient drip irrigation. The Development Corporation of the Colorado River in Bonaerense Valley (CORFO) together with *Consorcio Hidráulico*[9] established a revolving fund to support implementation of geomembrane linked to a credit line from CORFO to finance the necessary excavation and installation works. Further, INTA provides technical assistance for the use of the implied technology. The demand for drip irrigation is high in the area, and the funding priority is given first to smaller vegetable producers with less than 20 hectares.

[8] Bahía Blanca, Tornquist, Coronel Pringles, Saavedra, and Coronel Rosales.
[9] CORFO is the public water oversight institution while Consorcio Hidráulico is a private entity.

Section B: Project expenditure

Table 1. Original and actual project cost by component

Components	Amount at Approval (US$, millions)	Actual at Project Closing (US$, millions)	Percentage of Approval
Component 1: Reducing Institutional and Community-level Vulnerability	1.10	0.66	60
Component 2: Implementing Adaptation Measures in Productive Agroecosystems	2.37	2.57	108
Component 3: Applying a Participatory Approach to Knowledge Management and Monitoring and Evaluation	0.22	0.23	105
Component 4: Developing a Sustainability Strategy	0.27	0.42	156
Total	**3.96**	**3.88**	**98**

Note: Beyond the amounts allocated between the four components, the original project design included an unallocated amount of US$110,000 and US$200,000 reserved for project execution. In Table 1, the total of the two referred amounts was allocated evenly between the four components at approval and at project closing.

Table 2. Cumulative amounts spent per project components and outputs at the project closure

ITEM / ACTIVITY / ACTION	AMOUNT
COMPONENT 1: Reducing Institutional and Community-level Vulnerability	**577,797.44**
1.1.1.1 Information and early-warning system for droughts, land degradation and desertification control	451,315.75
1.1.1.2 Regional Consultative Observatory of Public Policies on Climate Change and Desertification to mainstream climate change adaptation	This output was dropped through the second project restructuring based on the conclusions of the mid-term review.
1.1.1.3 Institutional capacity building program directed at local public officers	4,916.77
1.2.1.1 Training program on climate change and different adaptation options for disseminators	2,194.97
1.2.1.2 Training program for rural schoolteachers to mainstream environmental factors, climate change and approaches to climate resilience into the curriculum	107,746.38
1.2.1.3 A gender-sensitive program to empower farmers and their families and strengthen their social role for sustainable development	11,623.57

COMPONENT 2: Implementing Adaptation Measures in Productive Agroecosystems	**2,494,883.87**
2.1.1.1 Water Resources Management: Installation of microsystems for irrigation and rainwater harvesting	371,177.18
2.1.1.2 Crop Management: Implementation of crop rotation systems, diversification, time alteration of sowing, and organic agriculture in demonstration sites	1,241,967.28
2.1.1.3 Livestock and Pasture Management: Implementation of adaptation measures such as forage banks, silvopastoril systems, rangeland recovery and sustainable plot management	470,940.96
2.1.1.4 Participatory development of Good Agricultural Practices (GAPs) aimed at enhancing management plans for production and adoption of a voluntary code of climate resilient GAP. Based on results of further stakeholder consultations, identification of alternative livelihood options and ways to facilitate their adoption	410,798.45
COMPONENT 3: Applying a Participatory Approach to Knowledge Management and Monitoring and Evaluation	**143,884.14**
3.1.1.1 Combined consultation, coordination, training, and knowledge sharing at the local level in the three counties of direct Project intervention to develop and validate intervention proposals and work plans	41,161.33
3.1.1.2 Capacity building for indicator development and measurement plans, systems of continuous improvement, training for local application groups, and mutual knowledge sharing in terms of the proposed activities between and beyond the counties	46,600.49
3.1.1.3 Participatory development of progress information through development of periodic reports to make information available to all stakeholders	30,144.01
3.1.1.4 Training and knowledge management with stakeholders through joint demonstrative field visits	25,978.31
COMPONENT 4: Developing a Sustainability Strategy	**338,947.99**
4.1.1.1 A representative Working Committee for the Project's intervention area comprised by the regional Observatory with institutional capacity to maintain the IEWS and committed to provide information to the national and provincial	6,358.71
4.1.1.2 A compilation and publication of standard-formatted set of evaluation and tracking tools (specific reports on key issues)	119,344.15
4.1.1.3 A compilation and review of domestic and international sources of finance to secure continuity of the key Project activities	83,338.84
4.1.1.4 Knowledge sharing on progress evaluation with involved stakeholders and publication and dissemination of lessons learned	66,669.30

4.1.1.5 Implementation of a program for dissemination and exchange of experiences from the local to the international	63,236.99
Project (executing) Unit (PIU)	**326,902.66**
TOTAL	**3,882,416.10**[10]

[10] A total execution of USD 3,882,552.44 of the Grant funding has been documented to the WB, implying a cancellation of USD 77,647.56 as the Grant was closed. A difference of USD 136.35 between the cumulative expenditures by component described in Table 2 and the final disbursement refers to costs incurred as the COVID-19 pandemic prevented timely closure of the project's Designated Account. Said difference was waived on an exceptional basis by the World Bank.

Section C: Appendices (optional)

Appendix 1: Key Project Personnel at the Secretariat/Ministry of Environment and Sustainable Development

Appendix 2: Publications and Relevant Websites

Appendix 1: Key Project Personnel at the Secretariat/Ministry of Environment and Sustainable Development

Name	Title
Joaquin Etorena	MAyDS staff – Project Coordinator until February 2019,
Vanina Pietragalla	MAyDS staff – Project Coordinator since February 2019
Ezequiel Gaspes	Consultant – Monitoring and Evaluation
Martin Testani	Consultant – Lead of the Field Work
Andres Buono	Consultant – Technical Field Work
Susana Villegas	MAyDS staff – Environmental Field Technician
Juan Corvalán	Consultant – Procurement and Contracting
Paula Ramos	Consultant – Procurement and Contracting
Ricardo Rotsztein	Consultant – Financial Management
Mariana Paula Casella	MAyDS staff – Financial Management
Gabriela Jaqueline Sayago	MAyDS staff – Financial Management
Pablo Sivori	Consultant – Technical Aspects
Anastasia Luciano	Consultant – Communications
Rodolfo Morel	MAyDS staff – Communications

Appendix 2: Publications and Relevant Websites

See the list of the 473 project-related publications in a separate Excel.

Project websites

WB external project website: https://projects.worldbank.org/en/projects-operations/project-detail/P125804

MAyDS project website: https://www.argentina.gob.ar/ambiente/bosques/sudoesteba

Six Good Practice Guides produced for sustainable management of natural resources, covering sustainable agricultural production, natural grassland management and restoration, agroecology as a measure of adaptation to climate change, construction of excavated water reservoirs for pressurized irrigation, implantation and management of cultivated perennial pastures, and beekeeping, available at: https://www.argentina.gob.ar/manejo-sustentable-del-suelo/guias-de-buenas-practicas-para-el-sudoeste-bonaerense

Information and Early-Warning System (IEWS; *SIAT* in Spanish)

SMN website: https://siat-soba.smn.gob.ar/
INTA website: https://inta.gob.ar/documentos/siat-sistema-de-informacion-y-alerta-temprana-del-sudoeste-bonaerense