



# CGIAR Research Initiative on AgriLAC Resiliente

Annual Technical Report 2023

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#### Disclaimers

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# **CGIAR Technical Reporting 2023**

CGIAR Technical Reporting has been developed in alignment with the <u>CGIAR Technical Reporting Arrangement</u>. This Initiative report ("Type 1" report) constitutes part of the broader <u>CGIAR Technical Report</u>. Each CGIAR Research Initiative submits an annual "Type 1" report, which provides assurance on Initiative-level progress towards End of Initiative outcomes.

The CGIAR Annual Report is a comprehensive overview of CGIAR's collective achievements, impact and strategic outlook, which draws significantly from the Technical Report products above. For 2023, the Annual Report and Technical Report will be presented online as an integrated product.



#### The CGIAR Technical Report comprises:

- Type 1 Initiative, Impact Platform, and Science Group Project (SGP) reports, with quality assured results reported by Initiatives, Platforms and SGPs available on the CGIAR Results Dashboard.
- The Type 3 Portfolio Performance and Project Coordination Practice Change report, which focuses on internal practice change.
- The Portfolio Narrative, which draws on the Type 1 and Type 3 reports, and the CGIAR Results Dashboard, to provide a broader view on Portfolio coherence, including results, partnerships, country and regional engagement, and synergies among the Portfolio's constituent parts.

## Section 1: Fact sheet and budget

Initiative name	AgriLAC Resiliente: Resilient Agrifood Innovation Systems in Latin America and the Caribbean				
Initiative short name	AgriLAC Resiliente				
Initiative Lead	Deissy Martínez Barón ( <u>Deissy Martínez Barón</u> )				
Initiative Co-lead	Bram Govaerts ( <u>b.govaerts@cgiar.org</u> )				
Science Group	Resilient Agrifood Systems				
Start – end date	01/04/2022 - 31/12/2024				
Geographic scope	Regions Latin America and the Caribbean				
	<b>Countries</b> Colombia · Guatemala · Honduras · Mexico · Peru				
OECD DAC Climate marker adaptation score <sup>1</sup>	Score 2: Principal The activity is principally about meeting any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation and climate policy, and would not have been undertaken without this objective.				
OECD DAC Climate marker mitigation score <sup>1</sup>	Score 2: Principal The activity is principally about meeting any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation and climate policy, and would not have been undertaken without this objective.				
OECD DAC Gender equity	Score 1A: Gender accommodative/aware Gender equality is an objective, but not the main one. The Initiative/project includes at least two explicit gender specific outputs and (adequate) funding and resources are available. Data and indicators are disaggregated by				
marker score <sup>2</sup>	gender and analyzed to explain potential gender variations and inequalities.				

for Climate and the gender equality policy marker. For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.

<sup>2</sup> The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

These scores are derived from Initiative proposals, and refer to the score given to the Initiative overall based on their proposal.

#### EXECUTIVE SUMMARY

The AgriLAC Resiliente initiative has a clear goal: to foster connections among networks spanning Latin America, focusing on agrifood innovation systems. This ambitious endeavor builds upon the proven successes of CGIAR and its centers, which have forged robust partnerships and scaled impactful innovations - both technological and nontechnological - across the region and beyond. AgriLAC Resiliente acts as a network of networks that integrates the science and practice of scaling through customized innovation packages. These packages are designed to address local demands and strengthen local capacities while simultaneously linking with agrifood innovation systems at subnational, national, and regional levels.

The above is evidenced through the progress made towards its End of Initiative outcomes (EOIOs) across Colombia, Guatemala, Honduras, Mexico, and Peru. In 2023, the initiative generated 122 knowledge products, with 99 developed internally and 23 in collaboration with five Global Thematic Initiatives. These partnerships, including NARS, governments, farmers associations, NGOs and private sector, have propelled new scientific research in sustainable agriculture, resulting in the publication of a book and three peer-reviewed articles addressing critical issues related to agricultural resilience, climate services, and women's participation in agricultural production systems.

Progress towards EOIO1 was evident in Guatemala, Honduras, Colombia, and Mexico, where AgriLAC Resiliente focused on enhancing farmers' access to climate-resilient and nutrition-sensitive technologies. The initiative validated improved crop varieties tailored to local conditions, benefiting over 2,000 households. Collaborative efforts established 17 research platforms and two biodiverse plots, providing valuable insights for producers' decision-making processes and developing tailored technological menus. Capacity-building initiatives engaged 1,584 individuals on key agricultural topics, resulting in the development of innovative tools such as protocols for biofortified rice processing.

AgriLAC Resiliente's commitment to empowering organizations and improving climate information services (EOIO2) is evident in Guatemala, Honduras, and Mexico. Significant progress was made in enhancing Extract, Transform, and Load (ETL) data processes and implementing the e-Agrology innovation, an information system for capturing, storing, comparing, and visualizing data on agricultural production, facilitating the generation of recommendations

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for small-scale farmers. Efforts towards EOIO3 focused on integrating climate-change mitigation within sustainable development goals in Colombia and Peru. Insights into forest loss causes, and emissions' characterization in cocoa and livestock value chains have informed targeted strategies aimed at mitigating climate-change effects. Innovative initiatives like the Sustainable Cocoa Innovation Challenge and the Perumin Inspira Challenge fostered collaboration and skill enhancement among sector entrepreneurs, promoting climate action.

EOIO4 on the use of InnovaHubs learnings to accelerate on-farm uptake of SET innovations saw the establishment of four InnovaHubs in Guatemala and Honduras, serving as subnational innovation platforms. Annual meetings provided spaces for collaborative learning and interactive knowledge acquisition, engaging 25 institutions in Guatemala and 14 in Honduras. Capacity-building efforts emphasized practical application and knowledge exchange, exemplified by the establishment of a Digital Agriculture plot in Guatemala.

Barriers and opportunities for rural women in agricultural systems in Latin America were studied through collaborative efforts between WP5 on Science informed policies, investments, and institutions, and the Monitoring, Evaluation, Learning, and Impact Assessment (MELIA) team, to progress towards EOIO5. As part of the engagement in the policy/science interface, we have supported the Central America Agricultural Council (CAC) in activating the Technical Group of Innovation, which gathers NARS of eight countries. These have developed an innovation agenda, which we will support through AgriLAC to enhance their capacity in a variety of topics related to agricultural innovations in the context of climate change. The MELIA team is evaluating the initiative's contributions across various levels, including farmer, stakeholder, and meso-macro levels, aiming to effectively inform future strategies and interventions.

In conclusion, AgriLAC Resiliente has achieved noteworthy progress in fulfilling its EOIOs by seamlessly integrating CGIAR science and evidence. Enhancing the capacity of over 4,800 individuals in addition to the generation of knowledge outputs and innovations use represent a robust pathway towards informing transformative, sustainable, and climate adaptation-friendly agrifood system (AFS)-related policies and initiatives. These endeavors are in alignment with broader development goals, underscoring the initiative's dedication to advancing agricultural resilience and sustainable development throughout Latin America and the Caribbean.

	2022	2023	2024
PROPOSAL BUDGET D	\$9.31M	\$10.08M	\$10.63M
APPROVED BUDGET <sup>1</sup> »	\$4.00M	\$3.69M <sup>2</sup>	\$3.94M <sup>3</sup>

<sup>1</sup> The approved budget amounts correspond to the figures available for public access through the <u>Financing dashboard</u>

<sup>2</sup> This amount includes carry-over and commitments

<sup>3</sup> This amount is an estimation of the 2024 annual budget allocation, as of the end of March 2024.



## Section 2: Progress on science and towards **End of Initiative** outcomes

## Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, nonlinear, and dynamic reality. Feedback loops and connections between this Initiative and other Initiatives' theories of change are excluded for clarity.



**Note:** A summary of Work Package progress ratings is provided in Section 3.

Action Area

Impact Area

EOI

AA

IA



of 10 Tg per year.



## Summary of progress against the theory of change

The CGIAR Research Initiative on AgriLAC Resiliente has laid the groundwork for achieving its EOIOs in Colombia, Guatemala, Honduras, Mexico, and Peru through agricultural innovation system networks operating at local to regional scales. AgriLAC Resiliente connects with a variety of networks through the Local Technical Agroclimatic Committees (MTA in Spanish) placed at the subnational scale, which brings together local, national, and regional actors. The Initiative's InnovaHubs increased the number of actors involved in strengthening climate resilience and ecosystem services, in addition to boosting farm productivity, from 68 to 131. The Initiative generated 122 knowledge products in 2023, 23 of them in collaboration with five CGIAR Initiatives: Digital Innovation. Climate Resilience, National Policies and Strategies, Low-Emission Food Systems, and Livestock and Climate. In 2023, these contributions resulted in publication of one book and three peer-reviewed articles: (i) <u>A review of agronomic research on the milpa, the traditional</u> polyculture system of Mesoamerica (EOIO 1), associated with SET innovations to enhance farmers' livelihoods; (ii) The development of a farmer decision-making mind map to inform climate services in Central America (EOIO 2), enhancing climate information services for more informed decision-making; and (iii) Examination of cultural and economic barriers and opportunities for women's participation in agricultural production systems: A case study in Guatemala (EOIO 5), which will support policy makers in developing tailored interventions using science-based recommendations.

AgriLAC Resiliente is making significant progress toward achieving **EOIO 1** across Colombia, Guatemala, Honduras, and Mexico. This Initiative is enhancing farmers' access to climate-resilient and nutrition-sensitive technologies and validating improved varieties of maize, beans, and rice customized to local conditions for over 2,200 households and close to 8,800 people. Through collaboration, the Initiative established 17 research platforms across Guatemala (2), Honduras (2), and Mexico (13) to validate climate-resilient and nutrition-sensitive technologies. Moreover, two <u>biodiverse plots</u>, one involving an indigenous community, were established in northern Colombia to compare agroecological practices with conventional methods. Insights gained from both the research platforms and the biodiverse plots will better inform producers' decision-making processes and help to refine and develop more tailored technological menus, as well as the MTAs to improve recommendations' technical aspects in local agroclimatic bulletins.

Capacity sharing in 1,584 individuals was increased to enhance knowledge on agricultural topics, including postharvest practices to minimize grain loss and food preparation practices to preserve the nutritional value of food prepared by local communities. Two innovations were developed in 2023 aligned with EOIO 1: a user interface of e-Agrology directed to farmers as a one-stop shop where farmers can consult localized decision support for field management and Protocols for developing Food Products from Biofortified Rice. Workshops on marketing strategies resulted in development of prototype products using cocoa and biofortified rice, while knowledge exchanged during the Latin American Agronomic Research Network symposium facilitated collaboration among researchers from the region. These efforts culminated in joint publications, including a <u>review of agronomic research</u> in Mesoamerica and initiatives promoting resilient agricultural practices in Mexico. Toward scaling nutrition-sensitive innovations (EOIO1), significant evidence has been generated regarding the co-innovation and scaling processes of biofortified crops. Through a comprehensive case study, relevant lessons from CGIAR's Harvest Plus program have been compiled to provide insights into the enabling factors and leverage points that drove the scaling of this innovation in a regional context.

The progress towards **EOIO 2** underscores AgriLAC Resiliente's commitment to empowering organizations in the region to provide digitally enabled agroadvisory services. This benefits small-scale farmers and other stakeholders in managing climate risks and promoting sustainable intensification. Notably, substantial headway has been made in enhancing ETL data processes, particularly in collaboration with pivotal partner organizations such as the Meteorological Services of <u>Guatemala</u> and <u>Honduras</u>. Our collaboration with the Digital Inclusion Initiative led to the development of an <u>e-Agrology innovation</u>, a tailored agronomic data collection and monitoring system for Central America. In 2023,

continued training and data analysis, implemented in collaboration with Work Package 4, has proven crucial for improving and effectively using e-Agrology to generate <u>recommendations for small-scale</u> <u>Guatemalan farmers</u>.

AgriLAC Resiliente is enhancing information services to support farmers, with significant strides seen in Guatemala, Honduras, and Mexico (EOIO 2). In Guatemala and Honduras, scientific advances have enabled mapping information needs and implementing usercentered design. These initiatives improve the usability of local agroclimatic bulletins and drive the design of better information products for small-scale producers in both countries. In Mexico, the Initiative conducted an outcome-harvesting study demonstrating the diverse transformations achieved through MTA. Scaling MTAs to 12 states in Mexico provided approximately 100,000 farmers with essential climate information. Furthermore, empirical evidence has been gathered concerning the facilitating factors and leverage points within the co-innovation and scaling processes of the MTA's network in LAC. This evidence is synthesized in a robust case study, offering vital insights to inform future scaling strategies aimed at further extending the reach of MTA's network (EOIO 2).

Progress towards **EOIO 3** focused on work with stakeholders in agrifood systems to integrate climate change mitigation within the Sustainable Development Goals (SDGs) in <u>Colombia</u> and <u>Peru</u>. Opportunities were identified for formulating public policies and supporting territorial peacebuilding, mitigating the effects of climate change, and improving living conditions in conflict-affected areas. <u>Work has highlighted the primary causes of forest loss in Peru</u>, including access to forests and demographic changes. The Initiative also characterized greenhouse gas emissions from cocoa and livestock value chains in Colombia's Caquetá Department. Strategies for improving cocoa chains in Colombia and the Guinean pig value chain in Junín, Peru, will be scaled up and validated at governmental levels. Innovative initiatives such as the Sustainable Cocoa Innovation Challenge in Colombia, the <u>Perumin Inspira Challenge</u> in Peru, and the <u>"EncontrAR"</u> knowledge platform have

the <u>EncontrAk</u> knowledge platform have enhanced collaboration and skills among sector entrepreneurs, promoting climate action. An analysis of the <u>relationship between child</u> <u>nutritional problems in Colombia and livestock</u> revealed significant connections, offering opportunities to design strategies that both mitigate climate change and strengthen food security, particularly in high deforestation areas in Colombia and Peru.

AgriLAC Resiliente InnovaHubs link various approaches and scales, developed over years with innovation system actors, to address sustainability and climate resilience in addition to productivity issues. In Guatemala and Honduras, InnovaHubs have enhanced farmer and local organization knowledge on topics such as agroclimatic data and soil conservation (EOIO 4). Drawing on past CGIAR successes in the region, including MTAs and climatesmart villages, and using a multisectoral hub approach, similar to one implemented in Mexico, AgriLAC Resiliente aims to adapt and bundle innovations to improve climate resilience, ecosystem services, and nutrition.

Annual InnovaHub meetings in both countries foster innovation through collaborative learning and knowledge sharing, with 25 institutions in Guatemala and 14 in Honduras participating in 2023.

In line with AgriLAC Resiliente's commitment to bolstering local capacities and fostering innovation, a comprehensive <u>training</u> <u>strategy</u> has been implemented to empower stakeholders through the InnovaHubs framework (**EOIO 4**). Emphasizing practical application and knowledge exchange, this strategy ensures that local actors are equipped with the skills necessary to drive agricultural

advances effectively. A significant initiative in Guatemala involved establishing a <u>Digital Agricultural plot</u>, supported by the Digital Innovation Initiative and the Centro Universitario de Oriente. Serving as a testing ground for advanced agricultural technologies (**EOIO 4**), this initiative directly benefits small-scale farmers in the dry corridor of Guatemala, providing them with access to cutting-edge tools and practices aimed at improving productivity and sustainability in their operations.

In 2023, the Initiative spearheaded a series of studies in Guatemala aimed at unraveling insights into climate resilience, migration dynamics, and gender roles. These efforts included creating tools to support informed decision making. The <u>public policy mapping</u> helped identify opportunities and feasible applications of an Integrated Agrifood System Initiative (IASI) methodology, resulting in tailored public policy recommendations. This mapping underwent validation with stakeholders and significantly influenced deliberations at the Second National Forum on Migration and Climate Change, in Guatemala. The <u>subnational mapping of key programs and</u> <u>interventions in food security and nutrition</u>, along with studies on women's participation in agricultural activities and climate-induced emigration, reflects a strategic effort toward informed policy formulation and resource optimization in Guatemala.

To engage in the policy science interface, we have supported the CAC in activating the Technical Group of Innovation, which gathers the NARS of eight countries. Together they have developed an innovation agenda that AgriLAC will support by enhancing their capacity to develop and scale agricultural innovations in the context of climate change. These initiatives signify progress towards **EOIO 5**. We also developed a <u>case study</u> about the co-innovation and scaling processes of climate-smart agriculture country profiles, aiming to inform the scaling of socio-institutional innovations and science-policy engagement processes (**EOIO 5**).

The MELIA team is assessing EOIO progress by conducting studies on AgriLAC Resiliente's impact. In Guatemala, they've worked with



Work Package 5 to <u>publish research</u> on rural women's challenges and prospects in agriculture. They're measuring the Initiative's effects at three levels: 1) at the farmer level in Guatemala, where they've gathered initial data for future analysis due to budget limits, 2) at the stakeholder level, collecting baseline data from partners for a future social network impact evaluation in 2024, and 3) for meso- and macro-level outcomes, they have devised a qualitative evaluation and plan fieldwork in 2024.

## Progress by End of Initiative Outcome

## Section 3: Work Package progress

EOIO 1: Four LAC countries co-design SET innovations for nutrition-sensitive and climate-smart agrifood systems.

AgriLAC reached 2,207 farming households, benefiting some 8,800 people with more nutritious and climate-resilient biofortified seeds in Colombia. Guatemala. and Honduras.

A menu of technologies was adapted to local conditions for maize, rice, and beans and validated in Colombia, Guatemala, and Honduras.

A diagnostic study was made on establishing a rice processing plant to enhance productivity and quality for better access to markets—a prototype product was made with cocoa and a protocol for a prototype of food products was made with biofortified rice.

EOIO 2: 180,000 farmers and agrifood system actors in two LAC countries are empowered by a digitally-enabled ecosystem to manage climate risk more effectively.

AgriLAC Resiliente scaled information services in Honduras, Guatemala, and Mexico, reaching more than 100,000 farmers.

ETL processes – to change how partners manage data – are in place for partners in Guatemala and Honduras.

Well-established partnerships, including i.e. deploying weather stations with some partners to target blind spots for meteorological monitoring. Building from the bottom up, many technologies and capacities will underpin the Data Hub.

Data analysis with an innovative Explainable Machine Learning analytics workflow enabled the generation of the first set of recommendations for small-scale Guatemalan farmers, which will be disseminated through established delivery channels and as part of the technological menu of the Innova-Hub (with Work Packages 1 and 4).

EOIO 3: Two LAC countries integrate low-emission strategies with development goals in LAC agroecosystems and/or value chains.

AgriLAC Resiliente developed approaches to integrate climate change mitigation efforts and those aimed at delivering SDGs in Colombia and Peru.

In Peru and Colombia, we identified potential to reduce greenhouse-gas (GHG) emissions from the production stage

In Colombia, sustainability strategies for cacao chains were scaled up to governmental levels and have been validated in two departments, while a roadmap for the Guinean pig value chain will be validated in Peru.

AgriLAC Resiliente innovated mechanisms to share knowledge among stakeholders through a Sustainable Cocoa Innovation Challenge in Colombia and Perumin Inspira Challenge in Peru and established a knowledge platform ("EncontrAR").

Analysis of the relationship between child nutritional problems in Colombia and livestock, to open opportunities to design strategies that simultaneously address objectives of climate-change effects mitigation and strengthened food and nutrition security, especially in areas with high deforestation rates in Colombia and Peru.

EOIO 4: Three LAC countries use Innova-Hub to accelerate on-farm uptake of SET innovations.

Dedicated efforts fostered collaboration and innovation among stakeholders at the subnational level in Guatemala, Honduras, and Mexico.

Characterization studies implemented in Guatemala and Mexico to map nutrition, market access, and technical information dissemination offered insights into Innova-Hub's impact and challenges regionally.

Dedicated efforts were made to disseminate agroclimatic information through MTAs in Guatemala and Mexico and to enhance the reach and usefulness of agroclimatic bulletins.

Annual Innova-Hub meetings were conducted to facilitate learnings among agrifood actors in Guatemala and Honduras.

EOIO 5: Three LAC countries use CGIAR science to inform and shape agrifood system-related policies, incentives, and initiatives.

Newly implemented or continued studies in Guatemala produced insights into climate resilience, migration, and the dynamics of gender roles, and also generated new tools.

Public policy mapping in Guatemala on food security, climate change, and migration was finalized and validated with stakeholders and informed discussions at a national forum.

Subnational mapping of key programs and interventions in food security and nutrition to identify areas with possible investment gaps and saturation of interventions in Guatemala caught the attention of a group of donors; development of an interactive platform is in process.

Two quantitative studies in Guatemala (one with MELIA) led to identifying and designing additional studies for Guatemala and Peru.

WP1: Shaping nutrition-sensitive SET 'best bets' to operationalize local agrifood system transition to climate-resilient nutrition pathways

#### Work Package 1 progress against the theory of change

In 2023, to facilitate farmers' access to climate-resilient and nutrition-sensitive technologies, locally adapted crop varieties such as maize, rice, and beans were validated with 2,207 households in Colombia, Guatemala, and Honduras. Seventeen research platforms (1 per Innova-Hub in Guatemala and Honduras, 5 in Chiapas, 5 in Oaxaca, and 3 in the North Pacific hub of Mexico) were implemented with local research partners to validate sustainable production technologies (output 1.1.1). Information on available climate-resilient, nutrition-sensitive technologies was summarized in technological menus for Oaxaca and Sonora and training material produced on good postharvest practices to minimize grain loss. Two biodiverse plots (one of them involving an indigenous community), were implemented in northern Colombia to compare agroecological practices to conventional methods. The results will contribute to decision-making by producers and to the technological menus (Output 1.1.1).

Moreover, 1,584 people participated in AgriLAC Resiliente capacity building on topics including seed systems, agricultural practices,



On track

#### I (SET) ns adapted rifood mers, ional nd Extension local AFS in ectively align transition -ecological ) beneficiaries

#### EOI 1

nsitive socio-ecologica technological (SET) climate-smart innovations adapted and co-designed with Agrifood Systems (AFS) actors, (farmers, processors, small-medium enterprises (SMEs)), National Agricultural Research and Extension Systems (NARES) enable local AFS in four LAC countries to effectively align the technical aspects of transition processe with the socio-ecological needs of at least 50,000 beneficiaries (2022-2024).

postharvest food processing (four training sessions), and markets (Output 1.1.2). A diagnostic study was carried out for establishing a rice processing plant, aiming to enhance productivity and quality for better access to markets. Additionally, 11 workshops were conducted to strengthen marketing strategies as part of the scaling pathway. The Work Package also developed a prototype product made with <u>cocoa</u> and a protocol for a biofortified rice food product prototype (Output 1.1.3).

Researchers from Colombia, Guatemala, Honduras, and Mexico exchanged knowledge and experience during the symposium of the Latin American Agronomic Research Network at CIMMYT headquarters in April. The strengthened capacities of local research partners were reflected in three joint products published in 2023: a review of agronomic research in the traditional milpa system, a book summarizing a decade of agronomic research in Oaxaca, and a summary of work to promote hermetic metal silos in Mexico to minimize grain storage losses (Output 1.1.2).

WP2: Inclusive, digitally enabled agroadvisories for climate risk management

#### EOI 1 Data Hubs (data collection, Producer associations, AgriTech integration, standardizatior companies, government agencies, NGOs, and public extension services cleaning, and provision) to support novation Hubs' role in achieving n two LAC countries are empowered agricultural development outcomes. by a digitally-enabled ecosystem to offer agro-advisory services to at least 180,000 farmers and other New partnership models with value chain actors to manage climate Agricultural small and medium risk (CRM) more effectively and enterprises (Ag. SMEs), AgriTech sustainably intensity (SI) production Companies, and the public sector (to and value chains. improve, scale and sustain Information and Communications

technological (SET) climate-smart innovations adapted and co-designed with Agrifood Systems (AFS) actors (farmers, processors, small-medi enterprises (SMEs)), National Agricultural Research and Extension Systems (NARES) enable local AFS in four LAC countries to effectively align the technical aspects of transition processes with the socio-ecological needs of at least 50.000 beneficiaries (2022-2024)

## Producer associations, AgriTech

nsitive socio-ecological-

On track

companies, government agencies, NGOs and public extension services in two LAC countries are empowered by a digitally-enabled ecosystem to offe agro-advisory services to at least 180,000 farmers and other value chair actors to manage climate risk (CRM) more effectively and sustainably intensity (SI) production and value chains.

#### Work Package 2 progress against the theory of change

AgriLAC Resiliente's Work Package 2 is driving a major digital transformation in agro-climate information service delivery and scaling in Latin America. Work Package 2 made substantial progress in all outputs, intermediary outcomes, and research questions. Related to **output 2.1.1**, ETL processes to fundamentally change how data are managed by Work Package 2 partners are in place for the Meteorological Service of Guatemala (INSIVUMEH), Institute for Climate Change (<u>ICC</u>), the Meteorological Service of Honduras (CENAOS-COPECO), and the Asociación de Organizaciones de Los Chuchumatanes (ASOCUCH). Well-established partnerships (output 2.1.2) underpin the progress. Substantial progress was also made with the World Food Program network of "climate monitors" and rain gauges. Notably, in the case of CENAOS-COPECO, the ETL effort has been implemented together with deploying 10 weather stations specifically targeting "blind spots" for meteorological monitoring. These processes have helped build, from the bottom up, many of the technologies and capacities that will underpin the Data Hub. Alongside the ETL and data management transformation efforts, a technological and partner scoping of the Data Hub has begun, delivering a clear roadmap for implementation, with initial focus in Guatemala. The roadmap includes both the technological (output 2.1.1) and the partnership (output 2.1.2) aspects to implement, deploy, and sustain the Data Hub. Continued training

in collaboration with Work Package 4 has been critical for the continued improvement and use of e-Agrology. Data analysis of legacy data with an innovative Explainable Machine Learning analytics workflow has generated the first set of recommendations for small-scale Guatemalan farmers. These will be included as part of the MTAs' regional network and climate information delivery and scaling channels (bulletins, WhatsApp, AClimate) and as part of the technological menu of the Innova-Hub (in collaboration with Work Packages 1 and 4). These tools and approaches are all new additions to an already rich digital ecosystem fostered and enhanced by Work Package 2 (output 2.1.3). Lastly, information services (output 2.1.4) are being delivered at scale in Honduras, Guatemala, and Mexico. In Mexico, a recent outcome harvesting study documents the various transformations produced by AgriLAC Resiliente. For Guatemala and Honduras, scientific progress has allowed a comprehensive mapping of information needs, as well as implementation of user research in both Honduras and Guatemala. These efforts are already improving the usability of agro-climate bulletins and helping to drive the design of improved information products for small-scale producers across both countries (see for example: Agroclimatic bulletins for farmers, Radio spots, and Agroclimatic bulletins). All Work Package 2 theory of change assumptions hold thus far.

WP3: Agrifood system development that meets both mitigation and sustainable development objectives

Output	
Framework and methodological approaches to integrate low-emissions and sustainable development goals in the two selected countries.	
Integrate climate change mitigation and sustainable development goals, such as poverty and hunger eradication or life on earth, by exploring the links between proxy indicators for these goals with a systems approach (case study).	
Digitally-enabled, research-based tools used by researchers and extension agents to support action on climate change mitigation, restored soils or landscapes, ecosystem services and biodiversity in the two selected counties.	•
Science- and market-based solutions that value chain actors and service providers could use to promote climate change mitigation investments in local or export- orientated value chains in the two selected countries.	•

#### Work Package 3 progress against the theory of change

During 2023, we combined our efforts with agrifood system stakeholders to develop approaches that integrate climate-change mitigation efforts with those aimed at achieving relevant SDGs in Colombia and Peru. The Work Package also generated data, knowledge, and innovations to address the challenges posed by climate change in territories affected by armed conflict. This was achieved by identifying opportunities that could be enhanced through public policy formulation and implementing actions specifically aimed at contributing to territorial peacebuilding, climate-change mitigation, and improved living conditions.

In Peru, access to forests, when coupled with demographic changes and the expansion of agricultural infrastructure, significantly contributes to forest loss. Enhanced accessibility to forests can expedite deforestation by amplifying human activities that directly or indirectly result in depletion of forest resources. In Colombia, we worked in the Caquetá department, where GHG emissions from cocoa and livestock value chains were characterized. In both countries, we identified the potential to reduce emissions from the value-chain production stage. This could become a reality with the help of sustainability strategies for Colombian cocoa chains, which

Output

Technologies ICTs).

principles)

Tailored operational digital toolkit for

Climate Risk Management (CRM)

Information services in support of

farmers and Agricultural small and

supply fluctuations, price shocks).

medium enterprises (Ag. 'SMEs) (e.g.,

(following user-centric design





were scaled up to governmental levels and have been validated in Caquetá and Cesar, while Guinean pig value chain was chosen for validation in Junín.

We also innovated the way knowledge is transmitted among stakeholders through a Sustainable Cocoa Innovation Challenge in Colombia, Perumin Inspira Challenge in Peru, and the establishment of a knowledge platform named "EncontrAR," which promotes learning and growth among sector entrepreneurs and fosters climate action. This is achieved through collaboration and the contribution of individuals with diverse skills and profiles, providing them with opportunities to improve their technical and business management skills, evaluating potential markets, analyzing financial instruments, and designing a roadmap for accessing sources of funding.

Lastly, we have analyzed the relationship between child nutrition problems in Colombia and livestock, finding a significant connection for integrating climate-change mitigation objectives and SDGs. This generates big opportunities for designing effective strategies that simultaneously address climate change mitigation and food and nutrition security objectives, especially in areas in Colombia and Peru with high deforestation rates.

#### WP4: InnovaHub networks for agrifood innovation and scaling

Establishment of a participatory

framework that brokers civil-public-

of climate-smart context- specific

farm management solutions.

Setting-up a network of to

initiatives

initiatives)

Community of Practices (CoPs)

between extensionists, scientists

and farmers to optimize targeted

capacity building and farm extension

also connected to public and private

Setup of field monitoring system to

track impact. (Setup of CoP networks

between extensionists, scientists,

and farmers to optimize targeted

Data insights that enable the

generation of tailored farm

National and local agrifood actors

have set common research agenda and reached agreement on priorities.

recommendations

capacity building and farm extension

and connected to public and private

nutrition-sensitive, and sustainable

private-partnerships for value adding



#### Work Package 4 progress against the theory of change

Work Package 4's annual report on InnovaHubs documents collaborations and innovations in Guatemala, Honduras, and Mexico, with intensified characterization studies in Central America. In Guatemala, emphasis is on nutrition and market access, while in Mexico, an infographic guide details InnovaHubs' regional impact. Communication and outreach are critical for scaling innovations and fostering stakeholder engagement through in-field achievements (output 4.1.1).

A targeted training strategy bolsters local stakeholder capacities within InnovaHubs, fostering communities of practice among professionals, extensionists, farmers, and scientists to exchange knowledge and best practices (output 4.1.2). The dissemination of agroclimatic information via the MTAs' network in Guatemala and Mexico aims to improve accessibility and comprehension among farmers, aiming to enhance the reach and usefulness of agroclimatic bulletins.

Local partners in InnovaHubs provide technical support for farmers through co-learning spaces and extension areas, facilitating the

adoption of field recommendations for improved agriculture practices. Furthermore, in Oaxaca, Mexico, the agriculture ministry aligns interventions with InnovaHubs, resulting in over 20,000 registered farmers' fields with researcher support (Output 4.1.3 and Output 4.1.4). A Digital Agricultural plot was established in Guatemala in partnership with the Digital Innovation Initiative, serving as a testing ground for advanced agricultural technologies, benefiting small-scale farmers in the dry corridor (Output 4.1.4).

(2024-2030).

Public and private institutions in three LAC countries

use CGIAR science, evidence, and tools to inform and

shape to Agrifood Systems (AFS) related policies

comprehensive, and climate adaptation-friendly

incentives, and initiatives that are more

transformative, sustainable, mitigation

Annual InnovaHub meetings in Guatemala and Honduras facilitated knowledge exchange among agrifood actors, fostering innovation through collaborative learning and adaptation to local contexts. In November 2023, the second round of these meetings occurred in diverse locations across Guatemala and Honduras, gathering 25 and 14 institutions respectively. These gatherings identified local needs and research priorities, strengthening positive impacts, and advancing innovation network management. Agrifood actors collaborate to support capacity development in each InnovaHub's operational space, promoting regional agricultural advancement (Output 4.1.5).

## WP5: Policies, investments, and institutions based on science



#### Work Package 5 progress against the theory of change

In 2023, the Work Package 5 conducted and continued several studies in Guatemala focused on producing insights into climate resilience, migration, and the dynamics of gender roles, and creating tools.

Work Package 5 finalized the public policy mapping in Guatemala on food security, climate change, and migration. This identified opportunities and the most feasible applications of the IASI methodology that should lead to customized public policy recommendations. This document underwent a validation process with stakeholders and informed the discussions at the Second National Forum on Migration and Climate Change in Guatemala (output 5.1.4).

In addition, Work Package 5 achieved its goal of engaging with AgriLAC Resiliente partners by facilitating consultations at InnovaHubs' annual meetings in Guatemala and Honduras organized by Work Package 4. The consultations aimed to align the Initiative's objectives with partners' needs using a bottom-up approach. (output 5.1.4)

On track



Public and private institutions in three LAC countries use CGIAR science, evidence, and tools to inform and shape to Agrifood Systems (AFS) related policies, incentives, and initiatives that are more transformative sustainable mitigation- comprehensive, and climate adaptation-friendly (2024-2030).

The subnational mapping of key programs and interventions in food security and nutrition to identify areas with possible investment gaps and saturation of interventions caught the attention of a group of 13 donors in Guatemala and a related exercise is being performed with them, including developing an interactive platform. This will help to better coordinate and complement efforts between stakeholders and streamline effective use of resources for implementating food security and nutrition actions and programs across the country (output 5.1.3).

Two guantitative studies were finalized in Guatemala: i) Cultural and economic barriers and opportunities for the participation of women in agricultural and livestock activities (a collaboration with MELIA published in a special issue and presented at various forums, output 5.1.5); and ii) Climate stresses and emigration (presented at the Second National Forum of Climate Change and Migration in Guatemala and published as a scientific article). Authors of the gender study included staff of the Ministry of Agriculture, while the migration study generated two additional studies: one more granular study in Guatemala and a new study in Peru on internal migration push factors (a collaboration with Work Package 3, Output 5.1.2).

## Work Package progress rating summary

WORK PROGRESS RATING & RATIONALE

Progress rating

1

2

3

Л

5

The team optimized available (reduced) resources to collaboratively deliver a streamlined research approach that developed nutrition-sensitive and climate-smart technologies. This was done with local agrifood system actors in four countries. Working together in a research network is enhancing local capacities from production to market access. It is forming the base of innovation and adaptation in the InnovaHubs (Work Package 4).

#### Progress rating

Progress was made according to plans, with all theory of change assumptions still holding. All four major Work Package 2 outputs are on track, namely, Data Hubs and data architecture modernization, new partnerships and partnership models, a climate risk management toolkit, and improved information services for farmers and small- and medium-sized agricultural enterprises (Ag. SMEs). In particular, we highlight the data management and analysis transformation in INSIVUMEH, ICC, and CENAOS-COPECO, as well as several farmer organizations, and the continued delivery of agro-advisories that stem from MTAs and are scaled through digital channels.

#### Progress rating

The annual progress in Peru and Colombia is largely aligned with the Plan of Results and Budget and the theory of change of Work Package 3. This is evidenced by the development of low-emission sustainable development strategies that integrate the SDGs and help foster the participation of local stakeholders. Progress has also been made in developing instruments to promote markets for investments in climate change mitigation at the value chain level. Planned outputs have been developed, such as those associated with the methodological framework, digital innovations, and science- and market-based solutions.

#### Progress rating

InnovaHubs in Guatemala, Honduras, and Mexico have been consolidated and established. They form the operational base for the subnational actors, including farmers and their associations, local governments, and civil society to operate around a common goal, which includes establishing field infrastructures. Here, technicians and farmers work together to implement and validate best-bet recommendations related to agronomy and climate advisory and digital extension services, as well as local action towards social inclusion. Capacity development schemes are being implemented around this infrastructure and integrate the MTAs' experiences but at a local agroecology scale. Within these, local actors connect and exchange experiences to establish collaborative plans and priorities.

#### Progress rating

Work Package 5 successfully met its objectives for 2023, completing all the planned studies on climate change, migration, and gender, as well as conducting a comprehensive national mapping of public policies in Guatemala. Additionally, Work Package 5 effectively engaged with InnovaHub partners, providing valuable information to support decision-making processes following a bottom-up approach. The subnational mapping exercise of interventions has garnered interest from key stakeholders in the country, significantly contributing to the achievement of the Initiative's outcomes. Overall, the Work Package is on track and all major theory of change assumptions remain valid.





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Measuring land with an A level to implement soil conservation practices. Chiquimula, Guatemala. Credit: Daniela Arce Gómez, Alliance of Bioversity International and CIAT

## Section 4: Key results

This section provides an overview of results reported by the CGIAR Research Initiative on AgriLAC Resiliente in 2022 and in 2023. These results align with the CGIAR Results Framework and AgriLAC Resiliente's theory of change. Source: Data extracted from the CGIAR Results Dashboard on 29 March 2024

#### **OVERVIEW OF REPORTED RESULTS**



To date, AgriLAC Resiliente has produced a total of 392 results, with 330 being accomplished in 2023. These results are categorized in two groups, outputs (354) and outcomes (37), as outlined in Figure 1 above. Notably, within the outputs category, there was a significant uptick in the production of knowledge products (125 more than in 2022) and in capacity sharing for development (145 more than in 2022). Moreover, 5 additional innovations were developed in 2023. In the outcomes category, 21 more CGIAR innovations were used in 2023 than in 2022 and 5 new policy changes were documented.

PERCENTAGE OF REPORTED RESULTS TAGGED TO CGIAR IMPACT AREAS



• Principal: The result is principally about meeting any of the Impact Area objectives, and this is fundamental in its design and expected results. The result would not h aken without this objective

Significant: The result has made a significant contribution to any of the Impact Area objectives, even though the objective(s) is not the principal focus of the result

Not targeted: The result did not target any of the Impact Area objectives.

The chart above reflects how results of AgriLAC Resiliente reported in 2022 and 2023 have significantly contributed to the five CGIAR impact areas, primarily in Climate change adaptation and mitigation (155), Nutrition, health and food security (36), Gender equality, youth, and social inclusion (25), Environmental health and biodiversity (16), and Poverty reduction, livelihoods, and jobs (5).

#### KEYWORDS WITHIN THE INITIATIVE'S KNOWLEDGE PRODUCTS





AgriLAC's results notably contribute to SDGs, particularly in addressing No Poverty (SDG1), Climate Action (SDG13), and Gender Equality (SDG5), with over 300 contributions each, while also aligning with broader aims to combat hunger, promote sustainable land use, and foster inclusive economic growth.

#### NUMBER OF KNOWLEDGE PRODUCTS BY TYPE



The central topics that underpin AgriLAC Resiliente's knowledge products are climate change, agriculture, farmers, climate services, climate change adaptation, food systems, resilience, climate variability, deforestation, climate change mitigation, gender equity and equality, peace building, capacity building, and participatory research, among others.

Over the past two years, AgriLAC Resiliente has produced a diverse range of knowledge products, including 70 reports, 11 briefs, 9 journal articles, 6 manuals, 5 working papers, 5 case studies, 3 posters, 2 books, and 1 dataset. These resources serve as valuable repositories of insights into agricultural resilience. Moreover, it has also developed 37 dissemination products, such as presentations, blog posts, videos, audio recordings, brochures, press items, infographics, and newsletters.

#### CAPACITY SHARING FOR DEVELOPMENT

#### NUMBER OF INNOVATIONS BY READINESS LEVEL

0		Pipeline overview # of innovations
9	<b>PROVEN INNOVATION</b> The innovation is validated for its ability to achieve a specific impact under uncontrolled conditions	3
8	UNCONTROLLED TESTING The innovation is being tested for its ability to achieve a specific impact under uncontrolled conditions	4
7.	<b>PROTOTYPE</b> The innovation is validated for its ability to achieve a specific impact under semi-controlled conditions	3
6	SEMI-CONTROLLED TESTING The innovation is being tested for its ability to achieve a specific impact under semi-controlled conditions	
5	MODEL/EARLY PROTOTYPE The innovation is validated for its ability to achieve a specific impact under fully-controlled conditions	0
4	<b>CONTROLLED TESTING</b> The innovation is being tested for its ability to achieve a specific impact under fully-controlled conditions	1
3	<b>PROOF OF CONCEPT</b> The innovation's key concepts have been validated for their ability to achieve a specific impact	0
2	FORMULATION The innovation's key concepts are being formulated or designed	1
1	BASIC RESEARCH The innovation's basic principles are being researched for their ability to achieve a specific impact	1
0	IDEA The innovation is at idea stage	0

AgriLAC has developed 14 innovations, comprising 7 technological, 6 capacity development, and 1 policy, organizational, or institutional innovation. These innovations span incremental (10), disruptive (3), and radical (1) categories. Incremental innovations denote existing innovations undergoing constant progress and improvement, built upon previous CGIAR work in the region. Disruptive innovations introduce new concepts necessitating significant reconfiguration of farming, market, and policy/business models. Radical innovations introduce entirely new products, systems, or services without necessitating major reconfiguration of existing models.



#### NUMBER OF REPORTED INNOVATIONS BY NATURE







AgriLAC Resiliente strengthened the agricultural, climate resilience and market capacities of 4,833 individuals across Latin America and the Caribbean, collaborating with 64 partners (Figure 6) and three CGIAR Initiatives: Digital Innovation (104), Climate Resilience (119), and Nature Positive Solutions (314). In 2022, 372 people, including 116 women and 256 men, underwent training, while in 2023, 4,461 individuals — 1,541 women and 2,920 men — undertook short-term courses lasting three months or less. The trainings primarily took place in Guatemala (73) and Honduras (49), with Colombia (20), Mexico (1), and Peru (1) also benefiting from the trainings.

Source: Data extracted from the CGIAR Results Dashboard on 7 March 2024.

## Section 5: Partnerships

**EXTERNAL PARTNERS CONTRIBUTING TO RESULTS, PER COUNTRY** 



Colors represent the number of different partners which collaborated on results achieved in a specific country. One result can impact different countries and therefore the same partner can be associated with more than one country. Source: Data extracted from the <u>Results Dashboard</u> on 29 March 2024.

#### TOP 10 PARTNER TYPOLOGIES THAT CONTRIBUTED TO DELIVERING 2023 RESULTS



## Partnerships and AgriLAC Resiliente's impact pathways

The AgriLAC Resiliente external partner network responds to the systemic and on-demand approach of the Initiative. This network of partners has strong experience and capacities at different levels throughout the Latin America and the Caribbean agrifood system. AgriLAC Resiliente's external partners have been selected based on their previous and current successful collaborations and partnerships with CGIAR as well as their expertise and skills, farmer outreach and delivery capabilities, and capacity to influence public policy.

The extensive external partner network boasts an impressive array of over 150 organizations strategically distributed throughout the region. These partnerships are primarily concentrated in key locations such as Guatemala (59), Honduras (31), Mexico (32), Colombia (23), Peru (8), Nicaragua (7), and El Salvador (7), forming a robust collaborative framework. These institutions are broadly classified in several categories, including NARS and universities, governmental bodies, local NGOs representing farmers, private enterprises, financial institutions, and various other entities.

NARS and universities stand as the forefront champions of knowledge and innovation, spearheading cutting-edge research and development initiatives. Partnerships with NARS and universities are indispensable for validating and adapting AgriLAC Resiliente's innovations, such as climate-resilient and nutrition-sensitive technologies, diverse varieties of biofortified crops, and climate information services (CIS), ensuring the sustainability of interventions (EOIO 1 and EOIO 2).

AgriLAC Resiliente has forged significant collaborations with respected NARS, including AGROSAVIA in Colombia, the Directorate of Agricultural Science and Technology in Honduras, and the Institute of Agricultural Science and Technology in Guatemala. These partnerships are pivotal for advancing agricultural research, fostering innovation, and promoting sustainable practices across the region.

To scale AgriLAC Resiliente's innovations, we collaborate with local and national NGOs such as Asociación Regional de Servicios Agropecuarios de Oriente in Honduras, Fundación Promotora del Canal del Dique in Colombia, and Asociación de Cooperación para el Desarrollo Rural de Occidente, ASOCUCH, and Asociación Regional Campesina Chortí in Guatemala (EOIO 1, EOIO 2, EOIO 4).

Furthermore, collaborations with local research institutes, universities, and NGOs have been instrumental in bolstering the effectiveness and implementation of capacity development programs. As a result, 4,833 beneficiaries actively engaged to date through collaborative efforts with 64 local partners (**EOIO 1**, **EOIO 2**, **EOIO 3**, and **EOIO 4**). In addition to the local partners mentioned earlier, the Initiative collaborated with entities in Colombia such



as Servicio Nacional de Aprendizaje, Asociación de Productores Agropecuarios de Leticia, Asociación de Productores de Cacao de La Jagua De Ibirico, and Cacaoriente. In Guatemala, partnerships extended to ICC, Universidad Rafael Landívar, and Centro Universitario de Oriente, while in Honduras, collaboration included Comisión de Acción Social Menonita.

AgriLAC Resiliente has collaborated with government institutions to strengthen their institutional capacities and respond to the demands of public policy with science-driven initiatives (EOIO 2, EOIO 3, EOIO 5). Key collaborations include the ministries of agriculture in Colombia, Guatemala, Honduras, and Mexico, as well as the meteorological services in Guatemala and Honduras. These partnerships are essential to ensure that agricultural policies and strategies are backed by robust scientific evidence and implemented effectively to promote sustainable development in the region.



#### AGRILAC RESILIENTE'S INTERNAL PORTFOLIO NETWORK



Connections are sized by the number of reported results. Collaborations where only one result was reported with a linkage between two Initiatives are excluded.

Source: Data extracted from the CGIAR Results Dashboard on 7 March 2024.

#### Portfolio linkages and AgriLAC Resiliente's impact pathways

In 2023, AgriLAC Resiliente partnered with nine other CGIAR Initiatives to make progress on meeting its EOIOs. We collaborated most closely with Climate Resilience, Low-Emission Food Systems, Livestock and Climate, Digital Innovation, and Fragility, Conflict and Migration, and also with National Policies and Strategies, Excellence in Agronomy, Nature Positive Solutions, and Diversification in East and Southern Africa. Most of this collaboration has focused on generating knowledge products (67 percent), followed by promoting the use of CGIAR innovations (11 percent) and other types of outputs (11 percent), the development of innovations (8 percent), policy changes (3 percent), and other types of outcomes (1 percent). We have also partnered in the development of capacities (not reflected in these numbers).

With Climate Resilience, we generated knowledge products related to agroclimatic information through the work of the <u>MTAs</u>, together with the Livestock and Climate Initiative. The information generated by the MTAs increasingly allows more people (especially farmers) access to agroclimatic data, enabling them to make informed and timely field decisions. This information has been disseminated through different mechanisms, such as <u>radio adverts</u>, characterized by their reach to remote rural areas with easily understandable messages, thanks to the comprehensive approach inherent in the <u>human-centered design methodology</u>, WhatsApp, and technicians using this information when supporting farmers.

From our collaboration with the Low-Emission Food Systems and National Policies and Strategies Initiatives, we generated knowledge product tools addressing deforestation. This has been through assessing and designing instruments that enabled the construction of two strategies for the sustainability of the cocoa value chain in <u>Cesar</u> and <u>Caquetá</u> in Colombia. These were complemented by a <u>financial</u> <u>analysis of the potential of carbon markets for cocoa production</u> <u>systems</u>, leading to the <u>design of a mixed financial mechanism and</u> <u>evaluation of its potential</u>.

These partnerships have been key to promoting the use of innovations, which include biofortified seeds and climate information services among other innovations. Some of the innovations we generated, together with the Digital Innovation Initiative, include the <u>in situ monitoring system in the dry corridor of Guatemala</u>, which provides precise information about climate and soil to enable producers to overcome their unique challenges.

Several results were achieved through the contribution from non-pooled projects. With the Fortalecimiento de Resiliencia de la Producción de Maíz en Guatemala project (International Cooperation and Development Fund), we were able to develop an R package to provide users with convenient access to a wide range of agroclimatic forecasts offered in the <u>AClimate platform</u>. With the ProResiliencia project (European Union funder), we continued the use of <u>Participatory Integrated Climate Services for Agriculture (PICSA)</u>. This is a knowledge product that proposes an approach of agricultural extension and climate services. This product helps farmers to formulate plans and decisions adapted to individual farmer contexts according to their production system. This highlights the importance of collaborating with other components of CGIAR portfolio, to increase our reach and impact.

## Section 7: Adaptive management

#### RECOMMENDATION

# Modify EOIO 2 by increasing the number of countries from two to three.

EOIO 2: Producer associations, AgriTech companies, government agencies, NGOs, and public extension services in **three LAC** countries are empowered by a digitally enabled ecosystem to offer agro-advisory services to at least 180.000 farmers and other value chain actors to manage climate risk more effectively and sustainably intensify production and value chains.

# Modify EOIO 3 by adjusting the narrative to incorporate two strategies instead of two countries.

**Two national** or local governments or key stakeholders in LAC countries integrate low-emission strategies with development objectives at the agro-ecosystem or value chain level, with an expected impact of around 150,000 ha.

# Modify EOIO 5 by decreasing the number of countries from three to two.

Public and private institutions **in two LAC countries** use CGIAR science, evidence, and tools to inform and shape agrifood system-related policies, incentives, and initiatives that are more transformative, sustainable, mitigation-comprehensive, and climate adaptation-friendly (2024–2030).



#### SUPPORTING RATIONALE

The adjustments stem from the scaling efforts undertaken by the Agriculture Secretariat (SADER) in Mexico. These efforts have enabled Work Package 2 to leverage the MTAs and the InnovaHub network of agroclimatic information services, thereby gaining deeper insights into the network and collaborating with partners to improve the delivery of agroclimatic services. Furthermore, the adjustments align with a more precise identification of the capacities of organizations capable of participating in digital agriculture initiatives.

We are giving more emphasis to the number of strategies than the number of countries. These changes are proposed in the context of budgetary changes, and our capacity to align bilateral funding toward accomplishing the outcome.

The adjustment in the EOIO stems from budget reallocations, which necessitated prioritizing specific activities within certain countries, and the time needed to produce essential outputs such as knowledge products, instruments, and tools. These outputs play a crucial role in informing local stakeholders and have the potential to shape initiatives and policies in the designated countries.

> Cacao training on harvest and post-harvest processes, San Vicente Chucurí, Colombia. Credit: Juan Pablo Marín.

## Section 8: Key result story

## Peacebuilding co-benefits through Climate Action in Colombia's Cacao sector

Strengthening the cocoa value chain: consolidating more resilient, competitive, and sustainable environmental, social, and economic systems.



**Primary Impact Area** 

 $\bigcirc$ 

Other relevant Impact Areas targeted

**Contributing Initiatives** 

AgriLAC Resiliente and Low-Emission Food Systems

**Contributing Center** 

Alliance of Bioversity International and CIAT

**Contributing external partners** 

Federal Ministry for Environment, Nature Conservation and Nuclear Safety of Germany (BMU) · Ministry of Agriculture and Rural Development of Colombia, Secretariat of Agriculture and Business Development of Cesar, Secretariat of Agriculture, Environment and Rural Development of Caquetá, Alliance of Bioversity International and CIAT · Cocoa Growers, Producers and Processors Organizations, Production and Marketing Companies, Research, Training and Business Services Organizations, Public Sector Entities, and Provision Organizations of Agricultural Supplies in Cesar and Caquetá.

Geographic scope



Regions: Latin America and the Caribbean Country: Colombia

In Colombia, strengthening the cocoa value chain not only boosts cocoa production and stimulates the economy but also promotes environmental sustainability and social development for peace building. Collaboration between public and private entities and communities has formalized processes, improved production, and helped preserve the environment. Coordination among key actors and a focus on climate-smart agriculture have been fundamental in contributing to rural, economic, equitable and sustainable development in the country.

For many years, the states of Cesar and Caguetá in Colombia have suffered severely from armed violence. This has led to forced displacement and a slowdown in various economic activities, with coordination between public and private entities and farmers' associations to implement effective development plans in the cocoa value chain hindered.

A sustainable land use system (SLUS) project and CGIAR's AgriLAC Resiliente and Low-Emission Food Systems Initiatives have worked together to i) consolidate and empower communities through cocoa committees; ii) coordinate interinstitutional interactions, and iii) formalize processes to position cocoa cultivation as an alternative way to reforest and restore degraded landscapes. These activities have supported land restitution and formalization, forest conservation, and the development of sustainable business models based on cocoa cultivation to increase carbon storage and improve rural livelihoods.

Establishing close coordination between the key local and national actors in Colombia's cocoa sector was an imperative. The Ministry of Agriculture, the Ministry of the Environment, the Departmental Secretariats, the National Cocoa Council, the cocoa industry, research institutions, marketers and producers continue to work together to further scale and improve the value chain with a clear and sustainable strategic plan. In it, work continues to expand training in low-emissions practices, with a focus on sustainable land use systems such as cocoa agroforestry and silvopastoral production-

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Cocoa has become an opportunity to generate income, to put down roots, and to start over—with more knowledge, more care for the environment, more sense of belonging and more trust in farmers, including those who were displaced by violence.

Jhon Jairo Hurtado. Researcher, Alliance of Bioversity International and CIAT. Member of Work Package 3, AgriLAC Resiliente Initiative

systems that can enhance people's livelihoods while protecting their environments.

This process aims to reconcile climate-change mitigation objectives with development objectives, integrating i) the territorial approach, focused on local decisions on land use, and ii) the market approach, which considers the dynamics of the value chain and consumer decisions in sustainable food systems. This approach will continue to add the participation of more actors with compatible business models. In turn this will overcome identified farm- and value-chainlevel barriers, in addition to measuring the contribution to climatechange mitigation and peacebuilding in the country.

Promoting sustainable cocoa involves increasing its production and ensuring that it is done efficiently and sustainably. This includes expanding distribution channels for certified plant material, which guarantees not only crop quality but also its long-term sustainability. Furthermore, the exchange of technical knowledge and institutional strengthening is crucial for identifying and prioritizing needs and establishing specific actions that contribute to the sustainable development of the region, thus fostering local economic growth and improving the livelihoods of cocoa farmers. By strengthening the coordination among actors in the production chain, a solid foundation is created that facilitates continuous strengthening and effective management. This strategic collaboration not only benefits farmers by improving their practices and increasing their productivity but also promotes sustainable practices and more responsible management of natural resources.

Thus, the sustainable development of crops and rural communities depends to a large extent on the promotion of economic activities such as cocoa cultivation carried out in productive and environmentally friendly ways. This requires not only efficient crop management but also institutional measures that strengthen infrastructure and generate equitable opportunities for all involved. By prioritizing sustainability and equity in rural development, we can build a more prosperous and harmonious future for communities, where agriculture and environmental conservation go hand in hand.



#### Front cover photo

Schelling processing post harvest practices training, Chiquimula, Guatemala. Credit: Daniela Arce Gómez, Alliance of Bioversity International and CIAT

#### Back cover photo

Practice sessions for rain gauges measure, Choluteca, Guatemala. Credit: Elsi Herrera, Alliance of Bioversity International and CIAT.

