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MULTILATERAL INVESTMENT FUND

**REGIONAL**

**EXO MUJER: LEADING TECHNOLOGICAL CHANGE FOR  
CLIMATE CHANGE ADAPTATION IN THE GRAN CHACO REGION**

**(RG-T3568)**

**DONORS MEMORANDUM**

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## PROJECT SUMMARY

### EXO MUJER: LEADING TECHNOLOGICAL CHANGE FOR CLIMATE CHANGE ADAPTATION IN THE GRAN CHACO REGION (RG-T3568)

The Gran Chaco region is an area of more than one million square kilometers spanning four countries (Argentina, Bolivia, Paraguay, and a small part of Brazil) that is home to over 7.5 million people, the majority living in vulnerable conditions. Climate change is expected to take a heavy toll on the region over the next three decades, causing hardship for communities and their productive systems in terms of lost agricultural productivity, reduced water quality and availability, rivers overflowing their banks, and wildfires.

The main problem addressed in this proposal is the vulnerability of Gran Chaco communities to the impacts of climate change, which are not gender-neutral but sharpen the divisions between men and women. The primary cause of this problem is the remoteness of the region. A **lack of digital connectivity** accentuates this isolation and its impact, slows the **innovation** processes necessary to develop solutions for adaptation, and results in a **weak social and productive fabric**.

Isolation and climate change take a toll on women, but their ability to organize gives them a pivotal role to play in climate change adaptation and mitigation. Women have shown leadership in their communities on productive and organizational matters in recent years, for example, in responding to weather alerts using technology provided by the Nanum centers. It is therefore essential to continue empowering women as leaders of technological change, to support their communities in adopting technology and disruptive solutions.

To reduce the vulnerability of Gran Chaco communities, this project proposes an innovative model based on **sweeping, inclusive change** for residents through (digital) connectivity. At a time when information and data are the most valuable asset, this project combines connectivity with productive and social value. This is an organizationally, socially, and technically innovative model for generating disruptive solutions (open innovation) in the area of climate change adaptation. It will reach 5,000 women and their households, for a total of 25,000 people in 40 Gran Chaco communities. Home Internet connections will be provided through innovative technical means such as television white spaces (TVWS). Women-run businesses will be started and strengthened (ExO Mujer) to provide connectivity, as well as help communities adopt technology and promote its use for inclusion. Open innovation processes will be promoted to provide with specific solutions for the region that can be adopted by families and producers, leading to increased income and investment for climate change adaptation by democratizing access to innovation in remote communities. These processes will be pursued in cooperation with public and private sector entities known for their capacity to generate innovation.

Three years after completion, the target population is expected to have increased their income by 20% as a result of improvements in their productive activities, as well as investments (by themselves and others) to enhance climate change resilience and adaptation.

## **ANNEXES**

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Proposed resolution

**AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF THE  
IDB LAB PROJECT INFORMATION SYSTEM**

Annex IV	Itemized budget
Annex V	Project status reports (PSRs) and fulfillment of milestones and fiduciary agreements
Annex VI	Procurement plan
Annex VII	Institutional capacity and integrity assessment

## **ABBREVIATIONS**

ALTEC	Alianza Latinoamericana para la Tecnología Cívica [Latin American Alliance for Civic Technology]
AWP	Annual work plan
CONATEL	Comisión Nacional de Telecomunicaciones [National Telecommunications Commission] (Paraguay)
ENACOM	Ente Nacional de Telecomunicaciones [National Telecommunications Agency] (Argentina)
ExO	Exponential organization
PSR	Project status report
SDGs	Sustainable Development Goals
TVWS	Television white spaces

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**EXO MUJER: LEADING TECHNOLOGICAL CHANGE FOR**  
**CLIMATE CHANGE ADAPTATION IN THE GRAN CHACO REGION**  
**(RG-T3568)**

**EXECUTIVE SUMMARY**

<b>Country and geographical location:</b>	Argentina, Bolivia, and Paraguay		
<b>Executing agency:</b>	Fundación Avina		
<b>Focus area:</b>	Climate-Smart Agriculture (CSA)		
<b>Coordination with other donors/Bank operations:</b>	The project will coordinate (i) in Argentina: with the technical cooperation operation “Management of Water Resources in the Pilcomayo River Watershed” (operation RG-T3294) and the Satellite Technology Development Program (PROSAT II) (loan AR-L1310), as well as with El Futuro Está en el Monte under operation AR-T1171, complementing actions in Bolivia and Paraguay; (ii) in Paraguay: with Open Innovation Paraguay (operation PR-T1281), Program for the Improvement of Connectivity and Digitalization of the Economy (loan PR-L1163), and the Digital Agenda Support Program (loan PR-L1153); and (iii) in Bolivia: with Operationalizing Bolivia’s Joint Mechanism for Mitigation and Adaptation to Climate Change: Climate Compatible Development in the Bolivian Chaco (operation BO-M1067).		
<b>Project beneficiaries:</b>	The project will work with 25,000 residents of the Gran Chaco region: (i) 5,000 women from ExO <sup>1</sup> Mujer enterprises; and (ii) 25,000 members of rural communities (indigenous and nonindigenous), who will access home-based connectivity and innovative solutions for climate change adaptation.		
<b>Financing:</b>	Nonreimbursable technical cooperation:	US\$1,384,000	50%
	Other IDB Lab financing:		
	<b>Total IDB Lab contribution:</b>	<b>US\$1,384,000</b>	<b>50%</b>
	Counterpart:	US\$1,384,200	50%
	<b>Total project budget:</b>	<b>US\$2,768,200</b>	<b>100%</b>
<b>Execution and disbursement periods:</b>	36 months for execution and 42 months for disbursement.		
<b>Special contractual conditions:</b>	Conditions precedent to the first disbursement of nonreimbursable funds: (a) submittal of the government’s no objection in Bolivia to commence activities in that country; (b) designation of the project execution team; and (c) approval of the rules for use of the Innovation Fund.		
<b>Environmental and social impact review:</b>	This operation was prescreened and classified in accordance with the Bank’s Environment and Safeguards Compliance Policy (Operational Policy OP-703) on 12 November 2019. Since the impacts and risks are limited, the proposed category for the project is “C” (low risk).		
<b>Unit responsible for disbursements:</b>	IDB Lab staff at the Bank’s Country Office in Argentina (CAR).		

<sup>1</sup> “ExO” stands for “exponential organization.”

## I. THE PROBLEM

### A. Context

- 1.1 The Gran Chaco region is an area of more than one million square kilometers spanning four countries (Argentina, Bolivia, Paraguay, and a small part of Brazil) that is home to over 7.5 million people. Climate risk studies predict significant impacts in the Gran Chaco over the next three decades, such as more frequent and intense droughts, flooding, and wildfires, shifting precipitation patterns, considerably higher average temperature, and more frequent extreme weather events. This is already taking a toll on communities and their productive systems in terms of lost agricultural productivity, reduced water quality and availability, rivers overflowing their banks, and wildfires.



- 1.2 The Gran Chaco is undergoing an expansion of the agricultural frontier, which is causing severe environmental conflict due to high deforestation rates (more than 3.5 million [hectares deforested](#) between 2010 and 2018), land-use changes for biofuel production, expansion of oil production, and stiff competition for water access and usage. All of this is exacerbated by climate change and highlights the region's climate variability, with an increase in weather events such as rainfall that causes flooding and rivers overtopping their banks, as well as longer droughts. The historical difficulty of water access in semiarid regions is compounded by changes in rainfall intensities and drought periods that adversely affect water availability.
- 1.3 The Gran Chaco's economy is primarily agricultural and therefore highly vulnerable to climate change. Livestock activities are essential to the region's development and food security. Due to the problem of water access, applied innovation for water capture and use is also essential for the region's development. Additionally, forage resources are critical to the region's agricultural development and require specific investments and technologies.

**B. Description of the problem**

- 1.4 **The main problem to be addressed in this proposal is the vulnerability of Gran Chaco communities, especially women, to external impacts, be they climate-related, economic, or social.** Extreme weather events, such as drought and flooding, take a heavier toll on the most vulnerable groups, and the impacts of climate change [are not gender-neutral](#). Men and women have different capacities for adaptation and resilience, as well as different levels of access to resources and control over them, which translate to gender-differentiated vulnerability to the impacts of a changing climate and unequal capacity to adapt to such changes. Women, who typically have domestic responsibilities and care for children and the elderly, are in a more vulnerable position. The Gran Chaco's geographic remoteness and low-density population, as well as semiarid environments, [widen the gender gap](#) and put rural women (indigenous and nonindigenous) at an even greater disadvantage. Although climate change often exacerbates existing economic and social disparities, adaptation with a gender perspective can address these disparities while improving outcomes related to adaptation and access to rights.
- 1.5 **Causes of the problem:** (i) the **remoteness** of these Gran Chaco communities makes it very difficult and costly for the government to maintain a presence and deliver essential services such as health care, education, and social safety net. The road system is very sparse and poorly maintained, making it hard to reach communities due to dirt roads that become impassable in the rainy season, cutting off the population. A **lack of digital connectivity** exacerbates the effect of this isolation vis-à-vis rural communities that have connectivity and enjoy the benefits associated with it. Although some basic infrastructure (towers) is in place, no companies are willing to provide in-home connections; (ii) this remoteness leads to **limited access to innovation**, leaving productive systems less resilient and fueling a vicious cycle of poverty and exclusion with no incentives for the adoption of innovative water and soil management practices. The result is a **slowing of innovation processes** necessary to develop resilient productive systems based on biodiversity. Vulnerability discourages Gran Chaco residents and traditional investors from making the type of investments necessary to improve production (e.g., regular renewal of plants with improved varieties or technology adoption); and (iii) these local challenges result in a **weak social and productive fabric in need of strengthening**: women's organizations and other productive organizations have been promoted in recent years through projects such as new trade channels PROADAPT, but organizational development is still at an early stage in terms of and integration with other value chains. Experiences thus far have been successful and should be expanded to reach the remotest parts of the Gran Chaco region.
- 1.6 Climate change takes a disproportionate toll on women, but their ability to organize gives them a pivotal role to play in climate change adaptation and mitigation. Women understand what it takes to adapt to changing environmental conditions and find practical solutions. [Women have shown leadership](#) in their communities on productive and organizational matters in recent years, for example, in responding to weather alerts using technology provided by the Nanum centers. It is therefore essential to continue empowering women—especially young women—as **leaders of technological change**, to support their communities in adopting technology and disruptive solutions.

### **C. Participating population**

- 1.7 The project will work directly with 5,000 women from various indigenous groups in the Gran Chaco region of Argentina, Bolivia, and Paraguay (Wichí, Qom, Pilagá, etc.) and female rural residents ages 18 to 55 and their families, to reach a total of 25,000 people, based on an estimated average of five people per family. The project aims to reach the “last mile”: the region’s most vulnerable social groups with the highest poverty rates and highest maternal and infant mortality rates. The remote and scattered locations of their communities leave them more exposed to risk, as they were displaced to productively marginal and environmentally more vulnerable areas along riverbanks and on degraded land, affecting their economic activity and limiting their development potential. In Argentina, 23.5% of indigenous households have unmet basic needs,<sup>2</sup> compared to 13.8% of nonindigenous households. This discrepancy is more pronounced in the Gran Chaco provinces: 74.9% in Formosa, 66.5% in Chaco, and 57.4% in Salta. Household income for the indigenous population is seven times less than the national average. In Bolivia, 60% of the indigenous population is below the poverty line, and 30% below the extreme poverty line.<sup>3</sup> The indigenous population of Paraguay has a 75% poverty rate, versus the national average of 26%.<sup>4</sup>
- 1.8 The target population will be based on two profiles: (i) adult women leaders who coordinate and administer the exponential organizations (ExOs), who will be trained to manage business operations and business plans and will benefit from the ExOs’ economic activity; and (ii) other community members: men and women who engage in diverse productive activities through their organizations, who will access digital technology. Strengthening activities will be for access to credit (fintech), digital tools to make their enterprises more resilient, and the use of disruptive solutions to enhance climate change adaptation and resilience. The project will specifically train young women and men in new digital-based occupations and trades related to maintenance of the connectivity network.

## **II. THE INNOVATION PROPOSAL**

### **A. Description of the project**

- 2.1 The project goal is to reduce the vulnerability of rural communities in the Gran Chaco region through access to technologies that will reduce isolation, strengthening their climate change resilience and adaptation capabilities. Three years after completion, the target population is expected to have increased their income as a result of improvements in their productive activities, as well as investments (by themselves and others) to enhance climate change resilience and adaptation. Specifically, the project objective is to promote access to, and adoption of, disruptive solutions

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<sup>2</sup> Country technical note on issues related to indigenous peoples in Argentina, published by the Center for the Autonomy and Development of Indigenous Peoples. Updated by the International Fund for Agricultural Development, Office of Indigenous Peoples. 2017.

<sup>3</sup> Document on organization and productive diversification of Weenhayek communities and the National Statistics Institute of Bolivia.

<sup>4</sup> Paraguay National Census 2012. Office of Statistics, Surveys, and Censuses.

- through: (a) rural connectivity and (b) innovation applied to organizational and productive development adapted to climate change.
- 2.2 This project builds on the achievements of operation RG-M1264, PROADAPT: Building Resilience in the Gran Chaco Americano. It has social capital in place and extensive capillarity to address the complexities and vastness of the arid Gran Chaco, as described in paragraph 1.1. The project will work with key stakeholders including 40 strengthened rural and indigenous women's organizations accounting for 5,000 women, as well as 20 self-sustaining community centers with connectivity (Nanum centers) established by [Samsung](#) as a strategic partner. These connectivity centers helped drive processes and outcomes for the entire community in terms of business activity, weather disaster management, health, and education. For example, the [early warning system](#) based on public-private coordination helps issue warnings and predict river conditions during the annual flood season. As part of the early warning system, residents monitor and provide important data on flood conditions or the onset of drought. Residents, in turn, benefit from the warnings and advisories issued as a result of their contributions, enabling the community to be organized in the event of flooding. A lesson learned from this initiative is the organizational capacity of women, which had an impact on the entire community not only in weather emergencies but in terms of organization and production as well. Women are already organized in civil society organizations and community-based artisan cooperatives. This is the organizational foundation for the ExO enterprises. Many women have shown themselves to be natural leaders as community representatives in a variety of venues and as representatives of public and private organizations.
- 2.3 The organizational capacity of rural and indigenous women will serve as the basis for solving the problems identified in this project. This solution entails strengthening the organizations of these women, to achieve exponential outcomes. The project will look into what legal structure these organizations should take, to engage in commercial activities related to connectivity and finding solutions and assist them in registering under that specific legal structure. As enterprises, these exponential organizations (ExOs) will thus play a key role in their respective communities by providing home Internet service and assisting the community in the use of solutions and innovations made available to them through digital technology. This will be achieved primarily through the involvement of the youngest members of the ExO enterprises. The ExOs will distribute home-based connectivity through partnerships with Microsoft and its potential local partners (to install the [television white spaces \(TVWS\)](#) technology), Samsung and national communications agencies (the National Telecommunications Agency (ENACOM) in Argentina, Entel in Bolivia, and the National Telecommunications Commission (CONATEL) in Paraguay), and other key partners for building networks. For access to disruptive solutions, the executing agency will support open innovation processes in partnership with Microsoft, [WTT](#), the [Latin American Alliance for Civic Technology \(ALTEC\)](#), and others providing specific solutions to problems in South America's Gran Chaco region. In the case of Microsoft, the idea of a TVWS installation pilot is being put forward that would be rolled out to the Gran Chaco region after obtaining permanent licenses, especially in Argentina where the regulatory framework would allow this, and building knowledge for Paraguay and Bolivia while their regulatory frameworks work toward that point. WTT will contribute specifically through its experience in open innovation

processes by organizing specific challenges and contributing from its innovation centers. ALTEC will jointly promote the strengthening of community participation and democratization of the use of information in rural contexts.

- 2.4 **Innovation.** This project is innovative because it entails a **sweeping, inclusive change** for Gran Chaco communities through connectivity at a time when information and data are the most valuable asset. This will help accelerate and scale processes, generate opportunities for small businesses and startups, gain access to region-specific technology and opportunities for exchange with broader networks for organizations in the Gran Chaco ecosystem, as well as to education, training, and many different services and solutions currently available only in urban areas, such as climate data and early warning systems; information on markets, prices, providers, and customers; credit data and solutions; and agtech information. This change, promoted by women, will mark a milestone for these communities. As technological advances facilitate connectivity, this project will train and strengthen all connected communities so that this connectivity has a productive and social value that is adapted to climate change. This model entails innovation along multiple dimensions: (i) **organizational innovation** through the creation of the ExOs. With the disruption caused by a new social actor—EXO enterprises run by rural women—the project will have a strong impact not only on communities but on women's empowerment and opportunities for their families. The connectivity centers where the ExOs will operate and home Internet access are expected to function as an innovation zone that will impact the entire community; (ii) **technological innovation:** The testing and use of different connection technologies (microwave, TVWS) applied to scattered communities, while engaging the community in residential distribution, is a new approach that can generate extensive knowledge that can be applied as these technologies evolve; and (iii) **open innovation for the Gran Chaco region:** Leveraged by connectivity, open innovation processes will be generated and accelerated to help the ExOs cooperate with other actors, such as other communities, organizations, entrepreneurs, clients, providers, universities, innovation centers, the public sector, and others, in order to generate and co-create new products and services, processes, and markets through collective collaboration in search of innovative solutions to community challenges.

**Component I: Connectivity**

**(IDB Lab: US\$268,000; Local counterpart: US\$708,100)**

- 2.5 The purpose of this component is to connect 40 rural and indigenous Gran Chaco communities to the Internet, for a total of at least 5,000 home Internet connections. A plan for each country will be developed by consensus with local communities, national and subnational authorities, and the private sector interested in investing in the region.
- 2.6 **Connectivity plans.** Connectivity plans will be designed for the 40 communities, conducting technical and economic prefeasibility studies (for ExOs) and environmental assessments, as applicable. Efforts will be coordinated with public entities (e.g., health centers or radio stations with antennas) and with private organizations investing resources for the connection. Strategic partnerships will be developed with technology companies and other local partners and providers interesting in investing, and routing and management will be facilitated for the communities, to ensure financial viability and scalability of the proposed solutions.

The idea is to connect large-scale Internet service providers to women-run ExOs that will provide and manage the network's last mile. In Argentina, for example, a pilot initiative has been developed as part of operation AR-T1171 to create partnerships with the social enterprise SolRural that, in conjunction with ENACOM and Recursos y Energía Formosa S.A. (REFSA), is helping bring connectivity to the remotest communities.

- 2.7 Prior studies and surveys of Gran Chaco residents indicated that they would be willing to pay for home Internet service, and an evaluation found that the business plan is viable for local enterprises such as those to be run by women in this project.
- 2.8 **Infrastructure for connectivity.** Home Internet connections will be achieved by conveying broadband from the national backbone networks (fiber optic) to nodes (remote communities). Technologies will be considered in view of the national regulatory framework and distances and may make use of antennas (new or existing), point-to-point or point-to-multipoint connections, with installation of backbone networks at intervals of 20 to 40 kilometers, medium- to long-distance wireless networks on unlicensed frequencies, and distribution to end-users with client-provided equipment. Innovative TVWS technology may also be used, taking advantage of unused television frequencies to bring broadband Internet access to remote areas. For rural connectivity, these white spaces have no alternative uses given the level of demand, making TVWS an attractive technology for serving areas of low population density. Microsoft will work through its local partners to apply for provisional licenses from the relevant spectrum regulatory agency, in order to conduct a pilot in one of the Gran Chaco communities. Once a permanent license has been obtained from the regulatory authority for TVWS technology in the area, Microsoft will leverage the lessons learned from this pilot initiative to support connectivity in the Gran Chaco region through content and cash counterpart contributions. Installation infrastructure costs will be covered with local counterpart funding from stakeholders like ENACOM (under Resolution 2899, the competitive bidding process for universalization and improvement of fixed broadband Internet access service network infrastructure under 10,000 inhabitants), Microsoft's potential local partners through TVWS, and other local partners.
- 2.9 **Training of local populations.** Young people in local communities will be trained to perform infrastructure installations and repairs. ExO members will also be trained in equipment installation, management, and maintenance, tower assembly and maintenance, billing and payment management, and other areas.
- 2.10 The expected outcomes of this component are: (i) connectivity plans designed and evaluated for the 40 communities; (ii) at least 40 communities with Internet connections; and (iii) at least 5,000 women heads of households with home Internet service.

**Component II. Development and strengthening of ExO Mujer enterprises  
(IDB Lab: US\$419,600; Local counterpart: US\$304,100)**

- 2.11 Forty women-run ExOs will be formally established and strengthened under this component, to provide home Internet service to their community. The ExOs will also be encouraged to develop other lines of business related to solutions adapted to climate change.

- 2.12 The ExOs will be formed from the women's cooperatives established for productive activities under the PROADAPT operation. A determination will be made as to the most effective legal structure for registering each ExO in each country: cooperative, simplified corporation, social franchise, etc. Once the legal structure has been determined, the project will assist the women in establishing and registering each ExO.
- 2.13 **ExO management.** The ExOs are expected to be able to develop other lines of business based on the innovative solutions made viable by connectivity, for example, facilitation of access to credit, sale of water solutions, biodiversity microenterprises and businesses such as production of Algarroba or natural dyes. Technical assistance will be provided to evaluate and support implementation of new business plans. The "ExO Mujer" model brand will be developed at the regional level, to help the ExOs position themselves and attract new investments or solutions.
- 2.14 **Training.** The ExOs will receive ongoing technical assistance and training in business administration and operation. The youngest members of the ExOs will be trained so that they, in turn, can train the community in use of the new solutions, digital literacy, responsible network usage, digital citizenship, and access to finance. The ExOs are also expected to be agents of dissemination and training for the use of new solutions made accessible by connectivity (such as agtech, etc.).
- 2.15 The expected outcomes of this component are: (i) 40 ExOs established, registered, and operating; (ii) at least 30 ExOs viable by project completion; (iii) each ExO with at least two business units (home Internet connection and one additional business); (iv) 120 women trained in business administration and operation; and (v) the ExO model brand established, and a communication plan executed.

**Component III: Access to innovative solutions  
(IDB Lab: US\$453,000; Local counterpart: US\$285,000)**

- 2.16 This component will facilitate the availability of new or existing disruptive digital solutions for the Gran Chaco population in response to the region's challenges related to adaptation and social and environmental sustainability, especially for small-scale farmers.
- 2.17 To meet these objectives, the executing agency will use contribution resources to hire an innovation coordinator, who will be a specialist in innovation ecosystems, to facilitate partnerships and the Gran Chaco region's image as a place to apply innovation for inclusion.
- 2.18 This component will include reporting on new trends in technological innovation, both for the ecosystem of local organizations (universities, research centers, and public and private entities) and for the local population, particularly to spread awareness of new solutions and their potential uses. To do so, the project will draw on innovation leaders engaged in addressing the Gran Chaco's challenges and climate change issues, to report on cutting-edge innovations. Conversations have already been initiated with Academia Exponencial and other resources. The executing agency and the ExOs will be advised on intellectual property rights for the solutions to be generated for the Gran Chaco as a result of open innovation processes or the adaptation of existing solutions for registration, acquisition, use, licensing, or subsequent sale. Lastly, improvements will be made to the early

warning system, including the modules related to forest fires and the necessary sensors.

- 2.19 Fundación Avina will set up an innovation fund with resources from the contribution and from ALTEC, to finance open innovation processes. The executing agency, in conjunction with the network of partner organizations in the field (see paragraph 5.2), and leading innovation organizations will propose specific challenges (e.g., in areas related to water availability, agricultural solutions, logistics, and credit), issue competitive calls for proposals to develop solutions (at the minimum viable product level), and conduct research on the use of new technologies in the Gran Chaco or the scalability of existing solutions. This experience will be documented with a view to its replication elsewhere or transfer to public sector decision-makers.
- 2.20 The calls for proposals will be broad-based and may be issued by agreement with local or foreign universities and research centers to help disseminate the posting and elicit interest from offerors. Most of the funding will be nonreimbursable, but loans may be considered for initiatives involving business opportunities. Efforts to leverage other funding will be welcomed.
- 2.21 Fundación Avina will form partnerships to provide loans and facilitate investments for access to the solutions, for example, through funds such as [Sumatoria](#) and [Equilibrium](#), with which initial conversations have been held.
- 2.22 The expected outcomes of this component are: (a) at least three new innovations created and adopted; (b) each ExO Mujer enterprise implementing at least one new solution as part of its business model; (c) at least 1,000 new loans issued to implement the new adaptation solutions at the productive or household level; (d) the early warning system improved, including the wildfire module, and its coverage expanded; and (e) the innovation experience in the Gran Chaco documented.
- 2.23 **Project results, measurement, monitoring, and evaluation.** The project is expected to directly benefit 5,000 women through connectivity and reliable adoption of innovative solutions for climate change adaptation. It is expected to indirectly benefit 25,000 Gran Chaco residents (men and women) who will have access to new technological solutions. One effect of this outcome will be a 20% increase over the baseline in disruptive investments for adaptation and resilience, as well as an increase of the same magnitude in productive income.
- 2.24 **Project supervision.** The project will have a system in place to monitor performance, processes, and results on a regional scale. This system will be based on the one designed for the Collective Impact Investment Consortium Model for Argentina's Gran Chaco Region (operation AR-T1171), also known as "El Futuro Está en el Monte," and will be adapted and applied to all three countries. The monitoring system will include performance, process, and result indicators. It will be used as a **management tool** to measure progress and determine whether the project is being properly implemented as planned: indicators attained by activity and component and projected use of resources with regular (six-monthly) monitoring to determine whether these planning objectives have been met as planned and on schedule, or whether they need to be revised. The system will also help provide specific information on the **results** being achieved and on whether the project is having the expected impacts on different aspects of the beneficiaries' lives, as well

as whether these impacts are attributable to the project. To this end, data will be gathered on similar communities where no work is being done under this project.

- 2.25 It would be useful to know whether conditions are in place to sustain the impacts over time; whether all project activities are necessary to achieve the desired impact; whether some beneficiary groups are more affected by the project than others and, if so, why; or whether any unplanned adverse effect should be addressed and remedied. Contextual information will be gathered for this, and indicators may be supplemented with qualitative information from project participants and other key stakeholders.
- 2.26 **Evaluation.** The Bank may commission, as a charge against the contribution, an external evaluation between the project midpoint and completion to answer the following questions: (i) Have improvements been made in production (climate change adaptation) and socioeconomic indicators in the project's target communities? (ii) In comparison to other Gran Chaco communities lacking connectivity, can these improvements (if any) be attributed to connectivity, generation and adoption of innovative solutions for climate change adaptation, and strengthening of ExOs? (iii) Since the ExOs will be owned and run by women, have their families and community experienced secondary benefits or impacts as a result of this form of women's entrepreneurship; (iv) Did the open innovation processes promote socioeconomic inclusion of the program's target families? (v) What are the main lessons learned in terms of the Gran Chaco communities' adoption of solutions? (vi) Is this experience replicable and transferrable to other remote areas that are vulnerable to climate change?

### **III. ALIGNMENT WITH THE IDB GROUP, SCALABILITY, AND RISKS**

#### **A. Alignment with the IDB Group**

- 3.1 **IDB Lab.** This project is aligned with IDB Lab's strategic priorities, given its focus on innovation for inclusion. It is part of the thematic area of Climate-Smart Agriculture, as it will help generate new digital solutions to improve climate change adaptation by small-scale agricultural producers. The project defines a specific inclusive and sustainable agriculture development approach for Gran Chaco producers that responds to the challenges of climate change (document MIF/GN-237), as well as creates the connectivity conditions for the adoption innovative solutions for climate change adaptation.
- 3.2 **Alignment with country strategies.** The project is aligned with the country strategies with all three participating countries. In the case of [Argentina](#), this initiative contributes to the strategic area of business climate improvement, especially through its focus on climate change adaptation in rural areas, and particularly contributes to the strategic area of poverty and inequality reduction. In the case of [Bolivia](#), the project is particularly aligned with the eradication of extreme poverty, since it expands telecommunications coverage and access to employment for women and the indigenous population. It is also aligned with "change of the productive matrix" by reducing vulnerability to climate change. In the case of [Paraguay](#), the project is aligned with the strategic area of "productive and resilient infrastructure," particularly in terms of bringing connectivity to rural areas. Moreover,

innovation is one of the crosscutting lines of the Bank's country strategy with Paraguay.

- 3.3 **Coordination with the IDB Group portfolio.** Efforts will be coordinated with the IDB Lab operations with El Futuro Está en el Monte under operation AR-T1171, Collective Impact Investment Consortium Model for Argentina's Gran Chaco Region, complementing efforts in Bolivia and Paraguay; with Nanduty under operation PR-T1281, Open Innovation Paraguay; and with operation BO-M1067, Operationalizing Bolivia's Joint Mechanism for Mitigation and Adaptation to Climate Change: Climate Compatible Development in the Bolivian Chaco. IDB Lab is a precursor in the region in investment for climate change adaptation through operation RG-M1264, PROADAPT: Building Resilience in the Gran Chaco Americano, which was completed with excellent results and put the issue of climate change and rural women on the public agenda, presenting at venues such as W20 and the Food and Agriculture Organization. At this stage, the participation of IDB Lab and a group of partners could make the difference in finding innovative solutions. The project will be supplemented by technical-cooperation operation RG-T3294, Management of Water Resources in the Pilcomayo River Watershed, which is being executed by the Bank's Water and Sanitation Division. It will also help increase the capillarity of information from PROSAT II, a Bank-financed satellite that will provide specific information on the region (operation AR-L1310).
- 3.4 **IDB Social Sector.** This project is aligned with the Gender and Diversity Sector Framework Document (document GN-2800-8), which specifically states that gender and climate change are portfolio priorities: "There are two facets to climate change and gender equality. First, the impacts of climate change amplify existing gender inequality.... Second, however, women play a key role in climate change adaptation and mitigation processes."
- 3.5 **Update to the Institutional Strategy.** The project is also aligned with the Update to the Institutional Strategy 2010-2020, as the operation's vertical logic is related to (a) labor market access and expansion of opportunities for women as entrepreneurs. It will help reduce poverty and inequality through (a) a tool to bridge between the skills taught by schools and the demands of the labor market; (b) greater access to infrastructure; and (c) inclusion of the economic activities of rural and ethnic minorities in value chains.
- 3.6 **Sustainable Development Goals.** The project is aligned with the United Nations' Sustainable Development Goals (SDGs), particularly (i) SDG 1: No poverty; (ii) SDG 5: Gender equality; (iii) SDG 6: Clean water and sanitation; (iv) SDG 13: Climate action; and (v) SDG 15: Life on land.

## **B. Scalability**

- 3.7 The project has great scale potential, both for the model as a whole and for specific solutions to test it. This can occur both in the Gran Chaco and in other remote parts of Latin America and the Caribbean where innovative solutions through connectivity can assist small rural and indigenous communities.
- 3.8 In terms of connectivity in the Gran Chaco, the total population is 7.5 million, so this is a pilot initiative to evaluate the viability of solutions to be scaled up in the different communities of the region. Once the model is tested, the web of social sector organizations in the Gran Chaco should be able to bring this solution to at least

another 60 communities. The project's partners—both public entities like ENACOM, with the fund described in paragraph 2.7, and the potential local partners of [Microsoft](#)—prioritize connectivity strategies for rural populations. Thus, the connectivity model could be brought to other rural areas based on the lessons learned from this operation.

- 3.9 Another replicable aspect of the project is the creation and adoption of disruptive solutions through open innovation processes. The methodology for pursuing these processes, as well as the co-creation of specific solutions for local problems, can be disseminated and applied in other geographically complex areas, but with connectivity.
- 3.10 Lastly, operational models such as the ExOs can be replicated with women in other communities and other business areas, as is the case in Africa with [solar energy](#).

### C. Project and institutional risks

- 3.11 Risks have been classified as internal or external. The main internal risks are as follows: (i) operations may be hindered by having only one provider at any of the necessary phases for providing home Internet service; (ii) coordinating multiple actors can be difficult, particularly during changes in political office; (iii) the business model may be quickly rendered obsolete by technological advances; and (iv) fast growth of the EXOs may lead to institutional conflicts or crises within the ExO enterprises. **Mitigation actions:** (i) with regard to the risk of having only one provider, new partnerships will be formed, and competitive processes will be conducted for potential new providers; (ii) the partnerships forged between the technical levels of the public and private sectors will lend continuity to activities; (iii) the business models include investments for renewing technology and amortizing equipment; and (iv) the experience of the organizations assisting in community and organizational development mitigates the risks of growth-induced crisis.
- 3.12 The following external risks have been identified: (i) public entities may fail to complete basic infrastructure works for connectivity; (ii) the policy framework might not be changed to accommodate TVWS or other state-of-the-art technologies; and (iii) macroeconomic risks may undermine the proposed business models. **Mitigation actions:** (i) linkages will be established with provincial governments to develop local investment, and the partnership with Microsoft would make it possible to leverage other funding for investment; (ii) other, already available technologies may be used; and (iii) the model with the proposed technology is competitive and lowers the cost of access for consumers. The executing agency will provide ongoing assistance to the ExOs, to keep the business model up to date in view of economic changes, as well as to diversify risks.

## IV. FINANCING INSTRUMENT AND BUDGET PROPOSAL

- 4.1 The total cost of the project is US\$2,768,200. Of that amount, US\$1,384,000 (50%) will be contributed by IDB Lab as nonreimbursable technical cooperation, and US\$1,384,200 (50%) will be contributed by the counterpart.

Project components	IDB Lab	Local contribution	Total (US\$)
1. Technical assistance			
1.1 Connectivity	268,000	708,100	976,100
1.2 Strengthening of “EXO Mujer” enterprises	419,600	304,100	723,700
1.3 Innovative solutions	453,000	198,000	651,000
2. Coordination and administration	172,000	174,000	346,000
3. Evaluations, contingencies, and audits	71,400	-	71,400
<b>Total</b>	<b>1,384,000</b>	<b>1,384,200</b>	<b>2,758,200</b>
<b>% of financing</b>	<b>50%</b>	<b>50%</b>	<b>100%</b>

## V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE

### A. Description of the executing agency

- 5.1 Fundación Avina will be the executing agency for this project. It has an established track record at the regional level and has been operating for more than 20 years, particularly in the Gran Chaco region.
- 5.2 Fundación Avina has prior experience in executing IDB Lab projects, where it has demonstrated its technical capacity as well as its capacity for advocacy with key decision-makers and for regional coordination. Examples include PROADAPT: Building Resilience in the Gran Chaco Americano (operation RG-M1264) and the Regional Initiative for the Economic and Social Inclusion of Waste Recyclers (operation RG-M1179). Fundación Avina’s position in the local environment of the Gran Chaco—which has unique features given socioeconomic conditions, including a vulnerable population, many of them living in extreme poverty—and its ability to build social capital and coordinate institutions at the local and regional levels mean that it possesses the capabilities to lead the project. As with PROADAPT, the project will be executed in partnership with local partners in each country, with which this proposal was designed, thus ensuring a high level of capillarity throughout the region, making the necessary adaptations in view of the conditions unique to each country. The civil society organizations include Fundación Gran Chaco, ACDI, Fundación Nativa, Sombra de Árbol, and Grupo Sunu. Private-sector partners include Samsung, Mercado Libre, Microsoft, Sol Rural, and ALTEC. Extensive coordination has also been pursued with municipal and provincial governments.

### B. Implementation structure and mechanism

- 5.3 Fundación Avina will be responsible for strategic planning, project execution, and reporting to donors and key partners. Fundación Avina directors will be assigned to monitor the project and ensure synergies with different areas of activity and alignment with the strategic priorities of Fundación Avina and IDB Lab. Fundación Avina will form a project execution unit with a regional general manager, a regional administrative/financial officer, and a technical manager for each country. The executing agency will be responsible for promoting and ensuring effective coordination and strategic partnerships with the project’s key stakeholders:

corporate partners, financial institutions, local organizations and governments, other private-sector partners, etc. The regional manager will be responsible for the regional annual work plan (AWP), coordination of execution among the three countries, the six-monthly project status reports (PSRs), and administrative-financial supervision. Planning exercises will be approved by the executing agency and IDB Lab, as will the six-monthly PSRs. The main role of the technical managers in each country will be to secure the necessary collaboration agreements with the communities for the project activities in each country. They will also coordinate the development and implementation of the AWP in each country. The technical manager will report regularly on the project's progress and difficulties in each territory and deliver quarterly reports to the program's regional office. The technical managers will rely on the local social sector organizations in each country to perform their roles: Fundación Gran Chaco for Argentina, Fundación Nativa for Bolivia, and Grupo Sunu for Paraguay.

- 5.4 To ensure effective project governance, a structure will be created to oversee the project's strategic vision and direction, as well as to monitor the fulfillment of objectives and proper accountability reporting. This mechanism will include an executive committee consisting of representatives of the primary partners: Fundación Gran Chaco, Grupo Sunu, Sombra de Árbol, Fundación Nativa, and ACDI. The committee will support the executing agency in achieving the project's strategic objectives, developing new strategic partnerships, leveraging funds, and establishing agreements with the local network of organizations. The committee will meet in person three times per year. A review and strategic planning meeting with financiers (including IDB Lab) and other partners will be held at the start of the calendar year, to analyze project progress, annual planning, and any other matters arising on which the parties can collaborate.

## VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 6.1 **Results-based disbursements and fiduciary arrangements.** According to the institutional assessment, Fundación Avina is a foundation governed by private law with its [own administrative and procurement policies](#) satisfying the criteria of transparency, economy, and efficiency. From an organizational standpoint, it possesses the fiduciary and financial capacity to deliver the project. Thus, for the purposes of supervision of this operation, Fundación Avina's operational policies<sup>5</sup> will be used and followed for project administration and procurement.
- 6.2 Technical and fiduciary supervision will be conducted from the Bank's Country Office in Argentina. All supporting documentation for disbursements and procurements will be kept on file at Fundación Avina's headquarters in Panama, from which payments will be made at the local level in the three participating countries, transferring the necessary funds according to approved commitments.
- 6.3 **Procurement.** The executing agency's policies will be used for procurement. The annual procurement planning for project execution and fulfillment of milestones will be submitted in conjunction with the AWP. A determination will be made as to which procurements are technically critical to IDB Lab, and the technical aspects of these

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<sup>5</sup> Pursuant to Appendix 4 of documents GN-2349-9 and GN-2350-9, and to policy document OP-273-12.

procurements will be reviewed. The rules for use of the innovation fund (described in paragraph 2.18) will establish the basic competitive conditions necessary for selection and financing of the solutions (provided as goods and/or services) for the identified challenges. These solutions will be procured with no further selection process and will be payable against results.

- 6.4 **Milestones.** A preliminary table of results-based milestones that must be met for disbursements to be made is attached as a link. The milestones to be met during the year will be validated within three months at the start of the calendar year and may be modified as necessary without altering the project objectives or results. A reassurance audit may be requested, if deemed necessary by the Bank for milestone verification, financed as a charge against the contribution.
- 6.5 **Financial statements and reviews of use of the contribution.** The executing agency will submit its annual financial statements to the Bank. These statements will include a specific note on use of the IDB Lab contribution. The Bank may use contribution resources to commission a review of the financial statements and the use of project resources for the purpose of verifying financial practices and procurement processes. It may also conduct audits.

## **VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY**

- 7.1 **Access to information.** This document contains confidential information relating to one or more of the ten exceptions of the Access to Information Policy and will be initially treated as confidential and made available only to Bank employees. The document will be disclosed and made available to the public upon approval.
- 7.2 **Intellectual property.** Fundación Avina and the solution developers (as per the agreement them) will own the intellectual property of the knowledge products and solutions generated under the project. Avina will issue a free, irrevocable, noncommercial, and indefinite term license to the Bank for the use of copyright, patents, and any other intellectual property right, which may be used by third parties on the following terms: Avina will license the knowledge products and solutions generated under the project under the Creative Commons license (CC BY-SA 4.0). This license maintains the Avina intellectual property of the products but releases them for free and unrestricted use by any person on the only condition that subsequent byproducts and/or derivatives (of the Avina intellectual property) remain under the same license (CC BY-SA 4.0).