Final report

Reinforcing the cacao sector in Haiti:

Alliances, access and organization

Executive summary

The Alliances, access and organization project was made possible thanks to partnership between the Interamerican Development Bank (IDB), the Swiss Agency for Cooperation and Development, Catholic Relief Services (CRS), Lutheran World Relief (LWR) and Caseli (formerly Root Capital), this project was designed and implemented to strengthen the Haitian cacao sector, benefiting actors across the value chain. The project was structured around 4 main components.

Component 1: The objective of the first component was to improve yields and environmental management of small-scale cacao farms. The project sought to strengthen, regenerate and reinforce agroforestry systems based on organic practices through: collaboration with the Center for Tropical Agricultural Research and Education (CATIE) to better understand the Haitian cacao agroforestry system, 9 demonstration gardens to promote onsite learning on cacao-based agroforestry management and by training 2,526 cacao farmers on natural resource management. The project conducted, with the University of West Indies, a genetic mapping of cacao in the Grand'Anse to determine the genetic diversity of cacao in the region and identify cacao trees with desirable genetic traits. In collaboration with the local firm Défi Développement, the project facilitated the multiplication of these elite cacao trees through grafting by project trained grafters. The project also facilitated the setup of clonal gardens at coop, university and private company levels for the conservation and multiplication of the clones. To help increase cacao yields, particularly after the destruction caused by hurricane Matthew, the project facilitated the production of 265,102 cacao seedlings at coop, university and private sector level. Regeneration squads were organized to clear, trim, weed, prune and replant cacao trees on 3,725 hectares. Over 7,500 farmers were trained on farm management and learned improved production practices and pest management.

Component 2: The objective of the second component was to improve the capacity of producers to capture greater value from the cacao harvest through proper reaping, fermentation, drying and cacao transformation techniques. Seven (7) cacao fermentation and drying centers were constructed or reinforced contributing to the increase in quantity of high value cacao. The project organized post-harvest management training for 3,988 producers which covered drying, storage and humidity control and adapted, translated and printed 2,986 kits on cacao production and processing that were distributed to producers and local agriculture professionals through the ministry of agriculture, universities, private sector enterprises and coops. Organic certification for 2 coops and 1 private sector was supported to maintain access to these high-value markets for the producers. In collaboration with the Fine Cacao and Chocolate Institute (FCCI) the project conducted three quality cacao workshops. The project also organized training on branding, hygiene practices and marketing which are required to access higher value cacao and chocolate markets. Small cacao processing equipment was given to 8 local cacao processors to increase

their production and improve the quality of their products. Business plans and marketing plans were developed for two cooperatives and two microenterprises and accompanying workshops on management and marketing were held for 35 members.

Component 3: For the third component, the objective of this component was to strengthen institutional capacity in terms of enterprise management, marketing and commercialization, and good governance. Project partner Root Capital/Caseli conducted financial diagnostics for 12 cooperatives and provided them with customized technical assistance to improve financial performance. A mapping of financial institutions in the Grand'Anse was carried out to strengthen links between producers and financial institutions facilitate investment. A finance fair was also held in Dame Marie which created an opportunity for institutions to present their products to over 300 producers from four cooperatives. A study was conducted on farm operating costs and gains to demonstrate profitability and creditworthiness to financial institutions. The project also facilitated relationships between cooperatives and exporters like Kaleos and created exchange platforms between producers, cooperatives, buyers or exporters through participation in the International cacao events like the Conference on Cacao in the Dominican Republic or the Haitian National Cacao Conference. Databases for Coop members were created with the support of the project to help coops comply with traceability requirements of the organic and Fairtrade certifications. The project worked with the National Council of Cooperatives (CNC) to support legalization of cooperatives and a workshop on formalizing the status of cooperatives was held in collaboration with Root Capital/Caseli and JurisPro. Five cooperatives were trained on how to manage bank accounts and improve their financial transparency and the CRS finance team conducted regular financial monitoring visits to measure change in financial and administrative capacity. With the support of the project, strategic plans were elaborated for 2 coops, 2 micro enterprises, 1 private exporter and the cacao sector. The project contributed to the participation in local, national and international events. Videos were produced to promote the Haitian cacao value chain and a website was designed (www.cacaohaiti.com) to facilitate information sharing among actors in the value chain. Multiple approaches were adopted to strengthen the newly created cacao cluster including supporting the legalization of the group and branding of the organization. Six thematic tables were held in Jérémie, Beaumont, Abricots and Dame Marie with the support. The project took actions to strengthen INCAH, such as field visits, international exchanges, training, and collaboration to organize the Cacao Conference. In addition to informal exchange during workshops, training and conferences, four national and international learning exchange visits were facilitated which created spaces for participants to share knowledge, experiences, challenges and ideas.

Component 4: The objective of this component was to identify, validate and systematize practical solutions for improving opportunities for men and women as part of the upgrading of the cacao value chain. A study was conducted to identify the position of women in cacao Haiti, analyze constraints and favorable factors for female integration across the chain. Eight cacao yield studies were conducted which explored changes in cacao yields after the hurricane. A study on access to basic credit in the cacao sector was conducted with the objectives of evaluating financial and administrative conditions of access to credit, increasing knowledge around agricultural credit, identifying existing credit institutions and proposing access strategies. The project also did a study on the cocoa market looking specifically at access to markets for cocoa farmers in ten communes in the Nord and Grand'Anse departments.

Sustainability: The project developed the capacity of farmers to plan activities, increase profitability, connect to markets and use technologies that increase yields. The project worked with all actors along the value chain: farmers, cooperatives, cacao processors and exporters to identify and develop products with potential for local, regional and national markets. This emphasis on connecting all actors sought to increase efficiency of the entire value chain and resulted in sustainable increase in production, improvement of post-harvest processing, institution strengthening and market engagement. The agroforestry approach not only helped enhance biodiversity but also increased consumption and sale of complementary crops, increasing food security throughout the year and enhancing resilience. The project used a partnership approach to identify and activate sustainable solutions with a long-term impact.

Challenges: The project faced many challenges, both anticipated and unanticipated, the most important one being the damages caused by hurricane Matthew. The limited availability of inputs in the project area, the limited capacity of local firms which delayed project activities also constituted important challenges. At the cooperative level, structural weaknesses negatively impacted implementation as power dynamics, weak financial management and misaligned aspirations were a challenge. Reduced financial capacity of farmers and coops also limited their contributions to the project.

Lessons learned: A complex four-year project, this project highlighted many lessons and recommendations. The value chain approach of the project should be retained in future programs. As involvement of stakeholders across the sector served to reinforce synergies and guaranty sustainability. The project sought to strengthen the interprofessional group Genkakao, continued efforts are encouraged to support its role as a representative sector lead. We also recommend that future interventions need to focus on strengthen agroforestry systems as they improve the resiliency of farmers. Financing for the agriculture sector exists and we encourage further actions

aimed at connecting producers with these institutions. Gender needs to be more effectively integrated into each activity and lessons learned from the gender study should be considered when implementing future projects. Rather than direct provision of inputs, future projects should consider hosting agriculture voucher fairs that could increase the involvement of participants in decision-making on their needs. Also, in multiyear projects like this one, training should be planned in multiple cycles, with the repetition of themes. We encourage future projects require budgetary and programmatic flexibility to adapt to unforeseen events, such as Hurricane Matthew. To ensure transparency and accountability to farmers, it is preferable to work with financial institutions to make direct payments to several people engaged under the project. The private sector was involved in the implementation of this project especially during its final phase. We highly recommend working with this sector as it is a key element in the sustainability of development projects, given the short-term role played by NGOs and the weak capacity of public institutions and cooperatives. In the future, rather than training grafting agents, or seedling nursery supervisors, independent field agents could be trained as agro-entrepreneurs, able to deliver a comprehensive packet of services such as land clearing, grafting, setting up seedling nurseries, etc. Greater emphasis on dissemination of results of project researches and studies should be conducted to capitalize on lessons learned.

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Acronymes

ARDI	Association des Rassembleurs pour le Développement des Irois
BNC	Banque Nationale de Crédit
CAFUPBO	Coopérative agricole des frères unis de Petit-Bourg de Borgne
CATEPS	Coopérative Agricole ‘’Tèt Ansanm ‘’ des planteurs de Sicard
CAPUP	Coopérative agricole des planteurs unis de Port-Margot
CAJBC	Coopérative Agricole Jean-Baptiste Chavannes
CATIE	Center for Tropical Agricultural Research and Education
CAUD	Coopérative Agricole Union Développement
CNC	National Council of Cooperatives
CPC	Caisse Populaire Concorde
CPDAM	Caisse Populaire de Dame-Marie
CONACADO	The National Confederation of Dominican Cocoa Producers
COPCOD	Coopérative de Production et de Commercialisation des denrées
DDA	Direction Départemental d’Agriculture
EPDAM	Effort Paysans de Dame Marie
FECCANO	Fédération des Coopératives cacaoyères du North
FESMAR	Fondation Elvesina St Martin
FCCI	Fine Cacao and Chocolate Institute
GENKAKAO	Interprofessional group for Haitian Cacao
HTG	Haitian Gourde
INCAH	National Institute of Coffee of Haiti
LWR	Lutherian World Relief
MARNDR	Ministry of Agriculture, Natural Resources and Rural Development
MCN	Micro Crédit National S.A
NGO	Non-governmental organization
PISA	Produits des Iles SA
SOGEBANK	Société Générale Haïtienne de Banque S.A.
TRAFKAD	Transfòmasyon fwi ak Kakawo Dam Mari
UNOGA	University of the New Grand ‘Anse

Results summary

1 - Improving Productivity and Natural Resource Management of Cacao Farms

Agroforestry systems

- 1 study of agroforestry systems in the Grand'Anse
- 1 study of the impact of Hurricane Matthew on agroforestry systems
- 2 practical trainings on agroforestry for 43 technicians
- 10 demonstration gardens and 27 farmer field schools
- 2,526 producers trained in natural resource management

Genetic mapping

- 1 genetic mapping of cacao varieties in the Grand'Anse
- 4 clonal gardens established with local partners
- 65 producers and 60 field agents trained on grafting techniques
- 228 grafting kits distributed
- 7,416 cacao trees grafted with elite plant material from 91 sources

Regeneration and farm management

- 1,092 harvesting toolkits distributed
- 2,526 people trained on integrated pest management
- 3,725 hectares of cacao farm rehabilitated
- 5,451 seasonal jobs created
- 7,505 producers trained on improved production practices
- 285,102 cacao seedlings produced

2 - Adding value through product and process upgrading

Infrastructure

- 7 fermentation and drying centers constructed or rehabilitated

Promotion of quality

- 8 cooperatives certified (bio and fair trade)
- 39 technicians trained in the Cacao Grader Intensive course
- 2,986 manuals distributed to partners and practitioners
- 3,988 producers trained on improved post-harvest techniques

Transformation

- 4 business plans and 2 marketing plans
- 8 microprocessors received equipment
- 11 microprocessors trained in improved hygiene practices
- 20 members of microprocessors trained on branding
- 22 technicians trained on bean-to-bar chocolate making
- 35 producers trained on commercialization and marketing

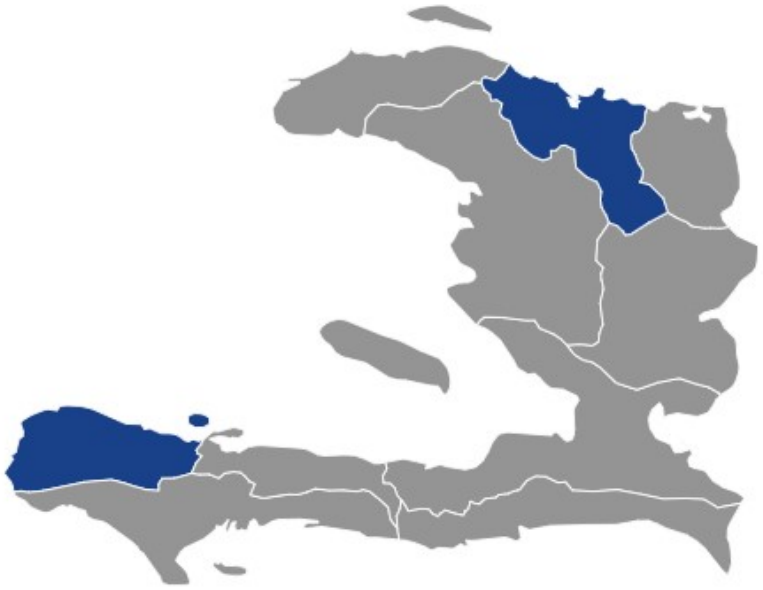
3 - Strengthening the institutional capacity of cooperative enterprises for sustained long-

Management and Governance

- 1 financial fair for cooperatives and farmers
- 1 field study of farm accounting
- 1 mapping of financial institutions
- 1 traceability system reinforced
- 5 cooperatives trained on management and value chains

term growth	• 12 financial monitoring visits *Commercialization* • Participation in the International Cacao Organization conference • 4 local cacao festivals supported • 4 videos and one website created promoting Haitian cacao *Cacao cluster* • 1 National Cacao Conference • 1 cacao cluster legalized – Genkakao • 4 national and international learning exchange visits • 6 regional meetings
4 - Knowledge Management and Communications Strategy	• 1 study on gender and women's role in the cacao sector • 1 study on access to credit for small scale cacao farmers • 1 study on market access for small scale cacao farmers • 8 yield studies with farmers in the Grand'Anse and the North

Implementation Zones: Grande'Anse and North Department



Introduction

Thanks to partnership between the Interamerican Development Bank (IDB), the Swiss Agency for Cooperation and Development, Catholic Relief Services (CRS), Lutheran World Relief (LWR) and Caseli (formerly Root Capital), this project was designed and implemented to strengthen the Haitian cacao sector, benefiting actors across the value chain. One of the country's top three agricultural exports, cacao represents a significant source of revenue for farmers, speculators, microprocessors, exporters and buyers, contributing to broader national development goals. This report presents results achieved over the four years of implementation from 2014 to 2018, considering defined objectives, and their readjustment in the wake of Hurricane Matthew. Lessons learned are outlined to inform future interventions in the sector.

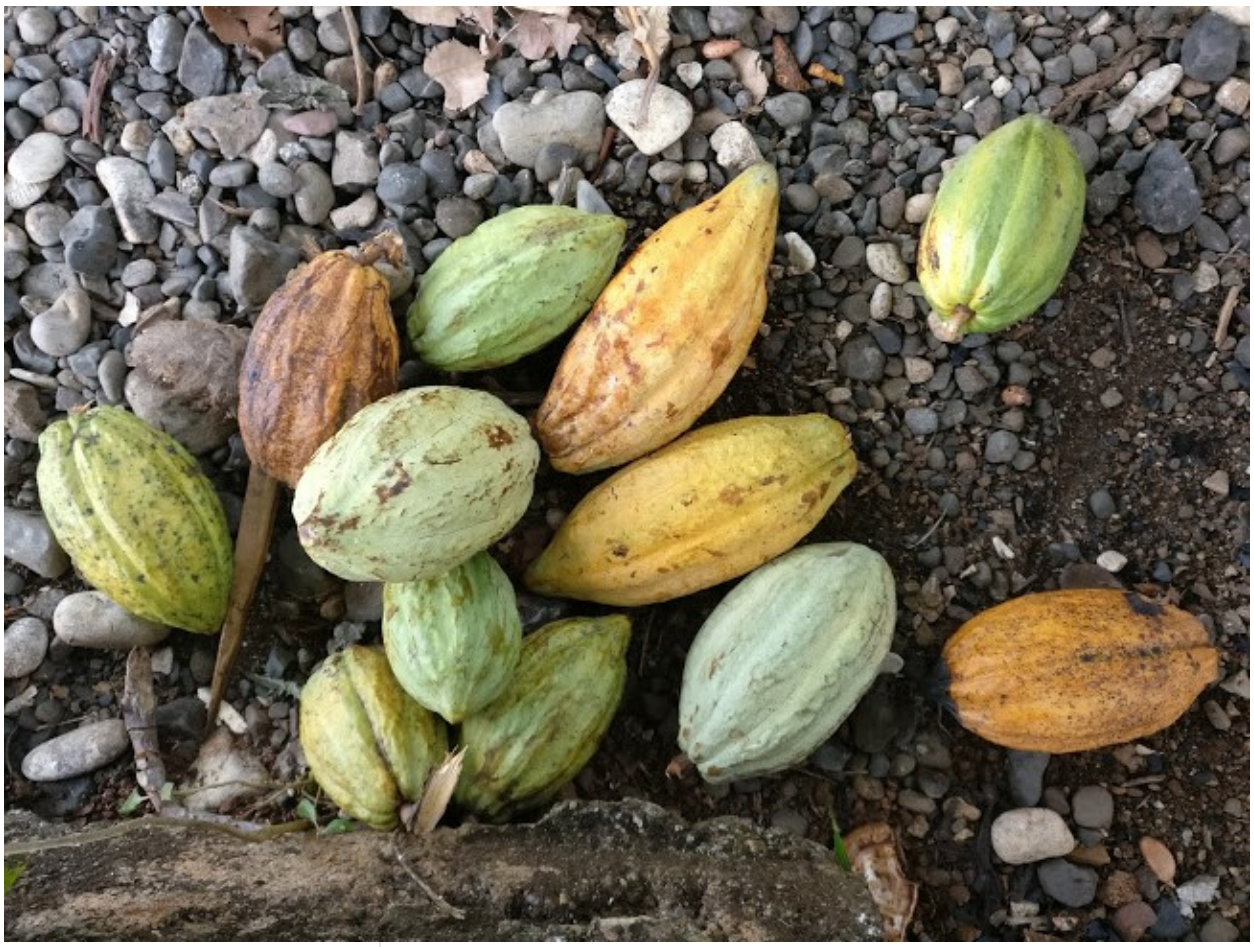
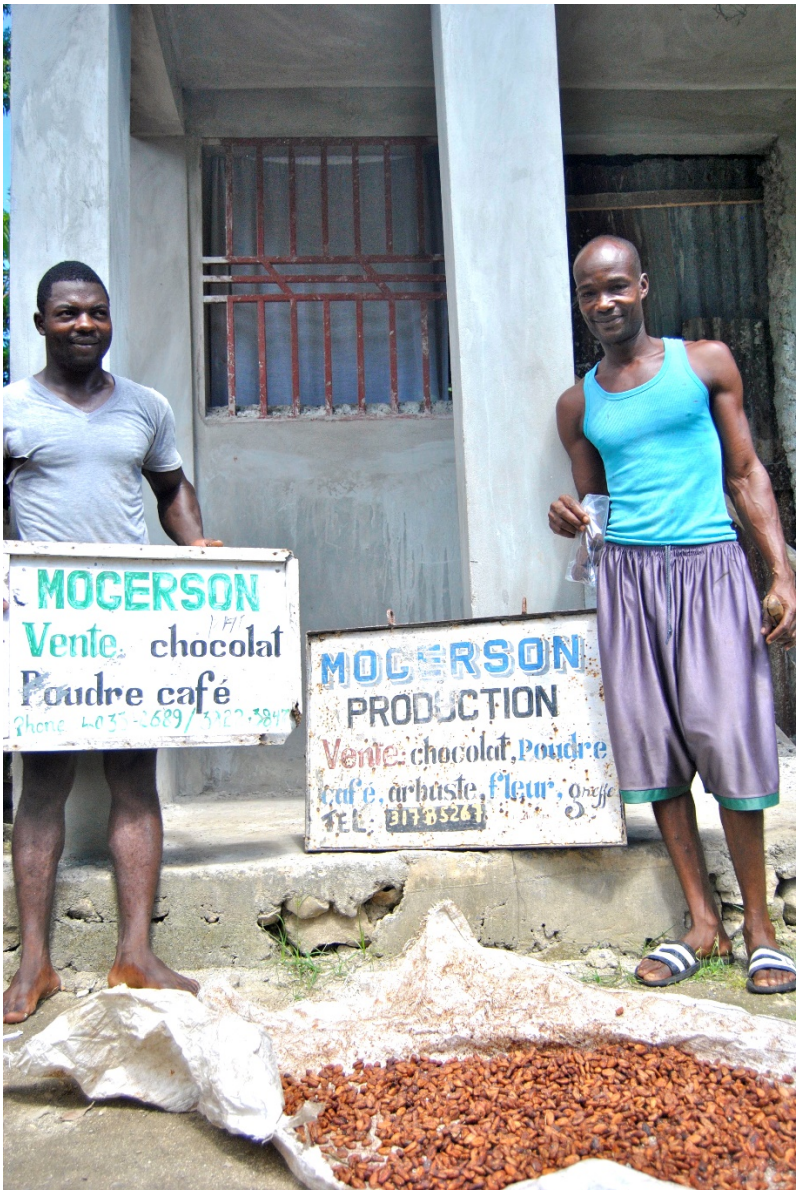


Figure 1 : Cacao pods

Partnership

The project worked with a spectrum of local, national and international partners in the cacao value chain, significantly contributing to the success of the intervention and the sustainability of results. The partnership model used varied widely according to the partner concerned, some partnerships for discrete activities, others for multiple actions, some for a short collaborative activity, others for the duration of the four-year implementation period.

Success story



Mogerson (left) and Ti Guerino (right) benefited from CRS' trainings on branding and grafting

For Ti Guerino, cacao is both a livelihood and a family legacy.

"*My grandfather planted these*" he says, pointing to mature cacao plants. "*And I grafted these younger trees for my children. I want them to be able to continue to farm cacao when they are older.*"

As a participant in CRS' grafting training, Petite grafted over 100 elite cacao trees in his plot.

"*The grafts are helpful, because it allows the older trees to grow new branches taken from high-producing trees, and to continue to grow high quantities of cacao.*"

These additions benefit both him and his children. Last year, Petite was able to sell over 2,000 pounds of cacao, which paid for his family's food and his four children's school fees.

Guerino's neighbor Mogerson has also benefited from CRS' trainings on cacao fermentation and marketing. Mogerson buys cacao seeds from Guerino, and then ferments them himself through a process he learned from CRS then adapted for his own home. Mogeson then processes and packages chocolate briquettes and sells to buyers in both Dame Marie and Port-au-Prince. "*The CRS branding training taught me how to package and brand my products so that they look attractive for supermarkets.*" Mogeson's sales helped him to put a new roof on his house.

Results

In the face of considerable challenges, most notably the passage of Hurricane Matthew, the project achieved the following results:

Component 1 - Improving productivity and natural resource management of cacao farms

The objective of this component was to improve yields and environmental management of small-scale cacao farms. Activities were conducted under the following areas;

a) Agroforestry systems

The project sought to strengthen, regenerate and reinforce agroforestry systems based on organic practices. The following interventions were conducted to this aim;

Center for Tropical Agricultural Research and Education (CATIE)

Collaboration with CATIE enriched the project's agroforestry approach. Three areas were particularly key;

Exchange of ideas: In 2014 and 2015, the project team participated in training in Costa Rica sharing best practices with agronomists working in cacao across Latin America. Focus areas included establishing and managing seedling nurseries and model farms, plant propagation, pollination, pest and disease management.

Evaluation of agroforestry systems: In 2014 and 2018, CATIE conducted studies on cacao-based agroforestry systems in Grand'Anse. These sought to; a) target project activities, b) analyze effects of activities, and c) guide future interventions. The first study proposed several innovations, including pruning to increase yields. Terms of reference for demonstration gardens and regeneration were designed following CATIE's recommendations. The second study analyzed the effects of Hurricane Matthew on agroforestry systems, and value of regeneration.

Onsite training: In 2014 and 2018, CATIE facilitated training for students and producers in the Grand'Anse. In 2014, 25 people participated in the implementation of a diagnosis and management of shading. In 2018, 18 people (3 women and 15 men) participated in agroforestry training.

Demonstration gardens

Nine demonstration gardens and twenty-seven field schools were established. These aimed to promote onsite learning on cacao-based agroforestry management, valorizing cacao alongside fruit and forest trees and establishing technical standards.

In the North, in 2017, LWR set-up five farmer-field-schools plots. The activity included plot diagnosis, followed by planting of cacao seedlings alongside yams, banana and shade trees. In 2018, two follow-up visits were conducted.

In the Grand'Anse, in 2015, 22 farmer field schools and eight demonstration gardens were established. In 2016, these were destroyed by Hurricane Matthew. New demonstration gardens were set up in 2018. To promote sustainability, the partnership approach was adapted to ensure continuity. The following ten demonstration gardens are in place;

Universities – one garden of 0.5 hectares was established with the University of the New Grand'Anse (Jérémie)

Private sector – one garden of 0.5 hectares is being established with Geo Wiener (Dame Marie, Grand'Anse)

Cooperatives – eight gardens of 0.5 hectares were set up: one with COPCOD (Chambellan, Grand'Anse), two with CAUD (Dame Marie, Grand'Anse), and five with FECCANO (Borgne, Cadeau and Port Margot).

Figure 2 : harvesting cacao in the Grand'Anse

Natural resource management

In 2015 and 2016, 2,526 producers (843 women and 1,683 men) in the Grand'Anse and the North were trained on natural resource management. Workshops sought to share practical skills and create strategies to improve productivity. A training of

trainers' approach was used with technicians attached to the cooperatives to deliver the workshop to members. Manuals developed in Component 2 guided the training.

b) Genetics

Genetic mapping

In 2015, in collaboration with the University of West Indies a morphological and molecular characterization study of Grand'Anse cacao trees was conducted. This aimed to determine the genetic diversity of cacao, with a view to developing a genetic strategy. Producers were trained on the collection of data and samples. Within the 400 plots evaluated, 91 elite trees were identified. Unfortunately, only 55 of these withstood Hurricane Matthew, and in 2018, only 43 of these trees remain healthy. Each of the trees was numbered and tagged with durable material, GPS locations recorded for future reference.

Multiplication of elite cacao plants

Collaboration with Défi Développement, facilitated the multiplication of elite cacao trees identified within the study outlined above. The process followed four steps;

- Training: in 2015, 60 agents took theoretical and practical training. Of these, 40 participated in a refresher training in 2018.
- Inputs: 228 toolkits were distributed: 60 to cooperatives, 108 directly to producers, 12 to universities and the private sector and 48 to grafting agents.
- Grafting: over the course of the project, 7,416 grafts were conducted; 5,468 were successful. In 2018, a survey was conducted to analyze the level of satisfaction among producers; 48% were very satisfied, 37% were satisfied. Three months after the wave of grafting conducted in 2018, a study showed that the success rate was 84.8% among the new grafts.

Clonal gardens

In 2017, in collaboration with FECCANO and the University of Limonade, four clonal gardens were set up in the North. These gardens seek to preserve the genetic heritage. Gardens were installed with shade crops and cacao trees. In 2018 an irrigation system was set up at the University of Limonade to support this garden.

c) Regeneration and farm management

Seedling nurseries

Production of cacao seedlings in nurseries and their distribution to farmers contributed to the regeneration of land devastated by Hurricane Matthew and the renewal of aging trees. Nurseries were established with cooperatives, universities and private sector partners.

- Cooperatives - in collaboration with 12 cooperatives in the Grand'Anse and the North, 265,102 seedlings were produced and distributed to producers.

- Private sector - in 2018, a nursery of 10,000 seedlings was installed at Maison Wiener in the Grand'Anse. This aims to make quality seedlings available to local farmers, thereby increasing production and revenues. With a capacity of 10,000 seedlings, the nursery produces seedlings that will be transplanted to their demonstration garden. Seedlings will also be sold to local producers at affordable prices. The nursery will serve as a model for aspiring nursery supervisors in the area. Geo Wiener will continue to produce seedlings annually, income from their sale can be reinvested in maintenance of the nursery.

- University - In 2018, a nursery of 10,000 seedlings was installed at UNOGA. As a learning opportunity, agronomy students led the activity with the support of the project team. UNOGA has existing nurseries for other plants and capacity to assure continuity. As with Geo Wiener, seedlings produced can be used in their demonstration garden, and as income to maintain the nursery.

Figure 3 : Students setting up a cacao seedling nursery at UNOGA

Few nursery supervisors who set up nurseries with cooperatives were willing to produce seedlings without prior assurance of purchase from an NGO. While technical skills remain available to the cooperative, availability of seedlings is inconstant. At UNOGA and Geo Wiener, nurseries are more sustainable and consistent in production.

Regeneration

Thanks to annual waves of land cleaning, 3,725 hectares of cacao farm were regenerated. CATIE's studies showed that cacao trees are largely past optimal production age in Haiti. Hurricane Matthew destabilized an already fragile ecosystem. Rehabilitation teams sought to respond to aging of trees, mitigate damage caused by the hurricane and reinforce resilience of affected households. The regeneration activities created 5,451 seasonal jobs. Teams worked together to trim, prune, weed, clear, cut and replant trees.

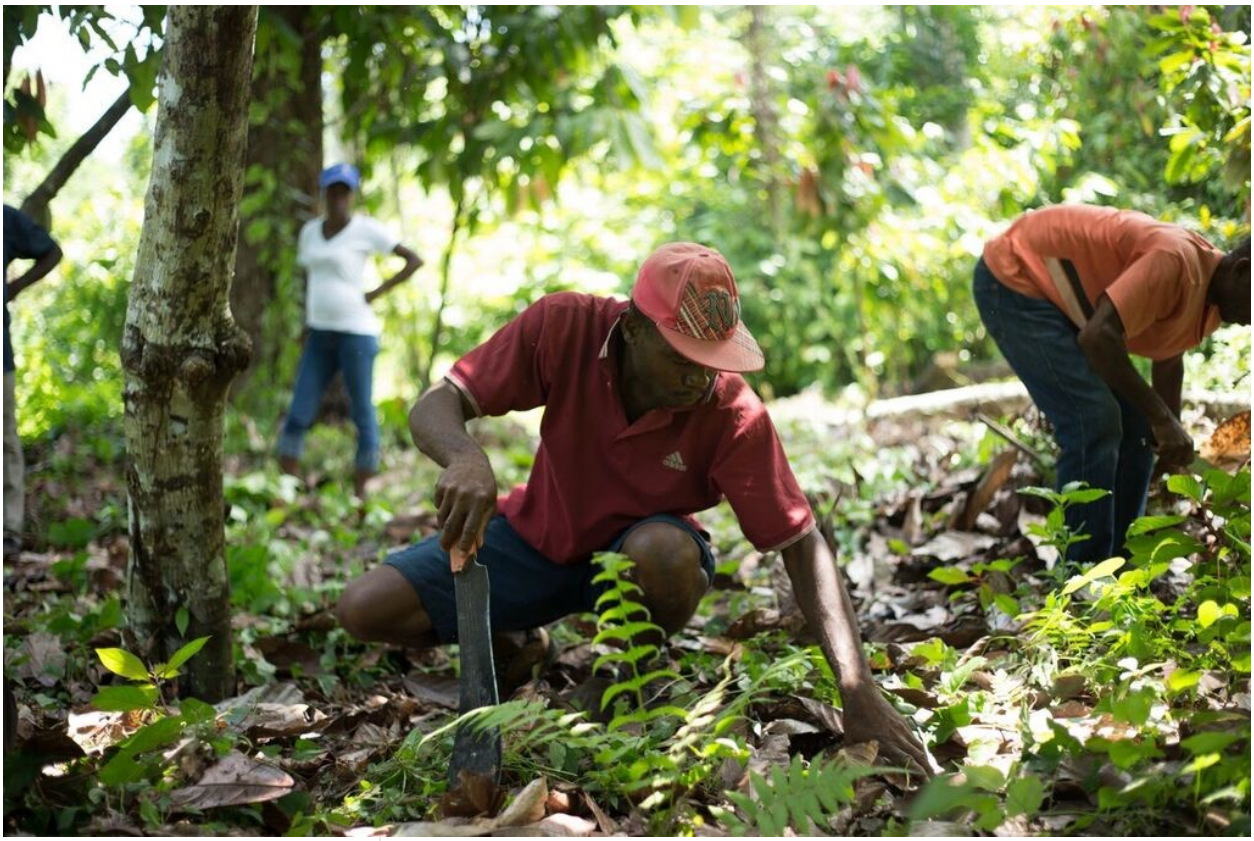


Figure 4 : Regeneration teams in Dame Marie

Pest management

In 2015 and 2016, 2,526 farmers were trained in pest management (807 women and 1,719 men). Training sessions covered management of diseases in farms and ways to fight against rats without the use of chemicals.

Improved production practices

Inputs and training were provided to improve production.

- Training: in 2015 and 2016, 4,785 producers in Grand'Anse and 2,720 in the North were trained on improved production practices. Sessions were theoretical and practical emphasizing the importance of pruning, trimming and weeding.

- Tools - in 2015, pruning kits were distributed to five cooperatives in Grand'Anse. Kits included; machetes, secateurs, saws, limes, knives and hoes. Each cooperative received 174 items that they could to rent the tools to members to generate income for the cooperative. However, in 2018, an inventory of these kits showed that only 22% of items remained accessible.

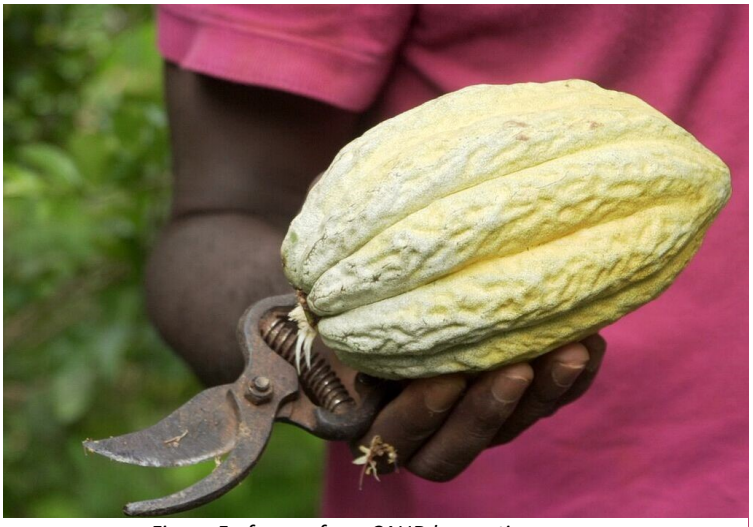


Figure 5 : farmer from CAUD harvesting cacao

  In 2018, 1,092 harvesting tools kits were distributed in the Grand'Anse. This time, items were directly distributed to farmers. Recipients were selected among farmers with regenerated to encourage ongoing maintenance.

d) Access to credit

An internal credit system was tested with the cooperatives in the Grand'Anse. In 2015, cooperatives collected 162,891 HTG in a "Credit Fund" from members, reflecting a contribution to the cacao seedlings and regeneration services they had received under the project. Producers were meant to reinvest 25% of the cost to the cooperative. Funds were received from 262 farmers among the 1,122 who should have contributed. As such, only 23% of the producers made contributions. Each cooperative opened an account with a credit union to provide credit to its members from this fund. After Hurricane Matthew, income and assets were so low that the repayment scheme was stopped. This allowed producers to recover from the crisis. In 2018, with effects of the hurricane felt, system is yet to resume.

Component 2 - Adding value through product and process upgrading

The objective of this component was to improve the capacity of producers to capture greater value from the cacao harvest through proper reaping, fermentation, drying and cacao transformation techniques. These changes sought to promote efficiency and quality.

a) Post-harvest infrastructure

Seven fermentation and drying centers were constructed or reinforced. Two additional centers were planned with cooperatives in the Grand'Anse. However, following Hurricane Matthew, funds were redirected to regeneration.

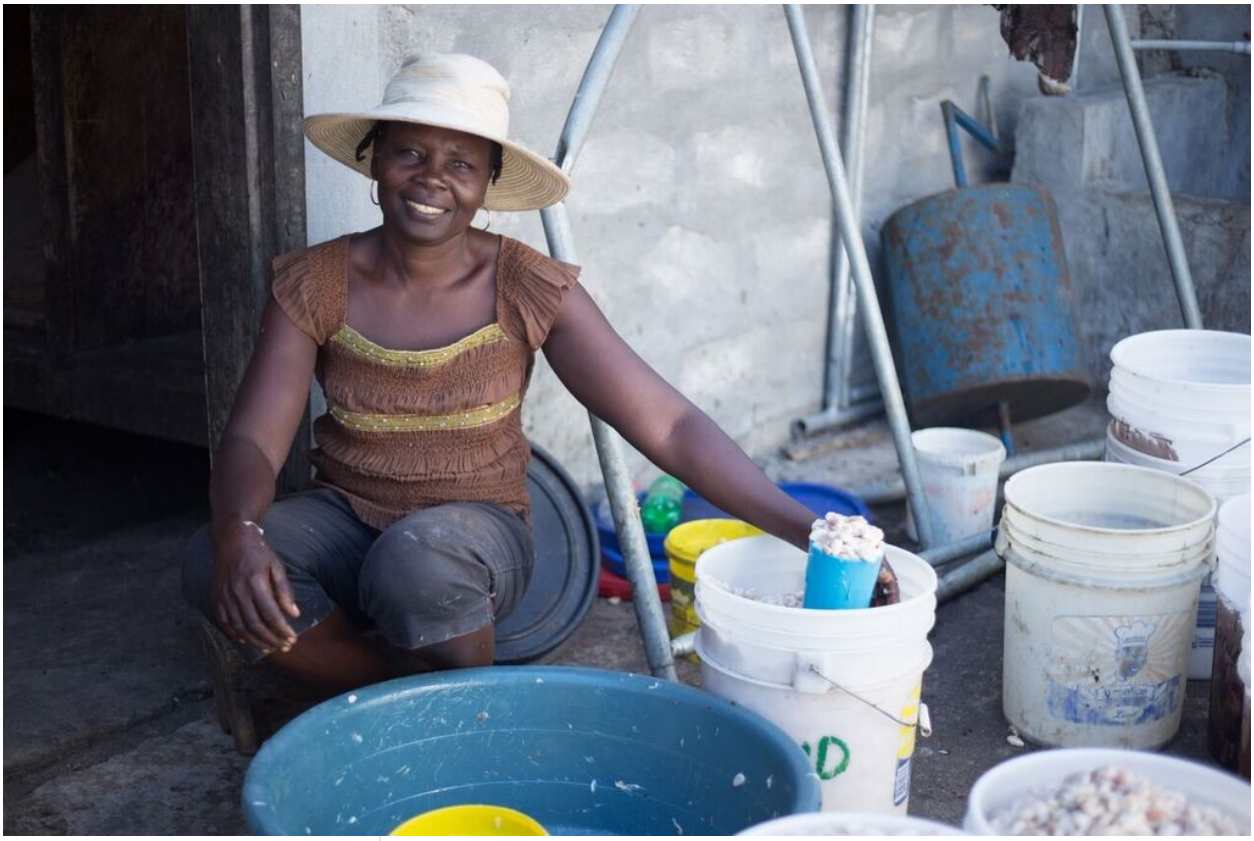


Figure 6 : Member of CAUD sorting cacao for fermentation

1. CATEPS – Sicard, Grand'Anse

A fermentation and drying center was built which benefits the cooperative's 776 members (210 women, 566 men). In 2018, the center was handed over to the cooperative and a learning exchange was organized. A technician from CAUD, trained by the private sector partner Kaleos, supported CATEPS to launch use of the

center. The technician delivered practical training for cooperative members involved in running the center.

2. COPCOD – Chambellan, Grand'Anse

In 2018, a fermentation and drying center was finalized in Chambellan which benefit's the cooperatives 340 members (125 women and 215 men). To kick-start use of the center, a similar exchange was organized. The same technician from CAUD was hired for two weeks, to oversee two complete cycles of fermentation and drying. CRS also contacted Kaleos to discuss their interest in buying fermented cacao from COPCOD.

3. CAUD – Dame Marie, Grand'Anse

CAUD is the strongest of the 12 cooperatives partnered with the project. At the beginning of the project, they already had a fermentation and drying center funded by Kaleos. Their center with a covered drying area of 1,141.5 m^2 is able to dry 111,000 lbs.

However, their purchasing capacity exceeded their drying space, so a proportion of beans were dried outside, below technical standards. In 2016, the project constructed an additional covered drying area of 937.5 m^2 capable of drying 9,000 lb of cacao.

As a result, CAUD's drying capacity increased by 90%. This allows CAUD's 893 members (289 women, 606 men) to meet quality standards.

Figure 7 : Drying centre at CAUD

4. CAPUP - Port Margot, North

Before the project, CAPUP's 672 members (200 women and 472 men) also had a fermentation and drying center with a capacity below its purchasing capacity. In 2016, the project constructed a second center. In three years, the cooperative doubled the volume of cacao sold.

Before		*After*	
2015	2016	2017	2018
31 475 kg	30 380 kg	43 449 kg	60 514 kg

CAPUP, member of FECCANO, the cooperative holds a certification of Flo-Cert, Eco-Cert and Symbol of Small Producers.

5. CAFUPBO - Borgne

In 2015, a fermentation and drying center was built for the 777 members of the cooperative CAFUPBO (243 women and 534 men). The surface area of the drying area is 72m^2. This cooperative also holds the certification of Flo-Cert, Eco-Cert and Symbol of Small Producers.

6. Geo Wiener – Dame Marie

In Dame Marie, Geo Wiener is rehabilitating its fermentation center, which was severely damaged by Hurricane Matthew. Support from the project includes construction of fermentation boxes, repair of roofing and drying tunnels.

In Port-au-Prince, the project supported Geo Wiener to modernize its chocolate factory. Prior to this support, the plant exclusively produced raw chocolate for local hot chocolate (choko towo). Funding will allow it to modernize its facilities to produce 500 to 700 chocolate bars per day.

7. Produits des Iles SA (PISA) – Acul du Nord

The project supported PISA to construct drying tunnels and install a solar energy system. The system enables continuous operation of the fermentation center and the chocolate factory, reducing carbon dioxide emissions and complying with organic certification standards

b) Promoting quality

Guides for techniciens

Technical manuals on cacao production, processing and marketing developed by LWR in Spanish in Latin America were contextualized and translated into Creole. These manuals were the basis of training conducted by the project and remain a source of reference for technicians.

- Training - kits were used training conducted throughout the project. A trainer of trainers' workshop was conducted in the Grand'Anse and the North for 25 participants. Participants went on to train 3,793 producers (1,477 women and 2,346 men)

- Distribution – 2,986 kits were distributed to producers, cooperatives, speculators, microenterprises, universities, the private sector, local, regional and national levels MARNDR. The first kit was officially presented to the Ministry of Agriculture in June 2018 at the National Cacao Conference.

Post-harvest management

Between 2015 and 2018, post-harvest management training was rolled out in the Grand'Anse for 3,988 producers (1,551 women and 2,467 men). This covered drying, storage and humidity control. Ten technicians participated in a training of trainers' workshop, using skills acquired to train producers at cooperative level.

Certification

Actions were undertaken to support certification of four associations;

- FECANNO - from 2015 to 2018, the project supported the cost of organic certification. Certification allow the federation to access organic and fair markets at more competitive prices. Currently FECCANO sells to Valrhona and Ethiquable, both of which require organic certification of fermented cacao.

- CAUD - In 2017 and 2018, the project supported the certification of CAUD required by its buyer, Kaleos.

- PISA - In 2018, the project supported strengthening of PISA's traceability system, critical for maintenance of their organic certification.

- Geo Wiener - in 2016, a meeting was held between Geo Wiener and Ecocert. Geo Wiener traditionally exports unfermented uncertified cacao. Transition to certified fermented cacao could enable access to new markets. The process was put on hold following Hurricane Matthew. As Geo Wiener relaunches its fermentation center, certification will be important to access new markets.

Promotion of quality cacao

In 2018, collaboration with the Fine Cacao and Chocolate Institute (FCCI, chocolateinstitute.org) enabled the project to conduct three quality cacao workshops;

- Introductory workshops (Port-au-Prince) – at the Cacao Conference, FCCI led two hands-on workshops on techniques for cacao and chocolate tasting. The founder of FCCI demonstrated use of simple physical and sensory evaluation methods to assess cacao and chocolate. Participants reflected on processes and the importance of producer engagement for quality assurance.

- Cacao Grader Intensive (Cap-Haïtien) – the course enabled participants to identify and evaluate cacao. In preparation, facilitators visited local chocolatiers (Askanya, PISA and two microprocessors) to better understand local issues and contextualize the workshop. Theoretical and practical training covered the following topics: a) history and culture of fine cacao, b) factors affecting quality, c) science of flavor and sensory analysis, d) supply chains and e) ethics and transparency. Participants developed skills in; a) cacao evaluation, b) cut test, c) protocols and sample preparation d) organoleptic evaluation e) sensory analysis techniques, f) sensory lexicon and g) tasting and evaluation of cacao products. The training was open to 39 participants (14 women, 25 men) from cooperatives, microenterprises, INCAH and exporters.

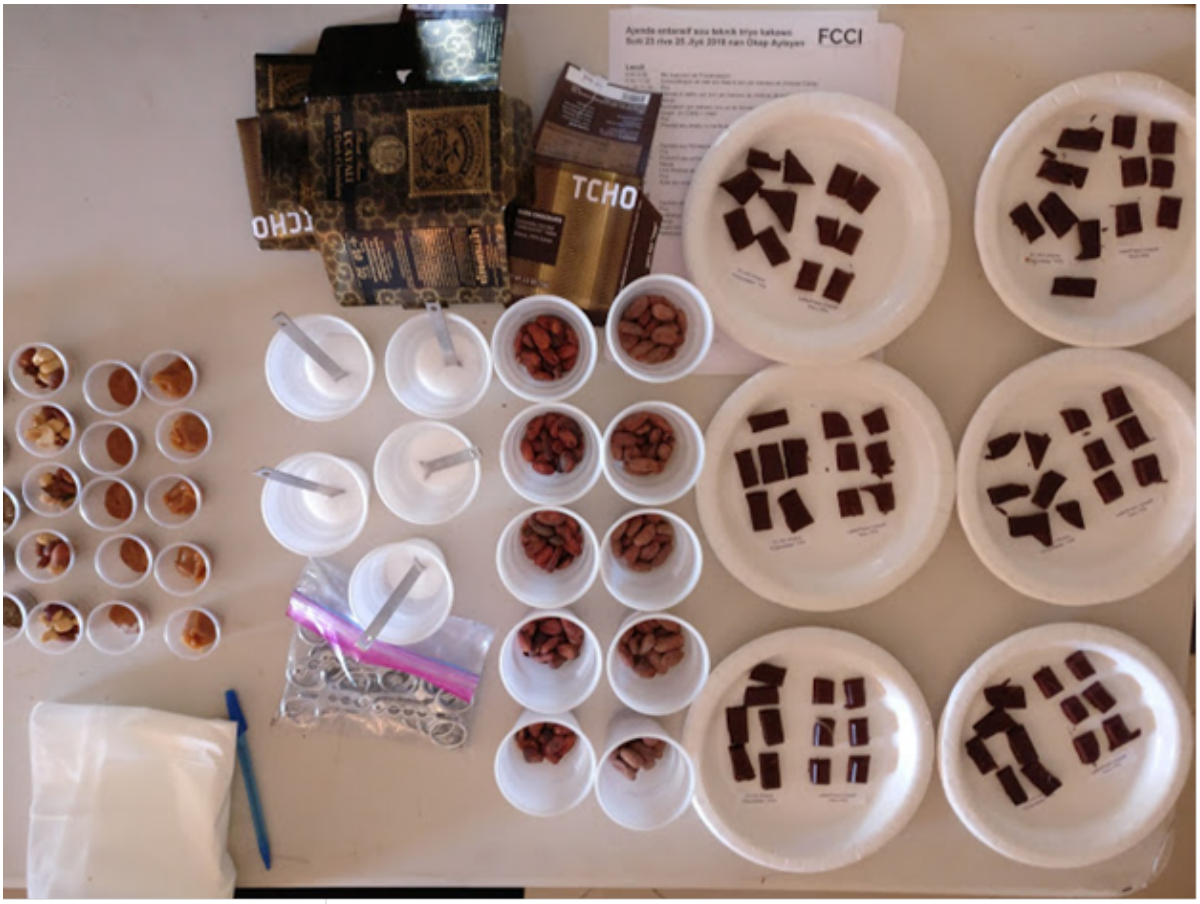


Figure 8 : Cacao Grader Intensive training materials

- Chocolate and Bon Bons (Acul du Nord) – this training took place in PISA's chocolate factory. Participants learned about the various stages of cacao processing from the bean to chocolate bar. The course enabled participants to improve treatment of cacao with tested and research-based techniques, including sensory analysis. The workshop was attended by 22 participants (12 women, 10 men) from PISA and Askanya and microprocessors from the North, Port-au-Prince and the Grand'Anse.

In 2016, the project collaborated with the firm Guidee to evaluate the conventional cacao sector. Market requirements for fermented cacao are well known thanks to standards defined by certifiers, yet those for conventional cacao are poorly regulated. This study aimed to identify market needs for conventional cacao and shed light on standards required by producers, cooperatives, micro-enterprises and local speculators to promote quality conventional cacao.

c) Transformation

Microenterprises participated in the following training opportunities;

- Hygiene Practices (Grand'Anse, 2015) - The Faculty of Agronomy and Veterinary Medicine delivered training on cleaning and disinfection, post-harvest losses and product presentation. Thanks to acquired skills, participants were able to prevent physical, chemical and biological dangers of contamination and risks of toxic-infection or low-quality finished products. Participants also improved understanding around packaging and labelling. Eleven participants took part.

- Applied Marketing (North and Grand'Anse, 2015-2016) - Root Capital/Caseli conducted training in marketing concepts including research, environmental analysis, customer identification, segmentation and targeting, competitive analysis, marketing mix, marketing plans, and business profitability. Field visits were integrated for the benefit of the 59 participants.

- Branding (Port-au-Prince, 2018) - Blue Mango facilitated practical branding training, covering principles of packaging and labeling. Participants created a fictional brand based on their own ideas. Communication, digital marketing and strategy were discussed. The training was attended by 20 representatives of 11 microprocessors from the Grand'Anse, Port-au-Prince and the North.

- Business and Marketing Plans (Grand'Anse, 2018) - this training was held for 35 technicians from five microenterprises and two cooperatives. Topics included understanding mission, clients, niche markets, positioning, growth potential, competition, entrepreneurship, management and planning. Emphasis was on the four "P's": Price, Placement, Product and Promotion.

Equipement

To support processing of quality products, equipment was given to microenterprises. Representatives were accompanied to vendors to select equipment according to their needs analysis. Equipment was provided in stages 2015, 2017 and 2018. This included mills, thermometers, scales, books, decimeters, refrigerators, generators, computer equipment. Primary recipients were Lakay Pwodiksyon and Trafkad. These two microenterprises represent 12 committee members, and 68 affiliates. Six less-structured individual microenterprises also benefited from mills.

Business and Marketing Plans

In 2018, business plans were developed for two cooperatives and two microenterprises. These microprocessors also developed marketing plans. Three accompanying workshops on management and marketing were held for 35 members (21 women and 14 men) of these associations. A presentation session facilitated sharing of lessons learned and elaboration of next steps.

Figure 9 : Cacao mills

Component 3 - Strengthening institutional capacity for sustained long-term growth

The objective of this component was to strengthen institutional capacity in terms of enterprise management, marketing and commercialization, and good governance.

d) Management and governance

Financial analysis

In 2015, Root Capital/Caseli conducted financial diagnostics of 12 cooperatives. This included self-assessment of strengths and weaknesses, coupled with customized technical assistance to improve financial performance. In 2018, an accounting exercise was conducted to familiarize producers with calculation income and yields. Producers were supported to use simple financial balance sheets and calculate returns in their investments. Producers familiarized themselves with calculation of essential data that could facilitate access to credit from microfinance institutions.

Promoting links with financial institutions

Lack of investment in agriculture contributes to low production and incomes among small-scale farmers. To facilitate investment and strengthen links between producers and financial institutions, a mapping was carried out in the Grand'Anse. Nine institutions were identified and evaluated. A summary of their products was elaborated and made accessible to cooperative members.

In 2018, a finance fair was held in Dame Marie. It was an opportunity for institutions to present their products to over 300 producers from four cooperatives, who in turn had the chance to pose questions and share their concerns. This facilitated exchange between producers and financial providers.

A study was conducted on farm operating costs and gains. Financial institutions are reluctant to provide credit to farmers – limited data around expenditures is a major problem. Profitability needs to be evaluated to assess creditworthiness. Solid accounts support confidence in financial relations. The study sought to determine operating accounts with a sample of cacao producers in Chambellan, Dame-Marie, Anse-d'Hainault and Les Irois. Per hectare, on average, producers gained 5,505 HTG from cacao. Cacao production represents 56% of cultivation on any given plot, grown alongside yam which averaged 33%, followed by taro. The study elaborated the cost of seeds, labor, and other expenses necessary for the maintenance of the farms.

Promoting contracts with exporters

Relationships between cooperatives and exporters predated the project. Since 2012, Kaleos worked with CAUD. The project sought to reinforce this relationship and encourage Kaleos to source from additional cooperatives. In 2018, the project

approached Kaleos regarding sourcing from COPCOD and CATEPS. However, the volume of fermented cacao is insufficient. In 2016, on the request of CAUD, the project sent a sample of their cacao to Theo Chocolate Company. The buyer was satisfied with the cacao, expressing interest in buying. However, as CAUD has an existing contract and lacks surplus, this avenue was not pursued. FECCANO similarly has existing contracts with Valrhona and Etiquable and does not have surplus for additional buyers. The project created exchange platforms between producers, cooperatives, buyers or exporters, with for example participation in the International Conference on Cacao in the Dominican Republic, or the Haitian National Cacao Conference.

These created spaces for dialogue with potential new partners.

Figure 10 : Cacao stored at PISA ready for export

Member registration and traceability

Member's databases were created in collaboration with cooperatives management committees. These databases, were available to cooperatives to strengthen their registration systems. Updates were conducted throughout the project. Thanks to Kaleos, CAUD has a functional traceability system. Other cooperatives in the Grand'Anse have not shown capacity or willingness to set up such a system, despite the importance for certification. In 2018, the project partnered with PISA to strengthen the traceability system with their partner cooperative, APROCANO.

Legalization

In 2015, the project worked with the National Council of Cooperatives to support legalization of cooperatives. However, changes in leadership limited the Council's responsiveness. The project continued discussions with cooperatives on the value of legalization. In 2017, 37 representatives from seven cooperatives in the North (8 women, 29 men) participated in training led by the Council.

In 2016, in collaboration with Root Capital/Caseli and JurisPro, a workshop was held for FECCANO about formalizing status of cooperatives, necessary steps and

registration procedures. All seven cooperatives were present. Sessions sought to understand participants' profiles, realities of business models, structure, governance and operation of cooperatives. Discussion around ambitions and how participants would like cooperatives to improve their lives unfolded. Obstacles around formalization were addressed including cost of taxes and fees, inefficient payment procedures and real or presumed corruption.

Training

Five cooperatives learned to manage bank accounts and improve their financial transparency. Cooperatives in Grand'Anse were supported to open accounts, understand policies, manage budgets, and set up transparency procedures. Several management workshops were facilitated in Grand'Anse;

- In 2015, 161 technical staff were trained on cross-cutting management issues. Refresher sessions were carried out during implementation.
- In 2017, 10 representatives of five cooperatives took management training, including project design, participatory approaches, problem identification, monitoring and evaluation, and stakeholder relationship analysis.
- In 2018, 10 representatives of five cooperatives followed value chain training. The workshop consolidated understanding of territory, space and environment, social and financial demographics, calculation of land expenses and returns.

Financial audit

To strengthen the capacity of cooperatives' funds management, the CRS finance team conducted regular financial monitoring visits. Twelve reports were prepared in to measure the change in financial and administrative capacity. This approach combined partnership, support, training and capacity building rather than sanction.

Strategic plans

In 2018, several strategic plans were elaborated with the following partners;

- Cooperatives and microenterprises - as outlined in the previous section, business plans were developed with CAUD, COPCOD, Trafkad and Lakay Pwodiksyon.

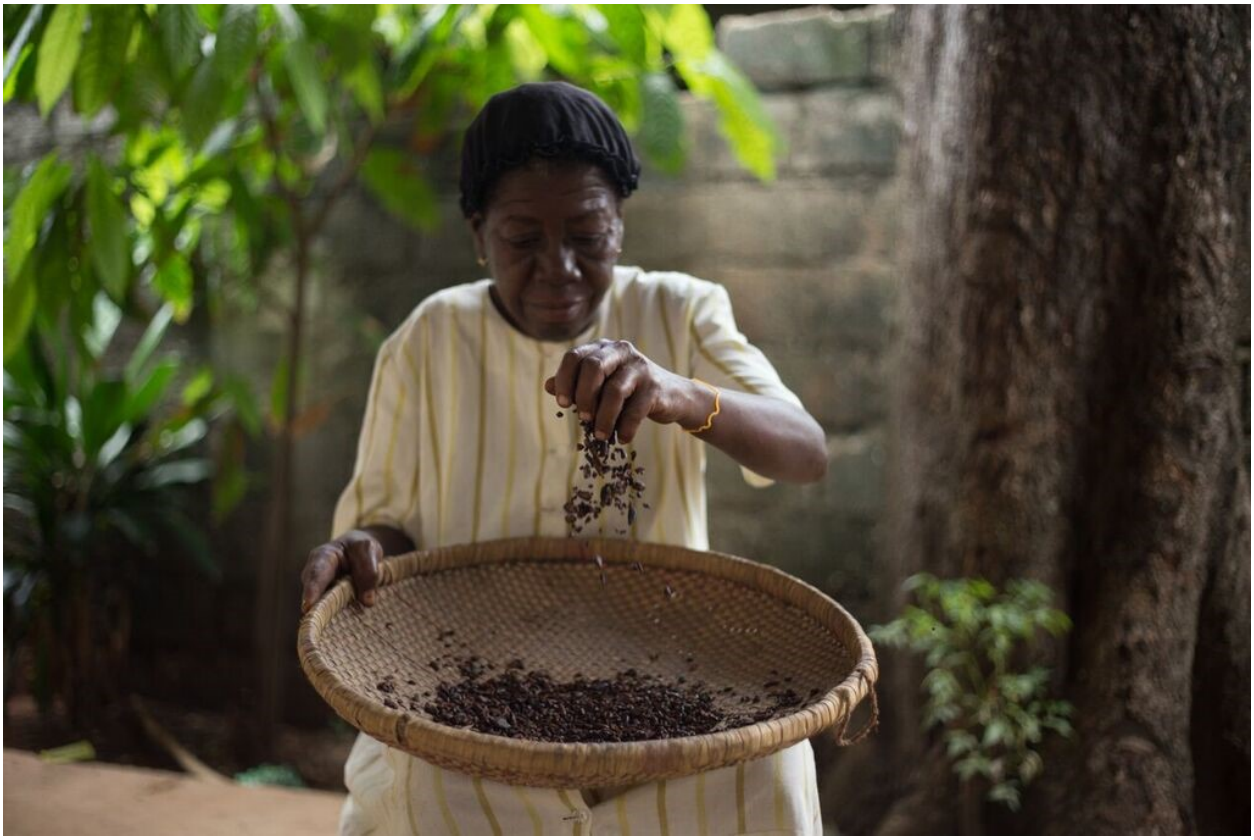


Figure 11 : Member of microprocessor Trafkad sorting cacao

- Entreprises Novella – based in the North of Haiti, Novella exports cacao to Europe and North America. The company sought support from the project with their five-year strategic plan. Since 2017, Novella has directly bought from and organized producers; supporting increase of production, quality improvement, and establishment of a traceability system for certification and access to new markets. An agribusiness specialist was recruited to help Novella draw up their strategy. The company plans to modernize operations and diversify activities by investing in new agroindustry projects such fermentation or cacao butter.

- Sector wide strategy - at the National Cacao Conference, two consultants collected ideas for development of a national strategy for the Haitian cacao value chain. They captured the exchanges and highlights of the workshops; strengths, weaknesses, opportunities and threats of the sector, as well as proposals for a common vision. INCAH and MARNDR, are drawing on this to develop a common vision and a roadmap for the sector. INCAH and MARNDR, leading development of this plan, will validate and activate this sectoral strategy. The political changes of 2018 have affected the pace of this process, which will continue after the formal end of the project.

e) Commercialization

Events

The project contributed and participated in local, national and international events including;

- Fesmar (annual) - the project participated in and supported Dame Marie's cacao festival. Fesmar (the Elvesina St Martin Foundation) was founded in 2003 to promote cacao farmers of Moron, Chambellan, Dame Marie, Anse d'Hainaut and Les Irois and create cultural spaces for groups and young people. This foundation works with grassroots organizations; cooperatives, youth groups and microenterprises. In 2018, an exchange visit was organized during the festival so that cooperatives in the North could also participate in the event.

- International Cacao Organization (2016) - The project participated in the International Conference on Cacao in the Dominican Republic theme "Creating Producer-Consumer Linkages". The Haitian delegation included members of FECANNO, cooperatives in the Grand'Anse, TRAFKAD and SOGEPA. The conference facilitated discussions on production, market, commercialization, reinforcement and sustainability.

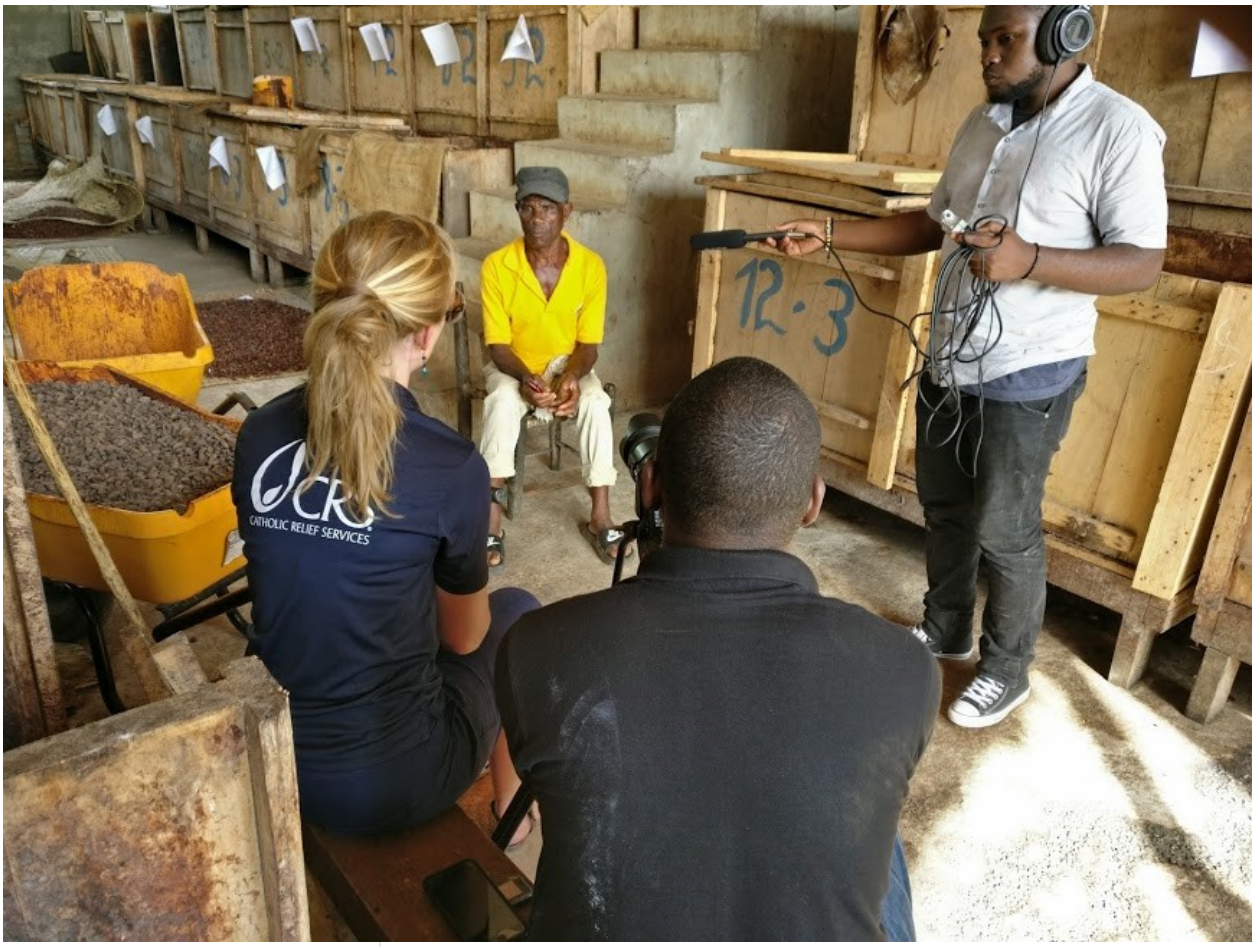


Figure 12 : Filming in Dame Marie

Marketing

Videos were produced to promote the Haitian cacao value chain. Shot in Dame Marie in 2018, these videos showed an optimistic image of the region bouncing back after Hurricane Matthew. A website was designed; www.cacaohaiti.com to facilitate information sharing leading up to the Cacao Conference and is currently in transition into a continuous information exchange platform for the sector. This site can be used at future events, industry stakeholders can contribute by writing or sharing related articles. Genkakao can lead in management of this platform.

a) Cacao Cluster

Thematic tables

Six thematic tables were held in Jérémie, Beaumont, Abricots and Dame Marie. Meetings covered topics, including annual planning, evolution of Genkakao, and partners activities. Participants included government departments, NGOs, UN agencies and the private sector.

Genkakao

Multiple approaches were adopted to strengthen the cacao cluster. Genkako is an important forum for ongoing exchanges of actors in the sector. Meetings were held with the Ministry of Agriculture to formalize this interprofessional body. The project worked directly with members, notably Geo Wiener, supporting a lawyer legalization of the group. A branding company was engaged to develop a logo and tools. In 2018, at the Cacao Conference, Theo Wiener presented the organization to the public.

National Institute of Coffee of Haiti (INCAH)

MARNDR is discussing extension of INCAH's mandate to cover cacao. The project took actions to strengthen INCAH, such as field visits, international exchanges, trainings, and collaboration to organize the Cacao Conference.

b) Exchange of ideas

National Cacao Conference

In collaboration with MARNDR and INCAH, in 2018 the project organized the first National Cacao Conference in Haiti. With the participation of stakeholders across the cacao value chain, the event facilitated exchange between actors, taking steps to create a roadmap for the sector. Over two days, 167 participants from 70 institutions took part. Themes covered included; value chains, governance, markets, production, financing and research. Presentations and workshops led by national and international experts sparked rich debate. An intervention by Minister Jobert Angrand, Minister of Agriculture set the stage. Practical workshops, a formal cocktail event, a cacao pod and beans competitions attracted considerable attention. Media coverage was high. Two detailed articles were published by Alterpresse and The Nouvelliste. Other reports were published in Radio Télé Superstar, Radio Télé Guinen,

Radio Télé Pacific, Radio Télé Nationale d'Haïti. Scoop FM et Radio Méga Haïti also covered the event.

Learning exchanges

In addition to informal exchange during workshops, trainings and conferences, four national and international learning exchange visits were facilitated. These created spaces for participants to share knowledge, experiences, challenges and ideas.

- North (2016) – a five-person delegation from EPDAM, CAUD, COPCOD, TRAFCAD and Lakay Pwodiksyon participated in an exchange visit to the North. They met FECCANO, visited a model farm (Plaine du North), a fermentation center (Port Magot), a chocolatier Askanya (Ouanaminthe), and an exporter Novella (Cap-Haitien).

- Grand'Anse (2018) - 12 producers from FECCANO and nine producers from CRS' "KABOS" project in the South visited Dame Marie during the Fesmar Festival. The agenda covered: organization of actors, microprocessors, plant propagation, cacao quality and post-harvest techniques.

- North (2018) - 12 people from CAUD, COPCOD, ARDI, EPDAM, TRAFKAD, Lakay Pwodiksyon and INCAH visited the North. They met FECANNO, and visited a clonal garden (Plaine du Nord), a rehabilitated farm at CAJBC (Grande Rivière du Nord), a fermentation, drying center at CAPUP (Port Magot) and Askanya (Ouanaminthe).

- San Francisco, Dominican Republic (2018) - eight representatives of three cooperatives, and INCAH visited CONACADO. The agenda included a presentation of the federation, visits to their processing plant, bean collection and planting center, a bio-factory for production of organic fertilizer and a demonstration garden. CONACADO exports more cacao than the whole of Haiti. The visit proved a source of motivation to strengthen the cacao sector in Haiti.

Component 4 - Knowledge management and communications strategy

The objective of this component was to identify, validate and systematize practical solutions for improving opportunities for men and women as part of the upgrading of the cacao value chain. Alongside the studies included in each of the components outlined above, several further cross-cutting studies were conducted including;

a) Gender

The role of women in the cacao value chain is poorly documented. However, their active participation in agroindustry is essential for production. A study was conducted to identify the position of women in cacao Haiti, analyze constraints and favorable factors for female integration across the chain. The study looked at how institutional actors interact with these factors, and to what extent decision-making mechanisms and power relations affect women's positions.

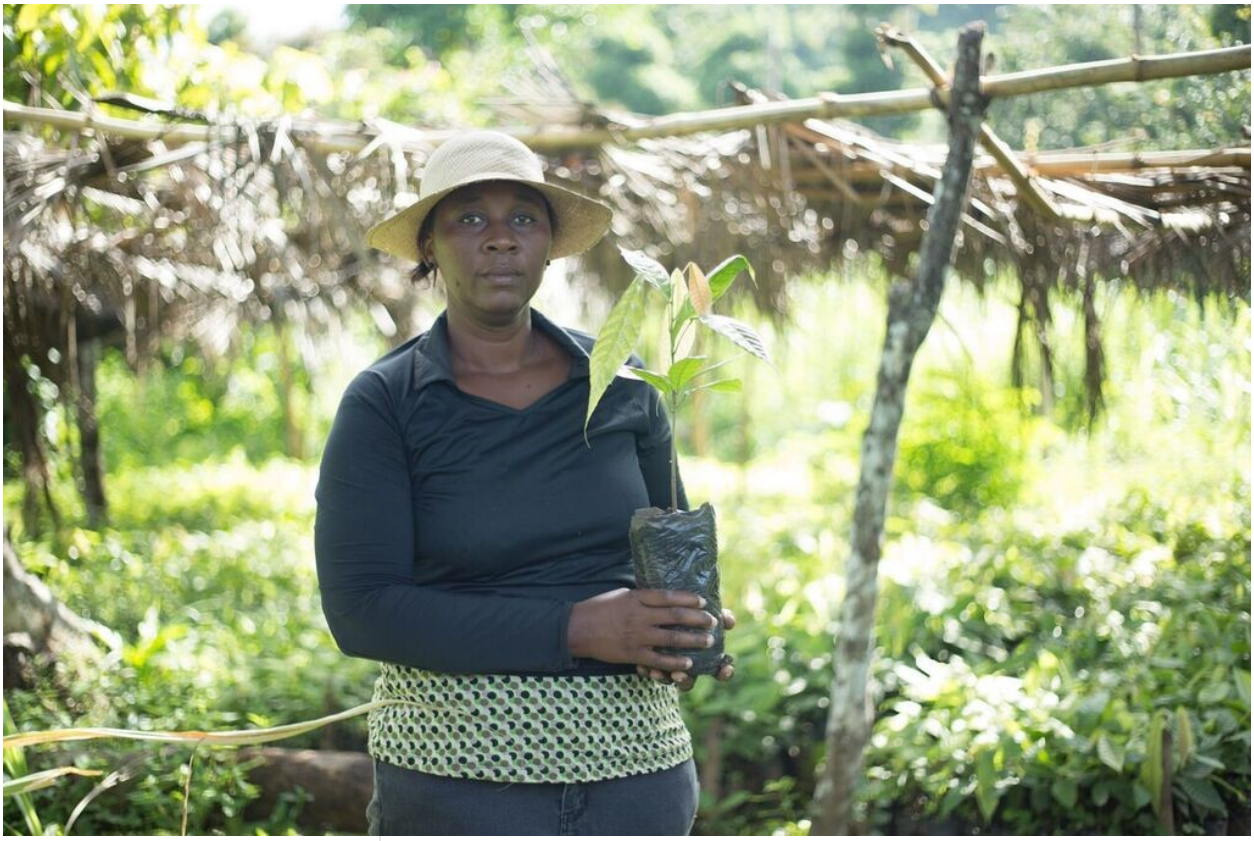


Figure 13 : Seed nursery supervisor in Dame Marie

b) Yield studies

Eight yield studies were conducted, seven in the Grand'Anse, and one in the North (2016). In the Grand'Anse, these explored changes in cacao yields after the hurricane. Ten agronomists worked with the same 20 producers in five cooperatives throughout the project. For each producer, a sample of 2,100m^2 was identified for data collection, with the random selection of 10 productive cacao trees in the observation unit. The number of pods on the tree was counted each season. In 2018 the results of this study showed an increase in yields after the drop recorded in 2017.

c) Access to credit

A study on access to basic credit in the cacao sector was conducted. Objectives were to diagnose financial and administrative conditions of access to credit, conditions of the cooperatives; increase knowledge around agricultural credit; propose access strategies and identify existing credit institutions. Recommendations included provision of products that respond to risks related to natural disasters or disease, appreciate production cycles. These need to be at least six months renewable, with an affordable agricultural interest rate and medium and long-term loans to enable producers to face different stages of production. Ongoing training in accounting, marketing, savings and credit management must be included in credit packages. Financial institutions were also encouraged to extend credit portfolios to microenterprises, facilitating access to technical and financial support in the first two years of implementation with credit on a 12-month scale with a 10% declining rate. It was noted that this would need to be accompanied by financial and administrative management training.

d) Markets

The project launched a cocoa market study specifically looking at access to markets for cocoa farmers in ten communes in the Nord and Grand'Anse departments. The study showed that the opportunities for the producers of the North department to sell their cocoa on the international market is different from that of the producers of Grand'Anse. The North is better organized thanks to a structure that prepares and exports certified fermented cocoa. However, Grand'Anse producers mostly have access to the traditional local market. Northern producers have joined together in cooperatives, then in a federation that has better technical, organizational and entrepreneurial capacities than those of Grand'Anse.

Indicators

Purpose	Indicators		Baseline	Planned	Achieved	Comment
Purpose: To strengthen the capacity of producers to supply sustainably produced cocoa in high value markets	R.1	# cooperatives that have successfully fulfilled seasonal contracts with exporters	6	13	9	CAUD, APROCANO and 7 cooperatives affiliated with FECCANO
	R.2	Metric tons of cocoa exported by cooperatives annually	682	1,176	48	The baseline and planned figures relate to number of bags rather than metric tons. As such 41 and 70 respectively. The achieved figure relates to metric tons in 2018.
	R.3	Average percentage increase in Kg/per hectare of dry cocoa beans per producer averaged	0	30	78	In 2017, production fell by 61% following hurricane Matthew, then increased by 140% from 2017 to 2017
	R.4	# small microprocessors that secure a new buyer or formal contract	0	3	1	
	R.5	# new buyers transacting in the Haitian value cacao chain	0	1	0	Production is currently insufficient for new buyers to transact in the chain
Component 1: Improving Productivity and Natural Resource Management of Cocoa Farms *Weight: 35%*	C1. I1	# clonal gardens established	0	16	4	1 University of Limonade, 3 with cooperatives associated with FECANNO
	C1. I2	# hectares under improved management practices	0	2,500	3,725	North and Grand'Anse
	C1. I3	# extension officers trained in improved production practices, pest management, and soil	0	180	161	76 in the Grand'Anse and 85 in the North

		conservation				
	C1. I4	# producers trained in sustainable cocoa agroforestry system	0	4,000	7,505	North and Grand'Anse, conducted in several waves
	C1. I5	# producers receiving payment for environmental services under the Plan Vivo	0	50	0	Activity removed from work plan and budget
Component 2: Adding value through product and process upgrading *Weight: 25%*	C2. I1	# cooperatives with improved post-harvest infrastructure	7	13	11	CAUD, COPCOD, CATEPS, APROCANO, 7 cooperatives associated with FECANNO. Planned with ARDI and EPIDAM, funds realigned to regeneration following Hurricane Matthew.
	C2. I2	# producers trained on post-harvest management	0	4,000	3,988	
	C2. I3	# cooperatives transitioning to selling bulk cocoa to specialty cocoa	7	13	9	COPCOD, CATEPS and the 7 cooperatives associated with FECANNO
	C2. I4	# cooperatives completing or in the process of obtaining organic or Fair-Trade certification	7	13	8	CAUD, and the 7 cooperatives associated with FECANNO
	C2. I5	# groups of microprocessors trained in cocoa transformation and commercialization	0	4	16	North and Grand'Anse, multiple waves of training on multiple topics for microprocessors of varied sizes
Component 3: Strengthening the institutional capacity of cooperative enterprises for sustained long-	C3. I1	# cooperatives offering credit to their members though internal credit funds	0	10	7	Cooperatives associated with FECANNO have access to a social fund. An internal credit system was set up with 5 cooperatives in the Grand'Anse. Put on hold post-Matthew
	C3. I2	# cooperatives attaining legal status	0	13	13	7 cooperatives affiliated to FECANNO, APROCANO and 5 cooperatives in the Grand'Anse

term growth *Weight: 25%*	C3. I3	# cooperatives receiving training on governance, business practices, and financial management	0	13	13	7 cooperatives affiliated to FECANNO, APROCANO and 5 cooperatives in the Grand'Anse
	C3. I4	% women in cooperative management positions	15	30	35	Among the 12 cooperatives surveyed in 2018, female representation in management committees ranges from 14% to 46%, whereas regarding general membership, female representation is from 28% to 46%
	C3. I5	# cooperatives with a member database and basic traceability system	0	13	13	9 have a database and traceability system, a further 5 have a member database but no traceability system
Component 4: Knowledge Management and Communications Strategy *Weight: 15%*	C4. I1	# learning exchanges	0	3	4	Two to the North, one to the Grand'Anse, one to the Dominican Republic
	C4. I2	1 guide providing practical solutions to improve opportunities for women in the cocoa sector	0	1	1	Gender study rather than practical guide
	C4. I3	1 guide for the use of internal credit systems in cooperative enterprises	0	1	1	
	C4. I4	1 guide on cocoa marketing and commercialization	0	1	1	

Sustainability

The livelihoods of Haitian cacao farmers are vulnerable to recurrent shocks. When working with these communities, CRS uses conservation agriculture techniques and territorial value-chain development approach to promote sustainable growth. This approach builds stronger production and marketing associations, reinforcing market linkages, enabling farmers to access financial services and improve natural resources use. This project was designed and executed in this framework. The project developed the capacity of farmers to plan activities, increase profitability, connect to markets and use technologies that increase yields.

Value chains - the project worked with farmers, cooperatives, cacao processors and exporters to identify and develop products with potential for local, regional and national markets. Emphasis on connecting all actors sought to increase efficiencies of the entire value chain. This increased production, strengthened business development, improved post-harvest utilization and supported market engagement in a sustainable way. The National Cacao Conference was a good example of the value chain approach, with the active participation and direct involvement of all stakeholders in the sector. With intentional involvement of the most vulnerable farmers, including of men and women in every aspect of the value chain, the fruits of the project will last beyond the implementation period.

Conservation agriculture - In response to global climate change, and recurrent climatic shocks affecting Haiti, CRS helps farmers adopt conservation agriculture techniques, grounded in climate-smart agriculture. Research was a foundational pillar of the project. Collaboration with the University of West Indies and Defi Development, enabled genetic mapping and multiplication of elite plant material supported conservation of biodiversity. Midway through the project, when Hurricane Matthew hit the Grand'Anse, activities were reoriented accordingly. Studies on agroforestry systems with CATIE before and after the Hurricane contributed to conservation of agroforestry systems. Regeneration teams reclaimed damaged land, reviving cacao production. Other conservation techniques included shade crops, organic fertilizer, conserving water and using native varieties of crops to manage pests. The agroforestry approach is critical as it not only enhances biodiversity, but promotes harvest, consumption and sale of complementary crops, increasing food-security throughout the year. These approaches increase productivity, reduce costs and improve soil fertility, thereby enhancing resilience.

Partnership - communities must steer their own development if change is to be long-lasting. CRS's community capacity strengthening model invests in local capacities and strengthens local networks. The project used this approach to identify and activate sustainable solutions with a long-term impact. Joint programming was used to improve livelihoods by helping individuals, communities and institutions

reach their full potential. In each component of the project, activities were carried out in partnership with producers, cooperatives, speculators, microenterprises, universities and the private sector, alongside MARNDR and its local bodies. CRS worked closely with the MARNDR to develop training materials and post-harvest technologies, validate work plans and approaches, and consider a strategic plan for the sector. MARNDR was part of the project's steering committee. In a context of ministerial movement to expand INCAH's mandate to cover cacao, the project reacted with agility including INCAH in activities, such as field visits, trainings and joint organization of the Cacao Conference. Many activities will continue beyond the project's official timeframe since they were initiated with partners. Examples of these initiatives include seedling nurseries at UNOGA and Geo Wiener, the University of Limonade clonal garden, fermentation and drying centers at cooperatives and the traceability system at PISA. With the integration of inputs, infrastructure and knowledge sharing, the project left lasting traces promoting inclusion, accountability and good governance.

Challenges

The project faced many challenges, both anticipated and unanticipated, with varying impact on implementation. Some key areas are elaborated;

Operational

- Environmental - Hurricane Matthew affected achievement of indicators in each component. The magnitude of communities' needs increased significantly, and land regeneration became a focal activity to restore lost livelihoods. In 2018, production is recovering, yet in 2017 harvests were too minimal to invest in marketing activities or links with exporters.

- Land –, the project planned to establish clonal gardens in the Grand'Anse as they were done in the North. However, identification of suitable land posed a challenge. MARNDR initially proposed a space, but needs changed, and a high school was constructed in that location. In 2018 in partnership with UNOGA, a demonstration garden was established at the university envisaging transformation into a clonal garden over time.

- Inputs - grafting, harvesting, and transformation tools were not readily available in the implementation areas. Some technical tools were equally unavailable in Port-au-Prince. International procurement caused delays. Some inputs, such as seedlings, must be purchased locally. Yet the number of seedling suppliers in the Grand'Anse is limited. Identifying and transporting seedlings was a challenge. Establishment of new nurseries with cooperatives, the private sector and universities helped to overcome this challenge.

- Time - some activities took longer than expected. For example, adaption, translation and printing of cacao manuals. Hard copies were only available at the end of the project. Trainings were largely delivered in absence of physical copies. In construction, finalization of centers in Sicard and Chambellan took much longer than planned. Local firms were hired to promote local ownership, but capacity was low. Construction at Geo Wiener, or UNOGA was significantly quicker. Closer attention to selection of construction firms and their supervision is required.

Programmatic

- Local investment – maintenance of demonstration gardens in the North was inadequate. Surprise visits showed that many are overgrown with weeds; producers claim to not have funds to invest in these gardens. Similarly, regarding marketing plans, local investment is imperative to put plans into action. Despite the participatory approach adopted, sustainability of these activities depends on greater investment from local actors.

- Short term gains – many farmers are motivated by immediate financial benefits of engagement in the project, rather than long-term gains. Regeneration teams were motivated by seasonal employment opportunities, rather than the value of their contribution to regional regeneration. Grafting agents, rather than capitalizing on skills to start grafting microenterprises, focused on funds from the project. Low revenue in the region limited the success of internal credit systems. Regeneration was effective in injecting revenue however, the market price of land clearing increased accordingly, making the service less accessible to producers who do not have NGO support.

- Structural weakness - at the cooperative level, structural weaknesses negatively impacted implementation. Power dynamics, weak financial management and misaligned aspirations were a challenge. In 2018, the project was forced to limit activities with CATEPS due to an internal crisis in the cooperative. Approaches with other cooperatives were adjusted in response to internal weaknesses. For example, payment for land regeneration. In 2017, funds for land clearing was transferred to cooperatives who were then responsible for distribution to regeneration teams. However, cooperative management committees withheld large sums of these funds and commitments with seasonal laborers were not respected. In 2018, payments were made directly to 803 land generation team members through Unitransfer. This approach was favorably received by the laborers themselves but has caused tensions with cooperative committees. Transparency within cooperatives is lacking; ongoing support and targeted efforts to increase accountability is necessary.

Lessons learned and recommendations

A complex four-year project, this project highlighted many lessons and recommendations. A learning agenda, with intentional collection and incorporation of new ideas throughout the intervention period strengthened the project.

Project design

- Value chains - the project was designed with a value chain approach that should be retained in future programs. Involvement of stakeholders across the sector served to reinforce synergies.

- Genkakao – the project sought to strengthen this interprofessional group, continued efforts are encouraged to support its role as a representative sector lead. Formalized partnerships with this body are recommended in future interventions.

- Expertise - the project has developed multiple varied partnerships facilitating research and sharing of expertise. Partnerships with CATIE and FCCI are good examples of this networking. The "Cacao Grader Intensive" course was extremely well received, wide scale roll-out of this training is recommended in a future project.

- Production – efforts to increase production needs to remain the focus of any cacao programming. In partnership with producers, cooperatives, the private sector, the government and universities, efforts must continue to increase production. Without this, certification, contracts with exporters, or access to new markets are limited in their impact. Future interventions need to strengthen agroforestry systems, and, especially in Grand'Anse, regeneration needs to continue.

- Finance - financing for the agriculture sector exists even if hard to access, as seen in the financial mapping and the agricultural fair. Further actions aimed at connecting producers with these institutions is recommended, is creation of MUSO groups.

Implementation

- Gender – gender needs to be more effectively integrated into each activity. Quotas of female representation in cooperative management committees is insufficient; women need to be better represented in the project, and in each partnership. Lessons learned from the gender study should be considered when implementing future projects.

- Fairs – rather than direct provision of inputs, future projects should consider hosting agriculture voucher fairs. In this project, recipients were involved in selection of some inputs, for example when microenterprises travelled to Port-au-

Prince to identify appropriate tools. However, an agricultural fair could increase the involvement of participants in decision-making on their needs.

- Refresher - in a four-year project, training should be planned in multiple cycles, with the repetition of themes. Training on agroforestry systems, cacao quality or post-harvest processes should be repeated to encourage behavioral change.

Risks

- Flexibility - projects require budgetary and programmatic flexibility to adapt to unforeseen events, such as Hurricane Matthew. This project was able to redirect resources to respond to the crisis, future projects must have a similar flexibility.

- Mobile-money - to ensure transparency and accountability to farmers, it is preferable to work with financial institutions to make direct payments to land clearing squads, seedling nursery supervisors or any person engaged under the project. Cooperatives do not yet have adequate incentive to ensure that commitments to their members are respected.

- Infrastructure - construction and rehabilitation was slow and inefficient. In the future, it is recommended to engage a full-time engineer on the project team for close supervision. Construction projects in partnership with the private sector and universities were much more efficient. This form of collaboration is recommended.

- Political change - programs must be agile when faced with political change. In 2018, the project deepened partnership with INCAH. However, in June 2018, leadership in the Ministry of Agriculture changed, and the future of INCAH remains unknown. When mapping potential partners, agility is required to capitalize on opportunities, and assure continuity of activities in the face of change.

Sustainability

- Private sector - the private sector was involved in the implementation of this project especially during its final phase. This sector is a key element in the sustainability of development projects given the short-term role played by NGOs and the weak capacity of public institutions and cooperatives. Input suppliers, processors, exporters need to be more actively involved in the implementation of development projects so that they can continue to play a supporting role at the chain level and ensure sustainability of interventions.

- Agro-entrepreneurs – in the future, rather than training grafting agents, or seedling nursery supervisors, independent field agents could be trained as agro-entrepreneurs, able to deliver a comprehensive packet of services such as land clearing, grafting, setting up seedling nurseries etc. Building on the grafting agent approach, yet widening the skills-set, input provision and level of training and

accompaniment provided, projects could work towards a more sustainable model of service provision.

- State structures - strengthening these actors is essential as they outlive project timescales. Including INCAH participants in varied activities improved their understanding and access to contextual realities. While focal points are valuable, it is important to seek participation of multiple actors within a given body, to prevent centralization of knowledge.

- Biodiversity - a genebank should be established in a future project with new introductions to complement the existing germplasm based on the gaps identified by the University of West Indies. A system to multiply and distribute elite clonal material to farmers should be set-up alongside each clonal garden so that farmers can benefit from increased quality yields. Emphasis should be placed on distributing self-compatible or cross-compatible clones to ensure on-farm deployment of varieties and high productivity. A breeding program should be set up to improve the genetic stock so that yields will improve over time.

- Studies - throughout this project, studies were conducted in partnership with national and international research institutions. This approach was important to the success of the project, but greater emphasis on dissemination of results of this research should be conducted to capitalize on lessons learned. The website created during the national conference could act as a collaborative platform for sharing research.

Conclusion

Despite Hurricane Matthew, the project was able to make a significant contribution to strengthen the cacao sector in Haiti. Through these four components, with key interconnections, the project has demonstrated its coherence and responsiveness to critical issues. The project has been able to improve the productivity and natural resource management of cacao farms while adding value through product and process upgrading. Marketing, management, commercialization and governance capacities of local coops, universities, government agencies, private enterprises and professional associations were strengthened and will be able to sustain long-term growth. Solutions for improving opportunities for men and women in the cacao value chain were identified, validated and systematized through research, studies and reports. Through its activities and despite major challenges the project was able to improve the income of over 7,000 cacao farmers in the North and the Grand'Anse who are now better equipped to supply cacao in high-value markets.