

CONFIDENTIAL
INTERNAL USE
PUBLIC UPON APPROVAL

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK
MULTILATERAL INVESTMENT FUND

COSTA RICA

NEW SKILLS FOR THE AGRICULTURE OF THE FUTURE

(CR-T1240)

DONORS MEMORANDUM

This document was prepared by the project team consisting of: William Ernest (DIS/CCR), Elena Heredero (LAB/DIS), and Masato Okumura (LAB/DIS), Project Team Co-leaders; María Loreto Biehl (EDU/CCR); Hazel Elizondo (EDU/CCR); Daisy Ramírez (FML/LAB); Patricia Guevara (LAB/DIS); and Cristina Parilli (DSP/DVF).

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 a restricted group of individuals within the Bank. The document will be disclosed and made available to the public upon approval.

CONTENTS

PROJECT SUMMARY EXECUTIVE SUMMARY

I.	PROBLEM ADDRESSED.....	1
	A. Description of the problem	1
	B. Project beneficiaries	2
II.	THE INNOVATION PROPOSAL	3
	A. Project description	3
	B. Project results, measurement, monitoring, and evaluation	8
III.	ALIGNMENT WITH THE IDB GROUP, SCALABILITY, AND RISKS.....	9
	A. Alignment with the IDB Group.....	9
	B. Scalability	10
	C. Project and institutional risks	11
IV.	INSTRUMENT AND PROPOSED BUDGET	11
V.	EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE	12
	A. Description of the executing agency	12
	B. Structure and implementation mechanism	13
VI.	FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY AGREEMENTS.....	13
VII.	INTELLECTUAL PROPERTY.....	13

PROJECT SUMMARY
NEW SKILLS FOR THE AGRICULTURE OF THE FUTURE
(CR-T1240)

Costa Rican agriculture faces a productivity problem and innovation gaps which are evidenced in territorial inequality, low levels of investment, income disparities, and levels of poverty and unemployment higher than those in the metropolitan area. The primary sector accounts for 13.4% of the employed population, but only produces 4.4% of gross domestic product, resulting in low productivity relative to the rest of the economy.

Through the Decarbonization Plan, the country is at the same time seeking to become a zero-emissions economy by 2050. Meeting the objectives outlined in the plan for the agriculture sector will necessitate the incorporation of technological innovations in the development of climate-change adaptation models, as well as the transformation of the agricultural workforce.

The Ministry of Public Education's technical and vocational education and training (TVET) schools, which provide training in agricultural specialties from grades 10 through 12 of secondary education, represent the main offer for developing technical skills for agriculture in rural areas. According to the Ministry of Public Education, there are 44 TVET schools providing training in agriculture and livestock specialty areas, the vast majority of which are located in the country's most vulnerable and poorest areas, where the predominantly male enrollment rate has been on the decline. In 2020, the Ministry of Public Education made an effort to update the technical education curriculum to include a focus on production and business management, a bent towards natural resource sustainability, and the use of technology to enhance skills. Implementation of these new modalities will begin in 2022 in the 10th grade cohort. Accordingly, agricultural training does not yet sufficiently incorporate the latest agricultural technology or "agtech" trends and falls in line with traditional practices in the sector. In addition, young people from smallholder families seeking to improve productivity, but who are not enrolled in the education system, lack training alternatives to acquire knowledge and the digital tools to help them transform agriculture.

The project will take a two-pronged approach to address these challenges. First, it will develop a proof of concept of a hybrid training program (in-person and online), complementary to the current Ministry of Public Education curriculum at two TVET schools that offer agricultural specialty education, thus fostering new knowledge and skills in precision agriculture, entrepreneurship, and socioemotional development among the students participating in the program. Second, the project aims to relate to decision-makers and opinion leaders the importance of training the workforce for the agriculture of the future so as to facilitate the transition to a green economy.

This beneficiaries of the project will be 190 young people from rural areas (140 from TVET schools and 50 from neighboring communities) who will develop agtech, entrepreneurship, and socioemotional skills, along with 500 young people from surrounding communities who will gain greater awareness about the agriculture of the future.

The executing agency is EARTH University, and the total project budget is US\$800,000, of which US\$400,000 will be provided by IDB Lab through nonreimbursable technical-cooperation funding. The Walmart Foundation will cofinance the project.

The project was designed in conjunction with the IDB Education Division and complements several projects that are currently in execution.

ANNEXES

Annex I	Results Matrix
Annex II	Budget Summary
Annex III	iDelta

APPENDICES

Proposed resolution

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

Annex IV	Itemized Budget
Annex V	Diagnostic Assessment of Executing Agency Needs
Annex VI	Project Status Reports and Fulfillment of Milestones and Fiduciary Arrangements
Annex VII	Procurement Plan
Annex VIII	Operating Regulations for Innovation

ABBREVIATIONS

CINDE	Asociación Coalición Costarricense de Iniciativas de Desarrollo [Costa Rican Coalition Association of Development Initiatives]
EARTH University	Escuela de Agricultura de la Región Tropical Húmeda
SDGs	Sustainable Development Goals
TVET	Technical and vocational education and training

COSTA RICA
NEW SKILLS FOR THE AGRICULTURE OF THE FUTURE
(CR-T1240)

EXECUTIVE SUMMARY

Country and geographic location:	Costa Rica		
Executing agency:	Escuela de Agricultura de la Región Tropical Húmeda (EARTH University)		
Focus area:	Climate-smart Agriculture		
Coordination with other donors/Bank operations:	This project complements three operations of the Bank's Education Division: CR-T1231, executed by Fundación Omar Dengo, which aims for secondary school students to obtain industry certifications in such areas as industrial electronics and web development, through hybrid learning and teacher support; CR-T1228, executed by the Inter-American Institute for Cooperation on Agriculture, which seeks to demonstrate the relevance of science and environmental secondary education by using an evaluation to contrast different approaches to teacher training; and CR-T1220, which seeks to develop mechanisms to improve educational quality in rural secondary schools during the COVID-19 pandemic. Additionally, it would complement the Future Up (future skills) Initiative that IDB Lab is currently executing with Asociación Coalición Costarricense de Iniciativas de Desarrollo [Costa Rican Coalition Association of Development Initiatives] (CR-T1174), which is developing an educational platform based on key skills for the most dynamic sectors of the Costa Rican economy. The green economy is one of the prioritized sectors.		
Project beneficiaries:	The direct beneficiaries of the project will be 190 young people from rural areas who will develop agtech, entrepreneurship, and socioemotional skills, along with 500 young people from surrounding communities who will gain greater awareness about the agriculture of the future.		
Financing:	Nonreimbursable technical-cooperation funding:	US\$400,000	50%
	Total IDB Lab contribution:	US\$400,000	
	Counterpart:	US\$400,000	50%
	Total project budget:	US\$800,000	100%
Execution and disbursement period:	30 months for execution and 36 months for disbursement		
Special contractual conditions:	The following will be a special contractual condition to commence implementation in schools: establish a cooperation agreement with the Ministry of Public Education.		
Environmental and social impact review:	This operation was screened and classified on 26 May 2021 pursuant to the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703). Given the limited impacts and risks, the proposed classification for the project is as a Category "C" operation.		
Unit with disbursement responsibility	Country Office in Costa Rica (CID/CCR)		

I. PROBLEM ADDRESSED

A. Description of the problem

- 1.1 Costa Rican agriculture faces a productivity problem and innovation gaps which are evidenced in territorial inequality, low levels of investment, income disparities, and levels of poverty and unemployment higher than those in the metropolitan area. The primary sector accounts for 13.4% of the employed population,¹ but for 2020 only accounted for 4.4% of GDP,² thus evidencing its more meager contribution to the country's economy relative to other sectors. According to the 2020 National Household Survey, Costa Rica's coasts and borders have poverty levels above 30% and unemployment levels higher than the national average. Taking into account the factors of production in rural areas of the country, especially given the relative abundance of low-skilled labor, agriculture is one of the few viable activities that can create jobs and income in these areas.
- 1.2 Costa Rica's Decarbonization Plan³ seeks to turn the country into a zero-emissions economy by 2050 by transforming its production-oriented sectors. By that same year, the world's population is expected to have reached 9 billion. How can food production increase 50% to meet global demand within a sustainable production paradigm without generating further inequality? Achieving such sustainable growth will require the incorporation of technological innovations in the development of climate-change adaptation models, as well as the transformation of the workforce, while ensuring an equitable transition to a green economy.
- 1.3 With regard to agtech,⁴ there are a set of digital solutions that are already being used successfully⁵ in the agriculture sector, such as remote sensors, geolocation, and mobile technology. This can, for example, make it possible to improve crop monitoring and develop more efficient processes that reduce losses and adverse impacts on the environment. The use of other technologies linked to artificial intelligence, the Internet of things, big data, blockchain, and robotics is still new and developing in the agriculture sector. The incorporation of new technological solutions is putting pressure on traditional agricultural education systems to adapt their curricula and methodologies.⁶ In addition to the use of technology to improve the productivity of agricultural systems, incorporating business management into farmers' activities could contribute to making agricultural systems more sustainable by bringing in measures relating to planning, resource management, partnership building, and skills and knowledge development.
- 1.4 In Costa Rica, the Ministry of Public Education's technical and vocational education and training (TVET) schools which teach agricultural specialties represent the main offer for

¹ National Statistics and Census Institute-Costa Rica (INEC). Continuous Employment Survey, 2021.

² Executive Secretariat for Agricultural Sector Planning (SESPA). 2020. Macroeconomic Indicators 2016-2020 (October 2020).

³ [Plan Nacional de Descarbonización](#).

⁴ Of relatively recent use, the term "agtech" encompasses a wide range of technologies applied to agricultural systems to increase productivity, efficiency, and profitability. In this paragraph and in the context of the project we are using the term with a focus on agricultural systems.

⁵ [Trendov, M., S. Varas, and M. Zeng \(2019\). Digital Technologies in Agriculture and Rural Areas: Status Report.](#) Chauhdary, J.N., M. Arshad, A. Bakhsh, M. Rizwan, Q. Nawaz, M. Zaman, and B. Hussain (2020). Impact Assessment of Precision Agriculture and Optimization of Fertilization for Corn Growth. Pakistan Journal of Agricultural Sciences, 57(4), 993-1001.

⁶ [Ministerio de Educación Pública. Programas de Estudio de Tecnologías](#), p. 120.

the development of technical skills for agriculture in rural areas. According to internal Ministry of Public Education data, the country has 44 TVET schools that provide agricultural training, the vast majority of which are located in the country's most vulnerable and poorest areas, where the predominantly male enrollment has been on the decline. In 2020, the country made an effort to update the technical education curriculum to include a focus on production and business management, a bent towards natural resource sustainability, and the use of technology to enhance skills.⁷ Implementation of these new modalities will begin in 2022 in the 10th grade cohort; the curriculum does not yet sufficiently incorporate the latest agtech trends and falls in line with traditional practices in the sector. In view of the foregoing, agricultural training does not yet promote the use of digital technologies to improve productivity in balance with environmental sustainability, and young people from smallholder families seeking to improve their productivity lack access to the knowledge and digital tools that would enable them to transform agriculture. The TVET schools have yet to meet this need, and there are no other training alternatives for young people that are at one remove from the education system and also engage in farming.

- 1.5 In general, the traditional agriculture sector (dominated by small-scale growers) is marked by low productivity,⁸ which prevents families engaging in this activity from improving their income, due to factors such as low levels of schooling, the lack of agricultural infrastructure, and the limited integration of small-scale growers into value chains.
- 1.6 Agricultural censuses in Costa Rica reveal that 59% of workers in the agriculture sector did not complete secondary school (including both completed and incomplete primary schooling); in contrast, only 6% have completed university studies. In addition, people aged 40 and older with low levels of schooling make basic use of information technologies and do not consider training, mainly due to their age, because they do not consider it necessary, or they have family members with training who support them (National Statistics and Census Institute, 2017). The foregoing reinforces the need for and contribution that could be given by young people from agricultural TVET schools in their areas of influence to advance generational and technological change.
- 1.7 The Ministry of Public Education conducts parallel actions⁹ at the national level to improve the quality of technical education and the English-language proficiency on which this technical cooperation project is expected to pivot.

B. Project beneficiaries

- 1.8 The project's direct beneficiaries are 190 young people from the Chorotega and Huetar Caribe regions who will develop agtech, entrepreneurship, and socioemotional skills, along with 500 young people from the same regions who will gain greater awareness about the agriculture of the future through open houses and materials. According to the 2020 National Household Survey, the Chorotega region has the second highest level of poverty in the country (31.7% of households), while the Huetar Caribe region has the third highest incidence of poverty (29.8% of households). To show the impact that the project will have on the lives of its beneficiaries, the following describes the challenges faced by three

⁷ [Ministerio de Educación Pública, Dirección de Educación Técnica y Capacidades Emprendedoras: Programas de estudio.](#)

⁸ OECD Food and Agricultural Reviews. Agricultural Policies in Costa Rica.

⁹ [Ministerio de Planificación Nacional y Política Económica. Plan Nacional de Desarrollo y de Inversión Pública 2019-2022.](#)

young people from rural Costa Rica: two students of the Costa Rican educational system and one farmer.

- 1.9 The first is 17-year-old Carla, who is in her final year of secondary education at the Liberia TVET school. Owing to the pandemic her educational experience has been adversely affected, and she has not had the exposure to field work that she had expected. She is worried that she will not find opportunities in the job market. Her family hopes that once she graduates she will be able to find formal employment that will provide them access to the social security system, because her parents lost their jobs due to the pandemic's impact on the tourism industry and currently earn an income by offering tours informally to the few visitors to Costa Rica's north Pacific coast.
- 1.10 The second story is about Esteban, a 9th-year student at the Hojancha TVET school who is passionate about agriculture and technology. For a number of generations his family has cultivated coffee, and they are members of the area's agricultural cooperative. The family farm's crops have been adversely impacted by climate change. Despite his interest in agriculture, he believes that he will choose business information technology as a technical specialization next year, given the scant use of technology in the agribusiness specialization.
- 1.11 The last story is about Camila, a young girl from Siquirres who, after graduating from the local school, has been working on her family's cocoa plantation. Although they are placing their product in Europe through an intermediary, the family's income is low. She has heard that plantations could improve yields by using precision agriculture, but her lack of knowledge has prevented her from implementing new techniques on the family farm.
- 1.12 These fictional stories exemplify the challenges rural youth face in the intervention areas. They need to develop new skills that will enable them to discover the opportunities that the green economy represents for their communities.

II. THE INNOVATION PROPOSAL

A. Project description

- 2.1 **Project objective.** The project's objective is to strengthen human talent in Costa Rica's rural areas by garnering interest in the agriculture of the future and enhancing the employability of young people from rural areas in the agriculture sector.
- 2.2 A proof of concept for a training program complementary to the current Ministry of Public Education curriculum will be developed at two TVET schools that offer specialty agriculture studies. It seeks to foster new knowledge and skills in precision agriculture, entrepreneurship, and socioemotional development among the students participating in the program. In the short term, the program will also seek to promote hiring opportunities for students at companies by driving technology uptake in agriculture and sustainable practices and, potentially, the development of new ventures. The proposed solution includes three components: (i) strengthening agtech skills; (ii) promoting young people's professional interest in the agriculture sector; and (iii) fostering entrepreneurship and socioemotional skills.

- 2.3 **Innovation.** The project is innovative in three ways: **(1) Merging educational technology (edtech)¹⁰ with agtech.** The TVET sector has been revolutionized by the emergence of coding bootcamps, which are intensive, hands-on training programs that provide people lacking previous coding experience with the digital and professional skills needed to secure jobs as programmers in the technology sector. This innovation in learning digital skills in technical training driven by startups in the education sector (edtechs) and companies' high demand for digital talent seeks to do the same in the agriculture sector, thus revolutionizing the development of digital skills in sustainable agriculture. The training model to be developed will facilitate and accelerate the acquisition of agtech knowledge and skills based on technological resources and teaching methodologies that enhance the learning experience as well as collaboration with agtech companies to secure a higher quality first job in the sector. **(2) Ministry of Public Education, EARTH University, and business partnership.** This alliance between the Ministry of Public Education, EARTH University, and agricultural companies represents the first effort to explore alternative models for skills development within the Costa Rican educational system. This will be the first time that innovation and implementation of strategies aimed at developing competencies for students pursuing technical careers related to the agriculture sector will be promoted. Through different training processes and learning activities, a part of the objectives relate to skills development in the management of precision technologies applied to agriculture, entrepreneurship, and socioemotional skills with a view to enhancing employability. This partnership offers several advantages. On the one hand, teachers at TVET schools will have the opportunity to collaborate and learn together with EARTH University faculty, which remains abreast of new technologies and in coordination with companies from the sector in Costa Rica that can contribute content, and improve the graduates' job opportunities. On the other, close coordination with companies that use agtech will enable them to visualize new job opportunities within the agriculture sector, which could motivate the beneficiaries to continue studying after graduating from TVET schools and to broaden their knowledge at university. As a result of participation by the Ministry of Public Education, this experience is expected to be replicated at other TVET schools in the country. **(3) Spanish-language content generation and hybrid modality for agtech.** A mapping exercise conducted by the Costa Rican Coalition Association of Development Initiatives (CINDE) on the green economy sector,¹¹ which includes agriculture, shows a dearth of Spanish-language agtech content and courses on digital skills in a virtual format or hybrid modality (in-person and virtual). This project will contribute to expanding the offer for the sector, which could be useful for other countries in Latin America and the Caribbean.
- 2.4 **Component I. Agriculture of the future bootcamp.** The objective of this component is to develop and test an intensive training model in the style of coding bootcamps, which can be implemented under a hybrid modality (in-person and virtual instruction) to develop agtech, entrepreneurship, and socioemotional skills for students in the agricultural TVET schools of the Ministry of Public Education.
- 2.5 Together with the Ministry of Public Education, the Liberia and the Padre Roberto Evans Saunders TVET schools in the canton of Siquirres were selected. The schools were selected to carry out this pilot because they offer agricultural specialty studies, stable

¹⁰ Educational ventures heavy on the use of digital technologies.

¹¹ This mapping was conducted in the context of the IDB Lab – Future Up (Crystal Ball) project (CR-T1174) and was not available for publication at the time of project preparation.

enrollment numbers, digital connectivity, precision agriculture equipment and laboratories, they are strategically positioned near companies in the agriculture sector, and have prior experience working with EARTH University. Twelfth grade students in the 2022 and 2023 academic years will receive scholarships to participate in the bootcamp training. In addition, 50 young people¹² who are outside the formal education system will likewise receive scholarships for that training.

- 2.6 The content and teaching methodology will be built on EARTH University's experience in leading development and related training models in recent years, specifically on precision agriculture and youth entrepreneurship. Partnerships will also be formed with similar organizations to provide a complement with content on socioemotional skills and to bring in private sector stakeholders that have solutions or business models relating to agtech. A specialized consultant will be hired to support the integration of the three project components into an effective training model for the participating young people.
- 2.7 With respect to the integration of private sector stakeholders, IDB Lab's connection based on its portfolio of agtech startup-focused projects will be leveraged along with the current project with CINDE, which can provide international companies that could potentially invest in the country's agriculture sector. Close collaboration with the company coordinators at the selected TVET schools will help to inform the agriculture sector of the new profiles of future graduates from the school and identify internship opportunities¹³ for the cohort and demand from companies in the region's agriculture sector. It should be noted that a meeting was held in the project's design phase between the executing agency team and Softbank—a key partner for an IDB Lab agtech project in Colombia. Softbank shared its experience in agricultural education in Japan and is open to contributing to the implementation of this project given its expertise. Collaboration opportunities are expected with companies in the agriculture sector interested in developing technological skills in agriculture (i.e. Softbank, Dos Pinos, El Viejo, and Dole), as well as with the actions of farmers in the process of horizontal support financed by the Walmart Foundation.¹⁴
- 2.8 The project will leverage technology to enhance the experience of students pursuing studies in the agricultural science and provide for hybrid training (in-person and online) to make it more attractive and transfer the technical knowledge and socioemotional skills demanded by the agriculture sector. Awareness-raising activities (open houses) will also be held for students in Cycle III (grades 7 through 9) of the two participating TVET schools and surrounding schools to expose them to the opportunities offered by the green economy and introduce them to new technologies for the future of agriculture as part of their vocational orientation.
- 2.9 A preliminary curriculum design that includes the following is planned and will be validated during the diagnostic assessment stage:

¹² All twelfth grade students at the participating TVET schools will be eligible for a scholarship under the program. With regard to the selection of the 50 young people who are outside the formal education system will take into account the following two criterion: (1) they must be engaged in production-oriented activities; and (2) gender parity among this beneficiary population will be maintained.

¹³ TVET students must complete 320 internship hours at a participating company in order to graduate.

¹⁴ [EARTH University. EARTH Futures and Walmart Foundation: Modeling Horizontal Support Networks \(2021\).](#)

2.10 Precision agriculture

- Soil and agriculture. Introduction to the importance of soil in agriculture. Introduction to the physical, chemical, and biological properties of soil and how to manage them properly to improve yields. Introduction to the equipment used to measure properties and carry out practical exercises.
- Soil sampling. Introduction to the importance of soil sampling, as well as the tools needed and the appropriate methodology. There will be a hands-on field exercise including sample planning, sampling, and data processing.
- Leaf sampling. This examines the importance of complementing soil analysis with leaf analysis. Leaf sampling methodologies for different crops with practical exercises. Introduction to the nutrient uptake curve and its relationship with fertilization plans.
- Data interpretation. This offers theoretical explanation with practical exercises for soil analysis interpretation and the determination of fertilizer and liming requirements.
- Soils and precision agriculture. Introduction to precision agriculture and its relationship with the physical and chemical variability of soils. Importance of site-specific management and the generation of layers of information for decision-making. Precision agriculture technology.

2.11 Entrepreneurship

- **Entrepreneurial mindset.** Reflection on the emotional barriers and fears that limit our ability to carry out our personal and business projects. Space for designing and building our business dreams.
- **Taking stock of opportunities in the environment.** Awaken observation and creativity so that participants can identify opportunities/needs that exist in their environment and that have the potential to be developed as a business idea.
- **My market opportunity and skills.** Once the opportunities in the environment and the agricultural products have been identified, the potential market niche will be evaluated, as well as their linkages with global value chains.
- **Design thinking.** Analyze the motives, needs, and interests of my potential client and use this as input to empathetically design a product or service.
- **Innovation/value proposition.** Innovation for the development of a value proposition, the case of IMAGINE: the ability to turn ideas into reality. Ethics and values in the process of developing a business idea.
- **Prototyping for the segment.** Lean startup: combination of experimentation to measure progress, iterative product launches to gain valuable customer feedback, and validated learning to measure how much has been learned.
- **Environmental management.** Principles for environmental management: renewable energies, solid waste management, water management.
- **Marketing tools.** Basic marketing tools applied to the product. Information technology management. Image and communication.

- **Financial tools.** Basic financial management tools for managing national and international markets.
 - **Organizational models and formalization of entrepreneurship.** Learn about the various organizational models and legal requirements that projects are to follow for the subsequent development of their entrepreneurial activity.
 - **A pitch event open to the community is also planned** where young people will have the opportunity to compete with their peers for additional support in developing their ventures. This event will take place in November, and the young people will receive support and mentoring in December and January of the following year.
- 2.12 **Socioemotional skills.** This component of the course will cover topics relating to critical job and life skills, including building self-awareness and self-esteem, teamwork, leadership, conflict resolution, customer service, creativity, assertiveness, ethics and respect, flexibility and adaptability, motivation and confidence, working under pressure, communication skills, and positivity. Inspirational talks will be included that emphasize the importance of the agriculture sector and jobs in the sector to motivate participants to stay in the program and make the most of the sessions.
- 2.13 The model will be offered between February and December each year and will include four intensive weeks interspersed with online sessions provided on Gnowbe—a virtual platform designed for use on both mobile phones and computers, which encourages experiential learning.
- 2.14 The project and curriculum will also include a focus on gender. Aware of the important role of women and men play in agricultural activity, EARTH University has always promoted gender equality actions. The proposed strategy is focused on contributing to the development and empowerment of the young women participating in the program. The activities to be carried out focus on three areas:
- Design of inclusive teaching material. The teaching materials used in the educational system often favor, reproduce, or reinforce gender stereotypes, which particularly affect women. They employ noninclusive language and examples that reproduce erroneous stereotypes. The project will mainstream gender in the design and development of educational materials, promoting equitable relations and equal conditions.
 - Mentoring for the women participating in the program. In collaboration with the organization *Voces Vitales*, five to eight group and individual mentoring sessions will be held, focusing on the development of women's leadership so that women participants, by empowering themselves, will be able to improve their quality of life and become agents of change in their communities.
 - Motivational and empowerment sessions with women leaders in agriculture. Through networks and partnerships with organizations such as *Nosotras: Women Connecting*, at least three women leaders in the agriculture, livestock, or agribusiness sectors will be selected to share with the young women participating in the program their success stories and the lessons they learned positioning themselves in these sectors. The sessions are expected to serve as an inspiration to empower the program's young women to continue pursuing careers in agriculture.

- 2.15 The expected outputs of this component are as follows: (i) training model designed and tested at two TVET schools; (ii) awareness raised on the agriculture of the future for 200 young people from grades 7 to 9 (through open houses); (iii) 190 young people from different TVET and non-TVET schools trained in skills for the agriculture of the future; and (iv) at least five private-sector stakeholders providing content to the training model.
- 2.16 **Component II. Partnerships and strategic communication.** The objective of this component is to form a public-private partnership to convince decision-makers and opinion leaders on the need to train the workforce for the agriculture of the future. With a view to scaling up this initiative, collaborative spaces will be created among stakeholders to disseminate knowledge and raise awareness about the opportunities of the agriculture of the future and the green economy. Companies of the agriculture sector that are interested in the talent formed by this program will be identified to create a database of internship opportunities and employment offers. A communication strategy will be designed and implemented for the various audiences interested in the agriculture of the future. As part of this effort, opinion leaders, role models, and case studies will be identified over the life of the project, and linkages will be established with academic institutions, chambers of commerce, and think tanks. A set of knowledge products (including events, audiovisual materials, and infographics) will also be developed to promote the positive outlook of young people—and particularly women—towards agriculture and the resulting lessons learned will be documented. Some of the topics to be addressed include: (i) agriculture of the future; (ii) entrepreneurship; (iii) precision agriculture in a context of climate change; and (iv) women's empowerment. These products will be distributed using internal channels of the Ministry of Public Education to target TVET and rural schools, and will be revised as needed throughout program implementation to ensure that they meet the strategic audiences' knowledge needs. In addition, a case study of the intervention will be developed and widely distributed to stakeholders.
- 2.17 The outputs of this component will be: (i) communication strategy developed for the various audiences (young people, TVET schools of the Ministry of Public Education, and the private sector); (ii) three videos and two infographics produced; (iii) awareness raised among 300 students using communication materials; (iv) agreements with 15 private sector stakeholders that offer internship and job opportunities for the participating young people from the TVET schools; and (v) a case study prepared for the training model.

B. Project results, measurement, monitoring, and evaluation

- 2.18 The project seeks to boost job opportunities in the agriculture sector for low-income young people ages 17 to 25 selected for the project, thus upgrading a set of key skills that will enable them to make the school-to-work transition with better job opportunities, become familiar with new career paths, and broaden their studies on the agriculture of the future. The project is also a proof of concept that will be implemented on a pilot basis to validate its effectiveness and at this stage will seek to achieve the following outcome indicators: (i) 80% of graduates of the training model at the TVET schools have demonstrated improvement in the skills addressed by the program through a self-assessment administered at the end of the program; (ii) 40% of young people graduating from the training model at TVET schools have secured employment (either as employees or through self-employment/entrepreneurship); (iii) 40% of young people graduating from the training model at TVET schools have been admitted to start a university degree relating to agriculture within six months after the end of the program; and (iv) 40% of young people

who participated in open house events have shown greater interest in continuing agricultural training.¹⁵

- 2.19 For project monitoring, the executing agency will develop a baseline and a monitoring plan to capture information on the students' participation, progress, and employment status throughout the project. EARTH University will develop a database of program beneficiary contact data to enable periodic monitoring of the beneficiaries' academic and employment situation after the bootcamp activity has been completed. In accordance with IDB Lab requirements, EARTH University will report on the specific outcomes described in the project's results matrix and will report them on a semiannual basis through the IDB Lab project status report. EARTH University will also prepare a final report at the end of the project.
- 2.20 In addition, a case study will be conducted to document the program experience. This knowledge product will answer the following questions: Has the combination of agtech and edtech proved attractive to the students? Have opportunities for replication and/or scaling been generated for the project? What factors have been key to the link between academia and the production-oriented sector? What have been the main obstacles? Is there interest among agricultural companies for qualified agtech technicians? Has EARTH University been able to form partnerships that enable it to scale up the project? What lessons have been learned from this process?

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

A. Alignment with the IDB Group

- 3.1 This technical cooperation project is consistent with the Update to the Institutional Strategy 2020-2023 (document AB-3190-2), particularly with the development challenge of social inclusion and equality, since it targets schools located in areas with low levels of socioeconomic development. It is also aligned with the Bank's prioritization of learning and academic achievement at secondary levels, as set out in the Strategy on Social Policy for Equity and Productivity (document GN-2588-4), and with the priority areas of the IDB Group Country Strategy with Costa Rica 2019-2022 (document GN-2977-1) focused on reducing the dropout rate in secondary education and improving the quality and relevance of training for twenty-first century jobs. The technical cooperation project is also aligned with the Agriculture Sector Framework Document (document GN-2709-0) in its prioritization of measures to address the challenges of inequality, poverty, and low productivity.
- 3.2 This project has been designed jointly with the Education Division and complements a number of its projects: (i) New Model of Hybrid Learning and Skill Certification to Improve the Employability of Vulnerable Youth in the Post-COVID-19 Era (CR-T1231), financed by a multi-donor trust fund that aims to transform technical education and training in Latin America and the Caribbean. The technical cooperation project seeks to develop a hybrid model that enables young people enrolled in secondary education to obtain industry certifications as part of their technical training. (ii) Pertinence of Natural Science and Environmental Secondary Education in Rural Agricultural Communities (CR-T1228), which seeks to develop a contextualized model for teaching and learning agricultural, biological,

¹⁵ A survey will be administered to the participants of the open houses to measure their interest in technical careers in the agriculture sector.

and environmental sciences at secondary schools in areas where agriculture is an important source of livelihood and rigorously pilot the model in Costa Rica; and (iii) Improving Educational Quality in COVID-19 Times (CR-T1220), which seeks to develop mechanisms for improving educational quality in rural secondary schools with poor Internet connections during the COVID-19 pandemic.

- 3.3 The project fills a space still little explored by IDB Lab between education, technology, and agriculture and seeks to drive a paradigm shift that attracts new generations for the sustainable and technological transformation of agriculture. The project would complement the Future Up – Future Skills initiative that IDB Lab is currently executing with CINDE (CR-T1174), which is developing an educational platform based on key skills for the most dynamic sectors of Costa Rica's economy. The green economy is one of the prioritized sectors, and studies are being conducted together with companies and research centers to identify agtech skills and content, thus bolstering this sector. It also seeks to leverage the knowledge and connections acquired in other agtech projects in IDB Lab's active portfolio, such as projects with solutions based on the Internet of things and artificial intelligence (the e-kakashi project in Colombia (CO-T1488), where Softbank provides the technological solution for rice farming) or the prototype in Paraguay with SupPlant (PR-T1282).
- 3.4 The project is also aligned with the Sustainable Development Goals (SDGs), specifically: (i) SDG 4, *Quality education*, with Target 4.4, "significantly increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship"; (ii) SDG 8, *Decent work and economic growth*, with Target 8.6, "significantly reduce the proportion of youth not in employment, education or training"; and (iii) SDG 9, *Industry, innovation, and infrastructure*, with Target 9.5, "enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending."

B. Scalability

- 3.5 In this project, scalability includes two dimensions: national and international. Within the country, EARTH University will leverage the strong relationship with and stated interest of the Ministry of Public Education to identify ways to integrate the program as a complement to the new curriculum that will begin to be implemented in 2022. In addition to those included in the project, there are currently 42 TVET schools with agricultural specialty studies that could benefit, plus roughly 105 rural secondary schools. Synergies will also be sought with the CINDE-implemented Future Up project so that the EARTH University-developed course is part of the recommended course offerings for acquiring skills relevant to the green economy sector and can also attract new audiences to the training program.
- 3.6 Internationally, EARTH University is making efforts to replicate the model. It is currently focused on Central American countries, with a view to exporting the product to other countries in Latin America and the Caribbean. EARTH University is currently conducting a project in Guatemala that has a training objective aligned with this program and is willing to work with the Bank to identify opportunities for replication there. It will also leverage the connections that IDB Lab has with agtech stakeholders through the projects in the portfolio so as to disseminate the model.

- 3.7 The fact that a significant portion of the content will be developed as digital materials will aid in the scaling process both nationally and internationally.
- 3.8 National scalability would be achieved through coordinated work with the Ministry of Public Education. The main action is the project's support for implementation of the Ministry of Public Education's new curriculum of agricultural specialty studies. Skill building for the teachers participating in the project also stands out as an action contributing to the project's scalability. The project offers an alternative for skills development in partnership with universities, which could be replicated with other educational institutions. This could be materialized through interagency agreements.

C. Project and institutional risks

- 3.9 Risk: Lack of connectivity prevents students from progressing through the educational content as scheduled. Mitigating factors: A selection criteria for the beneficiary communities is that the TVET school has sufficient bandwidth and a computer lab that enables students to access educational content. Also, the best solutions for the lack of connectivity during implementation will be analyzed in order to replicate the model to other sites after the project.
- 3.10 Risk: Certain learning modules cannot be developed due to the lack of specialized technological equipment at the schools. Mitigating factors: The availability of specialized technological equipment will be coordinated with the Ministry of Public Education.
- 3.11 Risk: Since this program is to be implemented with young people in their final year of school amid an economic crisis, and in a period with some falling behind as a result of the COVID-19 pandemic and the 2019 national teachers' strike, there is a risk that students could drop out of the training model. Mitigating factors: Within the program and in coordination with Ministry of Public Education, EARTH University will leverage its experience with similar models to generate incentives, materials, and provide students and their families with close monitoring so as to encourage them to remain in the program, with a view to supporting their families' productive activities.
- 3.12 Risk: Were the national economic environment still lagging on completion, students may not get jobs, and the employment indicator may be affected by factors unrelated to the quality of the program. Mitigating factor: since the project also seeks to encourage youth to become entrepreneurs or continue studying and start agriculture-related university studies, it will look to increase both entrepreneurship and the number of graduates who continue studying.
- 3.13 Risk: Given the current COVID-19 situation in Costa Rica, there is an additional risk that the TVET schools and schools will close again and that this will prevent the training model from continuing. Mitigating factor: If this situation were to arise, the possibility of transforming the model would be analyzed. One possibility would be a virtual model that could provide the necessary equipment and connectivity to schools that lack the conditions needed to implement the pilot.

IV. INSTRUMENT AND PROPOSED BUDGET

- 4.1 The total project budget is US\$800,000, of which IDB Lab will provide \$400,000 (50%) through nonreimbursable technical-cooperation funding, and the remaining \$400,000 (50%) will come from local counterpart contributions, which includes in-kind resources in the form of advisory services, technical assistance, and fiduciary support from the EARTH

University team. The project partners will provide additional counterpart resources in cash and in kind.

- 4.2 Retroactive recognition of counterpart funds. Starting on 1 January 2021, expenses incurred by EARTH University with funding from the Walmart Foundation and the Ministry of Public Education may be recognized as part of the project counterpart contribution, for a maximum of US\$100,000, for training activities with young people outside the formal education system and for school equipment.

Project components	IDB Lab	Counterpart	Total
Component I: Agriculture of the Future Bootcamp	251,280	191,000	442,280
Component II: Partnerships and strategic communication	148,720	15,000	163,720
Project administration (execution unit costs)	0	194,000	194,000
Grand total	400,000	400,000	800,000
% financing	50	50	100

V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE

A. Description of the executing agency

- 5.1 The Escuela de Agricultura de la Región Tropical Húmeda (EARTH University) will be the project executing agency. It is a private, nonprofit, international university founded in Costa Rica, which attracts students from Latin America, the Caribbean, and Africa. The mission of EARTH University is to prepare leaders with ethical values to contribute to sustainable development and build a prosperous and just society. Since 1990, EARTH's innovative academic experience has prepared nearly 2,500 young people from more than 50 countries in Latin America, the Caribbean, Africa, and other regions to be well-informed and effective actors for rural areas with in-depth training in environmental sustainability, social impact, and ethical entrepreneurship, in addition to a world-class education in the agricultural sciences. Nearly 81% of EARTH University students come from rural areas, 49% are women, and 81% return to their communities after graduation as agents of change. EARTH's holistic approach is to prepare young leaders for the future of agriculture and includes a heavy focus on the importance of soil health, as well as the importance of climate change mitigation, adaptation, and resilience strategies. Created in 2018, EARTH Futures is the university's impact platform, which drives leadership and innovation solutions to overcome the key challenges faced by rural communities in developing regions. Aware of the important role women and men play in agricultural activity, EARTH University has always promoted gender equality actions. In the same vein, the project seeks to open space for 50% female participation in training processes. The final number of women participants may vary based on the average number of women enrolled in the selected specialty for each TVET school.
- 5.2 EARTH University satisfactorily executed IDB Lab technical cooperation project RG-M1061, "Strengthening the Financial Management of Small Rural Producer Organizations," has executed funds from other donors for development projects, and has contracted specialized consulting services. EARTH University has significant convening power and very able to coordinate with various partners on the project's implementation.

- 5.3 EARTH University will provide a portion of the counterpart funding, and Walmart Foundation and the Ministry of Public Education will provide additional counterpart resources in cash and in kind.

B. Structure and implementation mechanism

- 5.4 EARTH University will set up an execution unit and the necessary structure to implement project activities and manage project resources effectively and efficiently. It will also be responsible for submitting status reports on project implementation. Details of the execution unit's structure and the requirements for status reports can be found in Annex V in this operation's technical files.

VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY AGREEMENTS

- 6.1 **Results-based disbursements and fiduciary agreements.** The executing agency agrees to the standard IDB Lab agreements regarding results-based disbursements, the Bank's procurement policies,¹⁶ and financial management as specified in Annexes V and VI hereto.
- 6.2 **Results-based disbursement.** The Country Office in Costa Rica will be in charge of project monitoring, in accordance with the performance and risk management policies (fulfillment of milestones) established by IDB Lab. Project disbursements will be subject to verification of the fulfillment of the milestones. The fulfillment of milestones does not exempt the executing agency from its responsibility to comply with the indicators stipulated in the results matrix and the project objectives.
- 6.3 **Financial management and supervision.** EARTH University will establish and keep appropriate accounts for its finances, internal controls, and project records in accordance with IDB Lab's financial management policy. For the procurement of other goods and consulting services, the executing agency will apply IDB policies (documents GN-2349-9 and document GN-2350-9); however, the executing agency, which is a private entity, will apply its own private sector procurement policy for project execution.

VII. INTELLECTUAL PROPERTY

- 7.1 **Intellectual property.** The intellectual property of all works and the results obtained under the project will be owned by the executing agency, which will grant the Bank an irrevocable, worldwide, perpetual, and nonexclusive license free of charge. Notwithstanding the foregoing, in the framework of the project, agreements will be entered into with consultants, companies, organizations, and institutions to develop innovative solutions. Situations may arise in which the solutions to be developed and piloted are justifiably the intellectual property of the third parties with which the development of these ideas is coordinated. These cases will be discussed and agreed upon in writing with the Bank. The innovative solutions to be piloted may also include intellectual property items that have been previously developed by these third parties, in which case written agreements will also be entered into with the Bank.

¹⁶ [Policies for the procurement of goods and works financed by the Inter-American Development Bank.](#)