ADAPTATION FUND

Ministerio de Agricultura, Ganadería y Pesca
Presidencia de la Nación

PROJECT COMPLETION REPORT

ADAPTATION AND RESILIENCE PROJECT OF FAMILY AGRICULTURE IN NORTH-EAST ARGENTINA IN VIEW OF CLIMATE CHANGE AND VARIABILITY

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APRIL 2019

Acronyms

ACPA: Corrientes Association of Rice Planters

AER: Rural Extension Agency

AF: Adaptation Fund

APA: Provincial Water Administration

AT: Technical Assistance

CIPAF: Family Agriculture Research and Technological Development Center

CIRN: Natural Resources Research Center

CNTyE: National Coordination Office for Transfer and Extension

DIPROSE: Sectoral and Special Programs and Projects Directorate

DNCC: National Climate Change Directorate

EEA: Farming Experimental Station

EFA: Family Farming School

ENI: National Implementation Entity

EMA: Automatic Meteorological Stations

EMC: Traditional Meteorological Stations

GHG: Greenhouse gases

ICAA: Corrientes Water and Environment Institute

INCUPO: National Institute of Popular Culture

INTA: National Institute for Agricultural Technology

INTI. National Institute for Industrial Technology

ITP: Project Completion Report

MINAGRO: Ministry of Agroindustry

NEA: Northeast Argentina

ORA: Office of Agricultural Risk, National Ministry of Agroindustry

PPR: Project Performance Report

PRET: Territorial-based Regional Projects

SAyDS: National Secretariat of Environment and Sustainable Development

SIGA: Agrometeorological Information and Management System– INTA

SMN: National Meteorological Service

SsAF: Under-secretariat of Family Agriculture

SSN: National Insurance Superintendence

UCAR: Unit for Rural Change - National Ministry of Agroindustry

UNPEPROCE: Colonia Elisa' Union of Small-scale Producers

UTN: National Technological University

WMO: World Meteorological Organization

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1 Introduction

1.1 ITP characteristics, scope and methodology

This Project Completion Report (ITP) has been entrusted, through the hiring of external consultancy, by the National Implementation Entity of the **Project of Family Agriculture Adaptation and Resilience in the Northeast in view of climate change and variability** (hereinafter the Project), specifically by the Environmental and Social area of the General Directorate of Sectoral and Special Programs and Projects (DIPROSE) of the Secretariat of Agroindustry, Ministry of Production and Labor. For its preparation, guidelines and methodologies were applied suggested by the Adaptation Fund (AF) of the United Nations Framework Convention on Climate Change, organization financing the Project[1].

In compliance with the terms and conditions included in the agreement signed between the AF and the Unit for Rural Change (UCAR), now DIPROSE, of the Secretariat of Agroindustry, Ministry of Production and Labor, the Fund requires two types of reports at the end of interventions: a project completion report after 6 months, and an independent external evaluation to be delivered 9 months after project completion.

The ITP objective is to conduct an analysis in relation with the project's main aspects, including outputs and achievements, major milestones, strategies and approaches adopted, financial performance, and risk management, together with the main lessons learned, management of environmental and social safeguards, and project sustainability. This report is mainly descriptive, and focuses on understanding the various strategies, methodologies, scope of what was done, use of resources, and project management, rather than assessing performance of what was done.

The ITP is the main input for the final independent external evaluation. That evaluation, unlike this ITP, will assess the project's performance, according to the guidelines and directives of the financing organization[2], rating fulfillment of objectives, outcomes, chances of sustainability, and progress towards achievements, plus analyzing the main factors that influenced the achievement of the outcomes. The main objective will be to determine whether the Project contributes to attain vulnerability reduction and resilience increase of the target communities, and whether the project contributes to the AF objectives, goals and results.

The ITP is mainly based on information from the bibliographic search and review of the Project formulation documentation, the annual progress reports, the midterm review, the data provided by the Project's monitoring and evaluation system, the audits carried out, the different systematizations of experiences carried out throughout the Project: on the experience of implementation of the pilot insurance program, the learning derived from the two adaptation projects financed by the AF in Argentina, the systematization of the training, the activities for the strengthening of agroclimatic information systems; and cases of improvements in water access and management. This information is supplemented with the outcome survey of the logical framework, in which 150 surveys were carried out to beneficiaries of on-farm works of access to water, optimization of farming practices, and 100 surveys to producers who participated in the pilot insurance plan; and with interviews with key actors who participated in the Project. The physical and financial progress information of the Project, provided by the monitoring and evaluation system, was also analyzed. The methodology used is a multiple-approach one, based on the guidelines required by the AF and in compliance with the terms of reference of this ITP.

[1]Presently, the AF is working on an ITP standard form, which is not yet available. That is why the proposed contents and methodology were consulted with the AF for this report.

[2] https://www.adaptation-fund.org/document/guidelines-for-projectprogramme-final-evaluations/

The following sections introduce the analysis of the context and performance of the Project, the main strategies that allowed achieving the results obtained, the sustainability, replication potential, and the main lessons learned derived from 5 years of Project execution and implementation.

2 Project summary

2.1 Project basic information

Table 1: Summary of basic data of the Project

Country	REPUBLIC OF ARGENTINA
Project ID	ARG/NIE/Agri/2011/1
Project Name	Family Agriculture Adaptation and Resilience Project in Northeastern Argentina (NEA) to climate change and variability impacts.
Donation	Agreement signed between UCAR (now DIPROSE) and the Adaptation Fund in April 2013
Sum	USD 5,640,000
Matching budget	The Project Document did not specify this, but there was an actual matching contribution by the ORA (Secretariat of Agroindustry), the INTA, the producers and small-scale producers' organizations which took part in the construction works on-farm, the INTI, the Ministry of Production of the Province of Corrientes, and the DIRPOSE, providing technical assistance and support.
Location	NEA Region: province of Chaco, west region of the province of Corrientes, north region of the province of Santa Fe, and northeast region of the province of Santiago del Estero.
Direct beneficiaries	The project is intended for 4,000 small-scale producers, both men and women, living in rural areas where the project is implemented, with on-farm direct work by the beneficiary with mostly family labor, with a production unit with total maximum surface area of 25 hectares, and most of the family income comes from such unit. In addition, the project is intended for 200 technicians and officials of the national and provincial governments, to strengthen their capacities on climate change adaptation and use of agroclimatic information.
Beneficiary Production:	Farming
Objective	To enhance the adaptive capacity and resilience of small-scale agricultural producers in view of the impacts that derive from climate change and variability, particularly those related to an increased intensity of hydro-meteorological events, such as floods and droughts
Organization for execution	The institution implementing the project was a National Entity, UCAR, belonging to the Ministry of Agriculture, Farming and Fishery, where the team of Project Coordination was established, under the sphere of the Environmental and Social Unit. With the change of government, the Ministry changed its name to Ministry of Agroindustry, and in March 2018, the UCAR became the General Directorate of Sectoral and Special Programs and Projects (DIPRSOSE) and began to report to the Under-secretariat of Administrative Coordination of the MINAGRO. In September 2018, the Ministry of Agroindustry became the Secretariat of Agroindustry, under the Ministry of Production and Labor. The executing agencies were INTA's Natural Resource Research Center, INTA's National Coordination Office for Transfer and Extension, the Office of Agricultural Risk, the National Directorate on Climate Change. For execution, work teams were formed

	within the INTA and the ORA with their own technical staff, thus avoiding the formation of external "ad hoc" executing units, which dissolve after the project ends.
AF Board Approval date	April 4, 2013
Agreement execution date	April 16, 2013
Effectiveness date	October 24, 2013
First revision	Application for extension sent January 13, 2016, and approved by the Adaptation Fund - Extension to April 2018.
Second revision	Application to reassign budget and plan over activities, approved by AFB/B.28--29/1, on February 3, 2017
Third revision	Application for extension, approved by the Adaptation Fund on November 16, 2017 through Decision B.30--31/4
Original completion date	October 2016
Revised completion date	December 2018
Main changes of design and implementation agreements:	I) Reassignment of funds among components Ii) New activities proposed, others removed Iii) Time extension for project execution

2.2 Project structure and costs

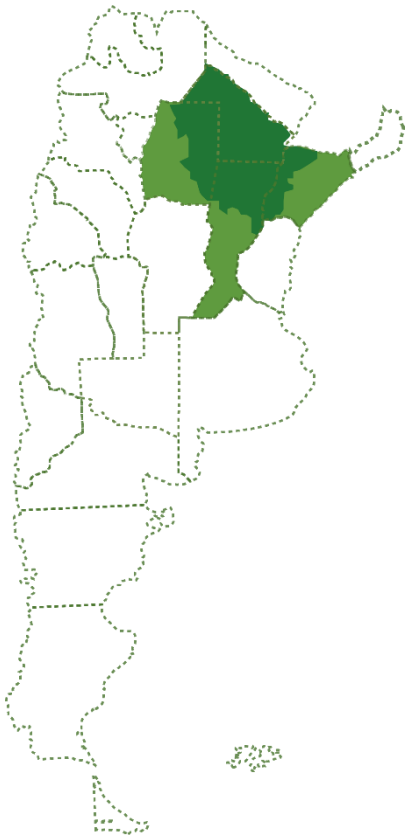
Table 2: Project costs per Component

	Original budget (USD)	Revised budget (USD)
Component 1: Increase in the adaptation capacity of NEA small-scale producers to climate variability and change	3,499,380	3,572,410
Component 2: Strengthening of climate information, monitoring and management systems	1,404,370	1,386,765
Component 3: Building of local and regional capacity on climate change and variability impacts, and on implementation of adaptive measures	456,250	400,825
Project implementation (ENI)	280,000	280,000
Total approved	**5,640,000**	**5,640,000**

2.3 Intervention area of the Project

Project execution encompassed the Northeast region of Argentina comprising the province of Chaco, the west region of the province of Corrientes, the north region of the province of Santa Fe, and the northeast region of the province of Santiago del Estero.

Map 1 Provinces with Project actions - Area of intervention



3 Country's context

3.1 Context description at the time of formulation

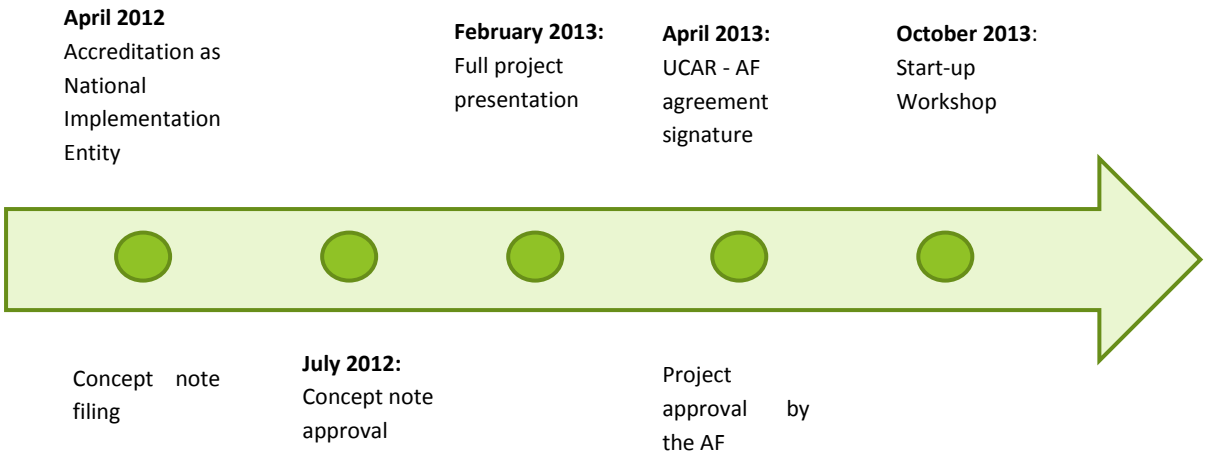
In October 2009, the Secretariat of Agriculture, Livestock and Fisheries, under the Ministry of Economy, is upgraded to the rank of Ministry, strengthening the role and importance of its portfolio. After the creation of the Ministry, through Resolution Ex-MAGyP No. 45/09, the then Ministry of Agriculture, Livestock and Fisheries (MAGyP) created the Unit for Rural Change (UCAR) to coordinate the activities related to planning, negotiation, formulation, administration, finance, management control, monitoring and evaluation of the Programs and Projects with external financing. UCAR was established as the Central Executing Unit of all Programs and Projects with international financing dependent on the new Ministry. This allowed the UCAR to gain knowledge and experience in the management of Rural Development programs and projects, so in March 2012, the institution began the process of accreditation with the Adaptation Fund of the United Nations Framework Convention on Climate Change, which allows countries to accredit the capacities of national entities and directly access climate financing. The then UCAR obtained the accreditation for its experience as a coordinating and management entity for internationally financed programs and projects and, based on this momentum, the formulation of a Climate Change Adaptation Project for the rural-farming sector began.

To this end, it convened different agencies of the National Public Administration, with jurisdiction in the subject-matter, and formulated a concept note, requesting the Adaptation Fund the non-reimbursable funds for the formulation of projects[3] (Project Formulation Assistance Grants - PFA). In July 2012, the AF approved the project's concept note; and granted the requested PFA, and the UCAR started formulation of the Adaptation Project. The organizations that participated in the formulation were: the National Institute of Agricultural Technology (INTA), through the National Coordination Office for Transfer and Extension (CNTyE), and the Natural Resources Research Center (CIRN); the Office of Agricultural Risk (ORA) of the MAGyP, and the National Directorate on Climate Change (DNCC) of the Secretariat of Environment and Sustainable Development.

In February 2013, **the Project of Family Agriculture Adaptation and Resilience in Northeast Argentina to Climate Change and variability impacts** was submitted, with the above mentioned agencies as executing units: INTA, ORA and DNCC; and UCAR as National Implementation Entity (ENI). The Project was approved in April 2013 with the subsequent signature of the agreement between UCAR and the AF. Execution officially started in October of that same year, after meeting the terms and conditions of such agreement and after holding the Start-Up Workshop.

[3]These funds are exclusively available to National Implementing Entities that decide to present the formulation of a project in two stages: first with a concept note, and then with the contribution of these funds the complete formulation of the project or program is developed.

Figure1. Time line with milestones from accreditation to project commencement



3.2 Institutional and context changes throughout implementation

On December 10, 2015, after Mauricio Macri assumed office as Argentina's president, the Ministry of Agriculture, Livestock and Fishery (MAGYP) became the Ministry of Agroindustry, keeping UCAR under its sphere.

In November 2017, Executive Order No. 945/2017, with a view of improving effectiveness, efficiency and quality levels of programming, management and negotiation of programs and projects with external multilateral or bilateral financing, as well as public-private partnership projects of the Jurisdictions and Entities of the National Public Administration, provided that "the technical coordination and execution functions of the programs and projects with external funding, whether multilateral, bilateral, or regional, and/or public-private partnership projects, presently developed by the technical execution units or by the technical areas of programs' execution units, shall be conducted by the Secretariats or Under-Secretariats or equivalent areas of substantial nature of the Jurisdictions and Entities included in section 8, subsection (a) of Law 24156 with primary responsibility in the subject-matter at hand."

Then, on March 2, 2018, by Executive Order No. 174, the organizational chart of the Ministry of Agroindustry was approved, creating the Secretariat for Administrative Coordination, within the scope of which the functions of UCAR are absorbed. On March 14 of the same year, by Administrative Decision of the Chief of Cabinet of Ministers No. 324, the new organizational structure of the Ministry was approved, by means of which the new structure of the former UCAR was defined, which becomes then the Directorate of Sectoral and Special Programs and Projects (DIPROSE) in the sphere of the Under-secretariat of Administrative Coordination. The DIPROSE has primary responsibility over "execution of programs and projects with external financing and public-private participation in the sphere of the Ministry of Agroindustry" and over "implementation of projects for the Climate Change Adaptation Fund and the Green Climate Fund of the United Nations in coordination with the competent areas of the Ministry of Agroindustry."

In this way, operational, administrative, budgetary and financial-accounting execution and management was centralized, including fiduciary, legal, environmental and social issues, procurement procedures, as well as the planning, monitoring and auditing of said programs and projects, in structures within the organizational charts of the Ministries, when previously they were mainly in external executing units.

On September 5 of the same year, and under a process of adjustment of the fiscal deficit, after the value depreciation of the national currency by 50%, a growing inflation, and the country's difficulty in obtaining financing in the international market, the President decided to reduce the number of ministries from 22 to 11 as a sign of adjustment and reduction of spending. Thus, the portfolio of Agroindustry went from being a Ministry, to being a Secretariat dependent on the new Ministry of Production and Labor.

When DIPROSE was created, there was a change of authorities, and a Director General was appointed. Internally, the new structure created changed the organizational chart, concentrating the old areas and units of the UCAR under two simple directorates: an Administration, Financial and Budgetary Directorate; and a Directorate of Management and Monitoring of Sectoral and Special Programs and Projects.

The described structure modifications affected project management of the organization's portfolio, as well as the formulation of new projects, and the status of UCAR before the AF and the Green Climate Fund as an accredited entity.

The need to re-adjust the administrative procedures to the new structure, appoint the signatures of the new managers, define the circuits of interaction with the Ministry and the Under-secretariat of Administrative Coordination, and other Secretariats, caused procurement and payment processes to slow down in general, and prevented new activities for three months.

In the case of the Project executing units, out of INTA, ORA, and the National Climate Change Directorate, just INTA and ORA had budget for activity execution. In the case of INTA, its institutional operation was not disrupted by the changes of the Ministry's structure. ORA, in turn, was affected. The signature and approval of activities of that executing unit had to go from the Coordination level to the level of Secretariat of Agriculture, now Under-secretariat of Agriculture, entailing administrative re-adjustment and additional delays.

The aforementioned changes of the institutional context and structure implied that activities to be initiated could not be carried out, as was the case of the implementation of the Revolving Fund for risk management of small-scale producers in the NEA promoted by the ORA; and that, the activities planned between the months of February and May of 2018 were delayed for a period of three months, affecting the rate of execution of the Project.

4 Project Global Performance

4.1 Project original design: situation giving rise to the intervention

The Project's general objective is to enhance adaptive capacity and resilience of small- scale family agricultural producers in view of climate change and variability impacts, especially those resulting from the increased intensity of hydro-meteorological events such as floods and droughts.

The Project's specific objectives, which gave rise to the 3 components around which the Project was structured, were as follows:

- To increase the resilience of small-scale farming producers of the Northeast in view of climate change and its variability.
- To strengthen the hydro-meteorological and agroproductive monitoring systems in order to improve the institutional capacity to assess climate changes and their impacts on the farming subsistence systems.
- To increase the institutional capacity at national, provincial and local levels, for decision-making and management of measures and actions for adaptation to climate change and its variability in the Argentine Northern region.

The initial diagnosis was based on socioeconomic variables and on climate change impact variables to define the baseline situation of the intervention area, which is summarized below:

At the socioeconomic level, high percentages of the region's population have unsatisfied basic needs (UBN) –much higher than the country's average– and, according to the Enhanced Human Development Index (IDHA), which combines health, education, income and employment indicators, the provinces of Corrientes and Chaco are in a serious or critical situation. In turn, rural population in the region is more vulnerable. The Project document notes that in the NEA region, 80% of producers belong to **small-scale family agriculture**, which is very important in production terms. Only about half of this population receives production support service and technical assistance.

At the financing level, this population has significant limitations as they cannot take out loans and have no support instruments of risk transfer. According to the initial diagnosis, there are more than 20 insurance companies, but the main coverage they afford targets a more capitalized producers' segment and over 90% comprises hail coverage for extensive cereal and oilseed production in the Pampean area. The main obstacle to overcome the lack of specific products for other producer segments and types of production is the lack of agroclimatic information.

As to the main climate change impacts in the area: climate change scenarios for the region show temperature and precipitation changes. In the diagnosis information included in the Project Document the following was identified: "early or delayed commencement of the rainy season, increased intensity and long (several months) absence of rains, presence of more and more damaging frosts, and unprecedented increase in temperatures." The Midterm Review (EMT)[4], performed by the end of 2016, concludes that, although climate change for the area is moderate in comparison with other regions, "it is one of the places in the country with greatest increase in heavy rains (above 95% percentile) and where days without rains are more scattered. This climate dynamic of intercalated floods and droughts, added to the longer duration of heat waves and to the configuration of a scenario aggravated by the change of land uses, represent significant climate risks for family agriculture"[5].

[4] Vaca Ávila (2017), Evaluación de Medio Término del Proyecto.

[5] Vaca Ávila (2017), Evaluación de Medio Término del Proyecto, p.10

The information of climate change scenarios together with the public consultations conducted by the Project highlight that the main problem lies in the high variability of rains, as the population is affected, going from floods to long drought periods with the resulting difficulty to access water. This causes substantial damages to production and to the livelihoods of small- and medium-scale agricultural producers, also generating an additional difficulty to keep income stable. The vulnerability of small-scale family producers is increased by the combination of climate change, soil erosion and deforestation, which results in decreased farming productivity and problems in terms of access, availability and consumption of minimum food for the region's food security.

Along these lines, the Project proposes different specific adaptation measures to increase the capacities of the area's rural population. In particular, adaptation technologies are divided into three large proposals: measures that allow for water access, maintenance and management; risk management and transfer system; and measures to optimize farming practices. The solutions proposed were analyzed taking into account the main measures proven in the region, and available evidence of main technologies for small-scale producers.

The initial diagnosis also highlights the poor coverage of agro-meteorological stations for obtaining agro-meteorological data that may inform decisions on adaptation measures. Thus, towards 2013, most provinces presented low density of climatic data measurement stations, which mostly boiled down to rain meter stations (they collect daily accumulated precipitation data) with an average density well below the recommendation by the World Meteorological Organization (WMO). In addition, the distribution of said stations showed a clear concentration towards productive areas with extensive agriculture, and broad regions without coverage. At the level of information integration, there was little interaction among the territory's actors with agro-meteorological stations, resulting in the lack of integration of network information, and deficiencies as to access to, and consultation of, information, causing wide differences in terms of data formats and quality.

Thus, the Project was intended to make a difference in the improvement of the local capacities of agroclimatic information systems generation, which allow for a more extensive and better follow-up of the climate variability and the impacts of climate change at a local level to make more informed decisions on adaptation measures. In addition, it has been sought to strengthen the capacity of the system of extension technicians and local and national officials, who provide support to small- and medium-scale producers for an enhanced rural development. The professionals working in the territory have great experience and know-how in family agriculture, but usually fail to consider in their advice the climate variable and the impacts of climate change as well as adaptation technologies.

In relation to the proposed solutions, the EMT[6] highlights "*The intervention typologies determined (water access works, farming sustainable systems, climate risk insurance, early-warning climate information and soil monitoring systems), which subsequently become Project's components and activities, are relevant to ensure resilience to climate changes of small-scale agricultural producers of the intervention area in the light of scientific evidence*."

4.2 Institutional Organization for Execution

Several institutional arrangements were made for project execution as described below.

4.2.1 National Implementation Entity

The ENI, as set forth in the agreement entered into between the former UCAR and the AF, is responsible for the general coordination of the Project, including financial, reporting and monitoring responsibilities. The Implementing Entities, at a general level, concentrate the technical and administrative responsibility,

[6] Ibid.

and ensure that objectives are achieved, the efficient allocation and disbursement of project's funds, activities' monitoring and evaluation, dissemination of the results, and preparation of reports for the Adaptation Fund.

To ensure project coordination and performance of responsibilities, a **Coordination Team** was formed within the Environmental and Social Unit (UAS) of the former UCAR, with two persons working full time. They performed the duties of general technical coordination, which implied articulation with executing units, with the granting agency, with and internal areas and sectors of ENI itself, for administrative procedures, such as budget, procurement, audits, monitoring and evaluation, human resources, payments and disbursements, accountability and communication. The Coordination Team was supported by the administrative staff of the UAS. Additionally, two UAS specialists in gender perspective, and in environmental and social safeguards, dedicated part of their time to participating in the activities and monitoring of the above mentioned subject-matters.

The Project was underpinned also by the whole general structure of the current DIPROSE. This meant that human resources were, in part, assigned from cross-cutting areas such as Administration, Communication and Monitoring, to ensure compliance with the procedures, and with the regulations applicable to procurement and payments, disbursements, accountability, inventory of government property, accounting; and to ensure the effective communications of the Project activities and outcomes.

4.2.2 Executing units

- **INTA**

The National Institute for Agricultural Technology (INTA) is a national public decentralized agency, with operating and financial independence, in the sphere of the National Secretariat of Agroindustry. It was created in 1956 to be the promoter of development, innovations and capacities for the agroindustrial sector, generating knowledge and technologies addressed to the society and, in particular, to farming producers of the sector. Its activity is divided into two large areas: extension and research. As Project executing units, the National Coordination Office for Transfer and Extension (CNTyE), and the Natural Resources Research Center (CIRN) participated.

Within the **National Coordination Office for Transfer and Extension** a person was appointed to be responsible for the operating and technical coordination of the work in the territory regarding the subcomponent of access to water and optimization of farming practices.

For the implementation of the activities of these two subcomponents, the CNTy E relied on the network of Territorial-based Regional Projects (PRETs), which are distributed throughout the country's provinces. In aggregate, the Project area covers a total of 15 PRETs. Work in the territory was organized through the survey that extension technicians carried out in the field with producers regarding the needs and demands of adaptation measures promoted by the Project. These requests were subsequently analyzed and approved by coordination at headquarters of INTA - CNTyE, corroborating the eligibility for the Project.

The **Natural Resources Research Center (CIRN)** had someone also appointed to be responsible for the Project, and a team of four technicians was formed who participated in the assembly, mounting, installation, adjustment and control of the stations, as well as in the transformation of simple to complete stations. These activities were carried out at the sensors laboratory, of the Water and Climate Institute, INTA-Castelar, Province of Buenos Aires.

In turn, each of INTA's Experimental Stations, where the complete stations were to be installed or the simple stations were to be improved, was requested to appoint a person responsible for the network in order to be able to work jointly with Castelar and strengthen capacities. Thus, an aggregate of nine provincial technical representatives were appointed who were additionally trained in the assembly, installation and management of the stations, in order to perform the necessary adjustments and monitoring and to ensure proper operation.

For the coordination of the training activities of component 3, an INTA's technician specialized in workshops dynamics and climate change was appointed. She carried out a survey on the most general training needs of technicians. Producers training was coordinated according to the availability of INTA's specialists. In turn, a cooperation and technical assistance agreement was signed with the National Institute of Industrial Technology (INTI), an agency with special experience and background in water access technologies. Through this agreement, the support of INTI's technicians was made available for the dissemination of, and training on, technologies of groundwater brick wells and dug wells with lining, together with the corresponding geo-electrical prospection studies.

- **National Office of Agricultural Risk**

The National Agricultural Risk Office (ORA), functioning under the Secretariat of Agroindustry, is the agency responsible for developing, analyzing and disseminating farming risk assessment and reduction instruments. It has in place a general coordination area, and specialists in several fields, especially in climate risk and insurance, and market risk.

For Project purposes, a team was created within the Office, which, in addition to coordinating, worked in the different activities proposed through the Project, specifically those in the risk management and transfer subcomponent and in component 2 (strengthening of agro-meteorological networks and development of the Early Warning System), in addition to the trainings on the use of the agroclimatic information, risk transfer and adaptation.

For the implementation of the insurance pilot plan, the ORA coordinated actions with insurance companies, the local government of the Province of Corrientes, the national government, the National Superintendence of Insurance, and technicians and specialists in the territory, achieving significant articulation. As it lacks provincial offices, the main actor for the execution of the pilot plan activities was the government of the province of Corrientes.

- **National Climate Change Directorate, Secretariat of Environment and Sustainable Development**

The National Directorate on Climate Change -DNCC- of the Secretariat of Environment and Sustainable Development, played a relevant role at the time of Project formulation, by contributing to the development of the proposal, setting the Project within the national guidelines and defining the trainings and significant contents to disseminate through the proposed activities.

As executing unit during implementation, it was not allocated a budget, as its role was devised mainly in terms of guidance and technical support in climate change, impacts and adaptation. As a result, it was not in charge of executing activities, but several of its specialists actively participated in the workshops and trainings organized under the Project.

4.3 Beneficiaries

The direct beneficiaries originally established in the Project document were **4,000 small-scale family farming producers with the highest vulnerability** in the country, encompassing the province of Chaco, the west region of the province of Corrientes, the north region of the province of Santa Fe, and the east region of the province of Santiago del Estero.

The characterization of the beneficiaries and of the intervention area included in the Project document fall within the definition of family producers in the characterization of family farms (family EAPs) made by Scheinkerman de Obschatko (2009:10-19), where family EAPs are understood as places where there is direct labor by producers and family work, but which includes the possibility of hiring up to two remunerated workers on a permanent basis.

In addition, the project addressed capacity building in terms of adaptation to climate changes by the above mentioned direct beneficiaries, also including **200 government officials and technicians, from national and local public institutions**.

4.4 Project's theory of change

A change theory identifies the causative chain between the intervention and the expected final outcome. It begins with the initial situation, where certain needs, a certain context and the main limitations for the target population are identified. From this starting point, activities are designed, and necessary assumptions are made, in order to verify the causative chain between activities and proposed inputs, outputs, intermediate outcomes –transition factors that connect outputs with impacts– and impacts. There follows the model applied to the Project.

Initial situation: The main problem faced by the producers in the project intervention area is the increase in the frequency and intensity of extreme events, shifting from floods to drought periods where access to water is a strong limitation - Socioeconomically vulnerable region: rural populations in the area shows a high vulnerability level associated with water resources, organization, risk and knowledge management. High percentage of population with UBN – climate change, soil erosion and deforestation increase rural population's vulnerability conditions, which causes a decrease of its agricultural and livestock productivity. As a result, food security is jeopardized and economic income decreases. Lack of agroclimatic information – lack of knowledge of the expected impacts of climate changes and available adaptation measures.

4.5 Revisions to the original design

4.5.1 First revision

On January 13, 2016, the ENI submits to the AF a request for extension of the Project in order to change the completion date from October 2016 to April 2018. This request is based on the fact that during year 1 there were longer than expected bureaucratic and administrative procedures to implement procurement and payment circuits. In addition, the signature of the execution agreement with the ORA took 1.5 years after the Project commencement, which resulted in a significant delay in the execution of the related activities. During year 2 of the Project, the delay resulted from a shortcoming in the demand of the budget. In Argentina, the use of the resources at the National Public Administration must be authorized by the Budget Law. For this purpose, the budget to be used by each agency and program is requested on a yearly basis, and the maximum limits which may be reallocated among agencies and programs of the same type are established, for example, among donations executed by the same agency or loans. Due to an internal misunderstanding of the ENI, the budget requested for the Adaptation Program was classified as "non-budgetary", as a result of which no budget was authorized for its execution.

Both setbacks were overcome by adjusting the administrative circuits for payments, procurement and accountability of the project, and by disseminating within the ENI the project characteristics, and the commitments of the former UCAR as Implementation Entity.

The revision was approved by the AF, which postponed the project completion date to April 2018.

4.5.2 Second revision

By the end of December 2016 and after a previous work of the ENI together with the executing units, INTA and ORA, a request was filed with the AF for budget redistribution and activities re-planning. Pursuant to the decision, an agreement between the Board and UCAR was prepared and signed. Paragraph 4.03 of the legal agreement between the AF and UCAR authorities: 4.03. Any material change in the original budget allocation for the Project by UCAR, in consultation with the Executing Entity, shall be notified to the Board for its approval. "Material change" shall mean any change implying ten per cent (10%) or more of the total budget.

In general, the changes requested by the ENI were divided into two areas:

- Increase in the allocated budget
    - Output 1.1: Implementation of improvements in the efficient use, collection and storage of water;
    - Output 2.1: integration and extension of the agro-meteorological networks.
- Reduce the allocated budget
    - Output 1.2: risk management and transfer system;
    - Output 1.3: Optimization practices in the management of agricultural, livestock and forestry production.
    - Output 2.2: Development of an Early Warning System
    - Output 3.2: Capacity strengthening

Next, there follows the main grounds for requesting budget reallocation:

INTA Executing unit: three years of execution in, it was observed that producers mainly required access to water. The issue of water deficit is substantial. In average, the families in the region have to walk 2 to 6km to have access to water wells of neighbors or community reservoirs, as they lack tap water. The main technology prioritized in the territory is the collection of rainwater through the retrofitting of roofs and construction of associated cement tile-roof cisterns, whereby there is also a redistribution of technologies. In many places, due to the climate change impact, the groundwater table has lowered and it is impossible to extract groundwater water. Therefore, the technology previously mentioned became

the main required technology. The multipurpose water system, for example, was not built as proposed in the Project document. However, on several occasions, the water collection systems installed are used for multiple purposes: consumption, production, household chores.

Likewise, the demand of farming optimization practices decreased, as they are only required by producers´ families that do not have water access issues, which are the minority. This is the reason why a diagnosis is made in each case. The main practices required are: crops protection structure, as dripping irrigation, greenhouses and macro-tunnels which allow to ensure greater production stability upon adverse climate events such as hail, strong winds and storms.

As to component 2, the budget for strengthening agroclimatic information systems was slightly increased, and the budget for SAT development was reduced mainly because the budget was overrated, as many activities for the platform development require the generation of information agreements and exchanges, rather than concrete investments.

ORA Executing Unit: In turn, the risk management and transfer subcomponent experiences a reduction of its budget, as after the feasibility analysis for the multi-risk insurance plan for cereals, cotton and oilseeds it was determined that it was not possible to advance in the insurance pilot plan. In its place, a different risk transfer system is proposed, to be developed with INTA through the creation of a revolving fund, which demands lower budget.

The AF clerk office reviewed the application filed, ultimately approved by AFB/B.28--29/1, on February 3, 2017

4.5.3 Third revision

On October 31, 2017, the ENI submits to the AF the information required to apply for a new extension of the project until December 2018, given that:

1. In September 2017, following nine months of administrative procedure, an important public bidding process was completed for the procurement of material intended to implement water access works and the optimization of farming production management practices. For the implementation of these technologies, the Project strategy to strengthen the adaptation capacity of small-scale agricultural producers implies that the technicians work in participative workshops with small-scale agricultural producers, training them in the self-construction of water tanks, wells or the installation of irrigation or greenhouse systems. For some of these technologies there are few experts, and these need to be able to coordinate their presence in different provinces, where long distances and difficult access are usual. Therefore, **training and implementation of investments require considerable time efforts.** ENI considers that it is important **to extend the date of project completion to ensure supervision of the entire process** and the completion of the works´ construction, maintaining the strategy of strengthening capacities.

2. In addition, the note sent by ENI states that the **occurrence of intense precipitation during that last year** exceeded the average values for the provinces in the region and adversely affected works´ progress, impairing not only installation and construction, but also, on many occasions, the delivery of construction materials to the territory. In many areas, the roads were flooded, hampering the advance in due time and manner in the delivery of construction materials for the works.

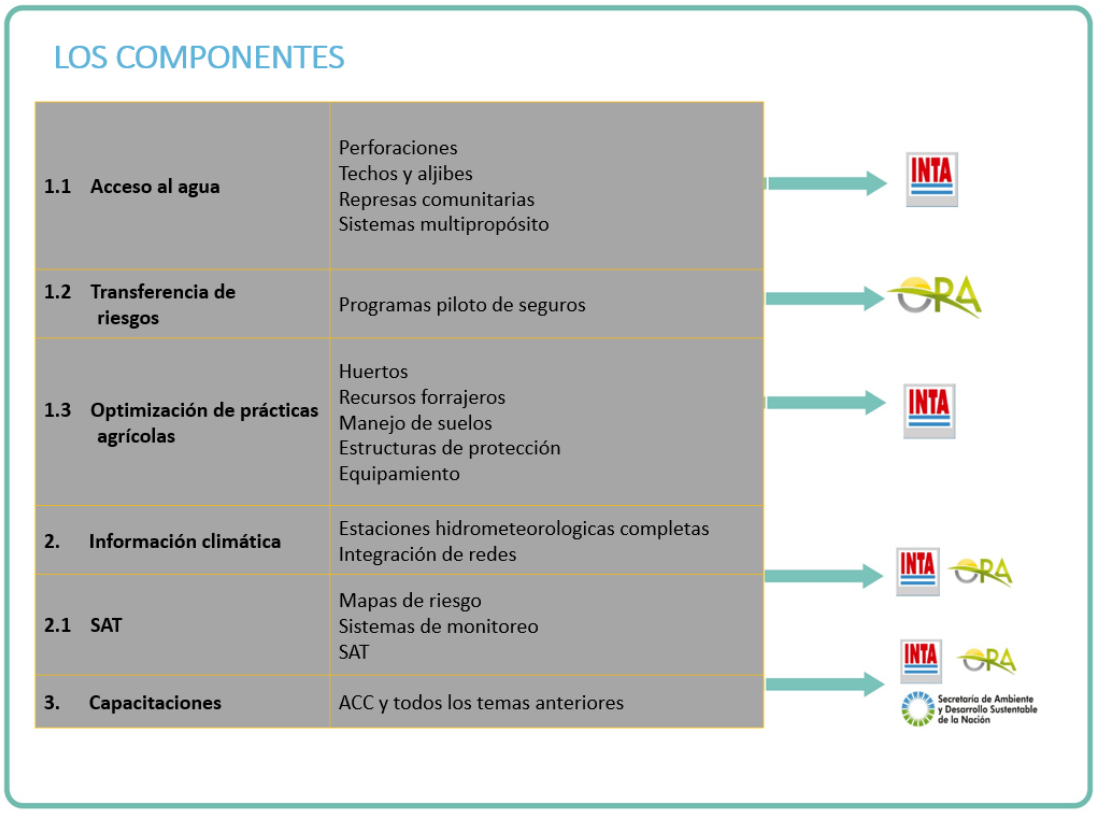
3. The design of the circuit for the implementation of the activity of creation of a revolving fund to reduce the risk of negative impact of climate change for small-scale producers called for more time than expected. Along these lines, ENI highlighted the convenience of a **close monitoring of**

how loans would be implemented, and how the revolving would take place as planned, supervising the activity and allowing to learn and evaluate the results obtained.

Application for extension was approved by the AF on November 16, 2017, through Decision B.30--31/4

4.6 Project execution and management system

Table 2: Project components and subcomponents with their respective executing units



Components		
1.1 Water access	Wells Roofs and water wells Community dams Multi-purpose systems	INTA
1.2. Risk transfer	Insurance pilot program	ORA
1.3. Optimization of agricultural practices	Orchards; fodder resources; soil management; protection structures; equipment	INTA
2. Climate information	Full hydro-meteorological stations; network integration	INTA /ORA
2.1 SAT	Risks maps; monitoring systems; SAT	INTA/ORA
3. Training	CCA and all issues above	INTA/ORA/Nat.Sec.of Environment and Sustainable Development

The Project execution scheme was organized along two main action lines:

1) **Concrete adaptation measures for small-scale family agriculture**

   - **INTA – CNTyE:** Subcomponent 1.1. activities: improved efficiency in water collection, maintenance and management; and subcomponent 1.3: optimization of farming practices, relying on the territory technicians network.
   - **ORA**: Activities for the development of the pilot test of the risk transfer and management system. The group of beneficiary producers, although still considered family agricultural producers, are more capitalized producers in comparison with the beneficiaries of the on-farm works carried out by INTA.

2) **Measures to strengthen the agroclimatic information system:**
   - **INTA, CIRN and ORA**: increased density of stations, integration and strengthening of provincial stations networks, improvements in data quality through interoperability actions, improvements in the communication nodes, climate change analysis, and development of new agroclimatic information outputs.

Component 2 activities allow to generate data and analyze and monitor agroclimatic information - which increases the knowledge on local agroclimatic variables -, make better projections with more accurate information, and feed back climate change strategies that are more adequate for each region.

Capacity building and training crosscut component 1 and 2 activities: targeting technicians, local government officials and producers as regards various matters: climate change; adaptation to climate change; adaptation technologies promoted by the project; self construction of on-farm works; insurance pilot plan; use of agroclimatic information; assembly, adjustment and control of automatic meteorological stations; gender approach.

Greater knowledge of the impacts, climate change and the best adaptation measures for the region, both at government level and at local producers´ level, allows to make informed decisions on the best adaptation strategies and to adequately allocate resources in order to increase systems' resilience.

The executing agencies carried out their activities in different institutions, geographically apart. This is why the Project established a **methodology** for **management and effective coordination** which included:

1) **Monthly operating meetings**: through these meetings, the representatives of each subcomponent of INTA and ORA, together with the gender, environmental and social, and monitoring and evaluation specialists, as well as ENI's Project Coordination team, reviewed the progress of activities, agreed on priorities and technical criteria to advance in the execution of the several components. The meetings were held on a monthly basis.
2) **Political coordination meetings**: in addition to the participation of the representatives of each institution in charge of the activities´ management, the directors and coordinators of the relevant institutes also attended these meetings: Director of INTA CIRN, Coordinator of INTA CNTE, Coordinator of UAS-ENI. Meetings were held every six or twelve months, as needed, in order to

perform an evaluation of the period, and plan the work actions and the strategies to implement in order to ensure achievement of the project.

3) **Monitoring visits:** As from year 2 and until Project completion, ENI hired a field monitoring technician to make periodic visits to the works in the Project provinces. In addition, joint monitoring visits were made by ENI's Coordination team and INTA CNTE's Coordination. Through these visits, the works progress was verified and their condition was surveyed. In addition, territory demands regarding Project management and administration were taken into account which allowed to make recommendations and adjustments in management.
4) **Evaluation and re-planning workshops:** During year 3 of the project, ENI's Project Coordination team together with the monitoring and evaluation area, the field monitoring technician, ENI's gender specialist, and jointly with the executing agency of the field adaptation works (INTA CNTyE), arranged visits to the four provinces, holding meetings with all the technicians involved in the Project. The workshops promoted reflection and re-planning in the face of the execution of the final stage of the Project. They were carried out grouping technicians of different areas to foster the exchange of experiences and lessons learned and were organized around the following objectives: 1) to share the Project work through different components, thus presenting a view of the Project as a whole, 2) to reflect on the lessons learned based on the work experience; 3) to make visits to adaptation works performed under the Project that allow to exchange lessons learned with producers in the area; and 4) to plan over the activities for the next period.

   These **workshops were very positively valued** by field technicians[7], not only because of the exchange created but also because it allowed to learn more about the Project and to re-plan interventions with a broader view of the climate change adaptation, focusing on achieving the expected outcomes.

4.7 Project strategy and approach

4.7.1 Gender

From formulation, **gender approach was mainstreamed** into Project objectives. The diagnosis included in the Project document provides information on the diversity of tasks and roles according to sex, in the intervention area, and the express inclusion of gender goals to guarantee equitable participation of both sexes in the various activities and expected benefits of the Project. The lack of a gender assessment prevented the identification of gender gaps and inequalities in the Project design phase.

During execution, a gender focal point incorporated into the ENI helped overcome this obstacle. It worked with the technicians, through capacity-building, to identify gender gaps and inequalities and to establish concrete strategies for the incorporation of women in the different activities, ensuring their participation in the role assignment in the Project. Once completed the debate period in the executing teams (2015-2016), a stage of strategy consolidation commenced. There was an important participation of women in the process of building their own cisterns, a factor of empowerment within communities and organizations. On the other hand, there was high participation of women in the training of family agricultural farmers, where the climate change adaptation approach was presented. As it arises from project's monitoring, the total percentage of women's participation (farmers) in capacity-building carried out under the Project is 55%.

Since women are mostly the ones responsible for hauling water back and forth, adaptation measures to improve efficiency of water collection, maintenance and management made a substantial difference on

[7] Reports of evaluation and re-planning workshops: Las Breñas, September 8-9, 2016; Quimilí, July 6-7, 2016; Basail August 4-5, 2016; Villa Ocampo, October 6-7, 2016

women's life quality. INTA technicians estimate that, based on water access works, women saved an average of 4 to 6 hours a day previously spent in water hauling, allowing them to devote that time to other production and/or personal tasks. Several testimonials of women in the Project video "Juntas y comprometidas", highlight that men in the community initially were unwilling to participate in the training and the construction of cisterns and it was the women who insisted in and promoted the participation in the Project "because it is we who walk to bring water home".

In this way, the Project put the spotlight on women and their needs, and allowed to appreciate more and more their participation, management and leadership skills, all these being objectives sought by the Project gender strategy.

4.7.2 Aboriginal peoples

The Project formulation describes and characterizes indigenous people in the Project region, who are mentioned as beneficiaries of the actions. In the description of component 1 activities of the Project, they appear specifically as beneficiaries of one activity, with the corresponding goal in the logical framework.

At the time of execution, however, the work strategy with indigenous population consisted in including them in the several technologies proposed, articulating, in the territory, activities with INTA's technicians who already worked with these communities and knew their situation in terms of culture, organization, production, access to land, and land tenure.

Thus, 17,5 % of the Project's target population is represented by indigenous people, which accounts for an aggregate of 627 families that were beneficiaries of works for the retrofitting of roofs and associated cistern, as well as of a community work in Colonia Aborigen where two Chaco-type dams of 8,000 m3 were built as a reservoir which benefited a total of 99 families.

As it follows from the systematization of water access experiences, the Project's approach in the work with the communities contributed to a "*perception that there is progress as a community, but with respect for what they call 'cultural cornerstones' as they feel and identify themselves as aboriginal. In particular, respect for and care of their soil and joint analysis of what it is convenient to do as a group to avoid conflicts and exercise community spirit".*

In addition, 356 producers who were members of aboriginal communities participated in the training.

4.7.3 Actions embedded in institutions with continuity in the territory

The strategy of working directly with national public institutions as executing units was proposed since the initial stages of the Project. Thus, during formulation, institutions with authority in the farming field were called, which work directly with producers and with issues related to extension, risk transfer and climate change.

As noted by the EMT, the selected institutions not only have broad experience in, and know-how in the above mentioned matters, but also have **permanence in the territory** once the Project is completed. This allows to strengthen the capacities of technicians and officials who will continue working in the territory after completion of the intervention. Along these lines, no "external" project executing unit was created, but rather a work team was formed within each executing agency: ORA – INTA CNTyE – INTA CIRN; which took charge of the Project activities.

This approach shows clear **pros and cons, though benefits have proved to be larger than limitations.**

- ✓ On the one hand, by working with national entities without forming isolated executing units, Project sustainability is promoted, as the capacities can be passed on and maintained beyond the specific intervention.

- ✓ In turn, permanent technical staff, who know the local reality, through these actions, receive motivation and training building momentum to improve and continue learning. This allows to build capacities within the institutions, which are replicated with the trainers' training approach.
- ✓ Another advantage of working with technicians already present in the territory is the high degree of knowledge and familiarity with producers, which favors activities development and early identification of shortcomings or setbacks.
- ✓ The main disadvantage is the non-exclusive dedication of the staff, who by combining their ordinary work responsibilities with those of the Project, cause delays in the execution pace.

4.7.4 National technological developments adequate for each territory

For the implementation of adaptation measures, it was elected to use technologies and experiences developed by national institutions. Thus, in the case of component 1 adaptation technologies, INTA's knowledge was promoted, including all matters related to optimization of farming practices; and regarding water access, work was developed jointly with the National Institute of Industrial Technology (INTI), which performed the brick wells and the methodology of dug wells with lining; and with the experience of INTA's technicians in construction of cement tile-roof cisterns and retrofitting of roofs for the collection of rain water. In this regard, the work in the territory was organized through specialists convened for each subject, who received training and provided technical support to extension technicians working in the community adapting technologies to each territory and reality. Both INTI and INTA had specific publications, instructions and guides for the development of these technologies that were adapted to the purposes of the Project and were even updated for their application to small-scale producers of family agriculture.

In addition, local knowledge was taken into account, as is the case of the earth fill dams implemented in the province of Chaco. Due to the specific characteristics of these soils, very clayey, in some regions of the Province, it is possible to build earth fill dams by mere compaction, without the need for waterproofing. In Colonia Aborigen two water community reservoirs were built with their Chaco-type tanks, equipped with water mill, water troughs and perimeter fencing, capitalizing local characteristics for the implementation of adaptation solutions.

Likewise, the development of the meteorological stations was made with national materials and based on the prototype called Nimbus, developed by INTA through the Institute of Climate and Water, and the National Technological University (UTN). For the purposes of the Project, a second version was used: Nimbus II, of which fifteen units were replicated, including improvements in their mounting structure, and with more measurement sensors (wind speed and direction, atmospheric pressure, solar radiation, leaf wetness). The portable NIMUBS III version was also designed, with three stations replicated, intended for research in trial lots. Also, ten stations of Nimbus I were converted to Nimbus II. All these stations allow to capture, record, and convey data in 10-minutes fractions, automatically, sending such data to meteorological data managers hosted in servers.

The stations were assembled in the Laboratory of Sensors in Castelar, province of Buenos Aires, capitalizing the existing capacity in the Institute. Subsequently, Castelar technicians trained the representatives of each INTA delegation in the installation, assembly, adjustment and control of the stations. Thus, work was not only conducted relying on national technologies but also disseminating and multiplying knowledge at local level, passing on significant capacities.

4.7.5 Climate change adaptation approach

At the time of Project formulation, one of the main issues identified was that the large extension technicians network in the territory, working with family agricultural producers and indigenous

communities in rural development activities, often failed to bear in mind the consequences of climate change, its impacts, the use of agroclimatic information and the appropriate adaptation measures to increase the resilience of regional systems. Thus, the limitations found related both to knowledge and to concrete instruments to face climate change impacts and variability.

The agricultural producers and indigenous communities of the region clearly identified the climate changes and impacts, in particular, the large variation in terms of rainwater availability, with pulses of floods at certain times and long periods of drought and difficulty to access water. These phenomena not only directly affect productive development but also cause additional health issues for the population – health problems were found in children due to the difficulty to access safe water for human consumption– as well as personal hygiene and sanitation problems as a result of which in some seasons mothers decide not to send their children to school due to the heat and lack of water. [8]

The Project sought to strengthen knowledge on climate change impacts, adaptation measures, and the use of agroclimatic information, cross-cutting execution of the activities of the other components. To achieve this objective, the Project worked along two main lines: trainings to extension technicians and municipal officials; and trainings in climate change to farmers and indigenous communities of family agriculture. For trainings in the territory, a trainers' team was hired, which reached a large group: during 2017, an aggregate of 1,140 family agricultural producers were trained with a large participation of women: 49%, and young population: 52%

Additionally, the approach was disseminated at agricultural schools, participating in the event of Escuelagro in Chaco, together with the Directorate of Farming Schools of the Secretariat of Agroindustry, which had an attendance of over 200 students. Also, some training was delivered in the Project area addressed communication experts in order to foster the appropriate communication of climate change, its impacts and alternatives.

During a survey conducted for the Project in 2017[9], the perception of the knowledge and the "before and after" effect of training was analyzed of technicians participating in the Project[10]. All these technicians claimed having improved their knowledge and application of practices, also underlining the potential of inter-institutional work and the articulation generated with specialists.

The conclusions of the Systematization Report on training received under the project show a clear increase in knowledge on climate change and adaptation technologies by the Project's beneficiaries, besides the positioning of the matter on the agenda of different municipalities, family agricultural producers, and indigenous communities.

In the aggregate, **3,882 producers received training,** with an attendance of **55% of women** and **52% of persons younger than 35**. In addition, **599 territory technicians were trained**, with a participation of 50% of women and 15% of young technicians.

[8] Training workshops reports (2017-2018), monitoring visits reports, "una mirada evaluativa".

[9]Report Training of National and Local Government Technicians of Subcomponent 3.1, 2017.

[10]For the survey, a 1 to 5 scale was used to self-rate the degree of knowledge before and after on the different fields in which they received training: climate change approach; water collection, storage, treatment and use technologies; farming optimization practices; and use agroclimatic information for decision-making.

4.7.6 Technology self-construction

The Project decided to go with the self-construction methodology as regards adaptation technologies, which entailed a twofold strategy. First, the trainers' training was carried out through capacity-building sessions of INTA technicians in the different technologies promoted under the Project: roof retrofitting and construction of cement tiled-roof cisterns, or brick water wells, wells for groundwater catchment, dug wells with lining, dug manually or with excavators, installation of crop protection structures such as drip irrigation systems, greenhouses, macro-tunnels, incorporation of pastures or silvo-pastoral systems, etc.

In addition, it follows from the systematization of water access cases that the capacity building involved in the self-construction of works also generates **social assets and empowerment of the entire community**, particularly of women who actively participated in the construction of technologies, or oversaw the works, and can see the improvement of their life quality.

As a result of the joint work, **several agricultural producers highlight that associative work was promoted**, and more activities began to be carried out jointly.

In addition, **knowledge of the construction of these technologies allows for a high replication of actions**, while providing agricultural producers and young agricultural producers with the opportunity **to learn a trade and in some cases even to certify such learning** through the program "Manos a la Obra" of the Ministry of Labor and Production, thus obtaining a work certificate and having the possibility of subsequently being hired for the replication of the technologies.

The emphasis placed on the self-construction of works is a **key element for its sustainability**, as the capacities acquired by the producers allow for the replication of boreholes, water wells, and roofs, regardless of the supply of material. Until now, several replications have been made in other towns where funds are secured for the acquisition of materials, and there have been exchanges between producers to train others, also promoting capacity building.

An additional advantage of implementing this strategy is that costs **are lesser** by providing only the materials, also turning these technologies into a rather easy adaptation measure. On the other hand, these participation and capacity building processes make a difference in the pace of execution, as it takes longer to receive training and to self-construct the on-farm works than hiring private workers.

4.7.7 Articulation – Public and private synergies

Inter-institutional articulation was key in all Project components, allowing to achieve synergies and to enhance outcomes which would not have been achieved otherwise.

The Project relied on the strategy of articulation of the capacities of the different governmental public institutions and fostered territorial cohesion among INTA, ORA, INTI, Municipalities, Ministry of Labor and Production, the SMN, the provincial Water Agencies, Universities, producers' organizations, foundations and NGOs present in each territory with similar actions; and also the private sector: insurance companies and actors such as the Grain Stock Exchange. This articulation delivered important synergies, allowing each actor to make contributions from its relevant area of expertise and specific field of action, leveraging resources of the different institutions and at the same time strengthening their capacities and work networks.

For water access works and farming practices optimization: working from the INTA through the CNTyE, it was articulated mainly with the INTI through an agreement and, in turn, each technician who implemented the activities generated articulation networks for the implementation of actions, mainly with municipalities, provincial water agencies, foundations and producers' associations. As mentioned in the Systematization document of water access cases, the project is underpinned by these articulations,

and this positively impacts the outcome. Amongst them, there is the fact that by working with technicians who know the territory, they better reach out to producer beneficiaries and this allows to adapt the intervention during implementation, favoring communication.

The ORA created an important alliance with private insurance companies for the development of the pilot plan. In addition, it achieved articulation with the local government of the province of Corrientes and with INTA's technicians for the creation of the revolving fund for technologies that allow to reduce producers' risks, although this last activity was not carried out in the end.

In the case of activities to strengthen agro-meteorological information systems, there were significant articulations among ORA, INTA CIRN, SMN, the governments of the provinces of Chaco and Corrientes, private actors such as the Grain Stock Exchange of Entre Ríos, and the national and local specialist working in agro-meteorology, which contributed to promote the effective formation of a network of representatives who now know each other, share information and were trained through the Project.

Thus, there is evidence that there was a strong management work articulated among different stakeholders, which in all cases studied was positively valued by the several stakeholders. This, in turn, represented greater efforts and time in the coordination of activities, as it involves different governmental levels, several institutional cultures, several professionals and geographical locations, which had to be harmonized to converge in the progress of works and activities

4.7.8 Innovation in risk transfer

The insurance pilot plan for sheltered horticulture represented a true innovation, as **there was no similar product in the market nor any type of insurance coverage for this segment** of family agriculture in the intervention area. In addition, the Project gave rise through these actions to an **emerging market**, with an offer of insurance for small-scale family horticultural producers and an incipient demand. By securing the insurance policy of the National Insurance Superintendence for the entire national territory, which first included peppers, tomatoes and then incorporated the rest of the roofed orchard crops, there is a great potential for the replication of this experience in other regions.

The product developed through the pilot experience was positively valued by the different stakeholders involved: insurance companies, producers, national and local government[11]. The success of this proposal is also evidenced in the reinsurance rate obtained by the insurance companies, which amounts to 95% of reinsurance.

The initiative **allowed for the generation of key data and information for risk evaluation of insurance companies regarding the launching of this type of product to the market**. This was possible due to the synergy of the Project activities, where through component 2 greater data availability for the area was achieved following the increased density of agro-meteorological stations driven by the Project, and also due to the integration of networks and of information from other stations present in the intervention area. Along these lines, the Project allowed the incorporation of small-scale producers to the insurance market, who were out of the picture previously, and generated in turn a paradigm shift in the small- and medium-scale producers, who had never before entertained the notion of implementing insurance because of their lack of experience, or of resources or supply available.

4.8 Outcome evaluation

[11] Diaz, Marisa (2018a). Sistematización de Experiencia Plan Piloto de Seguros.

4.8.1 Project Global scope: beneficiaries

The Project assisted **an aggregate of 3,591 agricultural family producers**, reaching 90% of the goal set. The progress in relation with the original goal is high, and, in addition, it should be noted that **part of the resources was allocated to works in public institutions**, such as rural schools, and child care providers, which were not provided for in the original design. Through these actions, assistance was provided to an aggregate of **2,488 students, teachers and children in 19** agricultural rural schools, **one child care provider and one community club**. The information of these works is not added to the family producers as they are works for a different beneficiary, but which affect the global scope of the Project, meaning greater impact.

Table 3: Progress of indicators of the Project's Logical Framework

Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
Number of families vulnerable in the face of adverse effects of climate variability and change	No measures of adaptation to climate change have been implemented to the date	Total number of beneficiary families, of which	3,591	4,000	**90%**
		Represented by women	618	800	**77%**
		Represented by young population	398	600	**66%**
		Families of aboriginal population	627	320	**196%**
		Total students, children and teachers beneficiaries of adaptation works at public schools and child care providers	2,488	-	**-**

4.8.2 Extent summary per Component

Component 1: Increase in the adaptation capacity of NEA small-scale producers to climate variability and change

Output 1.1: Implementation of Improvements in the efficient use, collection, harvesting and storage of water in the intervention areas.

Table 4: Progress of indicators of the Logical Framework - Subcomponent 1.1

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
Number of wells performed to access groundwater	To date there are no wells performed at the beneficiary communities.	Wells drilled	144	138	**104%**
		Total number of beneficiary families, of which	355	138	**257%**
		Represented by women	157	28	**569%**
		Represented by young population	96	21	**464%**
		Families of aboriginal population			
		Total students, children and teachers beneficiaries of water access works at public schools and child care providers	745	0	-
Number of families with retrofitted roof for rainwater collection and water wells or cisterns associated to act as reservoirs (broken down per gender)	To date, there are no reservoirs or retrofitted roofs for rainwater collection in the intervention area.	Cisterns or water wells with retrofitted roofs for rainwater collection	675	266	**254%**
		Total number of beneficiary families, of which	1,490	266	**560%**
		Represented by women	267	53	**502%**
		Represented by young population	75	40	**188%**
		Families of aboriginal population	528	0	-
		Total students, children and teachers beneficiaries of water access works at public schools and child care providers	1,233	0	-
Number of community reservoirs built for large and small livestock	There are none at the beneficiary communities	Community reservoirs	65	145	**45%**
		Total number of beneficiary families, of which	162	739	**22%**
		Represented by women	26	148	**18%**
		Represented by young population	17	111	**15%**
		Families of aboriginal population	99		-
Number of multi-purpose water supply systems built	Till now there has been no initiatives to build multi-purpose water supply systems	Multi-purpose water supply systems	0	140	**0%**
		Total number of beneficiary families, of which	0	140	**0%**
		Represented by women	0	28	**0%**
		Represented by young population	0	21	**0%**

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
		Families of aboriginal population	0	0	**0%**

The Project proposed 4 types of different technologies with estimate goals for each type of water access technology, based on an initial diagnosis of the problems and potential demands of family producers of the Project region. The technologies proposed included: brick wells for the securing of groundwater, retrofitting of roofs and cisterns or water wells associated as reservoirs for the collection of rainwater, dams for large and small livestock, and a multipurpose water system which uses rainwater through a dam, complementing and mixing the collected water with groundwater. Through the actions of this subcomponent, a total of 1,283 producer families were expected to be attained.

Together with the budget reallocation requested by the ENI and approved in February 2017 by the AF, the increase of the budget from 30% to 41% of the total Project was also requested for this subcomponent. It should be noted that the request was only in terms of budget, but the goals in the original logical framework were not revised accordingly.

Project execution, however, showed that **the demands of the population regarding water access greatly exceeded the initial diagnosis**. The best technologies in terms of efficiency and relevance were also adjusted based on the demand and the reality of each territory, during the course of Project execution.

At a general level, serious difficulties were found in the territory for the extraction of groundwater in many areas. The testimony[12] of one producer of Capitán Solari of Chaco, during a field visit in 2017 is an example of the regional situation. The producer, belonging to Colonia Elisa Union of Small-Scale Producers (UnPeProCE), highlighted that he had attempted to dig wells in his land since 2005 and that he never found water, until he finally understood that the groundwater tables were depleted in the town. Through the Project, he learned the technology for collection of rainwater through the retrofitting of roofs and construction of associated cement tile-roof cisterns to act as reservoirs.

The difficulty of access to groundwater made it that the best technical solution, and the population's demand, was to retrofit roofs and build mostly cement tile-roof cisterns and brick water wells. In this way, the Project increased by near six times the number of families planned to access this technology and trebled the amount of construction works.

The proposed multipurpose water system which combined rainwater collection and the extraction of mixed well water was not implemented as there was no demand therefor in the territory, and it was not convenient in economic terms.

This subcomponent reached:

- **900 on-farm works** for water collection, storage and management
- **1,978 students, teachers and children**, 14 schools, one community club and one child care provider, for the benefit of
- **2,052 family agriculture producer families**

This way, the amount of families attained through this component surpasses by 56% the 1,283 originally provided in the logical framework. Taking into account the increase in the budget allocated to this subcomponent, which was 40% above the original budget, the goal of the families reached keeps growing.

The high coverage achieved through the component is mainly due to the large demand and need for adaptation solutions for periods of scarce rains, which is one of the main effects of climate change in the

[12] Testimony in reports of field visits under the project.

area, with concentration of periods of heavy rains and longer periods of lack of rain. In the light of the limited resources, technicians in the territory prioritized this demand before moving forward with any other adaptation strategy that allows to develop and optimize farming practices in the region.

Output 1.2: Implementation of a system of risk management and transfer aimed at small and medium scale farming producers

Table 5: Progress of indicators of the Logical Framework - Subcomponent 1.2

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
Development of a feasibility study: multi-risk oilseed, cereal, and cotton pilot plan.	To date, no such study was conducted.	Feasibility study	0	1	**0%**
Development of a feasibility study: horticultural insurance pilot plan	To date, no such study was conducted.	Feasibility study	1	1	**100%**
Number of families included in Pilot Programs (broken down per gender)	Without insurance	Total number of beneficiary families, of which	1,247	787	**158%**
		Represented by women	110	157	**70%**
		Represented by young population	196	118	**166%**
		Families of aboriginal population	0	0	**-**
Develop assessment of Pilot Programs conducted	0 assessments conducted	Evaluation study	1	1	**100%**

In connection with the products planned for the subcomponent, two insurance feasibility studies were proposed in order to carry out two pilot tests: one for multirisk insurance for small-scale producers of cereal, cotton and oilseeds, and another for small-scale horticultural producers, and the studies and assessments which allow to generate learnings, as they are pilot innovative experiences at a national level.

Following the commencement of Project execution, and the analysis of the insurance pilot tests implementation, it was concluded that the market conditions were not ripe for the multi-risk insurance trial for cereal, oil seeds and cotton producers.

Through this subcomponent, the ORA advanced with the feasibility study for the sheltered horticulture insurance, secured the authorization of the insurance policy with the SSN –valid throughout the national territory, thus allowing to replicate this pilot insurance plan experience in other regions of the country. In aggregate, a consortium of 4 insurance companies participated in the experience of the sheltered horticulture insurance pilot plan, implementing it in two successive campaigns: August 2016 – January 2017, and March 2017-January 2018. During the first campaign, 581 producers of the Departments of Bella Vista, San Roque, Lavalle and Goya of the province of Corrientes were insured; and during the second campaign, 666 producers and new departments were incorporated: Department Capital city, Empedrado, San Luis de Palmar and San Cosme of the same province, and the producers of the General Obligado, San Javier and Vera Departments, in the province of Santa Fe.

Regarding assessment, the experience was capitalized to study different damage assessment methods: the human damage assessment method; assessment through satellite images; and damage assessment through drones and photographic images, with a drone owned by the Province of Corrientes. In addition, the systematization of the lessons learned from the experience was carried out, surveying the opinion of producers, the provincial government of Corrientes, the national government, the technicians who participated in the experience, and the insurance companies.

Of the total planned 787 families, the **insurance pilot plan was able to reach a total of 1,247 families, exceeding the goal by 58%**. The betterment of the goal, although one of the activities was eliminated, is due to the lower costs of implementation of the sheltered horticulture insurance, in comparison with the values estimated for the development of the multi-risk insurance pilot plan for cereal, oilseeds and cotton.

In addition, this subcomponent was one which significantly reduced its budget following the reallocation requested to the AF in December 2016, from 23% of the total Project to 13%, thus reducing its budget allocation by 45%.

In this same reallocation a new activity was proposed to substitute for the insurance pilot plan which could not be implemented: a revolving fund for small-scale producers of the Project area that allows to borrow funds and repay them at a very low rate to apply them to the construction of climate change adaptation measures and thus reduce the risk of family agriculture producers. However, as informed in the PPR presented by the Project to the AF in November 2018, this activity could not be carried out, due to delays caused by institutional changes occurred between February and April 2018, where there is an adjustment of the organizational chart of the then Ministry of Agroindustry –current Secretariat of Agroindustry –, introducing administrative and institutional changes both at ORA and at ENI. The changes in the organizational chart of the Secretariat of Agroindustry implied re-adjustments of administrative circuits, designation of signatures, and procedures that resulted in a delay of about three months, mainly affecting the commencement of new activities. Once the normal institutional operation was resumed, the ENI together with the ORA decided not to advance in the implementation of the revolving fund because, it being a new activity to be implemented with intermediate financial institutions in the territory, they considered that the available monitoring time until the end of the Project was insufficient.

Output 1.3: Optimization practices in the management of agricultural, livestock and forestry production.

Table 6: Progress of indicators of the Logical Framework - Subcomponent 1.3

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
Number of indigenous families receiving technical assistance (broken down per gender)	15 families with fruit and vegetable orchards with irrigation and husbandry of small animals	Total number of beneficiary indigenous families, of which	0	82	-
		Represented by women	0		
		Represented by young population	0		
Number of families receiving assistance in managing and using fodder resources (broken down per gender)	29 families receiving assistance in managing and using fodder resources	Total number of beneficiary families, of which	85	473	**18%**
		Represented by women	11	95	**12%**
		Represented by young population	2	71	**3%**
		Families of aboriginal population	0	0	-
Number of families receiving assistance in implementing soil management techniques (broken down per gender)	0 families assisted	Total number of beneficiary families, of which	0	119	-
		Represented by women	0		
		Represented by young population	0		
		Families of aboriginal population	0		

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
Number of families receiving assistance of crop protection structures (broken down per gender)	20 families assisted	Total number of beneficiary families, of which	148	272	**54%**
		Represented by women	46	54	**85%**
		Represented by young population	12	41	**29%**
		Families of aboriginal population	0	22	**0%**
		Total students, children and teachers beneficiaries of crop protection works at public schools and child care providers	510	-	**-**
Number of families receiving support in the form of technology and facilities improvement (broken down per gender)	20 families assisted	Total number of beneficiary families, of which	59	109	**23%**
		Represented by women	1	22	**5%**
		Represented by young population	0	16	**0%**
		Families of aboriginal population	0	0	**-**

Initially, through the actions of this subcomponent, a total of 1,055 producer families were planned to be attained with a budget of USD 701,068. However, after budget reallocation, this amount fell to USD 652,724, thus suffering a reduction of 7%.

As regards execution vs. planned, it is observed that through the component a total of **292 families of family agriculture producers** were assisted, as well as **510 students and teachers** in **5 rural schools**. Output indicators show a low execution compared to what was planned. As regards assistance of indigenous population in orchards, this activity was finally dismissed as an activity in itself, since technical assistance and the work with indigenous population was mainstreamed in the different technologies. With regard to the work of implementing soil management techniques, formulation had proposed contour farming but due to the lack of demand, it was dismissed. It was found that the main local problems were the incorporation of crop protection measures, incorporation of fodder resources for soil conservation, and the incorporation of improvements in the facilities for the establishment of silvopastoral systems mainly.

The execution of the different indicators vs. planning had low percentages: 23% execution in the implementation of equipment improvements (silvopastoral systems), 18% execution in technical assistance in the management of fodder resources, and 59% in crop protection structures, which also show the greatest progress in the goal of women and young people, versus the other cases where progress is almost nil.

As mentioned above, this low execution rate is associated with prioritizing in the territory all water access technologies. It should be noted that in the monitoring visits and surveys carried out by the ENI, as well as by the M&E specialist hired by the Project and the executing units themselves, the effects of water access technologies are highlighted. In many of the works visited in which access to adaptation technologies for water collection and storage was financed, families were able to start growing products for self-consumption.

In this regard, in November 2017, a trip was made to the province of Chaco, in the context of a visit by a consultant from Tango International, the agency in charge of evaluating the AF project portfolio. Works were visited in Basail, Capitán Solari and Colonia Aborigen. In the case of Basail, with a water well and elevated tank that allowed the distribution of water for 28 families of “banquineros” [literally, people

living on roadsides], the families capitalized the opportunity to grow corn, sweet potatoes, potatoes and other subsistence crops. In Colonia Aborigen, two dams with a Chaco-type tank were built for an indigenous community of 99 families. There it was found that, with the dam, and with the technical assistance of INTA, gutters were laid, with the community's input, towards a common site where the young people of the area resumed horticulture production collectively for self-consumption[13]. In addition, this training was registered in the Ministry of Production and Labor under the "Manos a la Obra" program, with which young people could certify the building and management of agroecological orchards as trades.

It is worth mentioning that, both upon the monitoring visits and in the Project reports, the great potential of stable water access for making a difference in the population is patent.

Component 2 - Strengthening of climate information, monitoring and management systems

Output 2.1 Integration and expansion of agro-hydro-meteorological networks of the NEA

Table 7: Progress of indicators of the Logical Framework - Subcomponent 2.1

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
Number of fully operational automatic meteorological stations	8 monitoring stations connected to SMN and INTA monitoring networks, 35 automatic stations and 22 rain meters in the project area	Meteorological Stations	18	18	**100%**
Number of simple automatic stations converted to full stations	0 stations converted	Reconverted to full stations	10	10	**100%**
% integration of meteorological networks	0% integration of networks	% integration of networks	97%	100%	**97%**
% information systems of local nodes fully operational	0% information systems of local nodes operational	% fully operational information systems	100%	100%	**100%**
% online availability of the integrated information system	0% online availability of the integrated information system	% Implementation	100%	100%	**100%**

In terms of Project deliverables for agro-meteorological network integration and expansion, the total was reached of all products planned out.

For the development of automatic meteorological stations, the use of a national model jointly developed by INTA and UTN is worth mentioning. Based on that prototype, INTA's Climate and Water Institute acquired the parts and assembled the stations, which were later on installed and adjusted in the Project's area of intervention. As it was planned, **a total of 18 full automatic meteorological stations (3 of them being portable)** and **10 simple meteorological stations were turned to full stations**, prioritizing the location subject to: areas with thin coverage where there was no prior coverage of data measurement; population socio-economic vulnerability; concentration of small-scale producers without presence of extensive or large-scale agriculture; and climate change scenarios, considering the region's major climate impacts. The full meteorological stations measure a total of 10 variables: ambient temperature and

[13] Tango International (2018). Overall evaluation of the Adaptation Fund, Final Report, 4th June 2018.

humidity, precipitation, ground temperature, solar radiation, atmospheric pressure, wind direction and speed, and leaf wetness. This allows to have more information not only on climate, but also on the effects on crops in a specific area/region.

The Project also advanced the integration of meteorological stations of the provinces of Corrientes and Chaco, through the signing of collaboration agreements between the private sector and provincial governments. Information managed to be incorporated to INTA's information network and is available for anyone requesting it. The provinces of Santa Fe and Santiago del Estero did not have a network of stations at the time of Project execution and, therefore, did not participate in the integration at the provincial level, although the information from the INTA network stations was added. In addition, work was conducted on interoperability and the quality of information, improving access and servers to guarantee shared standards among institutions and greater availability of online information.

This subcomponent **had its budget allocation increased by 36%**. Additional resources were requested in the reassignment sent to the AF and used to:

- Increase in costs of both parts and installation materials, such as installation costs associated with inflation and devaluation.
- Acquisition of additional parts: a maintenance kit for each station and 10% spare parts to provide sustainability to the stations in case of any failure.
- Purchase of meteorological instruments (manual) for Traditional Meteorological Stations (EMC). The EMC instruments are upgraded and replaced. These instruments provide a series of very useful historical data for the analysis of climate change. These data are also used by the National Meteorological Service (SMN).
- Incorporation of new sensors to some of the automatic stations of the Corrientes network from the study of new meteorological variables, such as radiation and wind, will allow a better analysis of meteorological risk and, as a result, improve the estimate of the insurance premium that covers those risks. In addition, the communication systems of the stations were converted from 2G to 3G, and agroclimatic data analysis software was acquired to have better information outputs.
- Addition of three automatic stations to the province of Chaco, in order to achieve an optimal density of provincial meteorological stations for agro-meteorological monitoring, purchase of agro-climatic data visualization and analysis software, and conversion of communication system from 2G to 3G.
- Site standardization by the SMN of the network of stations in the provinces of Chaco and Corrientes. Through the above, site verification pertaining to the local automatic meteorological station networks of both provinces and the INTA, was achieved. With this activity, 73 stations were visited in the above mentioned provinces, performing the relevant inspections, site reports were drafted, and simultaneous measurements were taken contrasting with SMN standard instrument set. This allowed to substantially learn best practices for stations' installation and maintenance, and delivered greater assurance on data quality and standards pursuant to SMN standards[14].

The subcomponent attained the proposed outputs, and the additional outputs for which the increase in budget allocation was requested.

[14]Moreiras (2018), Informe Sistematización de la experiencia: Fortalecimiento de los sistemas de información, monitoreo y gestión agroclimática.

Output 2.2: Development of an Integrated system of early warning and decision making to evaluate and manage climatic risks

Table 8: Progress of indicators of the Logical Framework - Subcomponent 2.2

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
% compilation and evaluation of databases and georeferenced maps for the intervention area	0% compilation and evaluation of existing databases and maps	% compilation	90%	100%	**90%**
Number of trials performed	0 trials performed	Trials	2	3	**67%**
% surface of project area with risk maps	35% of project area with risk maps developed	% of surface of project area	65%	70%	**93%**
% implementation of soil moisture monitoring system	0%	% Implementation	88%	100%	**88%**
% development of analysis of climate change scenarios and climate tendencies on crop production	There are no climate change scenarios at regional level or knowledge of impacts on crops.	% Analysis	100%	100%	**100%**
Development of early warning system	There are no hydrologic monitoring system or vulnerability determination at appropriate scale or place.	% Integration of hydrological studies to the web platform	67%	100%	**67%**
Development of early warning system	There is no decision-making system integrated with climate alert component	% Integration of meteorological studies to the web platform	100%	100%	**100%**
% web platform development	0% of platform developed	% web platform development	98%	100%	**98%**

Indicators of this output show significant progress. Of the total funds originally estimated, a 35% reduction was made in this subcomponent, going from USD 750 thousand to USD 495 thousand after budget reallocation. The main reason for the reduction lies on the overestimation of the initial budget.

The first indicator refers to a joint activity of INTA and ORA, almost entirely achieved. It was possible to integrate the georeferenced and integrated meteorological databases of the Project provinces, soil maps at national scale for the entire Project and at a regional scale for three provinces, soil profiles for the four provinces, and contour line maps for the four provinces.

In all, three portable stations were designed and assembled in INTA's Climate and Water Institute. Two of them are located in the province of Corrientes in two different types of livestock environments, one next to the other: one is a natural field and the other a silvopastoral field, to assess the silvopastoral system as adaptation measure. Since, out of the three trials anticipated, one of them could not be performed during Project implementation, progress is 67%. However, the objective of portable stations is to continue with trials in different regions and regarding different adaptation measures.

At a general level, with budget reduction, the scale of detail of several activities was redefined in their scope due to the lack of semi-detailed soil mapping. The budget was estimated with the purpose of making risk maps at scale 1: 500,000, and also at a semi-detailed scale (1: 50,000) for the entire area of Project execution. However, during implementation, soil cartography was not obtained at a semi-detailed scale for the provinces of Santiago del Estero, Chaco and part of Corrientes. In this way, the scope was limited to 70% of the Project area, which will be covered with maps of risk of surplus and deficit at a scale 1: 500,000 and, to a lesser extent, at scale 1: 50,000 due to the contingencies mentioned above.

The soil moisture monitoring area was increased by incorporating new stations of the INTA network, the soil moisture maps were completed mainly at scale 1: 500,000 and only partially at scale 1: 50,000.

Both executing units, both INTA through the CIRN, and the ORA, published and analyzed future scenarios of climate change. Likewise, the water balance software used by the ORA was updated to perform the analyzes and calculations. With the contribution of the Project, other risk analyzes were also carried out, including the evaluation of the impact of water deficits and surpluses on crop yield according to climate change scenarios, maps of rainfed agriculture areas in Argentina, and different mechanisms of risk assessment, including the development of the TVDI: satellite index of water deficit.

Based on the information generated by the increase in number of stations and the improvements incorporated in the analysis and monitoring of agro-climatic information, the subcomponent proposed an Early Warning System. The Project **developed a web platform**, **compiling all the new agro-climatic outputs, and agro-meteorological information of various NEA institutions.** The open-access and freely available platform contains information on the works carried out with the Project and different agro-climatic outputs, such as: 5-day weather forecast and meteogram; monitoring of water reserves in the ground for different production chains and for each of the provinces; map with the location and access to information of the networks of INTA meteorological stations and of the Ministry of Production of Corrientes and Chaco; levels of water deficit and excess risk for the next 7 days (future scenarios); access to information layers for different crops; access to predictive models, such as: precipitation, temperature, evapotranspiration, pressure and wind, fog, UV index, fires and frost; and to weekly, monthly, and annual reports prepared by different agencies; access to the 7-day extended weather forecast; access to the evolution of the climatic variables for the date for the selected point; access to 3-day modeling of evolution of different soil parameters for each of the locations of the INTA's EEAs; links of interest and contact of climatic outputs offered by different national and local agencies and institutions.

The scope of the platform is limited to providing agro-climatic information, forecasts and links to reports from different institutions. No work was done on the development of early warning systems with recommendations for producers, an objective initially planned in the Project document. The main reasons for this scope refer to the conception and formulation of the Project itself. For the development of an early warning system, it would have been necessary to work the outputs at a local level, involving producers and technicians from each area, and adapting the outputs to the communication infrastructure, local characteristics and demands. This implied time, human and financial resources that were not planned at the time of the planning of the component's activities. The planned activities focused on the articulation at the level of technical actors, so that an output was obtained that responds mainly to the needs and to a mainly technical audience.

However, there is an enormous potential for work to continue in each town based on the available platform and information, and for different outputs to be delivered that can serve as early warning, with recommendations addressed to small-scale producers in an appropriate language. and through the usual means of communication used in each region.

The incorporation of the platform makes a difference by improving the quality of technical assistance received by these producers, given that dissemination and training was carried out among extension

technicians who are the ones working in the territory with small-scale producers and indigenous communities.

Component 3 Building of local and regional capacity on climate change and variability impacts, and on implementation of adaption measures

Table 9: Progress of indicators of the Logical Framework - Component 3

Indicator	Baseline	Measurement Unit	Progress as of 12/30/2018	Goal at the end of the project	% Progress
% of beneficiary staff and population received training in adverse impacts deriving from climate change, and in appropriate response	To date, no training or capacity-building performed. (200 technicians identified)	% technicians trained	178%	80%	**223%**
		Total number of technicians, of which	599	160	**374%**
		Technicians participating in more than one training	330	0	-
		Women	299	48	**623%**
		Young population (up to 30 years)	88	24	**367%**
	To date, no training or capacity-building performed. (4,000 producers identified)	% producers trained	93%	80%	**116%**
		Total producers trained	3,882	3200	**121%**
		Producers participating in more than one training	1,510	0	-
		Women	2,125	1280	**166%**
		Young population (up to 30 years)	2,018	1280	**158%**
		Indigenous population	356	256	**139%**
Number of institutions trained	To date, no training or capacity-building activities were performed	Institutions	5	5	**100%**
Number of publications and meetings held for dissemination	3 publications during project Preparation	Publications	9	8	**113%**
	0	Meetings	3	3	**100%**

Through this component, a total **3882 producers** were attained, with a share of 55% of women, 52% young population, and 9% of indigenous population.

Originally, this component was intended to train 3,600 family agriculture producers and 180 technicians and officials with an initial budget of USD 456,250. After the reallocation of the original budget matrix, the total amount allocated to the component was reduced by approximately 10%, and the financial execution reached 75% of what was planned with the reallocation. It should be noted that, despite using a smaller amount of financial resources than expected, as regards outputs, **the initial planned goals were exceeded**. In this way, the number of technicians initially stipulated to be trained was surpassed by almost 4 times, achieving **116% execution of training of family agriculture producers**, the objective of

strengthening the capacities of the 5 institutions directly involved with the Project was fulfilled; **the objectives of publications were reached and exceeded**, including the publication of the ORA and INTA on risk maps, maps of water deficit, suitable agricultural areas, systematizations carried out, dissemination booklets of promoted adaptation practices, one publication especially oriented to inform on climate change and risk analysis and community-wide vulnerability, aimed at work with small-scale agricultural producers, and a publication in the OECD, where the experience of the Project was chosen as one of the experiences of best practices for local development in Latin America[15].

In this regard, **the Project not only surpassed the planned goals for capacity-building, but also for the promotion and systematization of the lessons learned.** And according to the Training Systematization Report, the effects of capacity-building and lessons learned generated among technicians and agricultural producers are patent and highly valued by the stakeholders. The EMT highlighted also, as one of the main findings, the positioning of the climate change adaptation approach at the institutions involved in the Project, at national level and at the level of municipalities and local governments[16].

The benefits delivered by training not only allow for replication of adaptation technologies by the producers but also **significant articulations and lessons learned through the exchange of experiences**, enhancing the potential for synergies and enabling the replication of innovations based on work with various institutions, technicians and producers who develop similar work with the same objectives and in the same territory.

[15] Compendio de Buenas Prácticas para el Desarrollo Local en América Latina © OCDE 2016

[16] EMT – Evaluación de Medio Término, enero 2017. Informe de Sistematización de las experiencias de capacitación del proyecto.

4.9 Intermediate outcomes

Table 10: Intermediate outcomes of the Project's logical framework

Outcome	Indicator	Baseline	Project outcome	Goal	% progress to goal
Outcome 1.1					
Improved use and yield of water for family farming producers.	% of producers improving their response capacity and action in the face of climate variability	No capacity or infrastructure built in.	A total of 2,052 families implemented water access works. Out of this total, 97% stated being somewhat or a lot better prepared to respond to climate change and variability impacts.	At least 20% of the families in the project area (4,000 targeted) with improved capacities to respond to climate change and variability effects.	**250%**
	% of beneficiaries claiming improvements in agricultural productivity, related to water supply	To be determined during project implementation	59% of the producers state perceiving a more improved agricultural productivity after project implementation. 33% state perceiving a little improvement.	50% of beneficiaries claim improvements in agricultural productivity, related to water supply	**118%**
	% of beneficiaries claim better access to water supply for drinking and irrigation.	To be determined during project implementation	90.4% of producers claim better access to water for drinking after project	80% of beneficiaries claim better access to water supply for drinking and irrigation.	**113%**
			74.6% of producers claim better access to water for production after project		**93%**
Outcome 1.2					
Reduced fluctuation of income for family farming producers, encouraging to continue farming and to continue living in rural environments.	% of beneficiary population attained by appropriate risk transfer mechanisms (broken down per gender)	0% of the families of the project area with access to insurance	Out of the total population identified in the project design document (5,165 NAF), 24% was attained with the component.	15%	**161%**
	% of the beneficiaries of risk transfer instruments perceive lesser risk in the face of extreme events	There is no insurance offer for these types of producers, and no demand either because they have not heard of the product or there is no offer.	42% of producers claim feeling safer and more assured to conduct farming in the face of extreme events.	50%	**84%**
Outcome 1.3					
Increased farming production of small-scale family agriculture producers, and reduced economic and social vulnerability in the face of climate change and variability.	Number of small-scale family producers with safer access (greater access) to livelihoods.	0.8% of the families in the project area received assistance in various farming practices.	29% of producers increase food consumption coming from their own production, going from producing less than 40% of their consumption to producing 40% to 80% of their consumption.	10% of families in the project area see their access to livelihoods improved.	**290%**
	% of beneficiaries claim improvements in food security due to project activities	To be determined during project implementation	50% of beneficiaries state having access, availability, quality and quantity of food improved.	50% of beneficiaries claim improvements in food security due to project activities	**100%**
	% of beneficiaries claim income increase due to project activities	To be determined during project implementation	31% of beneficiaries state having their income from production increased	At least 30% of beneficiaries state having their income increased due to project activities	**103%**
	% of beneficiaries with better access to markets.	To be determined during project implementation	41% of beneficiaries state trading increased a lot	At least 30% of beneficiaries have better access to markets.	**137%**
Outcome 2.1					

More and better monitoring and evaluation capacity of climate change and variability.	Increased density of hydro-meteorological stations and rain meters	Very low density of coverage by monitoring stations. Average density 1 station/rain meter every 29,244 km2	1 station/rain meter every 5.420 km2, 19% increase	20% increased density of hydro-meteorological stations and rain meters	**95%**
Outcome 2.2					
Systematized basic information, freely available, for effective decision-making as regards adaptation of producers to adverse conditions and aimed at local and regional planning.	Number of professionals at government levels / decision makers and producers using early warning systems and climate information platforms for decision-making.	The Early Warning System covers only partially the Province of Chaco and Santa Fe.	Before: 15.3% of population - After the project: 19.7% 30% increase in users of agro-climate information	At least 25% increase in users of early warning systems and climate information platforms.	**120%**
Outcome 3					
Units of municipal and provincial governments, educational institutes, and producers with capacity to generate appropriate adaptive interventions.	% of staff and producers trained to implement measures to respond to climate event impacts and mitigate them (broken down per gender)	To date, no training or capacity building conducted for the 4000 families involved in the project activities, and the 200 technicians and governmental officials.	3,453 producers (of which 34% are women) trained in implementing adaptation measures of water access, crop protection, technological improvements, seed exchange, agro-ecological orchards and plant nurseries, irrigation, fodder resources management, soil and forest management. 86% of all producers targeted	60% of producers trained in implementing measures in their relevant production units.	**143%**
			392 technicians trained in implementing adaptation measures of which 30% are women, 196% of the total technicians targeted	70% of technicians and governmental officials	**280%**

Component 1

For the assessment of the component's outcomes, two surveys were conducted:

- 1) aimed at 150 producer families benefiting from the INTA activities through water access works or optimized farming practices in the provinces of Chaco, Corrientes, Santa Fe and Santiago del Estero.

- 2) aimed at 100 producers benefiting from ORA's activities through the insurance pilot plan during the first and second campaigns.

In both cases, the survey taken asked for information regarding the situation before and after the Project, including questions for socio-economic characterization of the population, as well as the socio-production profile of the families[17].

[17] Reports "Estudio de evaluación del Programa Fondo de Adaptación al Cambio Climático" subcomponent 1.1 -1.3; and subcomponent 1.2. DIPROSE, 2019.

✓ *Implementation of improvements in the efficient use, collection, harvesting, and storage of water in the intervention areas.*

As regards indicators and goals planned in the logical framework, **all proposed goals are surpassed**. This is due in part to the strong focus on this subcomponent, which had resources increased after reassignment.

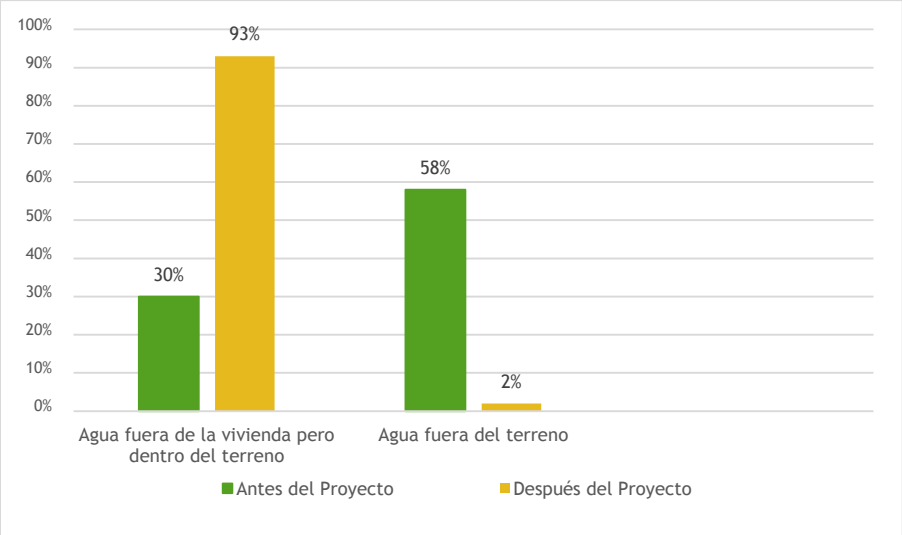
The initially planned scope provided a goal of 800 producers improving their capacity to respond and act in the face of climate variability based on greater water access. The survey results point out 97% of producers claim feeling better prepared out of a total 2,052, which equals to 1,990 families, surpassing the goal by 150%.

59% of the beneficiaries claim perceiving **substantial improvements of agricultural productivity** after the project, and 33% claim perceiving some or a little improvement.

Also, **a total of 90.4% of producers claim better access to water supply for consumption** after the project, and **74.6%** of producers claim better access to water for production versus a goal of 80%.

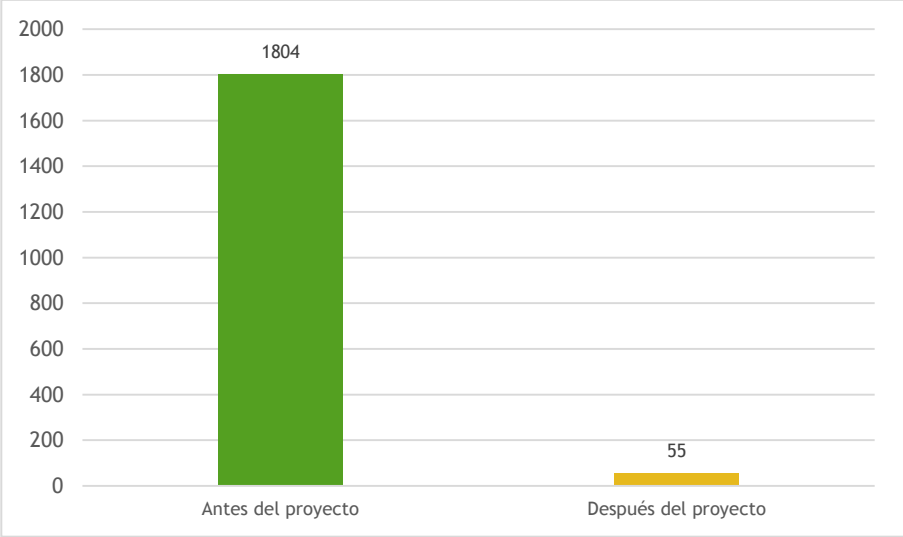
They also claim **improvements associated with the location and use of water sources.** As for **location**, a strong increase in the **on-farm** location is observed, going from 30% before the project to 93% after the works. Simultaneously, a decrease in the location of water outside the farms is observed, dropping from 58% before the project to 2% after it. Furthermore, the average distance of water hauling goes from **1800 m to 55 m.**

Figure2: Location of water before and after the Project



Source: preparation by the authors based on the Project's outcomes report.

Figure3 Average distance of water hauling (in meters) before and after the Project



Source: preparation by the authors based on the Project's outcomes report.

The survey results also include **the change of water sources used by producers for consumption and production.** Thus, **a decrease in the dependence on bottled water, tank trucks and use of water from streams, ponds and rivers** is observed. After the Project, **a strong increase** in the use of **rainwater** collected is observed, **going from 17% to 78% after the project**. The same with water from dug wells with cement liners and groundwater brick wells.

Among the main outcomes mentioned in experience systematization, in qualitative terms, in addition to **reducing the time of water hauling** by about 4 hours a day for women and girls, greater access to water and water availability, they allow **increase school attendance** of boys and girls, by improving hygiene conditions and allowing women to do the laundering.

- ✓ *Reduced fluctuation of income for family farming producers, encouraging to continue farming and to continue living in rural environments.*

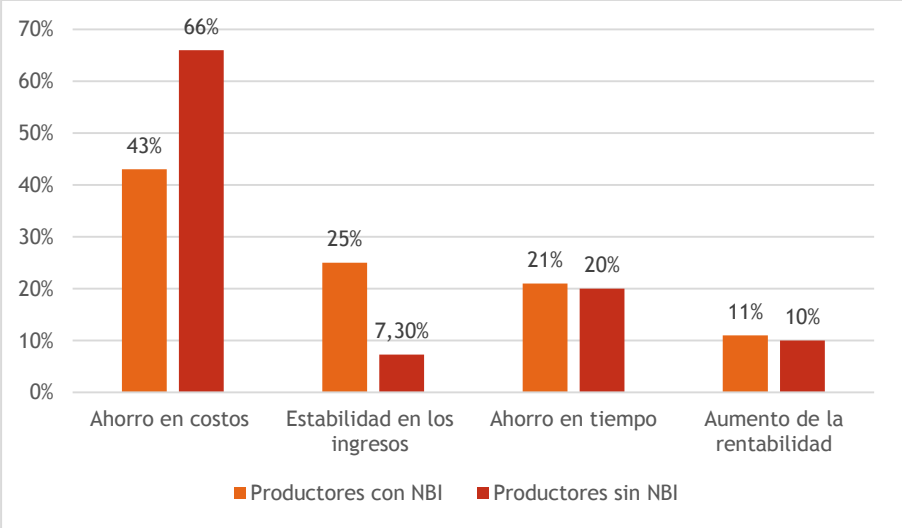
It is verified that the overall target population covered by risk transfer mechanisms was exceeded. Out of a total of 5,165 Family Agriculture Units, as the target population identified in the Project area at the time of formulation, a total of 787 families was planned to be covered, corresponding to 15% of the population. Finally, 1,294 families were reached, corresponding to 24% of the target population, which exceeded the initial goal.

As regards **the perception by beneficiaries of a decrease in risk** in the face of extreme events when hiring insurance, **42% of those surveyed claimed to feel safer when producing with this type of instrument** in the face of extreme events compared to other instruments implemented before the Project. The survey highlights that the main phenomena that impact the region are winds (88% of those surveyed mention a high impact); and in second place, hail (41%); and the main socio-economic impacts include production losses and decrease in income. This way, insurance shows a good coverage by acting as an instrument to stabilize income and cover damage from wind, hail, frost and fire.

In turn, **almost all** those surveyed (99%) said that **insurance is a good or very good option against damage caused by weather phenomena**.

Among the **main benefits of insurance**, producers mention cost reduction in the first place. Producers with UBN mention, secondly, the importance of insurance as an income stabilizer, while producers without UBN mention the saving of time in second place.

Figure4 Main perceived insurance benefits - Producers with and without UBN



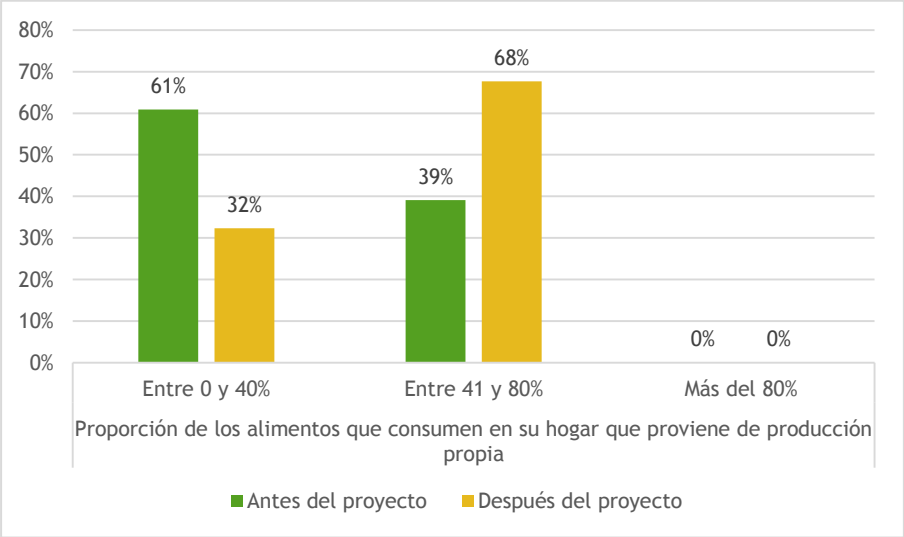
Source: preparation by the authors based on the Project's outcomes report.

The survey also underlines that producers were satisfied with the insurance output, and most of them would recommend it.

- ✓ *Increased farming production of small-scale family agriculture producers, and reduced economic and social vulnerability in the face of climate change and variability.*

As regards indicators of the logical framework, the survey results show the increase in the percentage of small-scale family producers with safer (greater) access to livelihoods, defined by the Project as those producers with a larger ratio of food consumed in their households coming from their own production. Thus, it is verified, according to those interviewed, that 61% of producers, before the project, produced up to 40% of the food they consumed, and only 39% of producers produced between 41 and 80% of their consumption. After the project, however, there is a **strong increase in the share of producers claiming to produce between 41 and 80% of the food they consume, being near 70% of the total**.

Figure5 Ratio of producers producing food for self-consumption



Source: preparation by the authors based on the Project's outcomes report.

Along these lines, producers claim substantial **improvements in food security** due to project activities Hence, 77% of producers claim to have greatly improved the quality of the food they consume, 51% claims to have greatly improved food access and availability, and 50% claim to have greatly improved the amount of food available. In all, 50% of producers claim to have improved food quality, quantity and availability, reaching the goal planned.

As regards income, **31% of Beneficiaries** claim to have their **income deriving from food production increased** associated with project activities. This means reaching 103% of the goal. Also, 41% of producers claim perceiving a **great improvement in access to markets**, increasing trading of their produce. The goal planned was 30% of producers. Therefore, the Project exceeded the goal by 36%.

Near **60% of producers** claim that, with the input's works, **production increased** substantially. 16% of families claim to have incorporated 2 hectares to their production after the Project.

20% of producers claim also to have **incorporated a new production activity** with the investments made.

Component 2

✓ *More and better monitoring and evaluation capacity of climate change and variability.*

The indicator defined to be able to operationalize this outcome is associated with the increase in stations coverage density. Through the Project's activities, **95%** of the goal was **fulfilled**, going from an **average density in the intervention area of 1 station every 29,244 km²** to an **average density of 1 station every 5,420 km²**, reaching almost all the proposed density increase.

Table 11: Density of stations and rain meters before and after the project

Province	Synoptic SMN and INTA stations	Automatic stations	Rain meters	Surface area (km2)	Density (1 station every * km²)	New EMAs INTA network	New EMAs Ministries of production	New Density (1 station every * km²)
Chaco	3	11	22	99,781	7.127 / 2772**	4	20	297/13,5**

Santa Fe (north)	2	6	-	55,925	6,991	3	-	2,330
Corrientes (west)	3	-*	-	27,264	9,088	4	15	478
Santiago del Estero	-	6	-	62,360	10,393	4	-	2,598
Total	**8**	**23**	**22**	**245,330**	**29,244**	**15**	**35**	**5,420**

*Projected network by the province of Corrientes: 12 in the area of influence

** Density considering stations and rain meter network.

NOTE: The two portable stations NIMBUS III INTA are not added as part of the network, as they are intended to perform research work in field trial lots.

The component's systematization underlines the densification of the stations' network not only through the installation of a larger number of observation points in the project's region, but most importantly, through the improvement of **variables and information surveyed** in many existing measuring points. Also, the **spatial distribution of measurement points was improved**, based on socio-economic vulnerability criteria and areas with thin coverage. Previously, these points were clustered in vast production areas. Whereas, with the project, they were located in places where vulnerable, **small-scale producers were concentrated**, and where there was no measurement point. The strengthening of the network also entailed **improvements related to the possibility of remote access to real-time data, and larger quantity of data sources**, which allow to compare the information generated, making a patent difference in the data and registration quality[18].

- ✓ *Outcome: Systematized basic information, freely available, for effective decision-making as regards adaptation of producers to adverse conditions and aimed at local and regional planning.*

The surveys conducted among producers suggest that, before the project, 15.3% of the population searched in climate information platforms for decision-making. After the project, 19.7% of producers claim using agro-climatic information frequently. A 30% increase in users is verified.

As regards technicians and governmental officials, there is no updated quantitative information on the use of agro-climate information before and after the project. The mid-term report on training results suggests that after training, 33% of technicians had increased average knowledge by 15%. And over 60% claimed to have learned new agro-climatic information available on the web after training. Furthermore, the creation of a web platform with publicly available information features a total of 782 queries/logins (of about 511 users), logged from January 11, 2019 to mid-May, same year.

Qualitative results systematized in the Systematization Report of Component 2 highlight the **substantial strengthening of climatic information systems**. This was due to the capacity of a single platform to offer information from several stations added to the network, to include agro-climatic information outputs previously not available, and to ensure free, online access to information. Access is through: http://adaptacion.inta.gob.ar/, open access for everyone interested.

It is important to emphasize that this system requires **certain knowledge and access to energy and mobile networks**, which does not happen with every producer, especially for those most vulnerable, for which

[18] Moreiras (2018), Sistematización de Experiencias Fortalecimiento de sistemas de información agroclimática.

learning is required. This learning was gradually developed at a technical level among the members of the network, but as the systematization report highlights, there is still work to be done especially at the level of the small-scale producers of family agriculture. The scope of the platform did not include work specifically at the level of producers' communities in the communication of this information for its interpretation and direct use. Thus, there is great potential for continued work and outreach, generating communication outputs that capitalize the information and agroclimatic products **for agro-productive learning and decision-making of producers**.

Component 3

- ✓ *Outcome: Units of municipal and provincial governments, educational institutes, and producers with capacity to generate appropriate adaptive interventions.*

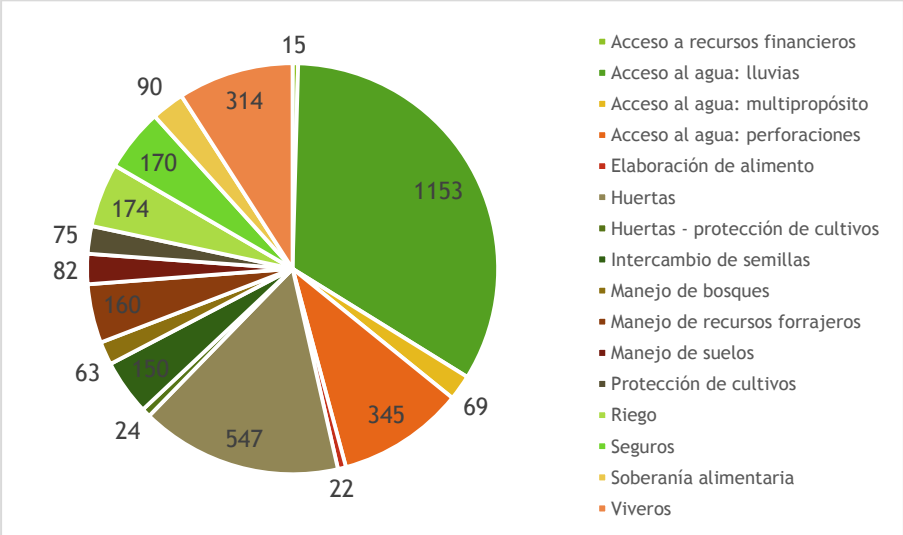
The **total number of producers trained in different adaptation strategies and in the climate change adaptation approach amounts to 3,882**, with a share of 55% women, and 52% young population. Out of this total, 1,834 were trained in the climate change adaptation approach and family agriculture, of which 872 are producer women, representing 47%.

A total of **3,453 producers were trained** in **implementation and construction of the different adaptation strategies**, with a lesser proportion of participating **women**, amounting to **34%**.

The **main adaptation strategies** in which producers received training were **access to water**, with collection, storage and use of **rainwater** concentrating 33% of the total trainees, followed by training in agro-ecological orchards and plant nurseries, and groundwater brick wells (see figure 5).

In all, 1,186 producer women participated in training regarding adaptation measures, chief among them being the construction of rainwater collection systems, and agro-ecological orchards and plant nurseries. Women participation is less represented in training for fodder resource and soil management.

Figure6 Distribution of adaptation measures of trained producers



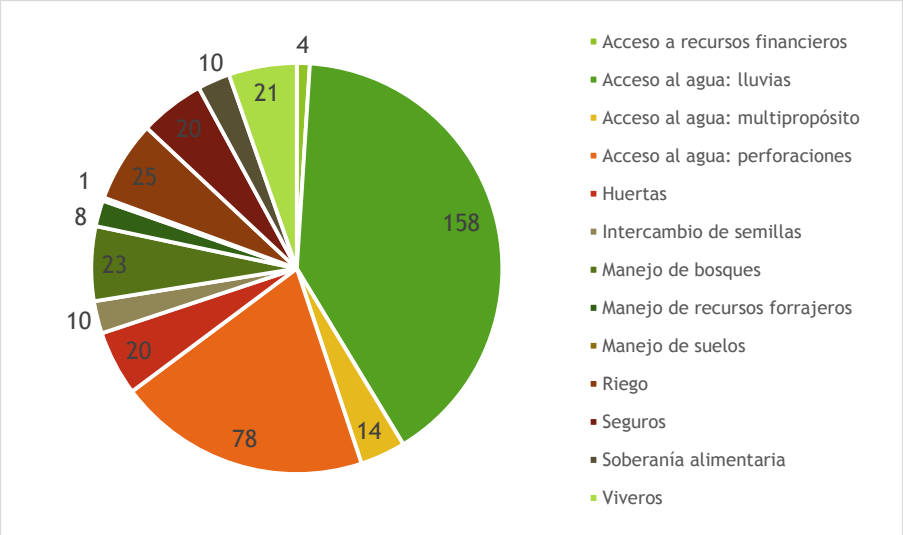
Source: preparation by the authors based on data from the Project's M&E system.

As regards **technicians**, the same tendency is observed as that of producers, with most technical teams having been trained in strategies of rainwater collection, storage and use. In second place, the training in

groundwater brick well strategies appear as the main adaptation measure in the workshops, followed by training in irrigation techniques, forest management, orchards, and insurance as risk transfer systems.

The information available in the training results report indicates that **more than half of the technicians doubled their knowledge** regarding concrete adaptation measures.

Figure 7: Distribution of adaptation measures of trained technicians



Source: preparation by the authors based on data from the Project's M&E system.

Trainings for Municipalities and decision makers: the Project worked incipiently with direct training on the approach of climate change and family agriculture for officials and technicians of municipalities. In 2017, a team of facilitators from Santiago del Estero was involved, with workshops focusing on public officials related to the environment, production, and rural development aimed at providing instruments for climate change adaptation oriented to decision-making. The proposals could be worked in Chaco and Santiago del Estero, in the towns of Hermoso Campo, Chaco; Municipality of Quimili, Santiago del Estero; Local Agricultural Board, Las Breñas, Chaco; Municipality of Añatuya, Santiago del Estero.

In addition, the ORA promoted training with municipalities in the use of agro-climatic information, thus involving the Ministry of Production of Chaco and the Municipality of Corrientes.

Trainings conducted at Escuela de la Familia Agrícola (EFAS) and Agricultural Schools: During 2017, various training sessions were held at the EFAs. In total, 5 trainings were held in Chaco, Santa Fe and Santiago del Estero.

In 2018, training was repeated at the School of Agroecology in Santiago del Estero and in Chaco, with 20 students from a rural school of community management where the sons and daughters of the families of the Qom indigenous community of the zone attend. In addition, in June of that same year the Project participated together with the Directorate of Farming Schools of the Ministry of Agroindustry in the edition of Escuelagro. Escuelagro is an educational project aimed at rural schools that connects farming schools, producers, technical institutions, municipal and provincial governments, and the Ministry of Agroindustry, to promote entrepreneurship in rural youth and encourage continuity in the rural settings. At these events, modules of adaptation to climate change and adaptation strategies such as the construction of cement tile-roof cisterns for access to water, management of biodiversity, and agro-ecology were delivered. In total, more than 200 people attended, including students of the last years, principals, teachers, producers and technicians of the province of Chaco.

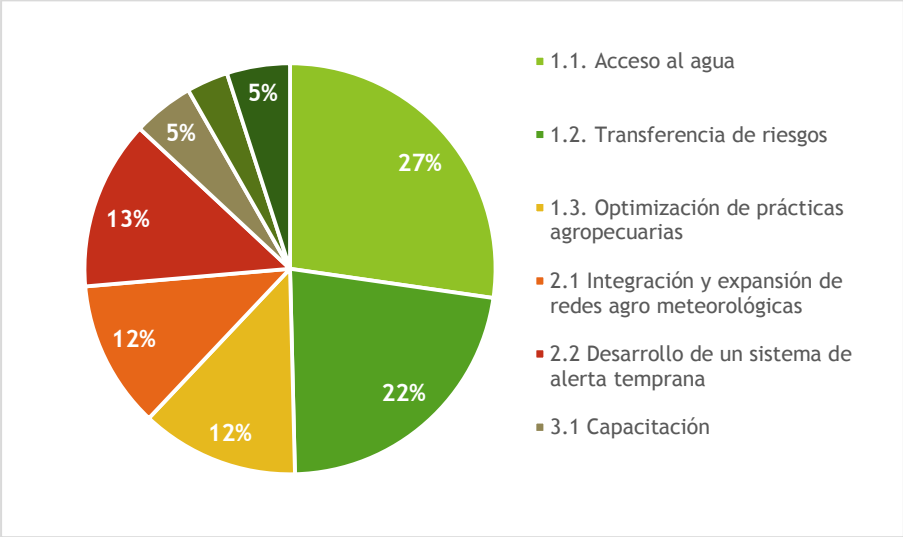
This strategy allowed reaching rural youth directly, laying important foundations on the approach and the main adaptation strategies for the area.

4.10 Costs, financing and financial performance

4.10.1 Original matrix structure

The total cost of the Project was estimated at USD 5,360,000, financed entirely by the AF donation, and USD 280,000 for implementation. Of the total budget, **61% was assigned to component 1** for the development and implementation of concrete adaptation measures for small-scale family agriculture: 27% for water access technologies, 22% for implementation of risk management and transfer plans, and 12% for technologies of farming practice optimization. **25% of the budget was assigned to component 2**, of which 12% pertains to integration and expansion of agro-meteorological networks, and 13%, to development of an Early Warning System. Lastly, **8% of the budget** was devoted to activities of local **capacity-building** through trainings. **Project implementation**, intended to cover ENI's costs, increase the total sum to **USD 5,640,000,** and represents 5% of the budget assigned.

Figure 8 Distribution of budget per subcomponent - original matrix



Source: preparation by the authors based on data from the Project's M&E system.

Table 12: Original matrix

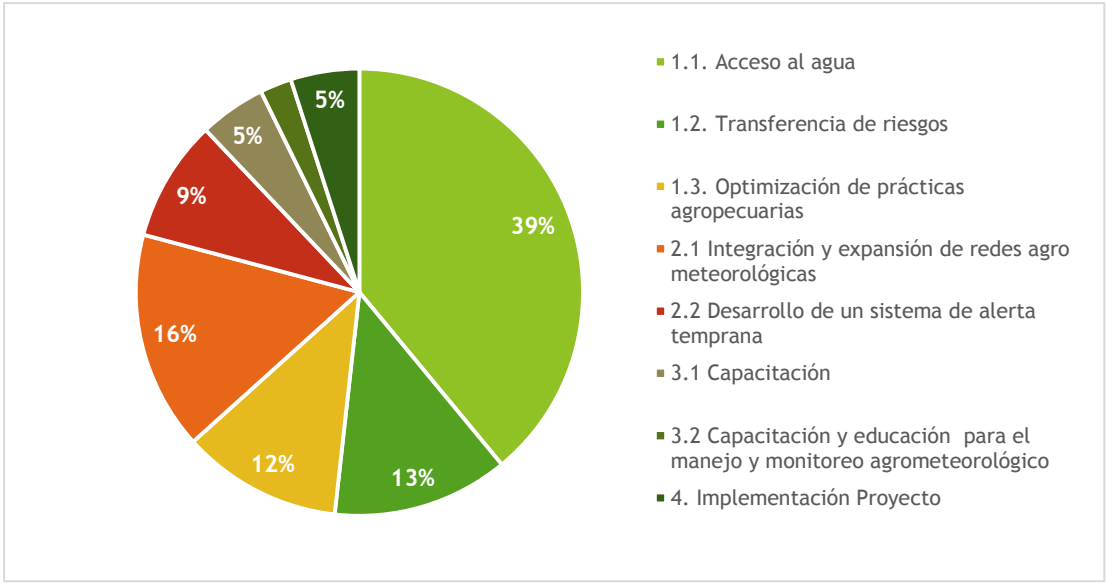
Components	Outputs	Original budget (USD)
1	1.1. Implementation of improvements in the efficient use, collection, and storage of water in the areas of intervention.	1,538,171.00
	1.2. Implementation of a system of risk management and transfer aimed at small and medium scale agricultural producers. Development of two pilot tests in the selected region.	1,260,142.00
	1.3. Management optimization practices regarding agricultural, livestock and forestry production in each of the areas of intervention.	701,068.00
2	2.1 Integration and expansion of agro-meteorological networks	653,500.00
	2.2 Development of an integrated system of early warning and decision making to evaluate and manage climate risks, including extreme events	750,870.00
3	3.1 Development of modules of capacity-building and communication on risk management and transfer for governmental technical experts and small-scale agricultural producers.	271,500.00
	3.2 Training and education for municipal and provincial governmental units for hydro-meteorological management and monitoring, analysis of climate information, use of methodological instruments and development of adaptations modules	184,750.00
	Total	**5,360,000.00**

Source: preparation by the authors based on data from the Project's M&E system.

4.10.2 Revised structure

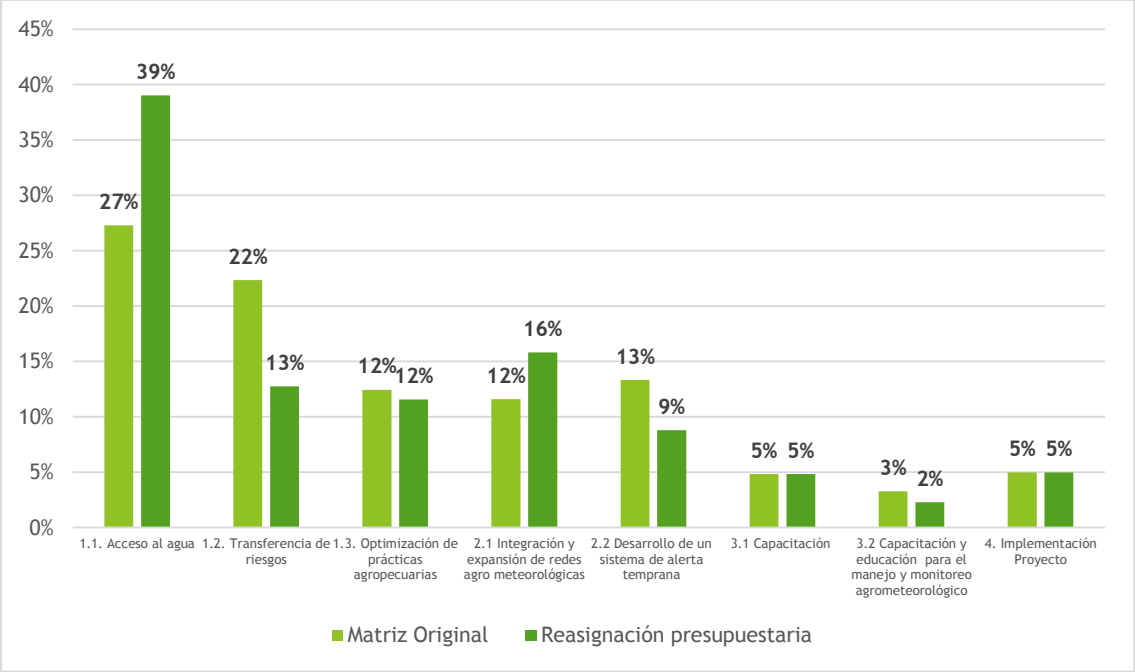
With the reallocation of budget approved by AF in February 2017, the Project's total sum was not modified, but sums were reallocated among outputs and components. Component 1 now represented 67% of the total budget assigned. Also, the subcomponent of implementation of improvements in water use, collection, and storage now represented 41% of the total budget assigned, and the budget for the risk transfer system was cut, now being of 13% of the total budget, and 12% for farming practices optimization. Component 2 remained at 26% of the budget, with reallocation among its outputs: budget for network and stations integration increased to 17%, and down to 9% was the development of early warning system. Budget of component 3 now was of 8%, with the budgetary assignment of development of training modules being the same, and reducing by 1 percentage point the budget for training in management and monitoring of agro-meteorological stations, and agro-climatic information analysis.

Figure9 Distribution of budget upon reallocation



Source: preparation by the authors based on data from the Project's M&E system.

Figure10 Changes in Project's budget distribution



Source: preparation by the authors based on data from the Project's M&E system.

Table 13: Revised financial matrix

Components	Outputs	Revised budget (USD)
1	1.1. Implementation of improvements in the efficient use, collection, and storage of water in the areas of intervention.	**2,200,103.00**
	1.2. Implementation of a system of risk management and transfer aimed at small and medium scale agricultural producers. Development of two pilot tests in the selected region.	**719,583.00**
	1.3. Management optimization practices regarding agricultural, livestock, and forestry production in each of the areas of intervention.	**652,724.00**
2	2.1 Integration and expansion of the agro-meteorological networks	**891,240.00**
	2.2 Development of an integrated system of early warning and decision making to evaluate and manage climate risks, including extreme events	**495,525.00**
3	3.1 Development of modules of capacity-building and communication on risk management and transfer for governmental technical experts and small-scale agricultural producers.	**271,500.00**
	3.2 Training and education aimed at municipal and provincial governmental units for hydro-meteorological management and monitoring, climate information analysis	**129,325.00**
	Total	**5,360,000.00**

Source: preparation by the authors based on data from the Project's M&E system.

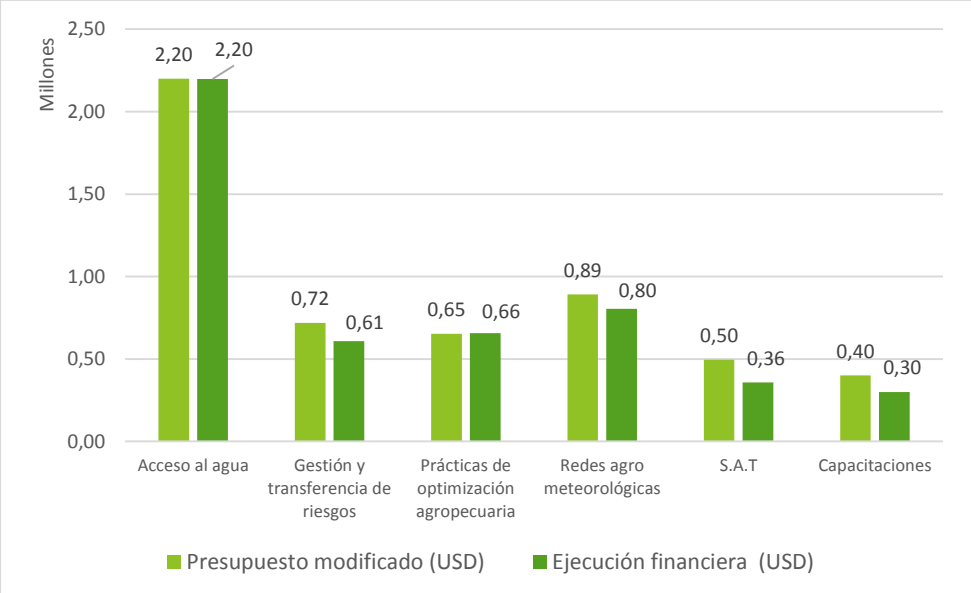
4.10.3 Financial execution and performance per component

Table 14: Financial execution per component

Components	Outputs	Revised budget (USD)	Financial execution (*) (USD)	Execution percentage
1	1.1. Implementation of improvements in the efficient use, collection, and storage of water in the areas of intervention.	2,200,103.00	2,197,941.26	**99.9%**
	1.2. Implementation of a system of risk management and transfer aimed at small and medium scale agricultural producers. Development of two pilot tests in the selected region.	719,583.00	608,043.86	**84.5%**
	1.3. Management optimization practices regarding agricultural, livestock, and forestry production in each of the areas of intervention.	652,724.00	657,009.42	**100.7%**
2	2.1 Integration and expansion of the agro-meteorological networks	891,240.00	803,997.71	**90.2%**
	2.2 Development of an integrated system of early warning and decision making to evaluate and manage climate risks, including extreme events	495,525.00	358,390.70	**72.3%**
3	3.1 Development of modules of capacity-building and communication on CC, risk management and transfer for governmental technical experts and small-scale agricultural producers.	271,500.00	255,320.74	**94.0%**
	3.2 Capacity-building and training aimed at municipal and provincial governmental units for hydro-meteorological management and monitoring, climate information analysis.	129,325.00	44,723.26	**34.6%**
4	Project implementation (ENI)	280,000.00	219,546.43	**78.4%**
	Total	**5,640,000.00**	**5,144,973.38**	**91.2%**

(*) According to payment report of UEPEX, 2/21/2019.

Figure11 Budgetary assignment and financial execution (in million USD)



Source: preparation by the authors based on data from the Project's M&E system.

The level of global financial execution of the Project was above 90%. At the level of subcomponents, the financial execution of the water access subcomponent is noteworthy as it executed almost all financial resources. As regards the risk management and transfer subcomponent, the Project reached 84% of execution, and the farming practice optimization subcomponent, 101%.

For component 2, 90% of execution is observed for the subcomponent of integration and expansion of agro-meteorological networks, with lesser execution as regards the development of an Early Warning System, with 72%. In turn, component 3 features a 75% of financial execution, with the best level of execution corresponding to subcomponent 3.2.

This way, it can be observed that the highest levels of execution pertain to **component 1**, representing **70% of the Project's entire financial execution**, considerably prioritizing the activities directly implemented with family agriculture producers, for the implementation of concrete adaptation measures.

4.10.4 Efficiency

For the analysis of this section, we consider the definition of efficiency expressed in the OECD's DAC that "*measures the qualitative and quantitative outcomes in relation to inputs*. *It is an economic term meaning that the project uses the least expensive resources possible to achieve the desired outcomes.*" This usually requires the comparison of alternative approaches to achieve the same results, to see which is the most efficient.

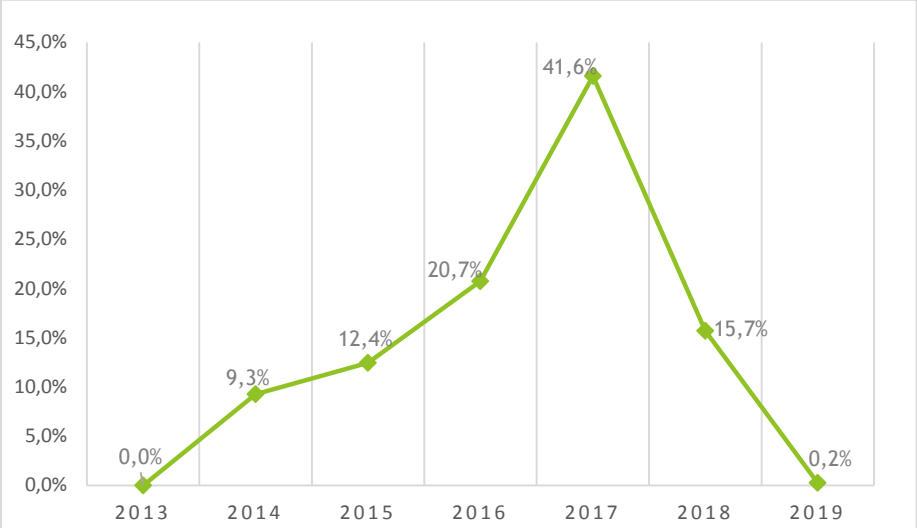
Efficiency thus assesses the way in which resources are used during execution and whether they adequately lead to the achievement of the expected outcomes.

Based on this definition, some indicators are analyzed based on the available information, which has some limitations related to the operation of the Monitoring and Evaluation (M&E) system.

When analyzing the financial execution of annual progress, we observe a slow execution period from Project start-up in October 2013 until 2015, with an increase in execution from 2016 to 2018, a period in which more than 75% of budget execution is concentrated.

i. Time Efficiency

Figure12. Percentage of execution of funds per year



Project execution began in October 2013, after execution agreements with INTA and SADyS. Three periods can be identified in terms of pace and major milestones of the Project.

a. Slow commencement period: from October 2013 to December 2015

The first stage of slower execution is mainly explained by two reasons. On the one hand, project commencement in year 1 (2014) implied the start-up of the administrative circuits to be able to begin execution of INTA activities, which signed the execution agreement at the end of 2013. For its part, the signing of the agreements for the execution of the funds by ORA took longer than expected and was achieved by the end of 2014. Second, in 2015, there were problems of availability of funds. When making the request for budget credits to have the maximum limits to be used during the year authorized -as indicated by the National Budget Law of the National Public Administration-, the execution by INTA and ORA was rated as non-budgetary. In this way, the funds were authorized only for the execution by the then UCAR - currently DIPROSE. When this problem was detected in February 2015, several steps were taken at ENI to obtain the relevant authorization and the increase in the budget credit, but the request was denied. Finally, they obtained the credit compensation available from a donation administered by National Parks, which was not going to be used by that entity during that year. This process took several months, since it is an administrative resolution that must be signed by the Ministry before it can be forwarded to the Cabinet Office of Ministers for authorization.

b. Execution steps up: 2016 and 2017

During 2016, with the administrative circuits defined and agreed upon with the executing units, Project execution received a boost, especially by the first two tenders for materials to carry out the on-farm water access works. In February 2017, the budgetary reallocation was approved by the AF, which mainly assigns a larger budget to water works, and a new tender is launched to speed up execution. Likewise, insurance campaigns are implemented, which reinvigorate the execution of the ORA. This period concentrates 60% of the budgetary execution of the entire Project.

c. Execution pace slows down: 2018

During 2018, the Project planned to execute 100% of the remaining funds. However, the execution pace slowed down due to institutional changes within the Ministry and the ENI that impacted the financial and the execution components of the activities. The changes implied alterations of the operation mode and approval and signature circuits at both the ENI and the ORA. Therefore, several activities were delayed and others, which required a prudent time for their execution -as is the case of revolving funds - were not implemented.

To conclude, it is observed that **delays of implementation and commencement** of the Project generated **inefficiencies** in terms of an increase in administration costs due to the delay and time extensions. However, **as the Project progressed**, **efficiency gains** were observed reaching 92% of financial execution towards the end.

ii. Cost-efficiency

From the analysis of the financial execution, it derives that the Project was implemented, and the outputs delivered, within the values of the assigned budget. It should be noted that the cost efficiency of the Project is hard to assess mainly because the available information is not enough to assess whether the outputs were designed or delivered in a profitable manner. For an adequate cost-efficiency analysis, it would be necessary to compare the benefits and costs generated by the intervention in a cost-benefit analysis. However, the Project did not present such an analysis at the time of formulation, nor is there sufficient information in the monitoring and evaluation system to perform such analysis with each adaptation technology/ measure promoted by the intervention.

Taking into account the above mentioned limitation, for the analysis of the efficiency of the Project, the following were analyzed: i) savings measures upon implementation; ii) the technical assistance costs per beneficiary assisted; iii) the aggregate costs *ex-ante* and as executed; iv) the relation between project administrative costs and outputs; v) the total investment per beneficiary assisted.

i) **Measures of savings upon implementation**: it is verified that the Project was planned and implemented with considerations to achieve an effective saving in the management of the activities. The main measures adopted include:

1. **Insertion of project's management and execution structure in preexisting Public Administration institutions.** This way, human resources already available and with specific knowledge about the interventions to be carried out were used, avoiding the generation of parallel executing units.
2. **Self-construction of adaptation technologies.** At the territorial level, the Project decided not to finance the hiring of labor for the construction of on-farm works, but rather generate local capacities in the family producers for the self-construction of the technologies. This had a twofold benefit: on the one hand, knowledge about climate change and adaptation measures in the local population was strengthened, generating in turn the capacity to collectively build these measures and replicate them when obtaining financing for the materials. In addition, in many cases, through negotiations with the Manos a la Obra program of the Ministry of Labor, many of these jobs were included as trades and the relevant training program was developed. This meant that many participants could get the Ministry certify their training in construction of cisterns, water wells, and community orchards certificated as trades and receive a compensation for

the time spent in training. In many cases, the municipalities started hiring certified builders, to make progress in the construction of water wells, cisterns and roof retrofitting in nearby towns.

3. **Collaboration agreements with technical institutions for technical assistance.** For training in the territory regarding water wells, geo-electric surveys, and work in the Project's intervention area directly with the producers, INTA subscribed a cooperation agreement with INTI. In turn, ORA had the cooperation and support of the Secretariat of Production of the provincial government of Corrientes, for the implementation of the Pilot Plan of sheltered Horticulture Insurance.
4. **Co-financing in kind.** Even though it is impossible to ascertain in money the percentage of co-financing on the part of the Project, since there was no thorough systematization of matching contributions, the contributed works and activities include:
    a. Availability of human resources from several national and local institutions devoted part-time or full-time to the Project's activities. This is observed in human resources both of the ENI and the ORA, INTA and the Secretariat of Environment and Sustainable Development.
    b. Use of offices, services, stationery, communication expenses, printing, traveling expenses, in the care of the same institutions.
    c. Input of materials and labor of local institutions, such as Municipalities, Provincial Water Authorities,
    d. Input of organized producers' work.

ii) **Cost of technical assistance and training per assisted beneficiary** Considering the budget assigned in component 3: capacity building, *ax ante* an estimated cost was anticipated of USD 136 per trained beneficiary. After implementation, considering financial execution, training cost per beneficiary rose to USD 67. The actual cost per beneficiary was 50% lower than the one planned.

iii) **Aggregate costs *ex ante* and costs as executed.** In this regard, there are differences at the level of each subcomponent. The subcomponent of access to water (1.1) had planned *ex ante* a total investment of USD 1,199 per beneficiary, while after budget reallocation, the investment per beneficiary was 10% lower, USD 1,095 per beneficiary. This is just taking into account on-farm works, to which a total of **1,978 students** benefited with works **in 14 schools, one child care provider, and one community club** must be added.

The subcomponent of risk management and transfer (1.2) has an estimated *ex ante* investment of USD 1,705 per beneficiary. After budget reassignment and with the final execution data, the actual investment per beneficiary amounts to USD 488 per beneficiary. In this regard, costs were saved by 70%. The main explanation for the reduction of costs and greater scope of the subcomponent is due to the fact that the implementation of multi-risk insurance for producers of cereals, oilseeds and cotton was discarded. The implemented pilot plan was aimed only at sheltered horticultural producers so the costs were less than planned.

At the level of optimized farming practices (1.3), *ex ante*, an investment of USD 665 per beneficiary was estimated for the works offered. Finally, this subcomponent had its budget reduced, and works were mainly executed of crop protection, reaching an investment of USD 2,250 per beneficiary. This is three times the estimated initial investment. However, it should be noted that **510 students from 5 rural schools were also assisted** through this component.

Component 2 as a whole had originally planned an investment of USD 1.4 million, of which it ended up executing 83%, reaching most of the proposed objectives according to the 2017 budget reallocation.

Component 3 planned an investment per beneficiary according to the original budget of USD 136 per trained person. After the execution, the initial goal was widely exceeded with a cost saving of almost 50%. Finally, the investment per beneficiary per training amounted to USD 67 per person. The main reasons for saving are due to the strategies implemented by the project in terms of articulation in territory with different institutions, and the hiring of a local team of trainers of the climate change approach in family agriculture, who managed to train approximately 1,140 producers in the 4 provinces of the project during 2017 and more than 200 during 2 months in 2018. It being a local team, the costs of mobility and travel were reduced, and the scope and goal of the project were achieved.

iv) **Costs of Project administration and deliverables** The administrative costs of the implementation of the project were used for the expenses of administration of the ENI, of monitoring and evaluation, and of knowledge management of the Project. In total, these costs amount to USD 241,000[19] and represent USD 0.05 for each dollar of the total cost of the Project. The specialists hired by each executing unit for the technical support of the Project's subcomponents were allocated within the costs of each subcomponent.

The implementation costs in relation with the investment made by the project represent 5% and are within the standards of similar projects.

v) **Total investment per assisted beneficiary:** The investment per person through direct implementation of adaptation strategies with components 1 and 2 amounts to USD 237 per person. The total number of persons reached amounted to 16,134, including the total number of children, teachers who received works, and families, multiplied by the average household size in the 4 provinces of the project (3.8 persons). When adding the trained technicians, the total of beneficiaries amounts to 16,733, the total invested amount, including strengthening of capacities, amounts to USD 294/person.

[19] Provisional information to May 2019, supplied by ENI's coordination team. Part of the expenses of the final audit and project evaluation are still pending allocation.

4.11 Environmental and social risks; gender considerations

4.11.1 Compliance with environmental and social principles

At the time of project approval -2013-, the Social and Environmental Policy of the AF had not yet been adopted. For this reason, the Project did not contemplate the Fund's policy in its design or in the methodology implemented during execution. However, during Project implementation, DIPROSE, as ENI, complied with the procedures, methodologies and standards of the Environmental and Social Unit.

The Project did not contemplate the eligibility of works and investments of category A and B. The project formulation document established the range of eligible adaptation technologies, all cases pertaining to category C works, the environmental and social impact of which are zero or minimum. In fact, the eligible works consisted solely in on-farm works in the same land of the producers or in community lands, and the consensus of the beneficiaries of the works was required to advance its construction.

In order to verify the eligibility of the beneficiaries and of the works, the prior review and approval of each investment was carried out through an "*ex ante* report of activities" that allowed a diagnosis of the population, area and works to be carried out, including relevant information on the technical, socioeconomic and environmental aspects of the application.

In addition, monitoring visits were carried out that were effective to verify compliance with the environmental and social policy of the DIPROSE and detect potential problems and thus activate timely mechanisms to improve them.

Thus, for example, it was found that in communities visited where cisterns were built, given the conditions of precariousness of the families, some used plastic from refuse silo bags as waterproofing of their roofs. These bags have pesticides residue and water collected in the cistern comes from roof drainage. That is why, the replacement of silo bag plastic for zinc sheets was promoted.

During monitoring visits, it was detected that works completion varied depending on the family, and in many cases, lids were not placed in some water wells. With this information, the technicians in the territory were asked to inspect works' completion, including a list of the contents thereof, to ensure there was no contamination.

In other case, families from one community were storing water in drums used for agrochemicals in neighboring fields. To avoid the use of those drums containing toxic residue for human health, other drums were bought, and field technicians held informational meetings building awareness among families on the importance of not re-using such drums.

Many of the families in the intervention area live in places surrounded by vast monoculture plantings, and in some cases, aerial spraying is still conducted. Upon detecting this situation, a request was made for the analysis of the water collected in different cisterns to check for traces of contamination.

In the territory, support was provided to the technicians performing the works alongside the producer families through training workshops. The topics covered included environmental, social, climate change and gender issues. Being a policy of DIPROSE, the gender perspective was mainstreamed into the Project.

All project activities were performed pursuant to national and international laws, as established by DIPROSE's policy.

As for the principle of **equitable access** to the Project's benefits, the project specifically has water access among its components, as an essential human right for life and socioeconomic development. Project's data and results prove that this activity benefited mainly women and children, since they are the ones mainly responsible for hauling water, sparing them time otherwise devoted to displacement. According to the project's outcomes survey, the average distance to walk for water collection goes from 1800 m to

55 m. Also, indigenous population of the area benefited from the project's actions, and a larger quantity of beneficiaries than that originally planned was attained. The inclusion of rural primary schools and a child care home as beneficiaries of the project's actions also shows the actions focusing on vulnerable groups as a special priority. Initially those activities were not contemplated, but during execution, executing units in the territory identified the need and importance of water access and of promoting adaptation strategies among those groups. Thus, they were included.

Project's beneficiaries pertain mostly to population sectors of very low income, in many cases, isolated groups, even of subsistence. Water access allowed to improve hygiene, making a difference in boys and girls schooling process, and also in production, since many families began to produce their own food, incorporating livestock and orchards, thus covering their basic needs.

In most cases, equitable access to this resource by the most vulnerable was attained.

Also, when building cement tile-roof cisterns, it was community construction, and the beneficiaries were determined by the community itself. When it comes to groundwater well construction, discussion and consensus were promoted among the different beneficiaries of the works to ensure equal access, and consensus on location thereof.

The very project formulation focused on Argentina's **most marginalized and vulnerable groups**. The region and the selected provinces are among the country's poorest. According to the EMT "...*the relevance of the intervention area lies not only in the high variability of precipitation and increase in extreme situations (floods and droughts) compared to other regions, but also in the greater relative difficulty of adaptation of its producers compared with producers from other regions of the country (because) the north of the Central Region harbors the family producers with the country's greatest difficulties in climate change adaptation, according to the maps of combined social indexes considering the social vulnerability index against disasters (IVSD) and the Unsatisfied Basic Needs Index (UBN).*[20]"

Social vulnerability increases in the face of a climate change scenario, especially affecting women who are usually responsible for water hauling in the face of scarcity.

Regarding the **promotion of gender equality and the empowerment** of women, through training and support to technicians who worked on the project, as well as the monitoring and evaluation system, with periodic reviews of disaggregated information on the beneficiaries, and visits to the territory, it was intended for both women and men to have the same opportunities to participate, to benefit from the activities in a comparable way, and not to be harmed by the execution of the activities.

Projects that involve involuntary resettlement or displacement were not eligible for the project. Nor were activities that entailed conversion or degradation of natural habitats or that caused damage to local biodiversity, or those that implied land or soil degradation, or damage to cultural heritage.

All this was verified through the pre-approval of the investments to be made by INTA as the executing entity with the "*Ex ante* Activity Survey Report"; and it was verified in the monitoring visits carried out by executing units, and by DIPROSE as ENI.

As regards greenhouse gas emissions, the project did not favor works that meant a significant increase in emissions, while promoting, in addition, the prioritization of technologies combined with renewable energy, such as solar pumps for water extraction. Likewise, agro-ecological practices were disseminated as the best practices for agriculture, seeking to avoid dependence on chemical inputs and GHG emissions.

[20] Vaca Avila (2016), Midterm review, p. 25-26.

4.11.2 Gender considerations

4.11.2.1 Formulation

The project had weaknesses in the use of instruments to identify gender gaps at the time of formulation, since no systematic gender assessment was carried out. Project design included a diagnosis based on secondary information on producer women's situation in the region, and validation of conclusions at workshops and consultation with the potential beneficiaries. Based on that, the following proposal was developed:

- **Goals**: All activities have a specific target of women participation in the logical framework to ensure equitable access to Project's benefits. Thus, it was defined that at least 20% of the beneficiaries included women heads of households, since the focus was placed on producer families as beneficiaries.

- **Design of intervention activities:** The activities included in project design expressly state the importance and need to include women to ensure an effective adaptation to climate change. In order to guarantee their participation, gender training courses were included, aimed especially at technicians in the territory who will work for the project, with the training of trainers' methodology. Thus, it was expected to train in the cross-cutting approach and provide instruments to those who would work directly in the field to ensure participation in the activities by male and female producers alike.

- Analysis of the executing entities and their capacities: after identifying the need to strengthen the teams of the various participating institutions in the design proposal, training was included not only of INTA technicians in the territory, but also of all the Project execution teams.

- Monitoring of Project outcomes: the monitoring of the indicators of the logical framework of the Project includes, in the relevant cases, the metrics of progress toward the fulfillment of the goal, differentiated per sex, age and subgroup of the indigenous population. Although disaggregation per sex allows to identify gender gaps, this is not enough to analyze whether an intervention has delivered equitable benefits for both sexes or has reduced inequalities. Thus, for example, identifying that the intervention helped train 2,125 female producers, representing 55% of the total trained, does not imply that empowerment has ensued. The results to be measured to assess the achievement of empowerment would imply considering whether the adaptation strategies incorporated through women attendance at workshops allowed them to generate benefits. This is effectively verified when prioritizing water access works that result in a lower work load for women and children because they are the ones responsible for the hauling.

In this regard, it is noteworthy that the outcome indicators included in the formulation do not allow the measurement of gender-sensitive results. Thus, for example, the workload of women – who are the ones mostly hauling water - was not surveyed within the Monitoring and Evaluation System. This represents a weakness of the system, considering that it was one of the greatest impacts observed subsequently, of which there is no accounting for in quantitative terms.

4.11.2.2 Execution

As mentioned in the previous section, a specific gender strategy was not specified at the time of project design. However, during Project implementation, gender gaps were identified and appropriate adjustments were made to the activities and instruments proposed by the Project to address them.

From the beginning, specialists from DIPROSE participated by identifying gender gaps in the territory, and establishing an implementation strategy and flexible instruments to work with such gaps. The strategy was based on the **exchange with INTA technicians** to detect existing gender inequalities in the participating population. Through these exchanges, which took place in the context of training on gender

issues, work was conducted to develop strategies and instruments that would allow them to be better prepared to address inequalities in the territory. The main strategies consisted in specifically inviting women to participate at the workshops and trainings that took place under the project, ensuring that the workshops were held at times where women could attend and did not interfere with family care or household chores. In addition, women's inclusion in the survey of the requirements and needs of adaptation and investment priorities was promoted. Thus, when women were consulted, the main demand to cover was water access as opposed to the priority of men, on many occasions, as regards optimized farming practices. Furthermore, in many cases, it was observed that men were not interested in attending training in construction of cement tile-roof cisterns for rainwater collection, and it was the women who promoted the participation of the family in the project. The testimonials of women in the video *Juntas y Comprometidas* of the Project reflects this situation through the experience of families in one community, in Haumonia, Chaco[21].

The team of the implementation entity included two people specialized in gender, one of them more focused on monitoring the actions of the Project, and the other, on carrying out the training. In addition, intensive work was carried out with the target population on integrated training, which mainstreamed gender. However, the team recommended, among other things, to strengthen and continue this work.

Training carried out, as well as the aforementioned activities, show that both the DIPROSE and the Project management teams were willing to work on gender gaps. Training reports, as well as the insight of the specialists who participated in these trainings, highlight challenges during the implementation of the workshops such as: reluctance by some technicians as regards the approach mainstreaming, institutional shortsightedness, or lack of knowledge of the existing gender gaps within the target population. To overcome these challenges, gender specialists worked, first, on gaining the political will of the executing agencies to position the matter in the territory, and then on deepening the training among the technical teams in order to tear down reluctance, and incorporate the gender analysis dimension and the instruments that allow to solve the inequalities that are found among the population.

There is evidence of the strengthening of the skills of technicians who positively value the training in terms of learning new approaches and instruments to address gender gaps[22]. As these are public institutions with permanent technical teams and with permanent presence in the territory, it is expected that the integration of the gender perspective will be replicated in future actions and projects with which they work.

Regarding the results obtained, at the Project scope level, 17% of female heads of household benefited, succeeding in 77% of the established goal. As mentioned above, this disaggregation is not a sign of the Project's impact in terms of gender, since the fulfillment and registration of this goal is based on counting the sex of the person who defines himself or herself as head of household, rather than the true result that it had at the level of benefits for the female population. The water access works, which represent more than 40% of the total financial execution of the Project, are estimated to spare women and children on average two months a year worth hauling.

4.11.2.3 Monitoring and Evaluation

Monitoring and evaluation incorporated two forms of gender-sensitive monitoring. On the one hand, the consultant hired to monitor the works' progress in the territory had extensive training in gender and incorporated its observations during the visits made, mainly working on the recommendations with the

[21] Video Juntas y Comprometidas, https://www.youtube.com/watch?v=6KVHF95Brus&list=PLMbjw8kO7eSXChJdYQGi1IyoRvxmOT2_D

[22] Diaz, Marisa: Sistematización de Capacitaciones (2018).

technical teams of INTA. On the other hand, follow-up visits and implementation support carried out jointly by the coordination of the project at the DIPROSE and the executing agency, incorporated the gender focal point of the ENI, which capitalized these visits to work directly with the male and female producers visited, as well as with the male and female technicians who participated in the field trips.

As regards the information gathered by the monitoring and evaluation system, the qualitative information surveyed through systematization of experiences and case studies was more effective, as were the visits to the works to account for the true impact in terms of women's empowerment and gender outcomes, compared to the indicators defined in the logical framework.

The evaluation strategy included a gender perspective, selecting case studies to be systematized to account for the benefits of the Project for women. Thus, the Project has videos and systematizations where cases of access to water are presented with women as the main protagonists and beneficiaries. For the different forms of evaluation: midterm and final, the evaluation of the gender perspective and the results obtained was requested, and the importance of including both women and male beneficiaries in the surveys was stipulated.

4.11.2.4 Knowledge management, information sharing and reporting

As regards knowledge management, reports and systematizations of the Project show the identification of differences between men and women in terms of Project's activities and outcomes. Also, the training reports prepared by the training team in the territory with female and male producers mention especially how men and women are differently affected by climate change and have different priorities to overcome the challenges of climate change impacts in the region.

The project's audiovisual material focuses particularly on showing the project's benefits for women, chief among them being three videos[23] that tell the stories of water access works with women as protagonists and their insights. Also, the pictures used for the project's dissemination portray working women, building their own adaptation works, and actively participating of the Project.

4.12 Risk Management

Table 15: Main risks identified at Project commencement, strategies for risk mitigation, and outcomes

Risk identified at commencement	Risk mitigation strategy implemented	Outcome obtained
There is a risk that future administrations will not ratify the decisions made and the actions taken during the project.	Institutional agreements with the two executing agencies: INTA and ORA. Political negotiations to encourage signing agreements and sustain activities.	It is evident that the project maintained its execution until the last year, despite institutional changes, both at the level of the executing units and of the National Implementation Entity.
Lack of transparency or political interference in resource allocation.	Supervision by the DIPROSE, approval of expenses, procurement, and administrative control mechanisms. Technical justification of experts from the execution teams for incurring expenses and performing procurement for implementation of the activities. Holding regular meetings with the parties responsible for the execution of each component, and DIPROSE.	Positive evaluations by internal audit.

[23] Videos: "Juntas y comprometidas", "Agua linda, agua segura", "Agua para nuestras raíces" (2016).

It is probable that not all the necessary stakeholders will participate in the process with the necessary capacity and commitment. Subsequently, some stakeholders may be reluctant to adopt the proposed measures.	Diagnostic workshops and surveys of producers' demands with participatory methodologies that allowed to generate commitment as activities developed.	High participation of producers in the self-construction of the works. Total execution of the budget including a reallocation that allowed to increase the funds for the water access output.
Staff turnover in the Project Execution Unit. Local counterparts to the project may experience staff turnover that could delay project implementation.	Activities developed by public institutions and established by institutional agreements.	Continuity of execution without regardless of staff turnover.
Lack of sufficient information to characterize the extent of the changes caused by the overwarming of the troposphere.	The project anticipates the use of modern techniques for remote monitoring combined with a network of field stations and modeling instruments that will be used for monitoring.	There were no impacts caused by the identified risk which will harm project implementation.
The activities implemented are not profitable.	The project focuses on resilience being its main objective. Most of the financing was aimed at improving water access during critical periods of water shortage, increasing resilience of rural producer families. The strategy to ensure long-term profitability is work through INTA own institutional structure, who continue to work with the producers in improving production to supplement project's activities, with the resources of INTA itself.	The systematizations conducted prove that project's water access works can supplement the production improvements built in with technical assistance and support of INTA in the territory. In the mid-term, higher profitability is expected to derive from the reduction of costs by families when working their orchards and even an increase in the income in the case they can market their surplus. Some cases mentioned in the project go to show that.
Natural hazards (floods, droughts, storms) hurdle some efforts.	The project's entire execution area through implementation had an extraordinary quantity of rain causing delays in the performance of some activities due to flooded lands and roads. In addition, many of the works could not be executed during the rains season. The ENI requested the INA to prepare a state-of-the-art reporting the works in progress, yet to be completed, for which materials were purchased and INTA commitment was engaged.	INTA sent the state-of-the-art and the commitment to complete the works in progress with an action plan to finance with its own resources.
Climate variability. Changing climate conditions might affect the success of specific adaptation measures which will be tested during the project's life.	The development of institutional capacities and the generation of information of monitoring on climate variability in the region is one of the activities performed by the project. The new outputs of agro-climate information developed by the project are disseminated through a web platform and used by extension technicians, both	During project implementation, no adaptation measures were observed to be affected adversely by climate variability.

	men and women, when providing guidance to producers.	
Delays in execution of regional financing	To solve the delays, executing units worked together with the DIPROSE, to expedite administrative processes, and to perform a close monitoring over the ongoing procedures within the ENI.	Despite the attempts to expedite financial execution, the slow pace perceived by the executing units is mentioned in the project's several systematizations.
The Argentinian government cannot capitalize enough financial resources to ensure sustainability of the project's actions.	Insertion of project's actions in public institutions which remain in the territory and which handle their own resources. Knowledge management and experience systematization to generate lessons learned and continue with actions through new programs/projects being financed. Articulation with various national, provincial and municipal institutions.	Actions under the water access and optimized farming practices subcomponent continue with the financing INTA receives through PROHUERTA for special projects. In the case of the network of meteorological stations, financial sustainability for maintenance is a weak point mentioned by the institution's technicians. Chances to continue insurance actions and strengthening of agro-climate information systems through new programs such as PROCANOR, financed by IDFA, and GIRSAR, financed by the World Bank.

5 Lessons learned

Table 16: Summary of the main lessons learned

Topic	Main lessons
Climate Change	• **Potential**: the recent positioning of Climate Change, and particularly Adaptation to Climate Change, on Argentina's public agenda shows there is huge potential for work and innovation in the territory. • **Visibility**: the Project has contributed to make visible and incorporate an agenda of inter and intra institutional work on Climate Change issues. It is evident that the importance of agro-climatic information for risk management has been put in the spotlight. • **Mainstreaming**: training in climate change and support in the implementation of the different adaptation works were key actions to engage and motivate the communities and technical teams as to the effective use of knowledge, achieving effective adaptation measures at the local level. This also allows better diagnoses when identifying the measures to adopt in the territory to reduce vulnerability and increase the resilience of the population.

	• **Digital and knowledge gaps regarding agroclimatic information**: the availability of climate information on the websites of national and provincial agencies does not imply a direct use and ownership by either communication experts or by producers and technicians. In addition to the need to overcome the deficiencies of Internet access, connection quality and lack of access to technological devices, **training in the use of agroclimatic information is important**. The trainings and workshops organized in this aspect were key to contribute to a greater ownership of the available information and encouraged its use to adopt better measures of adaptation to climate change. • Need for **complementarity of actions** to achieve adaptation. It is observed that the combination of different actions, including improvements in the capacities at the level of knowledge, at the level of infrastructure, of access to risk transfer schemes, associative work among families, and the introduction of efficient management practices of resources such as soils, forests, water, and biodiversity, allow to make a greater difference and reduce vulnerability. In this regard, it is useful to **constantly analyze and re-plan activities with emphasis on the achievement of outcomes.** The evaluation and replanning workshops carried out by the project, together with the follow-up visits, allowed to identify deficiencies in the quality of completion of works and potential sources of contamination, and to apply the appropriate corrective measures taking into account different dimensions to achieve the effective adaptation to the negative impacts of climate change.
Implementation - Monitoring and evaluation	• **ENI:** Within the framework of the DIPROSE as implementation agency, greater flexibility is observed when adapting its regulations to the needs of the executing units of the project. This reflects greater flexibility and articulation of actions due to project implementation by a National Implementation Entity as opposed to implementation by multilateral implementation entity. Despite the existence of operational regulations, the flexibility and support upon project development helped to speed up execution, make timely adjustments, considering and adapting to institutional and regulatory changes. • **Strategic partnerships and synergies**: the generation of a Project together with 4 State agencies poses a great challenge at an organizational level. It is evident that the articulation of efforts **enhances the effects achieved and promotes the sustainability of the Project outcomes**. • **State and private sector partnership**: these types of partnerships can create solutions to problems that constrain rural development. Through the Horticultural Insurance Pilot Plan, it was possible to create a product that allowed small-scale producers in the insurance market, previously excluded from it, allowing generating the offer of the policy in partnership with the private sector. • **Training and support**: the importance of providing the territorial teams of INTA, Municipalities, and other institutions/organizations with simple, innovative and concrete instruments - plus training and support - to respond to the demands of family agriculture producers.

	• **Institutional cooperation: INTI and SAF/ government of the Province of Corrientes, municipalities and government of Chaco**: capitalizing knowledge, experiences and territorial distribution is highly valuable and highly advantageous for interdisciplinary and innovating work, and for leveraging resources allowing to widen the project's impact. • **Knowledge sharing**: the best adaptation strategies result from joint work and from the exchange of scientific knowledge and knowledge of producers, allowing adjustments to each region and beneficiary, depending on priorities and needs. • **Capacity building**: all stakeholders point out the Project's role in providing instruments and capacities to the beneficiaries in such a way that better living conditions are attained and beneficiaries remain in their places of origin. The self-construction methodology of the works and the technical training, as well as the climate change approach were key in capacity-building. • **Monitoring and evaluation**: the follow-up meetings enabled the proper functioning of the Project, the identification and resolution of problems, as well as the adequate flow of communication between the different executing units of the Project. The visits to the field together with the executing team and technicians with diverse profiles addressing the gender perspective, the environmental and social approach, the perspective from the coordination and the monitoring of the project was very useful to detect opportunities to improve the project and ensure that the activities tended to the achievement of the outcomes. • **Flexible strategy**: the Project's capacity to reorient the intervention and adapt the technologies to the needs of the territory and to the characteristics of the population is noteworthy. Flexibility was key to prevent leaving the target population out of the project and to focus on the most vulnerable groups. • The **participation of local technicians** with experience in the territory and knowledge of the communities enables the implementation of the actions and enhances the potential for development and sustainability of the Project, saving time and costs in the implementation.
Project formulation	• **Gender strategy**: it is necessary to incorporate the gender approach in all stages of the project cycle, especially from design. For this, it is essential to carry out a gender assessment, which allows to identify existing gaps and inequalities in order to generate gender-sensitive objectives and outcomes. • **Stakeholder mapping** is an essential instrument in the formulation to understand the intervention scenario of the Project and to engage all sectors from the beginning. Once execution begins it is very difficult to incorporate stakeholders that were not engaged from the beginning since their demands and needs may not be reflected in the eligible actions of the project. It is necessary to include key stakeholders in the execution of activities such as local and municipal governments that can generate leverage for actions, such as the National Water Institute. In the case of the Project, this articulation took place informally

	depending on each technician in the territory. It did not take place at a formal level since project design. • The **participatory formulation** from the beginning incorporating the insight of the territory´s stakeholders, both technical and of the target producers, generates greater ownership of the actions and a greater fluidity in the pace of the Project, allowing to save time in the execution stage; and generating better diagnoses and strategies adapted to local needs. Under the Project, this was fostered during execution, but not during design and formulation.
Environmental and social aspects	• **Projects** are inserted in a larger context and permeated by social, environmental, economic dynamics that are not directly related to the intervention but that can have an important influence, enhancing or conditioning the outcomes of the project. The constant monitoring of socio-economic, environmental and gender dynamics factors that permeate communities and socio-productive systems is essential to timely spot situations which may affect the activities of the project. The training and support regarding these aspects to male and female technicians in the territory who work in the communities is essential to identify potential problems that affect the vulnerability of the producers; or to identify potential alliances and opportunities that allow them to be enhanced. Thus, the careful supervision of the executing teams and the implementation of these contextual factors is essential.

6 Sustainability, Scaling-up, and Replication

The project, through the various execution strategies and achievements, has **a high potential for replication, scalability and sustainability of its actions**:

- One of the main achievements in the implementation and execution of the Project was the participation and engagement of the different stakeholders present in the territory: INTA, ORA, producers, family agriculture organizations, technicians, government officials, communication experts, local and provincial organizations, insurance companies, universities and provincial ministries. The tendency was a **more systematic institutional articulation**. This network is key at a general level to guarantee the sustainability of interventions.

- The Project activities were carried out by public institutions that have a permanent presence in the territory, which guarantees continuity and sustainability of the activities. The technologies used in the Project are national developments of INTA and INTI adapted to the territory and its specificities.

- The strategy fostered consisting in the **self-construction of works** of water access is a **key element for its sustainability**, as the capacities acquired by the producers allow for the replication of cisterns, water wells, and roofs, regardless of the supply of material.

- The **technical sustainability** of the works requires monitoring, institutional support and technical assistance through visits in the territory that must be supported with financial resources for mobility.

- The Horticultural Insurance Pilot experience was made possible through the articulation of the national government, INTA and ORA, the provincial governments and the sector of the insurance companies, and the producers. The **financial sustainability** of the initiative depends on the continuity of the economic support of the State given the profile of the producers and stage of development of the instrument. The introduction of this new product in the insurance market implies a ripening process for the generation of information about the risk; and it is still necessary to continue working on the development and introduction of improvements in the policy. Although a change in the paradigm of family agriculture producers has started regarding the use of agricultural insurance, it is essential to **strengthen the knowledge and functioning of this risk transfer instrument** through accessible formats for producers.

- The authorization of the insurance policy by the National Insurance Superintendence for the entire Argentinian national territory covering sheltered horticultural production, allows for **replication of this experience** in other regions. Several insurance companies showed interest in replicating the initiative in the provinces of San Juan, Mendoza, Buenos Aires and Santa Fe. The need was identified to strengthen with greater resources and training the different instances of dialogue with producers so that they have available information on the scope of coverage and processing procedures. In the systematization of experience, it is stated as a condition for the replication to work on lowering the premium to create an attractive and accessible product in the market. For this, it is essential to continue generating agroclimatic information about the risk of the product.

- In the case of the initiatives developed through *Component 2- Strengthening of climate information, monitoring and management systems*, the sustainability of the actions is based on: **the network of national and local institutions** that participated in the experience; the **strengthening of the skills** of the technicians who work in said agencies; and the building of a network of leaders in the territory. Another key factor for sustainability and replication is the use of **national industry's technology** in the development of agrometeorological stations. Also, the works were carried out by **professionals** who belong to the permanent staff of national institutions, who can extend and replicate the activities of strengthening of agroclimatic information systems.

- The growing demand and **awareness of the importance of agroclimatic information** are factors that enhance the replication of the experience. Under the DIPROSE, a new program of Integrated Risk Management in the Rural Agroindustrial System (GIRSAR) was formulated, which continues the lines of work of the Project.

- The actions carried out under *Component 3 Building of local and regional capacity on climate change and variability impacts, and on implementation of adaption measures* underpinned all Project activities, promoting the generation of a common framework and language on the problem of climate change and its effects. It is worth mentioning that the **training actions** have helped **increase the social and political interest in climate change**. As indicated in the systematization of the trainings, the **introduction of climate change in the agendas of local governments** as a relevant issue for the community is an **indicator of sustainability**.

- Training was designed with a participatory methodology, through a consultation process to respond to the demands and needs of the different sociocultural contexts, which favored the legitimacy and fine development of the activities. The approach used allowed communication and information to adapt to different audiences and the reality of the communities, promoting consensus and ownership of the Project outcomes.

- The work in trainings has focused on enabling the exchange of knowledge, providing technical instruments and **practices subject to replication** and easily scalable by the producers of family agriculture, thus ensuring the continuity of the initiatives. In this regard, the documents prepared for the support of the activities and the systematization of the experiences are important, in order to retrieve and consolidate lessons learned.

These characteristics are **permeated by an unfavorable national socioeconomic context**, with high inflation, fiscal deficit and slowing down of economic activity in recent years. For this reason, the national government applied measures to **reduce deficit** that translate into a strong cut of public spending. This adjustment resulted in a restructuring within the National Public Administration, which specifically affected the Agroindustry portfolio. In this way, the **institutional changes** within the agencies that define and implement agricultural and rural development policies **had a negative impact** in the development of the Project's actions in the latest period, and, therefore, the sustainability of the actions are faced with challenges.

Despite this, the **various strategies** developed by the project, together with the more active participation of the private sector in partnerships with the public sector, can contribute to overcoming the challenges of the macro context.

7 Photographic log

Picture1: Women producers working in the construction of cement tile-roof cisterns, province of Chaco

Picture2: Women producers working in the construction of cement tile-roof cisterns, province of Chaco

Picture3: Producers preparing cement tile-roof cisterns, province of Chaco

Picture4: Producers preparing cement tile-roof cisterns, province of Chaco

Picture5: Water well, Province of Chaco

Picture6: Dam, Colonia Aborigen, Province of Chaco

Picture7: Nimbus II Station

Picture8: Sheltered horticulture, province of Corrientes

Picture9: School students, province of Santa Fe.

Picture10: Sensors laboratory, Climate and Water Institute, INTA

Picture11: Attendees of Training "Climate Change Adaptation", province of Chaco.

Picture12: Attendees of Training in Insurance as risk transfer instruments, province of Corrientes

Picture13: Training "Climate Change Adaptation", Corrientes

Picture14: Chaco visit, Adaptation Fund mission, 2015

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Annex I - Project Logical Framework and execution

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
Objective	Number of families vulnerable in the face of adverse effects of climate variability and change	No measures of adaptation to climate change have been implemented to the date	Total number of beneficiary families, of which	3,591	4,000	**90%**
			Represented by women	618	800	**77%**
			Represented by young population	398	600	**66%**
			Families of aboriginal population	627	320	**196%**
			Total students, children and teachers beneficiaries of adaptation works at public schools and child care providers	2,488	0	**-**
Outcome	% of producers improving their response capacity and action in view of climate variability	No capacity or infrastructure built in.	% of beneficiary families	50%	20%	**250%**
Outcome	% of beneficiaries claiming improvements in agricultural productivity, related to water supply	To be determined during project implementation	% of beneficiary families	58.90%	50%	**118%**
Outcome	% of beneficiaries claim better access to water supply for drinking and irrigation.	To be determined during project implementation	% of beneficiary families claim better access to water supply for drinking and irrigation.	90.40%	80%	**113%**
			% of beneficiary families claim better access to water for production after project	74.60%	80%	**93%**
Activity	Number of wells to access groundwater	To date there are no wells performed at the beneficiary communities.	Groundwater brick wells	144	138	**104%**
			Total number of beneficiary families, of which	355	138	**257%**
			Represented by women	157	28	**569%**
			Represented by young population	96	21	**464%**
			Families of aboriginal population			

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
			Total students, children and teachers beneficiaries of water access works at public schools and child care providers	745	0	-
Activity	Number of families with retrofitted roof for rainwater collection and cisterns (broken down per gender)	To date, there are no reservoirs or retrofitted roofs for rainwater collection in the intervention area.	Cisterns or water wells with retrofitted roofs for rainwater collection	675	266	**254%**
			Total number of beneficiary families, of which	1535	266	**577%**
			Represented by women	267	53	**502%**
			Represented by young population	75	40	**188%**
			Families of aboriginal population	528	0	-
			Total students, children and teachers beneficiaries of water access works at public schools and child care providers	1233	0	-
Activity	Number of community reservoirs built for large and small livestock	There are none at the beneficiary communities	Community reservoirs	65	145	**45%**
			Total number of beneficiary families, of which	162	739	**22%**
			Represented by women	26	148	**18%**
			Represented by young population	17	111	**15%**
			Families of aboriginal population	99		-
Activity	Number of multi-purpose water supply systems built	Till now there has been no initiatives to build multi-purpose water supply systems	Multi-purpose water supply systems	0	140	
			Total number of beneficiary families, of which		140	
			Represented by women		28	
			Represented by young population		21	
			Families of aboriginal population			

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
Outcome	% of beneficiary population attained by appropriate risk transfer mechanisms (broken down per gender)	0% of the families of the project area with access to insurance	% population	24%	15%	**160%**
Outcome	% of the beneficiaries of risk transfer instruments perceive lesser risk in the face of extreme events	To be determined during project implementation	% of beneficiary families	42%	50%	**84%**
Activity	Development of Feasibility study	To date, no such study was conducted.	Feasibility study	0	1	**0%**
Activity	Development of Feasibility study	To date, no such study was conducted.	Feasibility study	1	1	**100%**
Activity	Number of families included in Pilot Programs (broken down per gender)	Without insurance	Total number of beneficiary families, of which	1,247	787	**158%**
			Represented by women	110	157	**70%**
			Represented by young population	196	118	**166%**
			Families of aboriginal population	0	0	**-**
Activity	Develop assessment of Pilot Programs conducted	0 assessments conducted	Evaluation study	1	1	**100%**
Outcome	Number of small-scale family producers with safer access (greater access) to livelihoods.	0.8% of the families in the project area received assistance in various farming practices.	% of beneficiary families	29%	10%	**290%**
Outcome	% of beneficiaries claim improvements in food security due to project activities	0 families assisted	% of beneficiary families	50%	50%	**100%**
Outcome	% of beneficiaries claim income increase due to project activities	0 families assisted	% of beneficiary families	31%	30%	**103%**
Outcome	% of beneficiaries with better access to markets.	0 families assisted	% of beneficiary families	41%	30%	**137%**
Activity	Number of indigenous families receiving technical assistance (broken down per gender)	15 families with fruit and vegetable orchards with irrigation and husbandry of small animals	Total number of beneficiary indigenous families, of which	0	82	**-**
			Represented by women	0		
			Represented by young population	0		
Activity	Number of families receiving assistance in managing and using fodder	29 families receiving assistance in managing and using fodder resources	Total number of beneficiary families, of which	85	473	**18%**

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
	resources (broken down per gender)		*Represented by women*	11	95	**12%**
			Represented by young population	2	71	**3%**
			Families of aboriginal population	0	0	**-**
	Number of families receiving assistance in implementing soil management techniques (broken down per gender)	0 families assisted	Total number of beneficiary families, of which	0	119	**-**
			Represented by women	0		
			Represented by young population	0		
			Families of aboriginal population	0		
Activity	Number of families receiving assistance of crop protection structures (broken down per gender)	20 families assisted	Total number of beneficiary families, of which	148	272	**54%**
			Represented by women	46	54	**85%**
			Represented by young population	12	41	**29%**
			Families of aboriginal population	0	22	**0%**
			Total students, children and teachers beneficiaries of crop protection works at public schools and child care providers	510		
Activity	Number of families receiving support in the form of technology and facilities improvement (broken down per gender)	20 families assisted	Total number of beneficiary families, of which	59	109	**23%**
			Represented by women	1	22	**5%**
			Represented by young population	0	16	**0%**
			Families of aboriginal population	0	0	**-**
Outcome	Increased density of hydro-meteorological stations and rain meters	Very low density of coverage by monitoring stations.	% increase in density	19%	20%	**95%**

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
Activity	Number of fully operational automatic meteorological stations	8 monitoring stations connected to SMN and INTA monitoring networks, 35 automatic stations and 22 rain meters in the project area	Meteorological Stations	18	18	**100%**
Activity	Number of simple automatic stations converted to full stations	0 full stations converted	Reconverted full stations	10	10	**100%**
Activity	% integration of meteorological networks	0% integration of networks	% integration of networks	97%	100%	**97%**
Activity	% information systems of local nodes fully operational	0% information systems of local nodes fully operational	% operational information systems	100%	100%	**100%**
Activity	% online availability of the integrated information system	0% online availability of the integrated information system	% Implementation	100%	100%	**100%**
Outcome	Number of professionals at government levels/ decision makers and producers using early warning systems and climate information platforms for decision-making.	The Early Warning System covers only partially the Province of Chaco and Santa Fe.	% users	30%	25%	**120%**
Activity	% compilation and evaluation of databases and georeferenced maps for the intervention area	0% compilation and evaluation of existing databases and maps	% compilation	90%	100%	**90%**
Activity	Number of trials performed	0 trials performed	Trials	2	3	**67%**
Activity	% surface of project area with risk maps	35% of project area with risk maps developed	% Implementation	65%	70%	**93%**
Activity	% implementation of soil moisture monitoring system	0%	% Implementation	88%	100%	**88%**
Activity	% development of analysis of climate change scenarios and climate tendencies on crop production	There are no climate change scenarios at regional level or knowledge of impacts on crops	% Analysis	100%	100%	**100%**
Activity	Development of early warning-hydrological system	There are no hydrologic monitoring system or vulnerability determination at appropriate scale or place.	% Integration of hydrological studies to the web platform	67%	100%	**67%**
Activity	Development of early warning-meteorological system	There is no decision-making system integrated with climate alert component	% Integration of meteorological studies to the web platform	100%	100%	**100%**

Type of indicator	Indicator	Baseline	Measurement Unit	Progress as of 9/30/2017	Goal at the end of the project	% Progress
Activity	% web platform development	0% of platform developed	% web platform development	98%	100%	**98%**
Outcome	% of staff and producers trained to implement measures to respond to climate event impacts and mitigate them (broken down per gender)	To date, no training or capacity building conducted for the 4000 families involved in the project activities, and the 200 technicians and governmental officials.	% producers trained	3453 producers, 34% of which are women	60%	**143%**
			% technicians trained	392 Technicians 30% of who are women	70%	**280%**
Activity	% of beneficiary staff and population received training in adverse impacts deriving from climate change, and in appropriate response	To date, no training or capacity-building performed. (200 technicians identified)	% technicians trained	178%	80%	**223%**
			Total number of technicians, of which	599	160	**374%**
			Technicians participating in more than one training	330	0	**-**
			Women	299	48	**623%**
			Young population (up to 30 years)	88	24	**367%**
		To date, no training or capacity-building performed. (4,000 producers identified)	% producers trained	93%	80%	**116%**
			Total producers trained	3,882	3200	**121%**
			Producers participating in more than one training	1,510	0	-
			Women	2,125	1280	**166%**
			Young population (up to 30 years)	2,018	1280	**158%**
			Indigenous population	356	256	**139%**
Activity	Number of institutions trained	To date, no training or capacity-building activities were performed	Institutions	5	5	**100%**
Activity	Number of publications and meetings held for dissemination	3 publications during project Preparation	Publications	9	8	**113%**
		0	Meetings	2	3	**67%**