



Feed the Future Partnership for Climate Smart Cocoa Final Report

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I. Executive summary

The Program

The Feed the Future Partnership for Climate Smart Cocoa (CSC) was a four-year Program (2016-2020) led by the World Cocoa Foundation (WCF) in consortium with ACDI/VOCA for the first two years. This Program brought together the U.S. Agency for International Development (USAID) and nine private sector companies to address the challenges of climate change and deforestation in cocoa-producing landscapes. These nine CSC companies are also part of the 35 Cocoa & Forests Initiative (CFI) signatory companies.

The CSC Program adopted a “value chain approach” by supporting CSC mainstreaming at different entry points in the cocoa value chain. The Program had the overall goal of increasing private sector investment and engagement that promotes and supports the adoption of CSC among smallholders in cocoa-producing landscapes.

The Strategy

Through the CSC Program, WCF worked with its partners to coordinate and leverage private sector investment to scale CSC in West Africa (Côte d’Ivoire, Ghana, and Liberia) and Latin America (Dominican Republic, El Salvador, Honduras, and Nicaragua). This required demonstrating to industry the predicted impacts of climate change on the cocoa supply chain, developing a sector-wide strategy, and identifying innovative tools and services to support effective engagement and investment.

In the frame of the Program, WCF engaged with the private sector, USAID, and other key stakeholders in a strategic dialogue on climate change and cocoa agroforestry models. This included the learnings from a cocoa agroforestry market system assessment developed by ACDI/VOCA in Liberia. This engagement process produced the CSC Inception reports which were revisited and revised with the outputs and learnings from the various CSC pilots and the evolving understanding of climate change issues and possible strategic pathways for engagement and investment. In Latin America, WCF supported the development of a climate exposure study of the cocoa growing regions of Central America and Caribbean similar to research previously conducted in West Africa.

WCF also supported the dissemination of key learnings on CSC from its partners to ensure synergies and prevent duplication and over-solicitation of member companies. For example, in Ghana, WCF shared key learnings involving the private sector of all the CSC field pilots implemented by the CGIAR’s CCAFS consortium, the Learning Community led by Sustainable Food Lab (SFL), and the WCF CSC Program. This exercise led to the identification of two scientific CSC learning sites where CSA practices are piloted and researched in partnership with company members.

WCF engaged with the companies at the global, regional, and national levels and worked with the national governments, CSOs and networks to develop national and regional CSC strategies. In the case of West Africa, the CSC strategy is integrated into CFI.

WCF conducted studies to develop the CSC framework and investment plan for West Africa and Latin America. These studies support the implementation of a shared cocoa/agroforestry strategy for addressing climate change threats to farmer livelihoods in cocoa-growing regions. The learnings of all CSC Program pilots contributed directly into the investment opportunity studies.

In West Africa, WCF identified short, medium, and long-term investment actions for addressing climate change in the cocoa sector, including investment opportunities in CSC pilots and innovations. WCF developed a study on the “*Opportunities for the private sector to engage and invest in CSC*”. The study presents a high-level guidance to integrate CSC interventions into companies’ sustainability programs. Through a case study for the Ghana, Bia-Juabeso landscape, the report describes the business case for CSC investments for different actors of the cocoa value chain. The study concluded that investing in CSC (embedded in a comprehensive program) is profitable. The study shows that as cocoa farmers achieve a living income, cocoa companies, input suppliers, climate impact investors, and other stakeholders can earn back their investment.

In Latin America, WCF engaged with Program partners to develop national strategies and regional guidelines for scaling CSC. The proposal of actions nested within the regional guidelines provide a framework for scaling CSC in Central America and the Caribbean. WCF also developed CSC investment opportunity analysis for the region, which described business cases for CSC investment for different clusters of actors of the cocoa value chain. The lessons from CSC pilots are integrated into the *CSC Investment opportunities for Central America and the Caribbean* report.

Piloting CSC Innovations

Initially, WCF identified three pilot projects to be implemented within the first three years of the Program on CSC agroforestry, CSC training, and screening for heat and drought tolerant planting materials. In addition to those three initial pilots, WCF designed and piloted additional innovations to stimulate private sector investment and engagement for the adoption of CSC practices. Some pilots originated out of the strategy development process, while others arose from emerging partnerships, especially in the frame of CFI in West Africa. Companies are adopting and scaling many of these innovations through CFI.

In the first years of the Program, ACIDI/VOCA completed the cocoa agroforestry market system/ value chain assessment in Liberia. Focusing on oil palm, plantain, and timber as the three CSC non-cocoa target crops, ACIDI/VOCA designed and implemented a strategy and work plan including smallholder-focused trainings on agroforestry and improved practices to meet end-market demands. Based on the learnings from this, ACIDI/VOCA developed a report with practical guidance, examples, and contextual understanding to support the adoption and maintenance of sustainable, market-oriented cocoa agroforestry in supply chains. The experiences in Liberia were brought to Côte d’Ivoire and Ghana to support the development of agroforestry market linkages.

WCF has also facilitated dialogue on the development of CSC agroforestry guidance in both Côte d’Ivoire and Ghana, which has been integrated into CFI. Through the CSC Program, WCF in partnership with Climate Focus, developed a guidance document for *Developing Cocoa Agroforestry Systems in Ghana and Côte d’Ivoire*.

In Ghana, WCF and its partners identified CSA practices per climatic impact zone and developed a CSC curriculum. The CSC training modules and farmer handouts supplemented the Cocobod’s (Ghana Cocoa Board) harmonized productivity training curriculum. The curriculum was recently adapted for Côte d’Ivoire. In Ghana, WCF worked in partnership with The Hershey Company to use their new Android training app (CocoaLink) to incorporate the CSC training curriculum. The app is now fully available in the Google Play Store, with several thousands of users already.

In Ghana, WCF supported the effort of brokering a land tenure coalition aimed to enable CSC and agroforestry by providing land tenure security and land use security at the same time. Land tenure and land use security reduces conflict and increases farmer confidence to make longer-term

investments and build family business plans. This in turn enables industry-supported reinvestments into sustainable cocoa agroforestry systems for their cocoa farmers.

WCF also initiated the groundwork to better understand the critical aspects of tree tenure, essential for sustaining cocoa agroforestry development. This effort continues to inform the ongoing work on tree registration to secure companies and farmers who plant shade trees above the cocoa, particularly in Ghana and increasingly in Côte d'Ivoire where the new Forest Code is opening new opportunities for implementation.

WCF brought together two learning consortia on the development of a landscape approach for CSC led by member companies Olam and Touton, within the context of the Ghana Cocoa Forest REDD+ Program (GCFRP). WCF also engaged the Nature Conservation Research Centre (NCRC) on the development of a guidance document – *Learning about Cocoa Landscape Approaches* – and an accompanying toolkit. The toolkit includes governance structures, development processes, multi-stakeholder consortia, landscape standards, partnership agreements, etc.

In Latin America, WCF and its partners established pilots of CSC agroforestry. Currently 12 partner organizations in Central America and the Caribbean are actively engaged in these pilots and will continue the work beyond the program. To help design, monitor and evaluate such complex systems, the Program developed five web-based tools, which are currently being used by the program partners as platforms for collective learning, about site-specific CSC agroforestry.

Building off the work in West Africa, WCF and its partners developed a site-specific CSC curriculum for Central America and Caribbean, which is currently hosted in an online information system. In this online platform, users can consult climatic conditions, aptitude and climate impact gradients, and obtain a proposal of practices for climate change adaptation. The users can also use the system to develop a climate adaptation plan with budget.

WCF worked with Bioversity International to convene a multidisciplinary international core working group with cocoa diversity specialists from Brazil, Colombia, Costa Rica, United Kingdom, France, and Côte d'Ivoire (Centre National de Recherche Agronomique, CNRA). The working group produced a comprehensive review of research, an innovative analysis of existing cocoa breeding and trial data, and a comprehensive proposal of indicators and protocols for measuring heat and drought tolerance. A knowledge platform was also built to foster shared strategies for addressing climate change threats to farmer livelihoods and ecosystems in cocoa-growing regions.

Lessons Learned and Future Challenges

Through the implementation of a shared cocoa/agroforestry strategy and pilot innovations, WCF compiled a series of key lessons learned and future challenges and opportunities:

- To ensure that investments in CSC do not remain as standalone projects, **CSC should be integrated into companies' broader sustainability programs.** The integration of CSC best practices can help ensure a sustainable supply of cocoa in the face of climate change and be profitable for farmers, companies, input suppliers, and other stakeholders.
- **Companies require technical guidance to implement CSC.** Through provision of resources and follow-up training, companies have learned how to integrate innovations into their sustainability programs.
- Private sector investment in **CSC requires enabling government policies.** Companies implement their sustainability programs within the national structures and guidelines.

- Strong **public-private platforms** are needed to collaborate on the overall strategy and share best practices on CSC.
- **CSC strategy and interventions need to be adaptable** to country and site-specific realities.
- **Landscape-level approaches provide a better framework for companies to achieve impact at scale.** CSC practices must go beyond farm-level or project-scale implementation to make landscapes resilient, profitable, and sustainable.
- **Broader private sector commitments** help to scale up investments in CSC.

II. The Program: Objective, intermediate results, outputs, and activities

The Feed the Future Partnership for Climate Smart Cocoa (CSC) was a four-year Program (2016-2020) led by the World Cocoa Foundation (WCF) and in consortium with ACIDI/VOCA for the first two years. This Program brought together the U.S. Agency for International Development (USAID) and an initial nine private sector companies: Barry Callebaut, Cargill, Inc. (Cargill), ECOM Agrotrade Ltd. (ECOM), The Hershey Company (Hershey), Lindt & Sprüngli (Lindt), Mars, Inc. (Mars), Nestlé, Olam International Ltd (Olam), and Touton. The CSC Program focused on two regions – West Africa (Côte d’Ivoire, Ghana, and Liberia) and Latin America (Dominican Republic, El Salvador, Honduras, and Nicaragua).

WCF worked through the cocoa and non-cocoa value chains to achieve the overall goal of the CSC Program: to coordinate and leverage private sector investment in developing climate smart agriculture (CSA) in West Africa and Latin America, and support the adoption of CSC among smallholders in cocoa-producing landscapes. This required demonstrating to industry the predicted impacts of climate change on the cocoa supply chain. It also required performing objective analyses of the trade-offs between different CSA practices, developing a sector-wide strategy, and identifying innovative tools and services to support effective engagement and investment.

The CSC Program began with an initial investment of \$1.7 million from USAID and approximately \$400,000 from the listed WCF member companies. The CSC Program adopted a “value chain approach” by supporting CSC mainstreaming at different entry points in the value chain.

To achieve the overall goal, the CSC Program focused on two intermediate results:

- **Strategy:** Implementing a shared cocoa/agroforestry strategy for addressing climate change threats to farmer livelihoods and ecosystems in cocoa-growing regions; and
- **Piloting Innovations:** Using lessons learned from successful pilots to guide private sector investment in targeted CSA activities to improve resilience for farmers, other supply chain partners, and ecosystems.

Outputs to achieve the intermediate results and activities to generate the outputs were defined in the Program document and later ratified with the Program partners in each of the target countries in West Africa and Latin America. Description of the outputs and activities are presented in the [Logical Framework of the CSC Program table](#).

The Cocoa & Forests Initiative

In the second year of the CSC Program, in 2017, WCF and member companies expanded the scope of environmental sustainability in the cocoa sector to also address cocoa-related deforestation and forest degradation. Thirty-five leading cocoa and chocolate companies, including all CSC Program companies, joined The Cocoa & Forests Initiative (CFI) with the governments of Côte d’Ivoire and Ghana to end deforestation, forest degradation, and restore forest areas in cocoa growing regions. This joint commitment was formalized with the signing of CFI Frameworks for Action for [Côte d’Ivoire](#) and [Ghana](#) at the COP23 in Bonn in November, 2017. The CFI frameworks define core commitments, verifiable actions, and timebound targets required for a deforestation-free and forest-positive supply chain.

Table 1: List of CFI Companies

Barry Callebaut	Guittard Chocolate Company	Sainsbury's
Blommer Chocolate Company	The Hershey Company	SIAT
Cargill Cocoa and Chocolate,	Indcresa	Sucden
Cémoi	JB Foods	Tesco
Chocolats Halba	Kuapa Kokoo	Toms Group
Cococo Chocolatiers	Lindt & Sprüngli Group	Touton
ECOM Group	Marks & Spencer Food	Unilever
The Export Trading Group (Beyond	Mars Wrigley	UPL
Beans/Cocoanect)	Meiji Co. Ltd.	Valrhona
Ferrero	Mondelēz	J.H. Whittaker & Sons
GCB Cocoa	Nestlé	
General Mills Inc.	Olam Cocoa	
Godiva Chocolatier Inc.	PBC Limited	

WCF leveraged CFI to increase the scale and industry investment in CSC innovations. WCF worked with the CFI companies and governments to identify the key activities, timelines, and investments to tackle deforestation through the publication of National Implementation Plans ([Côte d'Ivoire](#), [Ghana](#)) and individual company action plans ([Côte d'Ivoire](#), [Ghana](#)). Priority investments include many activities directly linked to the CSC Program including cocoa agroforestry, land and tree tenure, and CSC training.

Through the CSC Program, WCF produced guidance materials for topics such as agroforestry landscape approaches, as well as a CSC curriculum (described in Section IV) to create greater alignment and support companies to adopt CSC innovations. CFI companies and governments of Côte d'Ivoire and Ghana published [progress reports](#) by May 2020. During the first two years of implementation companies have already made significant progress on CSC activities. For example, companies distributed 4,285,900 trees for agroforestry and reforestation, trained 224,506 farmers in CSC best practices (most using the CSC curriculum), and supported farmers with the registration of 105,394 trees.

III. Assessment of progress made toward accomplishing objectives and results

Table 1 Assessment of CSC Program achievements

	Indicators	West Africa achieved	Latin America achieved
Climate Smart Cocoa Overall Objective/Goal: Increased private sector investment and engagement that promotes and supports the adoption of CSA among smallholders in cocoa-producing landscapes	Amount of investment leveraged in U.S. dollars for climate change, from private and public sources, because of USG assistance (4.8.2-10)	\$336k (initial pilots) <ul style="list-style-type: none"> Touton - CSC training: \$150k Rainforest Alliance Ghana - CSC training-of-trainers and training: \$50k Cargill - Capacity building and nurseries for shade trees planting and tree ownership registration: \$35k UTZ/RA CdI identification of CSC practices by ICRAF: \$101k Additional investment in CSC have been made through the company investments in CFI 	\$440k <ul style="list-style-type: none"> CIAT climate exposure maps and CSC curriculum \$40k Rikolto/SDC –CSC curriculum development, Regional CSC strategy, CSC community of practices \$170K CRS: Cost-benefit analysis Cocoa project El Salvador \$20K Program partners: Construction of online CSC tools for collective learning: \$10K Program partners: Establishment of 50 trial plots of CSC agroforestry systems: \$100k ONUDI/SDC (Swiss Agency for Cooperation): CSC investments in Cocoa Agroforestry Development Project Nicaragua \$50k Ritter Sport/IDB CSC investments in Cocoa development project Nicaragua \$50k
	Number of participating private sector companies and corporations implementing CSA technologies and activities	22 companies (18 GH, 9 CdI) Out of the 35 CFI signatories, the following are implementing CSC innovations: Barry Callebaut, Beyond Beans/Export Trading Group (formerly Cocoanect), Blommer Chocolate Company (CDI), Cargill, Cemoi (CDI), Chocolats Halba (GH), Ferrero, General Mills, Godiva Chocolatier Inc., Guittard Chocolate Company, The Hershey Company, Indcresa (GH), Lindt, Mars, Meiji (GH), Mondelez, Nestlé, Olam, Siat (CDI), Toms Group (GH), Touton (GH), Unilever (CDI)	11 companies and organizations Nicaragua: ECOM, Ritter Sport, Cacao Oro Honduras: ASPERA, Chocolats Halba, FHIA El Salvador: ACPACI, Chocolate Melher Dominican Republic: Rizek Cacao, CONACADO Group, Roig Agrocacao S.A.
	Number of CSA technologies and activities newly adopted by participating companies	6 technologies and activities CSC training manual, CocoaLink, land tenure, agroforestry guidelines, landscape management (guidance document and toolkit) and tree registration	4 technologies and activities Online: CSC curriculum, CSC practice recommendations cocoa growing territories, CSC agroforestry monitoring tools, CSC cost-benefit analysis tool

	Indicators	West Africa achieved	Latin America achieved
Climate Smart Cocoa Intermediate Results (IR) 1: Implementation of a shared cocoa/agroforestry strategy for addressing climate change threats to farmer livelihoods in cocoa growing regions	CSC (member-ratified) strategy document addressing climate change threats to farmer livelihoods in cocoa growing regions developed and shared	1 document In West Africa, shared cocoa/agroforestry strategy for addressing climate change threats feeds into the CFI national action plans (2) and the CFI company action plans (35)	6 documents <ul style="list-style-type: none"> CSC National strategy documents developed for Dominican Republic, Honduras, El Salvador, and Nicaragua and distributed to key partners in 2020 Regional guidelines and action plan for scaling CSC in Central America and Caribbean developed in alliance with Rikolto and distributed to key partners in 2019
	Number of participating private sector companies and corporations engaged in climate-smart cocoa	9 CSC Program companies Over 22 companies (including 9 CSC Program companies) involved in CSC scaling via CFI commitments and action plans	11 companies and organizations Nicaragua: 3, Honduras: 3, El Salvador: 2, Dominican Republic: 3
Climate Smart Cocoa IR 1 Outputs	Existence of Cocoa–Climate Landscape Report detailing impact of climate change on the cocoa sector and current landscape of private sector activities and investments in CSA	2 documents Global CSC inception report developed and shared with key partners across the globe	6 documents <ul style="list-style-type: none"> Atlas of climate impacts for cocoa growing regions of Central America and Caribbean countries (CIAT) Regional guidelines for CSC practices developed based on Climate exposure study (CIAT) 4 CSC inception reports (Dominican Republic, Honduras, El Salvador, Nicaragua) elaborated in 2019
	Existence of cocoa agroforestry market system recommendations and work plan	1 study and report Final report of Cocoa Agroforestry market recommendations for Liberia and Ghana delivered by ACDI/VOCA in 2018	
	Existence of multi-stakeholder workgroup, engaged to develop a shared CSC/agroforestry strategy	2 Multi-stakeholder groups set up and functioning CSC and cocoa agroforestry multi-stakeholder groups directly linked to the CFI governance structure including technical working groups.	4 Multi-stakeholder groups set up and functioning In Dominican Republic, El Salvador, Honduras and Nicaragua
	Existence of CSA investment plan, including analysis of opportunities in CSA pilots and innovations	1 investment opportunity document and Excel-based financial analysis tool Document elaborated and validated with key partners from Côte d’Ivoire and Ghana	1 investment opportunity document based on results of financial analysis carried out with online CSC tool Document elaborated and validated with key partners from Dominican Republic, El Salvador, Honduras, and Nicaragua

	Indicators	West Africa achieved	Latin America Achieved
Climate Smart Cocoa IR 2: Lessons learned from successful pilots used to guide private sector investment in targeted CSA activities to improve farmer adaptive ability	Number of CSA pilots implemented and evaluated with learnings shared with the strategy workgroup	7 CSC pilots <ul style="list-style-type: none"> • Cocoa agroforestry market systems linkages • Agroforestry guidance • CSC Training Curriculum based on climate exposure maps • Using CocoaLink as a CSC training app • Learning about land tenure in the face of climate change • Proof of concept on tree tenure registration • Landscape management (guidance document and toolkit) 	4 CSC pilots CSC curriculum based on climate risk exposure CSC agroforestry establishment and monitoring CSC agroforestry cost-benefit analysis Heat and drought tolerant cocoa planting materials
Climate Smart Cocoa IR2 Outputs	Number of CSA pilot projects started through actors coordinating with CSC Program	7 CSC pilots implemented CSC Pilot projects were implemented initially in Ghana and Côte d'Ivoire by 9 CSC companies and are now being adopted by 22 CFI companies: CSC training of farmers with 18 companies in Ghana CSC tree registration with 14 companies in Ghana CSC agroforestry with 22 companies in Ghana and Côte d'Ivoire	4 CSC pilots implemented via partners of the Program CSC curriculum with 35 partners in 4 countries CSC agroforestry with 10 partners in 4 countries CSC cost-benefit analysis with 3 partners in 2 countries Heat and drought tolerant cocoa planting materials with 6 partners in 6 countries
	Number of CSA pilot projects that have been evaluated and marked for future recommendations	6 CSC pilot projects now evaluated and marked for future recommendations for CFI <ul style="list-style-type: none"> • Agroforestry guidance • CSC training curriculum based on climate exposure maps • Using Cocoa-Link as a CSC training app • Learning about land tenure in the face of climate change • Proof of concept on tree tenure registration • Landscape management (guidance document and toolkit) 	4 CSC pilots evaluated and marked for future recommendations CSC curriculum based on climate risk exposure CSC agroforestry establishment and monitoring CSC agroforestry cost-benefit analysis Heat and drought tolerant cocoa planting materials
	Existence of learning agenda for CSA pilot projects that identifies key learning questions	6 CSA pilot projects that identify key learning questions now being considered and addressed through CFI	4 online digital system developed around the learning agendas of the CSC pilots CSC curriculum based on climate risk exposure CSC agroforestry establishment and monitoring CSC agroforestry cost-benefit analysis Heat and drought tolerant cocoa planting materials
	Number of actor-linkages and information sharing agreements established	CSC pilot projects and learning agenda are now integrated into CFI	5 cooperation and information sharing agreements MOU signed with Lutheran World Relief (LWR), Vredeseilanden en Mesoamérica (RIKOLTO), Catholic Relief Services (CRS) and ECOM Agrotrade (EXPASA) and Rizek Cacao S.A.

IV. Overall description of activities and attainment of results

CSC Intermediate Results 1: Implementation of a shared cocoa/agroforestry strategy for addressing climate change threats to farmer livelihoods in cocoa growing regions

In the frame of the Program, WCF engaged with the private sector, USAID, and other key stakeholders in a strategic dialogue on climate change and cocoa agroforestry models. This process produced the CSC inception reports, which contributed to its common understanding of the impact of climate change in the cocoa sector and work to develop strategic pathways for engagement and investment.

Output 1. Report on the Cocoa-Climate Landscape – Activity: Build knowledge on the impact of climate change on the cocoa sector and the current landscape of private sector investments in CSA

The Program completed the [CSC Inception Report](#) with important contributions from key knowledge partners including the Learning Community, ACDI/VOCA, Rainforest Alliance, and Bioversity International. The inception report covered the climate impact predictions for cocoa and the section, the cocoa-climate landscape, and the three core pilot initiatives: 1) CSA training materials; 2) agroforestry, including the market assessment; and 3) heat and drought tolerant planting materials. The report also tackled a broad selection of key CSC themes that had not been addressed by pilots. The report served as a starting point for further discussions on additional pilots, particularly at the country level and with the companies through a series of meetings and events.

West Africa

The CSC Program contributed to the development of a report that addresses what the cost of inaction to climate impact on the cocoa sector would be. In 2018, WCF worked with the Climate Economic Analysis for Development, Investment, and Resilience (CEADIR) program to look into the cost-benefit analysis of CSC practices in Ghana, based also on data provided by CSC companies. The focus was on whether these practices increase the long-term profits of farmers and companies while reducing bank lending risks and environmental impacts. WCF and CEADIR organized workshops to discuss new findings from the cost-benefit analysis of the CSA practices of cocoa production models in Ghana. CEADIR completed the full report in 2020 ([link](#)).

WCF discussed the implications of the climatic predictions with members and national partners, to help drive the national dialogues on CSC and agroforestry models. In the case of Ghana, these have been linked to the development of a national CSC standard. This standard will serve as a national strategic document that defines the framework for CSC production across the cocoa landscapes of Ghana, also in the context of the REDD+ Emission Reduction Program.

In 2019, the Ivorian Ministry of Water and Forests (MINEF) adopted a new forest code which, among numerous topics, establishes policies and guidance for the promotion of cocoa agroforestry in certain classified forests. WCF contributed to the design and organization of a national dialogue on agroforestry, including the development of a first set of national agroforestry guidelines and facilitation of the CFI agroforestry technical working group. Additional analytic work in collaboration with CCAFS and Rainforest Alliance has led to a deeper understanding of the specific hazards that underlie the climate change impact predictions for Côte d'Ivoire.

Central America and the Caribbean

The initial inception report focused heavily on West Africa as less information was known about Central America and the Caribbean. Therefore, WCF worked with 40 members of the CSC Strategic Working Groups in the Dominican Republic, El Salvador, Honduras, and Nicaragua including nine cocoa and chocolate companies to elaborate National CSC Inception Reports ([Link](#)). Data feeding into the reports included detailed information on cocoa landscapes, cocoa economies, cocoa sector actors and their readiness to meet the challenges of climate change and variability. The reports reveal that in order to integrate CSC into their sustainability programs, companies require: 1) granular climate-risk data; 2) guidance of CSC practices to build resilience; and 3) examples of business cases for CSC investments.

Responding to the need of the cocoa sectors to have detailed climate-risk data, in 2018-19 WCF partnered with CIAT and Rikolto to carry out a climate exposure study of the cocoa growing territories of Central America and Caribbean. In this study, the likelihood of cocoa suitability for the baseline (1970 - 2000) and the future (2020 - 2049/2040 - 2069) was estimated. From these data, the impact gradients were estimated for cocoa growing territories, indicating the degree of effort that would be needed to continue growing cocoa sustainably. All these data and information are currently hosted [in an online information system](#). Users can access the information at no cost and carry out foresight analysis about climate risks of the cocoa territories of Central America and Caribbean.

Output 2. Cocoa Agroforestry Market System Assessment – Activity: Assess cocoa agroforestry market system to identify end-markets and market incentives for cocoa agroforestry products and key capacity building needs

ACDI/VOCA completed the cocoa agroforestry market system/value chain assessment in Liberia ([link to report](#)) and key lessons have been integrated into the CSC Inception Report. ACDI/VOCA selected oil palm, plantain, and timber as the three CSC non-cocoa target crops in Liberia. Based upon the assessment, ACDI/VOCA designed and implemented a strategy and workplan including smallholder-focused trainings on agroforestry and improved practices to meet end-market demands; linking smallholder groups to buyers, technical assistance providers, and other partners; and developing messaging to promote investments in cocoa agroforestry. ACDI/VOCA completed training using a train-the-trainers approach, with representatives of producer groups, extensions, and interested companies participating as trainees to foster program sustainability.

The final report by ACDI/VOCA identified numerous strengths and challenges across commodities. It included key opportunities, related constraints, and intervention areas for timber, oil-palm, plantain, and cocoa.

Output 3. Governance/Structure for CSA Dialogue – Activity: Support/establish multi-stakeholder CSA platform/work group to begin strategic dialogue

WCF engaged with the companies at the global, regional, and national levels and worked with the national governments, CSOs, and networks. The CSC Program in West Africa is now fully integrated with the CFI engagement process. At the country level, WCF engaged in various types of multi-stakeholder strategic groups that lead the national dialogues on CSC, agroforestry, and other CFI themes.

West Africa

In both Côte d'Ivoire and Ghana, WCF initially facilitated the CSC Program through existing platforms managed by the national cocoa institutions (particularly the Conseil du Café Cacao and Ghana Cocobod) and the National REDD+ Secretariats. In Côte d'Ivoire, the strategic dialogue on CSC strategy and piloting happened within the public-private partnership platform's Thematic Group on Environment and Climate Change. In Ghana, WCF supported the creation of a CSC/CFI Thematic Group to advise both the Ghana Cocoa Platform (GCP), and the Ghana Cocoa Forest REDD+ Program.

In Ghana, WCF shared key learnings involving private sector of all the CSA/CSC field pilots being implemented by the CGIAR's CCAFS consortium, the CSA Learning Community led by SFL, and the WCF CSC Program. The effort was to ensure synergies, preventing duplication and over-solicitation of member companies. This exercise has also led to the identification of two scientific CSC learning sites within CSC company members' operations, where CSA practices are piloted and researched. Although the implementation is not supported directly by the CSC Program, WCF assisted with the sharing of knowledge, including key learnings from these field pilots, with the CSC companies. CCAFS publications are expected to result from this over the coming years, leading to further opportunities for science-based improvement of recommendations and predictions.

With the launch of CFI in 2017, WCF saw the opportunity to scale the CSC dialogue with a broader set of stakeholders. The leading cocoa and chocolate companies and governments of Côte d'Ivoire and Ghana signed the CFI Frameworks for Action that focus on three pillars: forest protection and restoration, sustainable cocoa production, and community engagement and social inclusion. The Frameworks were developed through a multi-stakeholder process and recognizes the value of CSC practices to foster resilience to climate change while sustainably increasing cocoa productivity.

These Frameworks for Action were translated into National Implementation Plans and Company Action Plans that specify roles and responsibilities and governance structure for CFI. CSC topics were integrated into the CFI governance structure consisting of technical working groups, technical committees, and steering committees. For instance, the dedicated technical working groups, consisting of members from the government sector, civil society, industry partners, and other stakeholders, work on priority areas including climate smart agroforestry and tree tenure to support the implementation of the action plans.

Through the governance structure, WCF facilitated dialogues on key CSC topics including tree tenure and agroforestry. The recognition of the importance of CSC practices for long-term sustainability in the cocoa sector and continuous dialogues on key CSC topics are reflected in national action plans, national policies, and company action plans. For example, CFI company signatories and governments have committed to the implementation of CSC interventions such as the development of cocoa agroforestry, training farmers in CSC best practices, and the promotion of land and tree tenure.

Table 3: Key stakeholders involved in CSC/CFI Côte d'Ivoire & Ghana

	Côte d'Ivoire	Ghana
Companies	27 companies	29 companies
Government	Ministry Water and Forests, Ministry of Environment, Forestry Service, Conseil du Café Cacao	Ministry of Lands & Natural Resources, Ministry of Environment, Science, Technology & Innovation, Cocobod, Forestry Commission/Ghana Cocoa Forest REDD+ Program
Academia	Daloa University, World Agroforestry Centre	Faculty of Renewable Natural Resource, KNUST
Development Organizations	GIZ, Solidaridad, UNEP, FAO, World Bank	SNV, Solidaridad, World Bank, Partnership for Forests
CSOs	Rainforest Alliance, Earthworm, Ivorian Observatory for the Sustainable Management of Natural Resources (OIREN), Wild Chimpanzee Foundation, Pure Projet, Proforest, TFA	Rainforest Alliance, Tropenbos, Kasa Initiative, Ghana Agro Eco Louis Bolk Institute, Nature Development Associates, Advocates for Biodiversity Conservation, A-Rocha Ghana, IUCN, Proforest, Ecocare, Forest Watch, Resource Trust, NCRC

Central America and the Caribbean

In each of the cocoa producing countries of Central America and the Caribbean, there are [platforms of convergence](#) made up of public institutions (led by the ministries of agriculture and agricultural technology institutes), producer organizations, and private sector companies to energize and boost the cocoa sector. To roll out the CSC Program, WCF convened key actors in the cocoa sector to form the CSC Working Groups nested within these national platforms. Through this arrangement, the Program was able to build and maintain efficient collaboration with a number of public and private sector partners, resulting in effective and timely incorporation of CSC agenda in their work plans.

Table 4: Key stakeholders involved in CSC Latin America

	El Salvador	Honduras	Nicaragua	Dominican Republic	Purpose
National coordination	National Cocoa Roundtable	National Cocoa Value Chain Committee	National Cocoa Commission	National Cocoa Commission	National platforms for sector dialogue and dialogue with public sector
Strategic Working Group on CSC	Convened by CRS. Members: CLUSA, LWR, CARITAS, ACPACI , CENTA, MAG, UES, Chocolate Melher , ES-Cacao, and Rikolto	Convened by LWR. Members: SAG, FHIA, FUNDER, FENA-PROCACAO, Helvetas, SOCODEVI, ASERPA, Chocolats Halba , and Rikolto	Convened by ECOM . Members: APEN, COSUDE, CIAT, CATIE, Ritter Sport, Ingemann, Cacao Oro, UCA, CRS, LWR, ONUDI, Solidaridad, and Rikolto	Convened by Rizek Cacao Members: CONACADO Group, Roig Agrocacao S.A, Valrhona, IDIAF, MAG, COOPROAGRO, FUPAROCA, APROCACI, and FUNDOPO	National spaces for CSC dialogue, sector wide CSC strategy development, identification, and implementation of CSC pilots

In addition, WCF engaged with the Cocoa Integration Committee of Central America and the Dominican Republic (SICACAO) which has the purpose to contribute to the sustainable development of the cocoa sector of the region. It is made up of public and private representatives of the cocoa value chain of the member countries of SICA (currently Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama). The regional platform has defined a clear objective to foster CSC in the region providing opportunity for public and private engagement and investment in CSC.

Output 4. CSA Framework & Investment Plan – Activity: Identify short-, medium-, and long-term investment actions for addressing climate change in the cocoa sector that includes investment opportunities in CSA pilots and innovations

As a first step in the development for the CSA Framework & Investment plan, WCF produced the CSC Inception Report. It identified pilot options for potential investment pathways for addressing climate change in the cocoa sector. These CSC pilots' learnings contributed directly into the investment plan.

West Africa

WCF developed a study (Annex A) to identify opportunities for the private sector to engage and invest in CSC. Through a case study for the Ghana, Bia-Juabeso landscape, the report describes the business case for CSC investments for different actors of the cocoa value chain. The financial model for this study was developed using a MS Excel spreadsheet ([link](#)) to calculate the cost-benefit for different actors in the cocoa landscapes for a set of different interventions. Companies can use this tool for the development and integration of CSC interventions into their new or ongoing sustainability programs. The approach for this study considers that all CSC investments are context specific. The integration of CSC interventions into a new or existing sustainability program must contemplate key global and national developments, such as the publication of the Forest Code (2019) in Côte d'Ivoire.

The study contemplated a wide array of possible CSC interventions including CSC trainings, land and tree tenure, farm development plans, agroforestry, crop diversification and landscape governance. However, the financial model emphasizes that efforts must go beyond the implementation of standalone CSC pilots and consider the whole company sustainability program. It also identified the business case of CSC interventions not only for companies, but also other key beneficiaries including the farmer and input suppliers.

The study concludes that the integration of CSC interventions into cocoa companies' existing sustainability programs is profitable. Cocoa companies will earn back their investment as well as stakeholders like input suppliers and climate impact investors. Moreover, cocoa farmers will achieve a living income. The results of the study were validated in online workshops in Ghana and Côte d'Ivoire (originally planned for an in-person meeting but restructured due to the global pandemic).

Latin America

During 2017-18, WCF engaged with 40 organizations, including nine cocoa and chocolate companies, to develop national strategies (Annex I) for scaling Climate Smart Cocoa in Dominican Republic, El Salvador, Honduras, and Nicaragua. In consultation with key actors, present and future actions to promote climate-smart cocoa were identified. Each actor also identified their competencies, and the enabling and limiting factors to develop them.

In 2019, based on the national strategies for scaling CSC, [regional guidelines for scaling Climate Smart Cocoa](#) were developed with emphasis on small producers and their organizations. Further analysis generated [proposal of actions](#) for all the actors both at national and regional levels. The proposal of actions nested within the regional guidelines, now provide a framework for scaling CSC in Central America and the Caribbean.

In 2020, WCF developed the [CSC investment opportunity analysis](#) (Annex B) for the region, which describes business cases for CSC investment for different clusters of actors of the cocoa value chain. This analysis, based on the results and lessons of the CSC pilots implemented in the region, was shared and validated with key Program partners. Beyond the Program, the key partners can deep dive into the investment opportunity analysis and integrate the recommendations into their own cocoa sustainability programs.

To develop CSC frameworks, strategies, and investment opportunities, WCF collaborated with Rikolto who is currently implementing Knowledge Management Project of the Cacao Value Chain in Central America (2018-2022) with support from the Swiss Agency for Cooperation in Central America (SDC). In the coming years, this project will use the CSC resources developed by the Program to foster climate resilience and sustainability of the cocoa value chains of the region.

CSC Intermediate Results 2: Use lessons learned from successful pilots to guide private sector investment in targeted CSA activities to improve resilience for farmers, other supply chain partners and ecosystems

Initially, the Program identified three pilot projects to be implemented within the first three years of the program: 1) CSC training; 2) CSC agroforestry market linkages; and 3) and screening for heat and drought tolerant planting materials. In addition to those three initial pilots, the Program designed and piloted additional innovations to stimulate private sector investment and engagement for the adoption of CSC practices. Some pilots originated out of the strategy development process within the different technical working groups, while others arose from emerging partnerships with individual companies or groups of partners. Moreover, through CFI, additional pilots were identified for implementation in 2019 based on the development of the company CFI action plans. The final phase of WCF’s work on key CSC pilots was focused on learning that was integrated into the CSC Framework and Investment Plan by the end of the Program.

West Africa

Table 5: CSC pilots West Africa

Innovation	Location	Partners	Resources
Cocoa agroforestry market systems linkages	Côte d’Ivoire, Ghana, Liberia	ACDI/VOCA	Liberia: CSC Liberia Cocoa Agroforestry Market Analysis (link) Ghana: Cocoa Agroforestry Market Linkages Reports (link); CSC Agroforestry Workshop (link) Côte d’Ivoire: Cocoa Agroforestry Market Linkages Reports (link); CSC Agroforestry Workshop (link)
CSC agroforestry	Côte d’Ivoire and Ghana	Climate Focus	Developing Cocoa Agroforestry Systems in Ghana and Côte d’Ivoire (Annex C)
CSC training curriculum based on climate exposure maps	Côte d’Ivoire, Ghana	CGIAR/CCAFS, Cocobod, Knowledge & Skills, RA, SFL	Ghana: CSA in Cocoa: Training Manual for Field Officers (link) and handouts (link) Côte d’Ivoire: CSC training curriculum for Côte d’Ivoire (Annex D) and handouts (Annex E)
Using Cocoa-Link as a CSC training app	Côte d’Ivoire (in development), Ghana	CGIAR/CCAFS, Hershey, Farmerline, RA/UTZ	CSC Android Training App (link)
Learning about land tenure in the face of climate change	Ghana	ECOM, Hershey, Winrock, USAID, WRI	
Tree tenure registration	Côte d’Ivoire, Ghana	Agro Eco, Meridia, Impactum, Forestry Commission, Cocobod, RA, SFL, GIZ	Tree Registration Guide: Field guide for field officers to assist cocoa farmers with the registration of shade trees on farms (link) Côte d’Ivoire Progress report (Annex F)
Landscape management	Ghana	FC, NCRC, OLAM, Touton, WUR	Learning About Cocoa Landscape Approaches guidance document (Annex G) and toolkit (link)

Pilot 1. Cocoa agroforestry market systems linkages

This pilot builds on WCF's and ACDI/VOCA's work in Liberia assessing cocoa agroforestry market systems to identify end-markets and market incentives for cocoa agroforestry products and key capacity building needs.

ACDI/VOCA staff visited Côte d'Ivoire and Ghana in 2017 and 2018 to assess WCF implementing partner projects. The resulting Cocoa Agroforestry Market Linkages Reports identified opportunities to improve economic outcomes of cocoa agroforestry systems, outlined broad recommendations for implementation, and provided an overview of the market linkages approach.

Overall findings showed that cocoa agroforestry has been proven to be agronomically and economically viable. Workshops in Côte d'Ivoire and Ghana gave practical guidance, examples, and contextual understanding on cocoa agroforestry in their supply chains.

Pilot 2. Agroforestry guidance

With the launch of CFI in 2017, companies have committed to distributing approximately 20 million multi-purpose trees for the promotion of cocoa agroforestry. Therefore, WCF and companies identified the need to build alignment on best practices for the design and implementation of cocoa agroforestry systems. The guidance document for *Developing Cocoa Agroforestry Systems in Ghana and Côte d'Ivoire* aims to support CFI companies with the development of properly designed and managed cocoa agroforestry systems to contribute to forest protection, restoration, sustainable production, farmer livelihoods, social inclusion, and community engagement. The guide provides an overview of the policy and regulatory backdrop for cocoa agroforestry systems in Côte d'Ivoire and Ghana. The document also defines an assessment framework for identifying opportunities for cocoa agroforestry landscapes. Finally, the guide examines the technical needs, resource requirements, and opportunities and challenges in implementing cocoa based agroforestry systems.

Pilot 3. CSC curriculum

In Ghana, WCF built on existing scientific efforts in Ghana to identify CSC practices per climatic impact zone. Rainforest Alliance and WCF, in partnership with the CGAIR's CCAFS Program and Cocobod in Ghana, developed a CSC curriculum. The CSC training modules and farmer handouts supplement and are integrated into the Cocobod's harmonized productivity training curriculum.

The *CSA in Cocoa: Training Manual for Field Officers* and handouts aims to raise awareness among cocoa farmers in Ghana on the effects of climate change on their cocoa production and to give them tools to mitigate these effects. This manual consists of eight key topics including CSA, establishment phase, pest and disease management, crop management, shade tree management, soil management, water management, and increasing resilience. Every key topic contains key information, CSA practices, additional background information and guidelines for trainers.

The recommendations provided in the manual are based on three identified climate change impact zones: transformation, adjustment, and coping zones. The manual identifies four levels of adaptation for farms—minimum, bronze, silver, and gold. The *minimum level* is what is necessary for basic resilience to climate risks. The *bronze and silver levels* provide intermediate resilience and require more investment and actions at a broader scale. The *gold level* requires collective actions at the community, landscape, and policy levels.

WCF organized a validation workshop with Cocobod experts and facilitated a Training-of-Trainers of company lead trainers on how to use and pilot the materials. Companies are now scaling up CSC training as part of their CFI commitments. Companies have committed to training 302,485 farmers in CSC best practices by 2020. By 2019, they have trained 224,506 farmers.

In 2020, WCF completed a CSC training curriculum for Côte d'Ivoire and handouts following a two-year process of government and other partner consultations and a national validation workshop in 2019. The COVID-19 pandemic impacted WCF's ability to facilitate training workshops, however, in 2020 WCF worked with the CFI companies virtually on a training of trainers and strategic planning workshop. With the completion of the training curriculum, companies will begin adopting CSC training in their sustainability programs and integrating the training in their CFI action plans.

Pilot 4. Using CocoaLink as a CSC training app

In Ghana, WCF has worked in partnership with Hershey to use their new Android training app to incorporate the CSC training curriculum.

CocoaLink originally consisted of an SMS service, and then a voice messaging service, launched in 2011 by Hershey, Cocobod, and WCF. This service enabled thousands of farmers with basic-feature phones to receive regular agricultural tips in their local language. The new mobile app service builds on this work for ongoing outreach to farmers providing agronomic tips, practical tools, and critical information. The CocoaLink mobile app features courses and quizzes on climate smart agriculture and income diversification, and weather information with resources available to a variety of farmers. It also features access to finance, discounts on agro-inputs, and social media linkages.

WCF supported the integration of CSC content into the tool. Working with several partners, including Learning Community, Rainforest Alliance, and UTZ, WCF added additional functionality (e.g. location-based advice, farmer segmentation, stepwise approach), integrated other mini apps (e.g. shade tree advice, shade cover calculator) and other knowledge resources into the platform. The app is now fully available in the Google Play Store, with several thousands of users having already downloaded it. Company partners are requested to pilot the app in combination with CSC training (of trainers). WCF also worked on surveying farmers and further piloting the app to make any refinements. WCF partners aim to adapt CocoaLink for Côte d'Ivoire, including the translation into French.

Pilot 5. Land tenure in the face of climate change

In Ghana, the CSC Program built a collaboration with Hershey, ECOM, and the USAID Tenure and Global Climate Change (TGCC) Program. This program aimed to better understand and test the components of a model for public-private collaboration to help smallholder cocoa farmers in Ghana increase tenure security (land and trees), replant old cocoa farms, and reduce deforestation and degradation. WCF joined the pilot to translate the learnings into the CSC strategy development process and continue to provide technical support to monitor the impact. The work informed the ongoing work on tree tenure, particularly in Ghana and increasingly in Côte d'Ivoire, where the new Forest Code is opening new opportunities for implementation.

Pilot 6. Tree tenure registration

Tree tenure is an important factor in farmers' willingness to participate in the management and protection of forest and tree resources. The lack of security of tenure negatively affects reforestation efforts. In some cases, farmers are cutting down planted and naturally occurring trees for fear of losing them to timber companies for no compensation and having their farms destroyed in the process.

In collaboration with SFL and the local NGO Agro Eco, WCF supported a proof of concept pilot targeting 150 farmers in Ghana. Funded by the FTF CSA Learning Community Project, this pilot aimed to (1) identify and build practical ways for farmers to register their planted trees and (2) catalyze more discussion/action on the process of reforestation/tree planting. Part of the implementation included the use of the latest smart phone and digital mapping technology and the provision of farm documentation to individual farmers.

The Tree Registration Guide: A field guide for field officers to assist cocoa farmers with the registration of shade trees on cocoa farms was published in December 2018. This field guide explains the steps that farmers need to take during the tree registration process. In addition to this guide, WCF and partners developed a training module which indicates how trainers can facilitate the tree registration process with farmers. The dialogue on tree registration is now integrated into CFI as further technical and policy refinements are being made to scale up tree registration efforts.

In Côte d'Ivoire, a new pilot was started to register planted and naturally occurring trees. WCF partnered with Rainforest Alliance and GIZ to roll out the work with Meridia and Impactum as implementing partners. Tree registration software has been configured for Côte d'Ivoire, based on the pilot WCF did in Ghana. Meridia trained and prepared Impactum staff on the shade tree registration data collection tools. The work is now being further developed through GIZ and RA.

Pilot 7. Landscape management

Landscape-level approaches provide a better framework to work beyond farm-level and project scale to support CSC practices that conserve biodiversity, increase productivity, provide long-term stability to stakeholders, and increase the income of smallholder farmers. To achieve greater collaboration and impact of landscape level approaches, WCF worked with partners to address the knowledge gap that often limits the engagement of private sector on multi-stakeholder landscape approaches.

The CSC Program brought together two learning consortia on the development of a landscape approach for CSC led by member companies Olam and Touton. This is within the context of the Ghana Cocoa Forest REDD+ Program, but also in the context of global landscape standards such as those under development by Verra and others. Both companies worked with the CSC Program to collect lessons on how to set up and manage multi-stakeholder platforms on landscape governance to share with CSC companies. WCF is continuing to support Cocobod on the development of a CSC landscape standard through CFI. WCF participated and supported the Cocobod-hosted CSC standard development committee, aiming for a CSC landscape standard in Ghana.

WCF worked with the Nature Conservation Research Centre (NCRC) to develop a guidance document – *Learning About Cocoa Landscape Approaches* – and an accompanying toolkit. As one of the world's leading countries in developing climate-smart agriculture and REDD+ landscape initiatives, Ghana has extensive experience in both conceptualizing and implementing multi-stakeholder actions at scale. Therefore, the purpose of the document is to bring together the existing knowledge and experiences from Ghana for the benefit of the cocoa industry so that companies understand the concept and rationale for landscape level engagement, received guidance on how to

adopt or adapt landscape activities, and benefit from a toolbox of information and resources to support landscape-level engagement.

The guidance document introduces the Hotspot Intervention Area (HIA) landscape approach (the main approach under Ghana Cocoa Forest REDD+ Program), providing details on the governance structure, its development process, and the multi-stakeholder consortium that partners the HIA. The document also introduces landscape standards, including LandScale, as a tool to validate sustainability outcomes for landscapes, and then it speaks to the need for monitoring to fill the gap in landscape-level data. In support of this document, the toolbox provides further details about key concepts and structures, diagrams, and other visual aids, and gives companies templates and examples of key documents like constitutions, by-laws, and partnership agreements with the government.

Central America and the Caribbean

Table 6: CSC Pilots in Latin America

Innovation	Location	Partners	Resources
CSC Curriculum	Dominican Republic, El Salvador, Guatemala, Honduras	Rikolto, CIAT, Helvetas, Solidaridad International, MOCCA	Site-specific CSC curriculum for Central America and Caribbean (link)
CSC agroforestry	Dominican Republic, El Salvador, Guatemala, Honduras and Nicaragua	Solidarity International, ONUDI Helvetas, SOCODEVI, APROCACAO FUNDOPO, FUPAROKA, CONACADO, APROCASI, Roig UES, Green Energy	4 Web based tools (link): 1) tool to assess the current state of climate readiness; 2) tool to monitor and evaluate performance of newly established CSC agroforestry systems (green fields) and 3) tool to monitor and evaluate performance of CSC agroforestry systems in transformation (brown fields) and 4) tool to carry out cost-benefit and financial analysis of CSC agroforestry systems. Technical documents (DR , El Salvador , Honduras , Nicaragua)
Cost-benefit analysis CSC agroforestry systems	El Salvador	CRS, CLUSA, LWR, Caritas	Web based tool (link)
Heat and drought tolerant planting materials	Brazil, Colombia, Costa Rica, and Dominican Republic	Bioersivity International	Comprehensive review of research on the effect of Climate Change on Cocoa (link) Innovative analysis of existing cocoa breeding and trial data sets from different countries (link) Comprehensive proposal of indicators and protocols for measuring heat and drought tolerance (link) Knowledge platform (link) Seeking High Temperature and Drought Tolerance in Cacao report (Annex H) and annexes (link)

Pilot 1. CSC curriculum

At the very onset of the Program, a majority of the Program partners expressed their interest in a CSC curriculum for the region, based on the climate risk and specific CSC practices for each of the cocoa growing territories. The Program generated granular, subnational-level climate-risk data for the cocoa growing countries which were discussed with more than 100 key partners in national workshops. From the deliberations of the workshops and posterior consultation of literature, a set of recommendations of CSC practices were identified. In 2019, the Program developed CSC curriculum providing a site-specific adaptation and mitigation practices based upon utilizing the climate exposure maps, local consultations, and literature review.

The CSC curriculum for Central America and Caribbean is currently hosted in an online information system, where users can consult climatic conditions, aptitude and climate impact gradient and obtain a proposal of practices for climate change adaptation. Furthermore, the users can use of the system to develop a climate adaptation plan with budget, based on the climate risk of the territory and the level of implementation of the proposed practices. The CSC curriculum and the online system was developed in alliance with a number of Program partners (Rikolto, CIAT, Helvetas, Solidaridad International, MOCCA), who will assume responsibility of updating the CSC curriculum and maintenance of the online system beyond the Program.

Pilot 2. CSC agroforestry

Cocoa agroforestry systems of Central America and the Caribbean with low productivity and poor cash flow is under threat by climate change and climate variability. In 2018, WCF started working on *Transformation of traditional cocoa agroforestry systems to CSC agroforestry systems (brown plots)* and *Establishment of CSC agroforestry systems (Green plots)*. CSC agroforestry systems are complex as their design and implementation must draw on multiple perspectives: 1) cocoa farms as diversified production systems; 2) cocoa farms as sustainable livelihood systems; and 3) cocoa farms as competitive enterprises capable of facing the challenges of the market. CSC agroforestry typically involves the use of grafted polyclones, complementary irrigation, fertilizer use based on soil analysis, intensive pruning management, efficient floor management, integrated pest management, soil conservation practices, and diversification of agroforestry systems with fruits, timber, and service trees in optimal density.

To help design, monitor and evaluate such complex systems the Program developed four web-based tools: 1) tool to assess the current state of climate readiness; 2) tool to monitor and evaluate performance of newly established CSC agroforestry systems (green fields); 3) tool to monitor and evaluate performance of CSC agroforestry systems in transformation (brown fields); and 4) tool to carry out cost-benefit and financial analysis of CSC agroforestry systems. Twelve partner organizations are using these tools and validating their use as platforms for collective learning about site-specific CSC agroforestry. In the coming years, they will continue the field work, data collection and processing, and collective learning, as participants of the CSC agroforestry Community of Practice, facilitated by Rikolto and the regional cocoa platform SICACAO.

Pilot 3. Cost-benefit analysis CSC agroforestry systems

In 2019, WCF in alliance with CRS carried out a pilot *Economic analysis to determine the profitability of the cocoa agroforestry systems* in El Salvador. Primary data and information on inventories, investments, and returns collected from 60 plots were used to carry out cost-benefit analysis of the cocoa agroforestry systems by utilizing a web-based tool. This exercise helped to

optimize the designs of the CSC agroforestry systems by analyzing investment and rate of return of different typologies of cocoa agroforestry systems influenced by management, climate, and market scenarios. The lessons from the study was also used to fine tune the approach of the phase II of the Cocoa Alliance program (2019-2024) funded by Howard Buffet Foundation, which will support more than 3,000 growers to consolidate their CSC agroforestry systems in El Salvador.

Pilot 4. Heat and drought tolerant planting materials

Cocoa trees need at least 1,200 mm annual rainfall to satisfy their physiological needs, but many are facing more extreme weather, especially longer dry seasons and higher temperatures. However, the physiological basis of climate resilience in cocoa remains under-explored. In response, in 2017, WCF helped to facilitate the establishment of the Collaborative Framework for Cacao Evaluation on Climate Change (CFCE-CC) following a workshop at the University of Reading. After the workshop, and in seeking high-temperature and drought tolerant cocoa, industry stakeholders agreed to support Bioversity-led CFCE-CC 18-month project in West Africa (Supported by ECA-CAOBISCO-FCC) and Latin America (supported by CSC Program of WCF).

For Latin America, the projects' main deliverables were: 1) partnership outreach to identify immediate opportunities; 2) preparing and reporting on field observations in existing evaluation trials, especially on the implications for breeding-this included developing a suite of protocols to measure key physiological traits; 3) developing an information platform to support field evaluation trials; 4) identifying gaps and conditions for new trials; and 5) communication and donor outreach for scaling the work.

With the support of the CSC Program, Bioversity International convened a multidisciplinary international core working group with cocoa diversity specialists from Brazil (CEPEC, CEPLAC, and UESC); Colombia (Agrosavia and Tolima University); Costa Rica (CATIE); United Kingdom (Reading University); France (CIRAD); and Côte d'Ivoire (CNRA).

During 2018-20, the working group produced a comprehensive review of research on the effect of climate change on cocoa. This review aimed to enhance what is known about the resilience of cocoa to climate change and generate a comprehensive understanding of the questions that remain. The report highlighted significant advances in published and ongoing research on drought and temperature tolerance in cocoa. Following this comprehensive review, the working group carried out an innovative analysis of existing cocoa breeding and trial data sets from different countries to identify trends of heat and drought tolerance. The working group also produced a comprehensive proposal of indicators and protocols for measuring heat and drought tolerance and built a knowledge platform to foster shared strategies for addressing climate-change threats to farmer livelihoods and ecosystems in cocoa-growing regions.

V. Overview lessons learned, future challenges and opportunities

To ensure that investments in CSC do not remain as standalone projects, **CSC should be integrated into companies' broader sustainability programs.** The integration of CSC best practices can help ensure a sustainable supply of cocoa in the face of climate change and be profitable for farmers, companies, input suppliers, and other stakeholders. Companies have limited resources to invest in sustainability programs. Therefore, a clear business case needs to be presented to companies to support them to allocate resources toward climate resilience. As a result of the COVID-19 pandemic, companies may experience limited resources to invest in sustainability programs in the near future. Therefore, integrating CSC into companies' standard business practices is key to ensure long term investment in climate resilience.

Companies require technical guidance to implement CSC. To increase the likelihood for companies to adopt CSC best practices, the Program developed numerous resources to align on best practices for CSC, such as cocoa agroforestry, landscape approaches, and CSC training. Through provision of resources and follow-up training, companies have learned how to integrate innovations into their sustainability programs. Through the Program WCF has taken advantage of online/virtual resources, such as the CSC agroforestry platform in Latin America and CocoaLink in Ghana, to make resources more available to a broader audience of practitioners and farmers. As wireless service becomes more available to people, WCF should continue to look at opportunities to leverage online platforms for training and knowledge management.

Private sector investment in **CSC requires enabling government policies.** Companies implement their sustainability programs within the national structures and guidelines. For example, the development of agroforestry guidance has been aligned with national recommendations and the development of the New Forest Code in Côte d'Ivoire promoting private sector investment in cocoa agroforestry in the classified forests. Moreover, both tree registration and land tenure are dependent on government policies and guidance providing a pathway for farmer tenure. While the CSC Program has made significant progress in these topics, particularly tree registration in Ghana, the policy dialogues are continuing in both countries.

Initially, WCF found the enabling conditions for CSC more favorable in Ghana as compared to Côte d'Ivoire, especially in collaboration with the Ghana Cocoa Forest REDD+ Program. Consequently, in the initial years of the Program, WCF made more progress in Ghana versus Côte d'Ivoire on strategy and intervention development. More recently and largely due to the launch of CFI, there has been significant interest in addressing climate change and deforestation in the cocoa sector in Côte d'Ivoire. With a more favorable enabling environment, WCF was able to increase the focus on CSC strategy and innovation development during the second half of the Program. Upcoming elections in Côte d'Ivoire and Ghana risk impacting the national focus on environmental sustainability. Therefore, it is key to maintain government engagement and ensure continued support for the public/private collaboration on CSC.

Strong **public/private platforms** are needed to collaborate on the overall strategy and share best practices on CSC. With the launch of the CSC Program, WCF aligned the discussions on CSC with pre-existing public/private platforms in each country. In the case of West Africa, the CSC dialogue was eventually integrated into the CFI governance structure. Through these platforms, WCF and partners worked together on the development of the CSC strategy based upon country-specific contexts, as well as collaborated on the development of CSC innovations. However, maintaining strong public/private platforms requires financing and strong management to maintain coordination and collaboration of all stakeholders involved. WCF is continuing to work with governments and

other partners to identify long term funding support to maintain the established collaborative platforms.

In Latin America, WCF did not have the strong government relationships as compared to years of collaboration in West Africa. Therefore, WCF had to put a considerable amount of focus on building relationships with the companies, governments, and other key partners to develop the CSC strategy and pilot interventions. However, WCF risks losing these partnerships with the completion of the Program. Thankfully, through collaboration with partners such as Rikolto, WCF aims to continue to support the work on the CSC strategy.

CSC strategy and interventions need to be adaptable to country and site-specific realities. The CSC Program produced inception reports including climate impact modeling to help inform country specific CSC strategies and the design of CSC innovations. This led to the development of region- and site-specific CSC training curriculums among other interventions. CSC best practices vary considerably from one location to the next. For example, most of the cocoa production in Central America and the Caribbean is already carried out in agroforestry systems managed by smallholders. However, the promotion of more climate smart agroforestry systems could help cocoa stakeholders face the challenges of climate change to promote sustainability in the cocoa value chain. In West Africa, cocoa production is largely produced in monocultures, therefore farmers need to be supported to shift toward more biodiverse and climate resilient cocoa agroforestry systems. However, these resources need to be updated regularly to ensure they are relevant to the current realities.

Landscape-level approaches provide a better framework for companies to achieve impact at scale. CSC practices must go beyond farm-level or project-scale implementation to make landscapes resilient, profitable, and sustainable. There are opportunities to build collective action with other companies to increase scale and impact of actions. Landscape approaches can and should consider other key actors (e.g. donors, companies, communities) from cocoa and other commodity value chains, other projects, programs, and initiatives present. However, time and effort are required to build collaboration and trust to work together within landscapes. Landscape approaches often require initial funding (for example to conduct a landscape assessment) to bring everyone around the table. CFI companies are eager to build collective action in cocoa growing landscapes and WCF is supporting them to develop landscape level efforts and engage with other partners.

Broader private sector commitments help to scale up investments in CSC. CFI provided the opportunity to integrate CSC into company sustainability programs. WCF worked with companies, governments, and other stakeholders to integrate investments in CSC into the CFI Frameworks for Action, National Implementation Plans, and Company Action Plans. As a result, WCF was able to significantly scale up the number of companies investing in CSC, as well as the level of investments they are making. Moving forward, WCF will support companies to achieve their CFI commitments by providing them with additional technical resources, strengthening collaboration with the governments and other partners, building landscape level efforts, and identifying co-funding partnerships to scale activities on the ground.

VI. List of Acronyms

ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
ACI	African Cocoa Initiative
ACPACI	Asociación Cooperativa de Producción Agropecuaria Cacao Los Izalcos
AE	Agro Eco
Agrosavia	Corporación Colombiana de investigación agropecuaria
APROCACI	National Cocoa Producers Organization of DR
CARITAS	CARITAS El Salvador
CATIE	Tropical Agronomic Center for Education and research
CCC	Conseil du Café et Cacao
CEADIR	Climate Economic Analysis for Development, Investment and Resilience
CENTA	National Center for agricultural and forest technologies, El Salvador
CEPEC	Centro de Pesquisas do Cacau, Brazil
CEPLAC	Comissão Executiva do Plano da Lavoura, Brazil
CFCE-CC	Collaborative Framework for Cacao Evaluation on Climate Change
CFI	Cocoa & Forests Initiative
CGIAR/CCAFS	Consultative Group on International Agricultural Research/ Research Program on Climate Change, Agriculture and Food Security
Chocolats Halba	Chocolats Halba Honduras
CIAT	International Center for Tropical Agriculture
CIRAD	French Agricultural Research Centre for International Development
CLP	Cocoa Livelihoods Program
CLUSA	CLUSA El Salvador
CNRA	Centre National de Recherche Agronomique
COOPROAGRO	Cooperative of Cocoa Growers, DR
COSUDE	Swiss Agency for Development Cooperation
CRIG	Cocoa Research Institute of Ghana
CRS	Catholic Relief Services
CSA	Climate Smart Agriculture
CSC	Climate Smart Cocoa
ECOM	ECOM Agrottrade Ltd
ERP	Emission Reduction Program
FC	Forestry Commission
FENAPROCAHAHO	Federation of Associations of Cocoa Producers of Honduras
FHIA	Honduran Foundation for Agricultural Research
FIRCA	Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles
FUNDER	Foundation for rural business development
FUPAROCA	Foundation for regeneration of Organic Cocoa, DR
GCFRP	Ghana Cocoa Forest REDD+ Programme
IDIAF	National research Institute for Agriculture and Forestry, DR
IFDC	International Fertiliser Development Center
Ingemann	Ingemann, Nicaragua
INTA	National Institute of Agricultural Technology, Nicaragua
ISFM	Integrated Soil Fertility Management
LWR	Lutheran World Relief
MAG	Ministry of Agriculture, DR

MAG	Ministry of Agriculture, El Salvador
MINEF	Ivorian Ministry of Water and Forests
NCRC	Nature Conservation Research Centre
ONUDI	United Nations Industrial Development, Nicaragua
RA	Rainforest Alliance
REDD+	Reducing Emissions from Deforestation and forest Degradation, conservation of existing forest carbon stocks, sustainable forest management and enhancement of forest carbon stocks
Ritter Sport	Ritter Sport, Nicaragua
Rizek	Rizek Cacao S.A. DR
Roig S.A.	Roig Agro cacao S.A. DR
SFL	Sustainable Food Lab
SIAT	Société d'Investissement pour l'Agriculture Tropicale
TGCC	Tenure and Global Climate Change Program of USAID
UES	University of El Salvador
UESC	State University of Santa Cruz, Brazil
UNA	National Agricultural University, Nicaragua
USAID	U.S. Agency for International Development
Valrhona	Valrhona, France
VECOMA	Vredeseilanden en Mesoamérica
WCF	World Cocoa Foundation
WUR	Wageningen University & Research

VII. Annexes

- **Annex A:** Opportunities for the private sector to engage and invest in Climate Smart Cocoa in West Africa
- **Annex B:** Climate Smart Cocoa Investment opportunities: Central America and Caribbean
- **Annex C:** Cocoa Agroforestry Guide
- **Annex D:** CSC training curriculum for Côte d'Ivoire (French)
- **Annex E:** CSA Handouts (French)
- **Annex F:** Tree registration Côte d'Ivoire Progress report
- **Annex G:** Landscape Approaches Guidance Document
- **Annex H:** Bioersity Technical Report and annexes
- **Annex I:** Central America and the Caribbean CSC National Strategies (Dominican Republic, El Salvador, Honduras, Nicaragua)

