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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK
MULTILATERAL INVESTMENT FUND

NICARAGUA

SMART COCOA PRODUCTION

(NI-T1274)

DONORS MEMORANDUM

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PROJECT SUMMARY

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The cocoa ecosystem and producers in Nicaragua face a number of challenges that affect the productivity and sustainability of their farms, including: limited use of technology, insufficient climate change adaptation efforts, crop management deficiencies that result in low productivity (e.g. under 30% is sold as “fine fermented cocoa,” which is a value-added product), low compatibility of varieties and genetic variability at the level of farms, and small-scale producers’ lack of access to finance for investing in technology.

Accordingly, the project will provide innovative solutions to enhance productivity, quality, and sustainability, and reduce vulnerability to climate change, thereby ensuring a higher-value market. The project’s most significant technological innovations are: (i) precision agriculture, supported by software and georeferencing systems adapted for data collection and processing; precision tools to manage disease, production forecasts, and hydric stress; and the use of big data for statistical prediction models; (ii) spatial technology for monilia[1] control campaigns, including satellite mapping to monitor the incidence of the disease, and variable-dose technologies (control sensors); (iii) sensors to measure electrical conductivity to determine the moisture content of soil and make timely irrigation decisions in critical stages of the crop, based on its phenology; (iv) implementation of operational intelligence in cocoa traceability, using big data to improve logistical connectivity and optimizing operational processes in the supply chain; and (v) implementation of cocoa record keeping and traceability software for certification audits.

In terms of financing, the project will design and pilot medium- and long-term credit products to help producers invest in technological innovation that will be promoted by the project.

This project will help improve the quality of life of at least 3,725 small-scale Nicaraguan cocoa-producing families who belong to producer cooperatives, specifically in the departments of Matagalpa, Jinotega, Triángulo Minero, El Rama, Nueva Guinea, and Río San Juan, by boosting productivity and enhancing the quality and sustainability of their farms through technologies to manage cocoa agroforestry system farming.

[1] Monilia: A cocoa disease, known as monilia, water pod rot, frosty pod rot, and Quevedo disease, is caused by the monilia fungus (*Moniliophthora*).

ANNEXES

APPENDICES

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

ABBREVIATIONS

CGIAR	Consultative Group on Agricultural Research
CIAT	International Center for Tropical Agriculture
COF/CNI	Country Office in Nicaragua
iDELTA	Development Effectiveness Learning, Tracking, and Assessment Tool for Innovation
UNIDO	United Nations Industrial Development Organization

PROJECT INFORMATION

SMART COCOA PRODUCTION
(NI-T1274)

Country and geographic location:	Nicaragua – departments of Matagalpa, Jinotega, and Río San Juan, and the Caribbean Coast Autonomous Regions		
Executing agency:	Ritter Sport[2]		
Focus area:	Climate-smart agriculture		
Project beneficiaries:	The project will directly benefit 3,725 small-scale cocoa producers and the 16 cooperatives with which they are affiliated		
Financing:	Technical cooperation funding:	US$1,500,000	41%
	Investment:	-	
	Loan:	-	
	Other (explain):	-	
	Total IDB Lab contribution:	US$1,500,000	
	Counterpart:	US$2,160,379	59%
	Cofinancing:	-	
	Total project budget	**US$3,660,379**	100%
Execution and disbursement period:	48 months for execution and 54 months for disbursement		
Special contractual conditions:	Conditions precedent to the first disbursement: (a) agreement signed with the Rainforest Alliance/UTZ; (b) Ritter Sport productivity program developed with the 16 cooperatives; and (c) project coordinator designated.		
Social and environmental impact review:	This operation was screened and classified on 25 September 2019, in accordance with the requirements of the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703). Since the impacts and risks entailed in the project are limited, its proposed classification is a category "C" operation.		
Unit responsible for disbursements:	IDB Country Office in Nicaragua (COF/CNI)		

[2] The company's corporate name is Ritter Sport S.A. Information on the execution arrangements agreed upon between Ritter Sport, Rainforest Alliance/UTZ, and the participating cooperatives is provided in Section V of this document.

I. THE PROBLEM

A. Context and description of the problem

1.1 By 2020, global cocoa demand is expected to rise by 1 million metric tons. At the same time, production is projected to fall in the two African countries that currently produce more than 50% of the world's cocoa (Côte d'Ivoire and Ghana), due to aging of their plantations and the impact of climate change. This will lead to shortages in the cocoa market moving forward.[3] Specifically, recent studies show that two climate-related factors will impact cocoa in the coming decades: (i) irregular and less frequent precipitation, and (ii) rising temperatures in production zones, which in turn impact pests and disease, fatty acid content, and quality.[4]

1.2 This situation could present an opportunity for Nicaragua—the top producer of cocoa beans (5,011 metric tons in 2015) and largest cocoa exporter in Central America. Cocoa production is concentrated in 11,900 small-scale producers (60% of national production), who run diversified production systems on farms of less than 1.41 hectares. The country has an estimated 27,591 hectares devoted to cocoa production.[5] In 2017, Nicaragua exported 4,239 metric tons of cocoa, which is 2.68 times more than it exported in 2009. Of this volume, 77% was exported to the Central American market (Guatemala, Honduras, and El Salvador) and 21% to the German and Belgian markets at higher prices, accounting for 44% of the free-on-board amount for cocoa exports.

1.3 Nonetheless, Nicaragua faces challenges that could prevent it from capitalizing on these new opportunities in the international cocoa market. The main problem for small-scale cocoa-producing families in Nicaragua is low farm productivity, adversely impacting the sector's profitability and resulting in lower incomes for producers. Current annual yields are just 556 kilograms per hectare,[6] while, according to a cocoa assessment in Nicaragua[7] (United Nations Industrial Development Organization (UNIDO), 2016), these annual yields could, at minimum, be doubled to between 1.2 and 1.5 metric tons per hectare. The assessment also points out the following specific challenges confronting the cocoa ecosystem and producers of the crop in Nicaragua that directly impact productivity:

1.4 Limited use of technology and deficient information regarding the productive management of the crop. Precarious production technology is still used and crops are aging in regions where producers are not organized into producer cooperatives; few producers perform field work that is essential to cocoa sector productivity, including fertilization, pruning, clearing, water and watershed management, and crop rehabilitation/renewal. This is often due to small-scale producers' lack of training and knowledge regarding new practices and available technologies. While there is a body of literature and studies on cocoa productivity, cocoa chain stakeholders will need to disseminate and implement them together with producers. Furthermore, access to finance for investing in technologies in nonexistent (paragraph 1.9).

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3 World Cocoa Conference, 2014.

4 Global Climate Change Impacts on Cocoa. Christian Bunn, Mark Lundy. International Center for Tropical Agriculture (CIAT)/Consultative Group on Agricultural Research (CGIAR) 2017.

5 Assessment of the cocoa sector in Nicaragua, 2016. UNIDO.

6 FAOSTAT,13 May 2018.

7 Assessment of the cocoa sector in Nicaragua, 2016. UNIDO.

1.5 While sources of climate information exist that could help producers plan better, such information is not necessarily linked with the technical assistance they need or sufficiently available to them for decision-making on the potential productivity and resilience of their farms. As one of the countries most affected by climate change,[8] this is especially relevant for Nicaragua.

1.6 Less than 30% of domestic production is marketed as "fine fermented cocoa," and the rest is sold as cocoa beans or cocoa pulp with no value added. These cocoa exports consist of whole, raw cocoa beans, while the processing industry accounts for less than less 1% of the value of such exports. Producers receive the lowest prices for unfermented cocoa, which has no value added. Barriers that limit fermentation at the farm level include access to knowledge (i.e. technical assistance) and the lack of the infrastructure needed to standardize quality. The producer cooperative approach offers the opportunity to improve technical assistance quality, infrastructure needs, and price information. For these reasons, adoption rates of value-added processes remain low.

1.7 Low crop population density (548 ± 192 plants per hectare)[9] and low percentage of compatibility of varieties on farms. According to the country's Agricultural Technology Institute (INTA), planting areas should contain 625 plants to facilitate productivity. There are also other planting area recommendations for cocoa agroforestry systems, such as those of the Tropical Agricultural Research and Training Center (CATIE). Despite the 18 clonal gardens identified in the assessment (16 of which belonged to cooperatives and companies), the amount of genetic material for production-related applications remains limited in Nicaragua, as does the dearth of information and mechanisms to measure the compatibility of cocoa varieties in established agroforestry systems, which directly impact production. The causes of these problems include: (i) a lack of crop management knowledge and of productive systems that use varieties to facilitate greater populational density; and (ii) a lack of good quality technical support from the various stakeholders in the cocoa chain and research institutes.

1.8 Limited or no access to finance for small-scale producers to invest in technologies. Cocoa marketing and export companies tend to cover the short-term financing needs of cooperatives associated with marketing their cocoa, and on a smaller scale, the needs of individual producers in that regard, yet there is no financing for investment in technology. Microlending institutions account for the few sources of finance available for this purpose. They will lend amounts of up to US$2,000, but at interest rates of 25% per annum, a term of less than one year, and require personal-property collateral, thereby limiting small-scale producers' access to these products. The limited access that small-scale producers and cooperatives have to technology and information affects their ability to strategically plan for production and technical assistance by incorporating phenological and climate information for effective, resilient, and sustainable management, which includes monitoring climate risks and prices over 5- and 10-year horizons.

1.9 Some cocoa-producer cooperatives in Nicaragua are working on the problem of finance. For instance, one such cooperative has provided finance for the establishment of new cocoa production areas, which only 160 cocoa producers have received. Financing is essential to adopt any type of technology in the cocoa sector. Accordingly, some

[8] According to the Germanwatch Global Climate Risk Index 2019, Nicaragua was the sixth most affected country by climate change in the period 1998-2017.

[9] Somarriba, E., R. Cerda, L. Orozco, and M. Cifuentes et al. 2013. Carbon Stocks and Cocoa Yields in Agroforestry Systems of Central America. Agriculture, Ecosystems, and Environments, 173: 46-57. Elsevier.

cooperatives have programs that, although incipient, seek to address part of the demand for short-term credit. Producer cooperatives, however, have little capacity to manage credit and its risks—and limited resources that hinder its scope. They are also unable to trace the production of their members, thus limiting their ability to meet the market requirements that its end clients need. Despite these constraints, cooperatives play an important role in the cocoa sector as the entities of the chain closest to producers and through which many technologies and training programs can be implemented.

1.10 While cocoa prices are relatively stable and predictable, as compared to coffee, there is little transparency with respect to the quality-price relationship. Prices paid by intermediary collection centers often do not reflect the degree of fermentation at the time of delivery, and payment mechanisms are detrimental to producers. Accordingly, cooperatives play an important role in Nicaragua's cocoa chain by establishing pricing policies that allow producers to plan and because they are in a better position to negotiate cocoa volume with buyers.

II. THE PROPOSED INNOVATION

A. Project description

2.1 The project's objective is to help improve the incomes and resilience of cocoa-producing families in Nicaragua. The expected outcome is better yields and sales among cocoa-producing families who are cooperative members, by providing them with access to precision agriculture technologies, cocoa agroforestry management systems, and the traceability/certification of sustainable fine cocoa required by higher-value markets. The entire IDB Lab investment will be used to benefit the participating cocoa cooperatives and small-scale cocoa producers.

2.2 Accordingly, the proposed **innovation** is the incorporation of precision agriculture and other technologies to improve productivity, production, and the cocoa agroforestry system market, making them accessible to small-scale cocoa producers and leveraging the leadership of cooperatives and their market relations with Ritter Sport—a company that produces chocolate made of 100% sustainable, fine cocoa. In addition to being one of the first experiences in terms of providing the cooperatives of small-scale cocoa producers with access to precision agriculture technology, the project will also be one of the first to use this technology for traceability and certification, with an integrated certification seal as part of a technological pilot developed with Rainforest Alliance/UTZ.[10]

2.3 The project includes capacity-building and access to technology through the cooperative model, which helps reach producers scattered throughout rural areas. While Nicaraguan cocoa cooperatives—established only in the late 1990s and early 2000s—lack the maturity and capacity of coffee cooperatives, they have an opportunity to strengthen their strategic vision of production and sustainable markets, creating more value in both economic and environmental terms.

2.4 A specific technological package will be designed for the precision agriculture technologies adopted in the project's initial pilot in four cooperatives (1,000 producers), which may include: (i) the Internet of Things for monitoring, data storage, and automated evaluation through the interconnectivity of different devices and platforms; (ii) laboratories with

[10] UTZ and Rainforest Alliance, leading institutions in environmental quality and social impact certifications, are in the process of merging. The first joint seal will be available in 2019.

devices such as sensors to monitor the soil and weather (humidity and temperature), bean flow to enhance production estimates and the speed of progress, and plant photosynthesis; and pilot small-scale irrigation devices with flexible technology (mobile); and (iii) georeferencing systems that provide early alerts for controlling the main diseases of the crop. An application will also be used to manage the cocoa supply/custody chain based on multiple small-scale producers and to provide traceability and visibility in the field, making it possible to address environmental and social issues. This visibility provides useful information for managing quality, offering transparency and document compliance with any food and sustainability standard (e.g. Global G.A.P., Rainforest Alliance, Organic) to simplify certification audits. Lastly, the project will determine what program can be best adjusted to small-scale producers for the ideal application of fertilizers (e.g. SMART Fertilizer).[11]

2.5 Financing and access to markets and other technology. Currently, some cocoa producers receive short-term financing in the form of preharvest advances. The project will design and pilot medium- and long-term credit products to help producers invest in the technological innovations promoted by the project. Credit is currently channeled through cooperatives, which manage the records of grower production and credit. The combination of this information from the field and the information on cocoa purchases and quality, maintained by Ritter Sport, facilitates good risk management without compromising any sector stakeholder. The medium- and long-term credit pilot will be carried out in accordance with this institutional structure.

2.6 The project will implement a compensation-for-quality strategy, which will include a price policy and contract based on international standards. Prices are expected to remain above the cocoa stock exchange price at all times, and minimums will be established in the event that international prices drop, ensuring that producers are paid fair and consistent prices. Other global traders and exporters in the sector, such as ECOM and Bean and Company, also purchase cocoa in Nicaragua. Accordingly, producers will in no way be tied to working with or selling to the executing agency, Ritter Sport.

2.7 Innovation in the processes of quality certification, development of a single seal, and traceability. The project entails a partnership with Rainforest Alliance/UTZ, facilitating, for the first time in Nicaragua, joint certification of quality, sustainability, and social and environmental responsibility in the sustainable cocoa value chain. By the second year of the project, all cocoa marketed through the project should be certified as 100% sustainable. The project will also make it possible for participating cooperatives to secure a higher value-added market.

2.8 **Project beneficiaries.** The project will target the departments of Matagalpa, Jinotega, the North Caribbean Coast Autonomous Region (in Siuna, Rosita, and Bonanza), the South Caribbean Coast Autonomous Region (in El Rama and Nueva Guinea), and Río San Juan. The poverty rate in these departments is greater than 70%, according to the unmet basic needs indicator, 60% of which is concentrated in rural areas where cocoa producers reside.[12]

2.9 The project will help improve the quality of life of at least 3,725 small-scale cocoa producers and their families who are members of the 16 participating producer

[11] SMART Fertilizer Management. This technology is being used by companies with value chains that include many small-scale producers in other countries.

[12] Survey of Livelihoods 2005-2009, Nicaraguan Institute of Information for Development (INIDE).

cooperatives. Selection criteria for cooperatives include: strategically located in areas with a high level of cocoa production and cocoa production potential; cocoa sector experience; track record of cocoa delivery; and entrepreneurial vision and willingness to adopt technology (contribution commitment). Selection criteria for producers participating in the project include: membership in a participating cooperative; at least two years of experience growing cocoa; and a cultivation area of between one and 15 hectares (small-scale producer). Four of the participating cooperatives operate in indigenous lands. Accordingly, the components of the project will take that fact into account in developing the training methodologies and in implementing the technologies.

2.10 **Gender.** In value chains such as coffee, the role of women is specifically limited to the selection of bean quality. Nonetheless, women can benefit from information and training in the use of technologies and improved technical methods. The project will include a baseline to analyze women's participation in the cocoa chain. During the project, work will focus on a strategy and activities that most contribute to greater inclusion and/or promotion of gender equity, based on the existing information and diagnostic assessment of the 16 participating cooperatives (women members currently account for 21% of membership). As part of project monitoring and evaluation, data will be compiled and disaggregated by indicator. In keeping with its mission, Ritter Sport has a sustainability framework that includes key performance indicators for gender inclusion, vulnerable populations, the environment, and business.

B. Components and activities

2.11 **Component 1: Sustainable development, cocoa agroforestry systems, and smart agriculture (IDB Lab: US$581,742; Counterpart: US$368,710).** The objective of this component is to enhance the productive efficiency of the cocoa agroforestry systems of small-scale producers who are members of the participating cooperatives, by restoring soil productivity, managing water, and increasing the cocoa producers' incomes, resilience, and sustainability. The implementation of the activities planned under this component will build cocoa producers' capacity to address the challenges of climate change.

2.12 As regards climate change and climate variability, fine cocoa and its sustainable production present an opportunity to add value and improve the incomes of stakeholders involved in its production and processing. Agroforestry production systems also contribute to households' food security while improving the capacity to adapt to climate variability.[13]

2.13 The following activities will be financed: (i) specialized advisory services for technical experts in cooperatives and leading producers to implement productive technology and improve the quality of technical support for producers. This will be achieved by designing protocols for technical assistance, the use of technology, and the use of big data for decision-making and problem-solving to improve the cooperatives' corporate governance and knowledge of market intelligence; (ii) georeferencing and profiling of cocoa farms (e.g. varieties, density, and genetic compatibility), and selection of elite plants to graft to unproductive plants; (iii) advisory services for producers to boost the productive efficiency of cocoa agroforestry systems (e.g. rehabilitation, pruning, fertilization, genetic enhancement, management of forest trees, and partial renewals[14]); (iv) advisory services

[13] Climate-smart Agriculture in Nicaragua. Climate-smart Agriculture Profile 2015. CGIAR.

[14] Partial renewals are the scaled renewal practices implemented, based on the economic productive capacity of each grower.

for cooperatives on business practices, corporate governance, business ethics, and empowerment of boards of directors and assemblies of delegates; (v) innovation piloting in the introduction of new technologies (three productive models under agroforestry systems in 16 reference farms); (vi) equipment for cooperatives, including a mobile soil laboratory kit for precision agriculture (solution extractors).

2.14 The outcomes of this component are the following: (i) 96 technical experts from 16 cooperatives trained to support producers in the adoption of technologies; (ii) 3,725 producers (100% of targeted producers, out of which 33% are women) have adopted at least two of the five good practices for sustainable cocoa production (pruning and fertilization); and (iii) three innovations in productive models under cocoa agroforestry systems are being implemented on model farms.

2.15 **Component 2: Technological innovation in sustainable cocoa production (IDB Lab: US$316,518; Counterpart: US$56,604).** The objective of this component is to lay the groundwork for and execute the precision agriculture platform in cooperatives to collect and process data at the level of farms. The project will leverage experience gained from management platforms that have produced decision-making results based on timely, high-quality information. The project will supplement this with the design of precision tools to manage diseases, production forecasts, and hydric stress, as well as to utilize big data for statistical prediction models. This component will include specific actions to support the design of technical assistance and training activities to more effectively include the role of women in the adoption of technology and best practices.

2.16 The following activities will be financed under this component: (i) development of protocols for use and implementation of the precision agriculture platform; (ii) design of an early alert system for disease management, as well as production and hydric stress forecasts to support irrigation-related decision-making; (iii) implementation of spatial technology for monilia control, including satellite mapping to monitor the incidence of the disease and workshops for implementing control programs; (iv) data collection on precipitation, soil moisture, temperature, solar radiation, and plant photosynthesis; (v) implementation of precision agriculture technologies—sensors to measure electrical conductivity to determine the moisture content of soil and make timely irrigation decisions in critical stages of the crop, based on its phenology; meteorological equipment to measure, inter alia, soil moisture, precipitation, and relative temperature and humidity; (vi) validation of cocoa drying technology for smart energy management; and (vii) implementation of operational intelligence in the traceability of cocoa through big data to improve logistical connectivity and optimization of operational processes in the supply chain.

2.17 The outcomes of this component are as follows: (i) 1,000 small-scale producers (20% of them women) with access to technological innovations in cocoa productivity, and at least 60% using them; (ii) 16 cooperatives are implementing precision agriculture (Internet of Things), yield and application maps, climate monitoring, and phenological monitoring of crops, using the comprehensive management platform (for managing farms, traceability, and monitoring), and also using sustainable certification platforms; and (iii) at least 300 hectares of cocoa are rehabilitated through grafting (genetic enhancement).

2.18 **Component 3: Traceability and quality management in sustainable cocoa production (IDB Lab: US$61,100; Counterpart: US$182,700).** The objective of this component is to support cooperatives in securing a higher value-added market through joint certification of quality, sustainability, and social and environmental responsibility.

Without traceability and the cocoa bean quality required by international buyers, producers will not be able to access these higher-value markets.

2.19 This component will finance the following activities: (i) implementation of the certification information platform and CommCare and Dashboard licenses for data capture and management; (ii) strengthening of the internal management and traceability system[15] used by cooperatives and producers though adoption of the MultiTrace software application; (iii) preparation and monitoring of plans to reduce the carbon footprint; (iv) workshops on the new certification standard; (v) implementation of cocoa record-keeping and traceability software; (vi) advisory services to boost quality by validating automated drying systems and updating protocols.

2.20 This component will result in an increase: (i) of more than 75% in the volume grade-A cocoa; (ii) of more than 100% in the number of tons of certified sustainable cocoa bought by Ritter Sport; and (iii) of more than 50% in the number of certified producers. By the end of the project, 3,250 producers (87% of producers under the project, 33% of whom are women) should be certified under the new sustainable certification protocol.

2.21 **Component 4: Financing and sustainability program (IDB Lab: US$310,000; Counterpart: US$1,370,000).** The objective of this component is to strengthen the current short-term financing system and pilot medium- and long-term financing products for cooperatives to implement the innovations that will be promoted, so that the financing program will be sustainable and scalable. Ritter Sport provides short-term loans (less than a term of one year) to a select group of cooperatives with a proven track record of cocoa delivery and no defaults or delays. The 1% rate offered does not necessarily cover the cost of supervision and monitoring, but is part of the strategy to strengthen the cooperatives. The following activities will be financed:

(i) Development of the financial model for the cooperative and producer financing program: (a) review of short-term financing for marketing, maintenance, and certification; (b) establish an investment fund for technological innovation (long-term financial products for investing in collection, drying, and farm rehabilitation infrastructure); (c) development and implementation of the credit scoring tool; and (d) training for cooperatives.

(ii) Revolving short-term financing fund to be repaid annually (equivalent to four years of funding for the cooperatives, estimated at US$15,625 annually per cooperative). Total amount: US$250,000 annually. These resources are allocated to participating cooperatives that meet the requirements set out in the credit regulations (drafting pending) and will use the resources to provide producers with lines of credit. The following minimum conditions apply: (i) annual rate of 1% on the outstanding balances of the cooperatives and, for cooperatives, 8% on the outstanding balances of producers; (ii) cocoa sales contract to back the loan; and (iii) annual investment and production plan, approved by Ritter Sport. These loans are to be repaid in less than one year.[16]

(iii) Medium- to long-term investment fund for technological innovation (Ritter Sport funds: US$370,000 and IDB Lab guarantee: US$250,000). Ritter Sport will

[15] The set of applications and programs to improve the management of traceability include data capture at the level of cocoa reception centers in the field, and fine cocoa fermentation and onsite packaging centers.

[16] The definitive loan conditions will be approved by the project technical committee and IDB Lab.

contribute US$370,000 in long-term financing and will assume liability for it with the cooperatives and producers. Ritter will offer credit to the cooperatives at an annual interest rate of 1%, and to producers at 8%. IDB Lab will offer a guarantee of up to US$250,000 in the event of losses due to nonpayment. Establishment of the execution mechanism for the guarantee will be a condition precedent to the first disbursement of the proceeds for this component, and will be approved by IDB Lab. The resources allocated for this purpose will only be executed in the event of losses.

2.22 The outputs obtained will be: (i) a financial model for the Ritter Sport cooperative and producer financing program will have been developed; (ii) 500 producers will have accessed credit from Ritter Sport through 16 cooperatives to invest in marketing, maintenance, and certification for their farms; and (iii) 350 producers from six cooperatives with a total of approximately 734 hectares will have accessed the investment fund for technological innovation through the pilot "long-term financing products targeting investment in collection, drying, and farm rehabilitation infrastructure.

2.23 **Component 5: Project monitoring and evaluation, strategic communication, and knowledge management (cooperatives and partners): (IDB Lab: US$50,000).** The objective of this component is to document and publish the project's outcomes, achievements, and lessons learned with a view to the replicability, knowledge scaling, and use of the technology promoted through this project.

2.24 The following activities will be financed: (i) development of the projects monitoring and evaluation system; and (ii) development of the project's communication and knowledge materials (e.g. videos, infographics, and life stories). The project will also use the SAFE Platform, which includes key coffee and cocoa stakeholders in the region, for the expected objective of this component.

C. Project measurements, monitoring, and evaluation

2.25 The design of the project drew on the lesson learned from other cocoa projects in Nicaragua and the region, particularly project ATN/OC-14844-NI and the regional SAFE Platform Program (operation RG-M1269), which emphasize the need to include the cooperatives as an integral part of project execution to ensure that small-scale producers achieve the aspired levels of impact and scope. Both of these projects document the important role that cooperatives play in the governance and structure of the value chain, and in the validation and dissemination of the techniques, methods, and technologies to be implemented. The financial intermediation role of the cooperatives was also taken into account in the design of this project. The project's indicators are aligned with the Bank's Corporate Results Framework and climate-smart agriculture indicators. The project should attain the following outcomes by the end of the four-year execution period: (i) a 40% improvement in yields of fine cocoa agroforestry systems (kilograms of dry cocoa beans per hectare); and (ii) an increase of more than 100% in the cooperatives' cocoa sales volume.

2.26 **Monitoring and evaluation system.** For monitoring and evaluation, the sustainability program used by the Ritter Sport–Rainforest/UTZ partnership will be automated and set up in cooperatives. The program defines indicators for economic sustainability, inclusion, impact on producers, etc. This automation should facilitate online verification of producer and cooperative records, their geographic location, and actions they have taken to deliver resources and knowledge through the project. Information from the different precision

agriculture systems and platforms to be developed for the production phase and for the traceability and marketing phases, will also be used for results monitoring and evaluation. At the outset of the project, a baseline will be established, which will enable the coordinator to develop a project monitoring system.

2.27 **Evaluations and the knowledge agenda.** Evaluations will be performed throughout the project according to needs associated with implementation, challenges, and the outcomes achieved. These evaluations will prioritize the effectiveness of the model and the replicability of the experience, i.e., incorporating technology into the operations of small-scale cocoa producers.

2.28 The project could contribute to the key questions for knowledge defined in the Climate-Smart Agriculture Thematic Paper through its aim to test innovations in business models and technologies with the most potential to benefit people and the environment. Some of these questions are: (i) Was the project effective and to what extent were the outcomes achieved? (ii) How can the scale of the innovation be expanded in the value chain in an inclusive way? (Data and information will continue to reshape agriculture and all agricultural supply chains and will increasingly be incorporated into the reality of small-scale producers.) (iii) What mechanisms can speed up the adoption of technology among excluded and vulnerable groups? One of the most useful breakthroughs in economics over the last 20 years has been acquiring a better understanding of the way in which humans incorporate information into decision-making. These strides in behavioral economics are particularly important in agriculture for the adoption of technologies that can improve people's lives. And finally, (iv) What are the greatest constraints in addressing gender and diversity gaps? The gender gap is one of the most widespread challenges in agriculture, where women are at a disadvantage with respect to accessing finance, land titles, productive inputs, and networks.

III. PROJECT ALIGNMENT WITH THE IDB GROUP, SCALABILITY, AND RISKS

A. Alignment with the IDB Group

3.1 The project is aligned with the IDB Institutional Strategy through its support for social inclusion, productivity, and innovation, as well as its efforts to address crosscutting areas such as climate change and environmental sustainability. It is also aligned with the Agriculture and Natural Resources Management Sector Framework Document, part of the Bank's strategy for mitigation and adaptation to climate change and renewable energy.

3.2 As regards the IDB Country Strategy with Nicaragua 2012-2017 (currently in effect), the project is consistent with the areas where the Bank will place special attention and deepen its dialogue: narrowing the urban-rural divide and strengthening rural value chains, taking into consideration the crosscutting areas of gender and climate change. In terms of the country diagnostic assessment currently in execution, the project is aligned through the diversification and sophistication of production, and the development of human capital and capacity-building of cooperatives and small- and medium-scale producers of fine cocoa.

3.3 The project addresses the IDB Lab priority area of climate-smart agriculture and seeks to tackle the two thematic challenges: increasing the revenue, sustainability, and climate resilience of small-scale agricultural producers, and regenerating the environment and mitigating climate change.

3.4 The project will also coordinate with and form part of the Sustainable Agriculture, Food, and the Environment (SAFE) Platform, an IDB Lab regional project (operation RG-M1269), which is currently in execution. It seeks to coordinate efforts in the coffee and cocoa sectors with leading global enterprises as partners. In addition, the platform seeks to facilitate the exchange of knowledge, experiences, and lessons learned from the region's most important projects and initiatives.

B. Scalability

3.5 Ritter Sport has played a leading role in Nicaragua's fine cocoa value chain. The company has been recognized by partner organizations and trade unions as an inclusive enterprise with a sustainable approach, involving pricing policies and quality and sustainability standards for fine/sustainable cocoa. This includes technical assistance and financing under special conditions for cocoa cooperatives, facilitating stable prices and markets for producers. Other projects in Nicaragua with international cooperation and private funds have been identified and memoranda of understanding will be signed with them to scale the knowledge and technologies piloted under the project, facilitating access to other cocoa cooperatives in the country. In all, Nicaragua has 52 small cocoa cooperatives representing 11,900 producers, which could scale up the project's impact.

C. External risks

3.6 The projects main risks include: (i) access to financing, i.e. a lack of financing for small-scale producers—be they individuals or organized in cooperatives—to invest in technology; (ii) volatility of cocoa prices in international markets; (iii) climate variability and extreme natural events; and (iv) unwillingness of small-scale producers to adopt technology.

3.7 The factors mitigating these risks center on the capacity of the partnering executing agencies and their economic and organizational solvency. Both Ritter Sport and Rainforest Alliance/UTZ have been operating in Nicaragua for more than 20 years, and have demonstrated a superb ability to adapt to changes, crises, and weather events, and manage market price trends.

3.8 Moreover, the technologies to be piloted and the methodologies to for building cooperatives' capacity will facilitate their access to information and systems for managing production risks (e.g. disease, ripening, and harvest), as well as climate, price, and market stability risks. This will help with the drafting of mitigation and action plans. The learn-by-doing methodologies and on-farm training are part of the rural extension program that producers can access through the participating cooperatives. In terms of access to finance, Ritter Sport, under its sustainability program, will continue to provide short-term financing to producers, through cooperatives, for maintenance, marketing, and certification. Long-term financial investment products will also be developed for technological innovation in rehabilitation, collection, and drying. Ritter Sport establishes its pricing policy for supplier cooperatives as a chocolate processing company, not as an intermediary company in the sale of fine cocoa. This means that the prices set are always above the stock exchange price for high-quality cocoa, and that cooperatives are free to sell to other markets or buyers.

IV. BUDGET INSTRUMENT AND PROPOSAL

4.1 The project's total cost is US$3,660,379, of which US$1,500,000 (41%) will be contributed by IDB Lab: US$1,250,000 in nonreimbursable technical-cooperation funding, which is exclusively earmarked to finance technical assistance, and production- and innovation-related investments in the cooperatives and their member producers, and US$250,000 as a guarantee fund, which will only be disbursed if required for the long-term financing pilot. The counterpart funds in the amount of US$2,160,379 (59%) will be contributed primarily by Ritter Sport. A smaller counterpart contribution will be made by Rainforest Alliance/UTZ.[17] All IDB Lab funding will be used to support the participating producer cooperatives.[18]

Component	IDB Lab (US$)	Counterpart (US$)	Total (US$)	Percentage
Component 1: Sustainable development, cocoa agroforestry systems, and smart agriculture	581,742	368,710	950,452	26
Component 2: Technological innovation in sustainable cocoa production	316,518	56,604	376,122	10
Component 3: Traceability and quality management in sustainable cocoa production	61,100	182,700	243,800	7
Quality management	97,640	23,100	120,740	3
Component 4: Financing and sustainability program	310,000	1,370,000	1,680,000	46
Component 5: Project monitoring and evaluation, strategic communication, and knowledge management	50,000		50,000	1.4
Project management and administration (executing agency)	48,000	156,265	239,265	5.6
Evaluations, audits, and contingencies	35,000*		35,000	1
Grand total	**1,500,000**	**2,160,379**	**3,360,379**	
Percentage of financing	41	59	100	100

V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE

A. Description of the executing agency

5.1 The executing agency will be Ritter Sport in partnership with Rainforest Alliance/UTZ. Ritter Sport is a family business that grows cocoa and produces chocolate from fine and sustainable cocoa. The company has supported a number of projects to help producers organize and to rescue criollo cocoa, using its own funds and German cooperation funds at a time when cocoa was a forgotten commodity in Nicaragua. Since then, it has continued to support high-quality cocoa in the production and post-harvest phases by developing protocols and quality standards that businesses in the cocoa value chain follow today. Ritter includes advisory services for cocoa cooperatives and small-scale

[17] Rainforest Alliance/UTZ will finance implementation of the new protocols for sustainable certification, use of the CommCare platform, satellite images, and strengthening the internal management system of the participating cooperatives and producers.

[18] The project investment categories are: (1) technical assistance, which includes the five technical components; (2) project management and administration; and (3) evaluations, audits, and contingencies.

producers as part of its corporate purpose. One of the benefits that Ritter Sport offers to cocoa producer cooperatives in its supply chain is its use of price contracts and policies: the international stock exchange price plus incentives for cocoa quality, Rainforest Alliance certification, and double certification. In the event international prices fall, Ritter guarantees a minimum price for producers of conventional and certified cocoa.

5.2 Rainforest Alliance,[19] a nongovernmental organization, has recently joined forces with UTZ—a merger of the world's two main certification systems. It has done so seeking to consolidate these systems and create a single standard for sustainable agriculture that combines the strengths of both organizations. This merger will provide them with a work structure to improve their livelihoods while protecting natural capital, and will be beneficial to farmers, the environment, companies, and consumers. The 182,000 cocoa, coffee, and tea producers currently certified under the two standards will see savings as they avoid the double administrative burden of implementing both, and will only need one audit instead of two. This means that they will be able to invest more efficiently in sustainability. Fairtrade, the Sustainable Agriculture Network/Rainforest Alliance/UTZ share the objective of reshaping global production systems and value chains to make them more sustainable. Their common concern is the pressing need to transform agriculture with the help of certification from a credible system like Rainforest Alliance/UTZ.

B. Implementation structure and mechanism

5.3 Ritter Sport in Nicaragua, in partnership with Rainforest Alliance/UTZ, will be responsible for executing the project. To that end, it will form a **project technical execution unit** that will be under the direction of both entities. Project funds will neither directly nor indirectly finance Ritter Sport, which will merely channel them under the supervision of the coordination committee described below.

5.4 In order to execute the project, an agreement will be signed between Rainforest Alliance/UTZ, the project's beneficiary cooperatives, and Ritter Sport. The agreement will stipulate the objectives, outcomes, commitments, arrangement for managing conflicts of interest, accountability, and other relevant matters for the transparency and proper execution of the project.

5.5 Likewise, and to ensure appropriate project governance, a project coordination committee will be established, comprised of representatives of Rainforest Alliance/UTZ, Ritter Sport, and the producer cooperatives. The committee will oversee the project's activities to ensure that they are properly implemented, provide strategic support to the project, ensure that the project's funds reach beneficiary cooperatives, and serve as the mediator of first instance in the event of conflicts between the parties.

VI. Fulfillment of Milestones and Special Fiduciary Arrangements

6.1 **Results-based disbursements and fiduciary arrangements.** The executing agency will commit to the standard IDB Lab arrangements for results-based disbursements, and to the procurement and financial management policies applicable to the private sector, in accordance with the Financial Management for IDB-financed Projects (document OP-273-12) and the Guide to Milestone-based Management and Financial Supervision of IDB Lab and Social Entrepreneurship Program Technical-cooperation Funding. This is consistent with the findings of the diagnostic needs assessment of the

[19] The Frog Blog Español.

executing agency indicating that Ritter Sport has a financial management system that is acceptable to IDB Lab and a monitoring and accountability structure for submitting its annual financial statements to the Bank.

6.2 **Risk- and performance-based project management.** Under this modality, disbursement amounts will be determined on the basis of the project's estimated liquidity needs, which are agreed upon between IDB Lab and the executing agency, and will reflect activities and costs programmed in the annual planning exercise.

VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY

7.1 **Access to information.** In accordance with the Bank's Access to Information Policy, this document is available to the public.

7.2 **Intellectual property.** The Bank will retain ownership of any and all intellectual property rights, including but not limited to copyright, in relation to and/or associated with all deliverables to be developed, i.e. specialized technical assistance, studies of trends, studies of alternative financing instruments for the sector, studies of modalities of recording/use of intellectual property in the sector, or other similar studies relevant to the project.