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AN ANALYSIS OF THE SUPPLY CHAIN OF **CACAO IN COLOMBIA**



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...the willingness of multiple actors of the Colombian cacao sector to participate in interviews, focus groups, workshops, telephone interviews and follow-up calls. In addition to this, we received key insights from international cocoa traders, experts in fine flavor cacao and chocolate and a range of development actors. To a large extent, the current report reflects their wisdom, knowledge and concerns about the future of the sector and its potential role in post conflict rural development in Colombia. We gratefully acknowledge the financial and technical support received from USDA and USAID that made this report possible. Finally, any errors and omissions remain ours.

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ABBREVIATIONS & ACRONYMS

ADAM	Áreas de Desarrollo Alternativo Municipal (Municipal Alternative Development Areas)
ANDI	Asociación de Industriales de Colombia (Association of Industries of Colombia)
ANI	Agencia Nacional de Infraestructura (National Infrastructure Agency)
BMC	Bolsa Mercantil de Colombia (Colombian Stock Exchange)
CIAT	Centro Internacional de Agricultura Tropical (The International Center for Tropical Agriculture)
COP	Colombian peso
CORPOICA	Corporación Colombiana de Investigación Agropecuaria (The Colombian Corporation for Agricultural Research)
CPGA	Centro Provincial de Gestión Agropecuaria (Provincial Center of Agricultural Management)
DANE	Departamento Administrativo Nacional de Estadística (National Administrative Department of Statistics)
DNP	Departamento Nacional de Planeación (National Planning Department)
ELN	Ejército de Liberación Nacional (National Liberation Army)



EPSAGRO	Empresa Prestadora de Servicios de Asistencia Técnica (Companies Providing Technical Assistance Services)
FAOSTAT	United Nations Food and Agriculture Statistics
FARC	Fuerzas Armadas Revolucionarias de Colombia (Revolutionary Armed Forces of Colombia)
FEDECACO	Federación Nacional de Cacaoteros (National Federation of Cacao Growers)
FINAGRO	Fondo para el Financiamiento del Sector Agropecuario (The Fund for Financing the Agricultural Sector)
FOB	Freight on Board or Free on Board
GOC	Government of Colombia
ICCO	International Cocoa Organization
ICE	Intercontinental Exchange
ICR	Incentivo a la Capitalización Rural (Rural Capitalization Incentive)
INCODER	Instituto Colombiano de Desarrollo Rural (Colombian Institute for Rural Development)
KG	Kilogram
MADR	Ministerio de Agricultura y Desarrollo Rural (Ministry of Agriculture and Rural Development)

MIDAS	Más Inversión para el Desarrollo Alternativo Sostenible (More Investment for Alternative Sustainable Development)
MT	Tonelada Métrica
PAAP	Proyecto Apoyo a Alianzas Productivas (Productive Alliances Support Project)
SENA	Servicio Nacional de Aprendizaje (National Training Service)
UAF	Unidad Agrícola Familiar (Productive Family Unit)
UMATA	Unidad Municipal de Asistencia Técnica (Municipal Units of Technical Assistance)
UNODC	United Nations Office on Drugs and Crime
UPA	Unidad de producción Agropecuaria (Unit of Agricultural Production)
UPRA	Unidad de Planificación Rural Agropecuaria (Planning Unit for Rural Agriculture)
USAID	United States Agency for International Development
USDA	United States Department of Agriculture



GLOSSARY

- Bulk cacao** The majority of the cacao produced and sold on the world market that does not meet a certified criteria. One of the two broad categories of cacao beans the world cacao market uses.
- CCN-51** Colección Castro Naranjal (attempt number 51) is a disease resistant, high-yielding, and often controversial cacao variety developed by Ecuadorian Homero Castro in the 1960s. It has gained a reputation of producing inferior tasting cacao and is seen as a threat to genetic diversity and fine-flavor designations. Many farmers, however, find it easier and more profitable to grow than other varieties.
- Cacao criollo** Native to Central and South America and the Caribbean islands, only 5% of the world's cacao production is criollo. Criollo varieties are extremely vulnerable to a variety of environmental threats and have low yields than other varieties. Their taste is described as delicate yet complex, low in classic chocolate flavor, but rich in secondary notes.
- Cacao fermentation**
- a. “bien fermentado”: A well-fermented bean. A cacao bean that has been properly fermented is brown in color and breaks apart without too much pressure. The interior of the bean looks similar to a brain pattern. The bean is not violet in color nor is the structure compacted.
 - b. “pasilla” bean: an insufficiently fermented bean. A cacao bean with incomplete fermentation will have an interior cotyledon which is violet or red-violet, with a semi-compact structure. The husk is difficult to separate.
 - c. “pizarroso” bean: cacao bean without fermentation. The interior of the bean is blackish grey and the structure is completely compacted.

Cacao forastero	Forastero is principally cultivated in Africa, Ecuador, and Brazil and represents 80% of the world's production of cacao. It is much more resistant and less susceptible to the diseases as criollo varieties. This type of cacao is used principally to impart a deep "chocolate" flavor, however it often has a bitter taste and that lacks secondary flavors. It is often mixed with superior cacao.
Cacao trinitario	This hybrid resulted from a cross between forastero and criollo varieties and is characterized with high variability in shape, form, size, and behavior and predominates in Colombia. This subspecies is the hybrid that is being used in the selections of the materials that are being cloned and recommended by Fedecacao.
Casa elba	A drying and storage unit found above the home dwellings or other structure found on the property.
En baba	Refers to cacao beans that are sold wet and have not been fermented or dried.
Fine and flavor cocoa	One of the two broad categories of cacao beans the world cocoa market uses. A combination of criteria is used to assess the quality, however flavor qualities (i.e. fruit, floral, herbal, caramel, nut, and wood notes) rather than in the other quality factors primarily distinguish it from bulk cacao. Typically, <i>criollo</i> and <i>trinitario</i> cocoa tree varieties produce these beans while <i>forastero</i> types produce beans typically sold as bulk. However, there are known exceptions to these generalizations.
Freight on Board (FOB)	Price quoted for the cacao beans sold at the ports prior to being shipped to an international destination.
<i>Moniliophthora roreri</i> – Monilia	"Frosty pod rot" is a fungal disease that can cause up to 90% loss in a cacao plantation if not controlled through chemical or physical means.



Pasilla	Refers to cacao beans which are flattened, thin and are difficult to separate when cut length wise and usually caused from poor fermentation.
Premio	Price premium given for improved quality of bean or increased quantity.
<i>Theobroma cacao</i>	Scientific name for cacao or cocoa which in Greek translates as “Food of the gods.” It has been established that there is a strong relationship between the content of methylxanthines, theobromine and caffeine and the genetic material.
Witch’s broom	Escoba de bruja, a disease found on the branches of cacao trees caused by <i>Moniliophythora perniciosa</i> .

EXECUTIVE SUMMARY

The main goal of the USAID/USDA project, Cacao for Peace (CfP), is “to strengthen Colombia’s key agricultural institutions for cacao, in the public and private sector, with cooperative research, technical assistance, extension, and education. The CfP vision is to improve rural well-being through agricultural development that is inclusive and sustainable with positive impact on cacao farmers’ incomes, economic opportunities, stability and peace.” Under this directive, USDA commissioned this report to examine the cacao supply chain in detail in select regions of the country, discuss opportunities and strengths with producers and key stakeholders, and offer strategic approaches to position Colombia’s cacao sector in domestic and international markets.

For the purposes of this study, a mixed methods approach was taken. It is focused on four research threads which examine (1) the physical cacao flows – from farm to processor to end user; (2) the prices received for cacao along the chain, including the costs related to procurement and processing; (3) the actors along the chain – including their roles, behaviors and recommendations for increasing efficiency in the Colombian cacao sector; and (4) the contextual issues and considerations that affect market outcomes in the Colombian cacao sector, including production and processing, and confection in general.

Colombia differs from larger exporting nations (Cote d’Ivoire, Ghana, and Ecuador) in a number of ways. First, global multi-nationals play a more limited role, with two Latin America-focused and Colombia-based, multi-national companies – Casa Luker and Nutresa – purchasing over 80% of Colombian cacao bean production. The smaller importance of international markets, extent of development and infrastructure in Colombia, and the presence of these two large buyers means the marketing structure within Colombia is different from that found in the major cacao exporting countries. Second, most traders in Colombia maintain at least informal relations with either one of the two large chocolate companies or with a small chocolate manufacturer. The majority of cacao produced in Colombia ends up going to one of these buyers. Significantly smaller volumes of cacao flow from the central traders to small chocolate manufactures, as well as to the international market. Third, producer prices in Colombia (prices paid at the Casa Luker and Nutresa buying centers) closely follow the ICCO



world price and are above prices paid to producers in the majority of cacao producing countries of the world. Finally, significant internal demand for cacao and chocolate products, such as drinking chocolate, exists in Colombia and constitutes an important market outlet for many cacao producers.

The Colombian cacao sector presents opportunities specifically in the context of post-conflict development. Recent efforts to promote the sector have focused on expanding cacao production, post-harvest management to a lesser extent, the establishment of producer organizations, and the exploration of niche markets. Despite these interventions, the sector still underperforms its potential. Rather than focus primarily on cacao production, we propose a strategy that clarifies roles and responsibilities in the sector to avoid inefficiencies and overlap and thereby enhances coordination and collaboration amongst national and regional actors, investments in strengthening producer organizations to become viable rural businesses and providers of clear market signals and incentives for improved best management practices. After considering all of the stakeholder input and available data, we believe these interventions will improve the competitiveness and productivity of cacao production, and can help the cacao sector live up to its potential.

This report begins with a general introduction of cacao in Colombia and the region, followed by an in-depth explanation of our methodology. The next sections cover specifics on how cacao markets work, information on post-harvest practices and pricing, a detailed breakdown of the supply chain in Colombia including the major players, and a description of current cacao production practices in Colombia. The recommendation section is divided by topic and pulls from evidence discussed earlier in the report, while the conclusion outlines a few of our most important findings.

INTRODUCTION

Cacao has been produced in Colombia for millennia, tracing its biological origins to the upper Orinoco region of northeastern Colombia (Motamayor et al., 2002), and has served as a culturally important part of the national diet ever since. Currently, global cacao production is heavily concentrated in Africa (primarily Cote d'Ivoire, Ghana, Cameroon and Nigeria, comprising 63.2%), Asia (primarily Indonesia and Papua New Guinea, comprising 17.4%) and Latin America (primarily Ecuador, Brazil, Peru, Dominican Republic and Colombia, comprising 14.1%). However, unlike many other countries presently producing cacao, modern day Colombian cacao production is primarily focused on meeting domestic demand rooted deeply in the historical traditions of drinking chocolate.

Efforts made by Colombia over the past decade have led to expansion of cacao production (Figure 1). The most recent annual cacao production figures show that Colombian cacao production has surpassed the historic levels of the 1990's (Figure 2). Colombian production has oscillated over the past 50 years, likely based on a variety of market and non-market factors (prevailing prices, the internal conflict, perceived demand of the domestic market, etc.). Yield, in terms of MT produced per hectare, has stayed flat for the past 60 years, but annual production (total MT produced in the country) has increased through area expansion. These trends can be seen in Figure 3 in terms of annual production, yield, and area harvested relative to the base year of 1961. The increase in harvested acres between 2012 and 2014 may be the result of development projects promoting cacao plantings between 2006 – 2011 (e.g. ADAM - Areas for Municipal-Level Alternative Development Program/Áreas de Desarrollo Alternativo Municipal and MIDAS - Additional Investment for Sustainable Alternative Development Program/Más Inversión para el Desarrollo Alternativo). As a result, since 2000, Colombia's total cacao production has grown from 36,731 MT to 60,535 MT in 2017¹ (surpassing the historic highs of the early 1990's) in spite of lagging overall yields (FAOSTAT, 2016; Fedecacao, 2015).

¹ See <http://www.fedecacao.com.co/portal/index.php/es/2015-04-23-20-00-33/551-en-2017-colombia-alcanzo-nuevo-record-en-produccion-de-cacao>



Figure 1. CACAO PRODUCTION BY MUNICIPALITY, 2013
(in Metric Tons, MT)

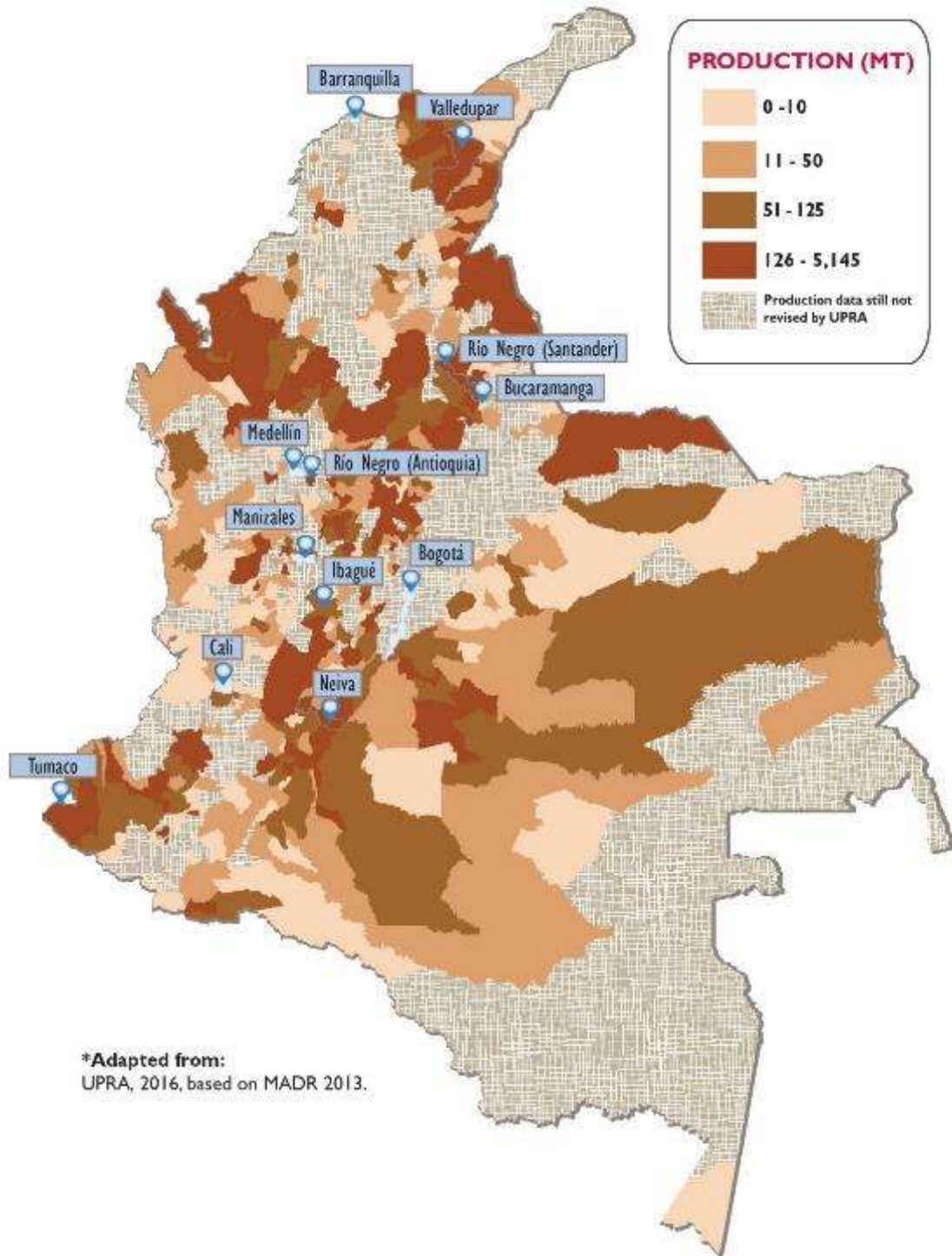


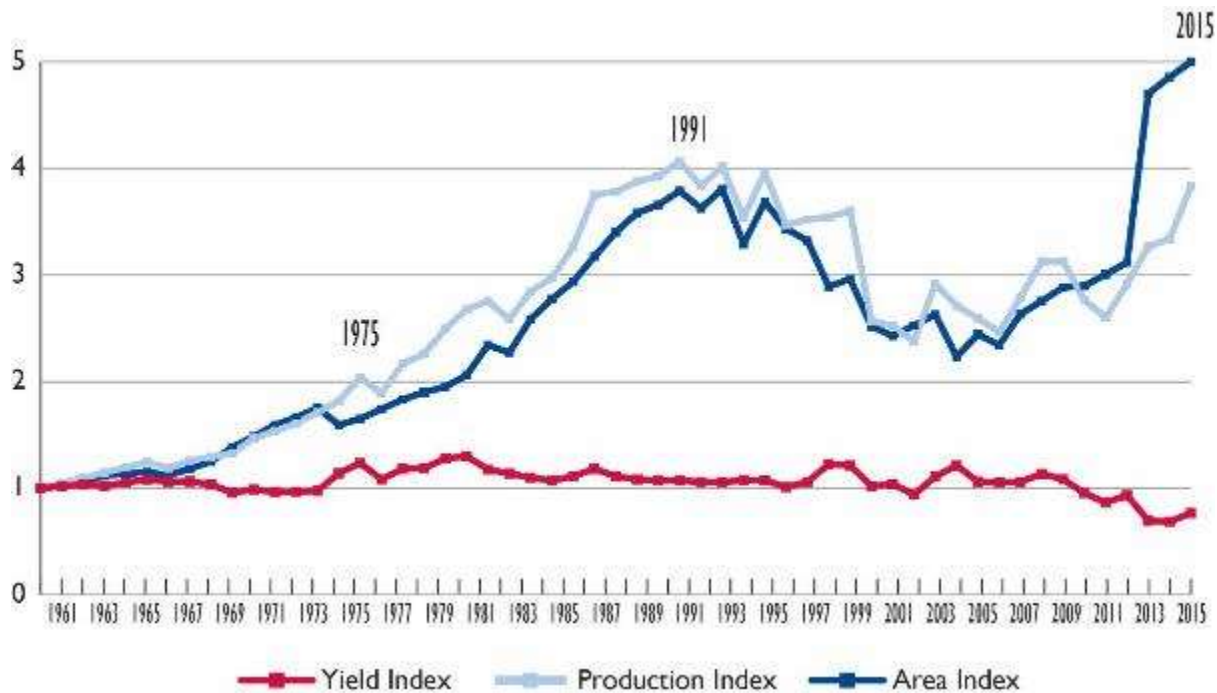
Figure 2. COLOMBIAN CACAO PRODUCTION, (1961- 2017)
(in Metric Tons, MT)



Source: FAOSTAT, 2017; Fedecacao, 2017.



Figure 3. INDICES OF COLOMBIAN CACAO PRODUCTION, AREA HARVESTED, YIELD AND ANNUAL AVERAGE ICCO PRICE (BASE YEAR= 1961)



Source: FAOSTAT, 2017.

Cacao beans are used across the globe in foods (chocolate and products containing chocolate and/or cacao butter, powder or paste) and cosmetics. While consumption varies from country to country, by and large, cacao consuming countries mostly reside outside of the tropics. Conversely, all cacao producing countries can be found within the tropics due to the biological requirements of the tree. Generally speaking, there are three varieties of cacao, *forastero* (the most common source of ‘bulk’ cacao on the global market)², *criollo* and *trinitario* (varieties from which the ICCO’s ‘fine and flavor’ designation is derived). *Forastero* is most commonly found in Africa, while *criollo* and

² According to the ICCO (2017), *Nacional* or *arriba* variety of trees in Ecuador are of *forastero* origin, but considered ‘fine and flavor’ given their organoleptic attributes.

trinitario are common in Latin America and Caribbean as well as a few countries in the Atlantic, Indian and Pacific Oceans³. All varieties are used in chocolate manufacturing, with ‘bulk’ cacao used broadly and some ‘fine and flavor’ specifically used in niche chocolate and ‘bean to bar’ operations (Dand, 2010; ICCO, 2017). The International Cocoa Organization (ICCO) currently (as of May 2016) recognizes twenty-three ‘fine and flavor’ origins and offers a rule-of-thumb estimate of the percentage of exports from those origins composed of ‘fine and flavor’ cacao (Table 1). The notion of ‘fine and flavor’ cacao is essentially defined by the ICCO as cacao from Latin American varieties. This being said, there is an extremely important issue that cannot be overemphasized, the current world market, which includes global export and local domestic markets, does not differentiate between ‘fine and flavor’ and ‘bulk’ cacao. Origin can matter, as is evidenced by origin differentials, but these accrue for a variety of reasons, including volume and overall quality. Furthermore, the distinction of ‘fine and flavor’ is an attempt to differentiate the market, but the majority of the ‘fine and flavor cacao’ is either exported as bulk or used domestically, because supply outstrips demand for ‘fine and flavor cacao’.

Quantities of ‘fine and flavor’ cacao, presented in “pyramid” representations of cacao market segments by consulting firms and aid agencies promoting this market segmentation (see Figure 9, p. 44), are overestimated. These pyramids also associate large premiums (US\$500-1000 per MT above the ICCO price) that are not supported by any cacao transactions data on global markets⁴.

In terms of quantity, most attempts to measure the share of ‘fine and flavor,’ use the shares prescribed by the ICCO⁵. However, these estimates are not accurate. Evidence for the inaccuracy can be found in export data from MAGAP in Ecuador, where the ICCO designated a 75% ‘fine and flavor’ market share and most published estimates consider Ecuador the largest exporter of ‘fine and flavor’ cacao. However, the share of ‘fine and flavor’ is not supported by 2015 data which shows that CCN51 and A.S.E.

³ Due to phytosanitary restrictions, the current dispersion of cacao varieties is fixed. Latin American cacao is not able to be transported to Africa and vice versa.

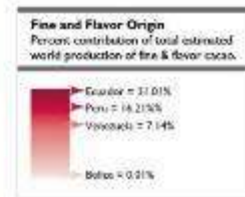
⁴ The premiums in the pyramid are ultimately paid by the end user (chocolate manufacturer), in comparison to the prevailing world price. In practice, origin premiums are paid at different stages of the supply chain including the producer group, at the port, and in the receiving country by the chocolate manufacturers. To determine actual premiums received, trade data on unit values are used.

⁵ See <https://www.icco.org/about-cocoa/fine-or-flavour-cocoa.html>



Table I
GLOBAL CACAO BEAN PRODUCTION BY COUNTRY, 2014

Rank	Country	Total Quantity Produced (MT)	Total Percent of World	Bulk	% of Bulk	Fine and Flavor	% of Fine and Flavor	ICCO
1	Cote d'Ivoire	1,434,077	32.2%	1,434,077	35.21%			--
2	Ghana	858,730	19.3%	858,730	21.09%			--
3	Indonesia	728,400	16.4%	721,116	17.71%	7,284	1.93%	1%
4	Brazil	273,793	6.2%	273,793	6.72%			--
5	Cameroon	269,902	6.1%	269,902	6.63%			--
6	Nigeria	248,000	5.6%	246,000	6.09%			--
7	Ecuador	156,216	3.5%	39,054	0.96%	117,162	30.01%	75%
8	Peru	81,651	1.8%	20,413	0.50%	61,238	16.21%	75%
9	Dominican Republic	69,633	1.6%	41,780	1.03%	27,853	7.37%	40%
10	Colombia	47,732	1.1%	2,387	0.06%	45,345	12.00%	55%
11	Papua New Guinea	45,019	1.0%	4,502	0.11%	40,517	10.73%	50%
12	Togo	30,514	0.69%	30,514	0.73%			--
13	Mexico	26,969	0.61%			26,969	7.14%	100%
14	Venezuela	21,735	0.49%			21,735	5.75%	100%
15	Uganda	20,979	0.47%	20,979	0.52%			--
16	Sierra Leone	15,879	0.36%	15,879	0.39%			--
17	India	15,000	0.34%	15,000	0.37%			--
18	Haiti	14,633	0.33%	14,633	0.36%			--
19	Guatemala	13,109	0.29%	6,555	0.16%	6,555	1.73%	50%
20	Gabon	9,439	0.21%	9,439	0.23%			--
21	Madagascar	8,818	0.20%			8,818	2.33%	100%
22	Liberia	7,500	0.17%	7,500	0.18%			--
23	Bolivia	7,164	0.16%			7,164	1.90%	100%
24	United Republic of Tanzania	5,645	0.13%	5,645	0.14%			--
25	Philippines	5,428	0.12%	5,428	0.13%			--
26	Congo	5,000	0.112%	5,000	0.12%			--
27	Solomon Islands	4,825	0.108%	4,825	0.12%			--
28	Sao Tome and Principe	3,200	0.07%	2,000	0.05%	1,200	0.30%	35%
29	Mali	3,665	0.06%	3,665	0.07%			--
30	Democratic Republic of the Congo	2,500	0.06%	2,500	0.06%			--
31	Cuba	2,188	0.05%	2,188	0.05%			--
32	Nicaragua	1,870	0.04%			1,870	0.49%	100%
33	Sri Lanka	1,812	0.04%	1,812	0.04%			--
34	Vanuatu	1,663	0.037%	1,663	0.04%			--
35	Jamaica	1,154	0.026%	58	0.00%	1,096	0.29%	95%
36	Honduras	941	0.021%	471	0.01%	471	0.12%	50%
37	Grenada	900	0.020%			900	0.24%	100%
38	Costa Rica	700	0.016%			700	0.19%	100%
39	Equatorial Guinea	668	0.015%	668	0.02%			--
40	Panama	641	0.014%	321	0.01%	321	0.08%	50%
41	Senegal	484	0.011%	484	0.01%			--
42	Guyana	469	0.011%	469	0.01%			--
43	Angola	414	0.009%	414	0.01%			--
44	El Salvador	366	0.008%	366	0.01%			--
45	Trinidad and Tobago	329	0.007%			329	0.09%	100%
46	Dominica	297	0.007%			297	0.08%	100%
47	Saint Vincent and the Grenadines	217	0.005%	217	0.01%			--
48	Gabon	207	0.005%	207	0.01%			--
49	Timor-Leste	163	0.004%	163	0.00%			--
50	Thailand	144	0.003%	144	0.00%			--
51	Central African Republic	133	0.003%	133	0.003%			--
52	Benin	117	0.003%	117	0.00%			--
53	Belize	75	0.002%	38	0.001%	38	0.01%	50%
54	Saint Lucia	63	0.001%			63	0.02%	100%
55	Comoros	42	0.001%	42	0.00%			--
56	Micronesia (Federated States of)	32	0.001%	32	0.001%			--
57	Fiji	20	0.000%	20	0.0005%			--
58	Suriname	6	0.000%	6	0.0001%			--
59	American Samoa	1	0.000%	1	0.00%			--
	Total	4,450,293	100.0%	4,072,418	100%	377,844	100%	
			% of World Production	91.5%		8.5%		



■ Fine and Flavor Origin □ Non-Fine and Flavor Origin

Source: FAOSTAT, 2017; Authors' calculations based on percentages indicated by the ICCO; Comtrade, 2017.

(*Arriba superior época*) graded cacao, neither of which is considered fine and flavor⁶, constituted 72.6% of all Ecuadorian cacao exports between 2012 and September, 2015 (MAGAP, 2015). This finding is confirmed by Rios (2017) who also showed that not only did the market share not reflect that estimated by the ICCO (73.7% bulk between 2012-2016), but the weighted average of unit values for fine and flavor cacao was US\$10 above the average ICCO price (US\$2791 vs. US\$2781/MT) during the same time period. Similarly, Rios (2017) reports a bulk market share in Peru of 56.2% (versus the ICCO estimate of 25% bulk) and Colombian export data suggests 77.5% of exports were bulk cacao between 2012-2016, nowhere near the 95% ‘fine and flavor’ quantity estimated for Colombia by the ICCO. These findings suggest that the market share and associated premiums/prices for fine and flavor cacao exports is drastically overstated in the pyramids mentioned above. See Cacao Production in Ecuador Box in p. 31 and Appendix G for more information.

In the analysis that follows, we use the ‘fine and flavor’ convention essentially as a thought experiment, since no publicly available data exists on actual ‘fine and flavor’ market transactions as an independent category. Instead, cacao trade data for all countries is reported annually⁷ and differences between unit values (prices) are simply averages over time potentially reflecting seasonal variation or overall quality. A recent study by Rios (2017) proposes a new definition for this market segment by combining data for unique cacao origins, organoleptically differentiated cacao and certified cacao into a ‘special cacao’ category but this has yet to be accepted by key market actors (i.e. producers, processors, chocolate manufacturers). It should be noted that there is some ambiguity related to the definition of ‘fine and flavor’. The ICCO uses a combination of criteria, both qualitative and quantitative, to determine the ‘fine and flavor’ designation,

⁶ According to Quingaisa and Riveros (2007), A.S.E. cacao is a member of the arriba family of ‘fine and flavor’ cacao grading system used in Ecuador. However, A.S.E. is the lowest grade and does not receive a premium given its base-level quality and the authors suggest that Ecuador work towards selling all arriba cacao at the higher grades to capture the potential premiums. Furthermore, CCN51 is segregated in the Ecuadorian grading scheme, irrespective of the fundamental quality parameters used to grade Arriba.

⁷ In theory, all cacao producing countries report on an annual basis to FAO and Comtrade. As the repository of official international trade statistics, UN Comtrade collects and reports all of this cacao trade data. “The UN International Trade Statistics Database (UN Comtrade) contains detailed goods imports and exports statistics reported by statistical authorities of close to 200 countries or areas. It concerns annual trade data from 1962 to the most recent year. UN Comtrade is considered the most comprehensive trade database available with more than 3 billion records.” <https://comtrade.un.org/labs/dit-trade-vis/pages/about.html>



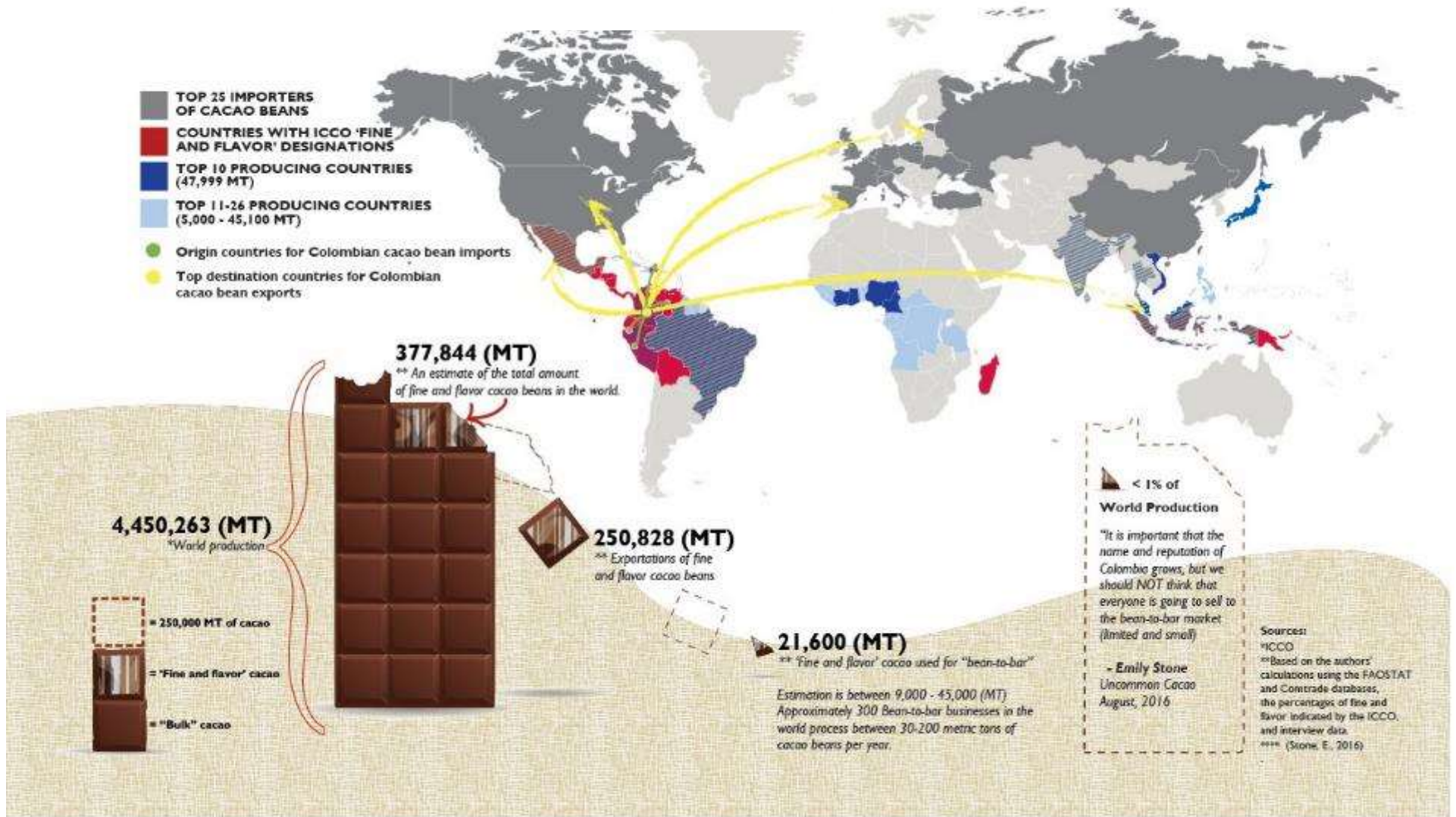
but admits that measurement of some of the criteria for ‘fine and flavor’ is ‘subjective’ (ICCO, 2017).

Dand (2010) summarized the situation this way,

But as dark or plain chocolate makes up only a small proportion of total chocolate sales the relevance of the mainly trinitario beans (pure criollo has all but disappeared) has diminished. This is in line with its production; one estimate puts the amount of fine and flavor cocoa at below 5% of the world crop. In fact, it may be much lower as many traditional growers of trinitario cocoa also produce the forastero type, and the export figures, on which the estimate was made, do not distinguish between the two. The role of trinitario for special high-quality chocolate is also under threat; one expert taster working for a large chocolate manufacturer admitted privately that very good dark chocolate, equal to the flavor of that made with fine and flavor cocoa, could be made from forastero beans.

Dand’s position, held for over a decade now (1999), is supported by the current data, which summarizes the market share for premium and super-premium chocolate markets as being “extremely small relative to the other segments” (Market Research, 2017). However, this is not an academic question; this is an industry issue best answered using available data and interviews with key industry stakeholders. As previously stated, while the ICCO estimates that 95% of cacao from Colombia is exported as ‘fine and flavor’, global production, export, and import statistics do not differentiate between bulk and ‘fine and flavor’ cacao (Puro, 2016). For the purposes of this study, we use a combination of FAOSTAT production data (available through 2014) the current ICCO ‘fine and flavor’ export percentages and the list of top fine and flavor consuming countries to gauge the relative sizes of hypothetical bulk and ‘fine and flavor’ supplies and consumption and multiple interviews with actors within the global cacao supply chain (Figure 4).

Figure 4. GLOBAL CACAO PRODUCTION





In contrast to the international ‘fine and flavor’ market, data show evidence of a strong internal market for bulk cacao in Colombia. Colombian households consume large amounts of mass market chocolate bars as well as *chocolate de mesa* or drinking chocolate as part of their basic diet. This product, which takes several forms, tends to contain relatively high concentrations of cacao solids as well as palm oil, sugar, and occasionally flavors such as cloves, cinnamon or vanilla. In addition to large companies such as Casa Luker and Nutresa (the holding company which owns Nacional de Chocolates), a number of smaller more regional chocolate firms exist. These smaller firms tend to focus nearly exclusively on *chocolate de mesa* and have much less space to maneuver when cacao prices rise.

As a staple in the basic household food basket in Colombia, consumers of table chocolate remain extremely price sensitive, which can limit brand loyalty. In times of high cacao prices – such as those seen through mid-2016 – raw material cost growth outstripped the capacity of firms to pass along this cost, which contributed to shrinking margins in the drinking chocolate segment. Chocolate firms reacted in two distinct ways. Large and well capitalized firms such as Casa Luker and Nutresa invested in technology to increase processing efficiency and in product development for large range of value added products including powdered instant drink mixes based on cacao as well as expanded snack and bar offerings for the internal market. The resulting efficiency gains and additional income from value added products allowed them to manage higher raw material costs with minimum disruption. Smaller regional chocolate firms, on the other hand, were at a disadvantage. These firms often pay more than large firms to access sufficient cacao and tend to manage a much smaller portfolio of traditional products (mass produced chocolate bars and drinking chocolate) focused on price-sensitive consumers. In interviews in Santander, the difficulties faced by these firms in terms of cash flow and access to raw material were clear. With the recent fall in global cacao prices, smaller firms should be in better financial shape but still face challenges to compete with large companies in terms of raw material prices, limited capacity to diversify into higher value products and difficult access to the formal financial system for capital investments/technological advancements to improve efficiency.

In light of stagnating international conditions for cacao⁸, the Colombian domestic market constitutes an important safety valve in terms of demand. From a producer perspective, however, while this demand ensures a ready market, the income received is still subject to global market conditions given the relationship between domestic prices and cacao prices on the commodity exchanges in New York and London (an average of the two results in the standard international price, the ICCO price). Lower domestic cacao prices clearly benefit the Colombian processing industry, both small and large firms, who are able to access lower cost raw materials for drinking chocolate and other cacao based products for both the domestic and export markets.

All of the above relies on bulk cacao. In terms of the current opportunities for ‘fine and flavor’ cacao in Colombia, both Casa Luker and Nutresa have created product lines that are dependent upon cacao appropriate for higher end niche markets that are usually origin specific (for example, Tumaco, Huila, Santander). In addition, Colombian firms have begun to deliver chocolate products to market that do not fall into the traditionally mass-market categories. Cacao Hunters is one example who is sourcing at origin and supplying bean to bar artisanal chocolate to urban consumers in Colombia. As can be seen in Figure 4, this market is incredibly small and will have little impact on the majority of cacao farmers in the country.

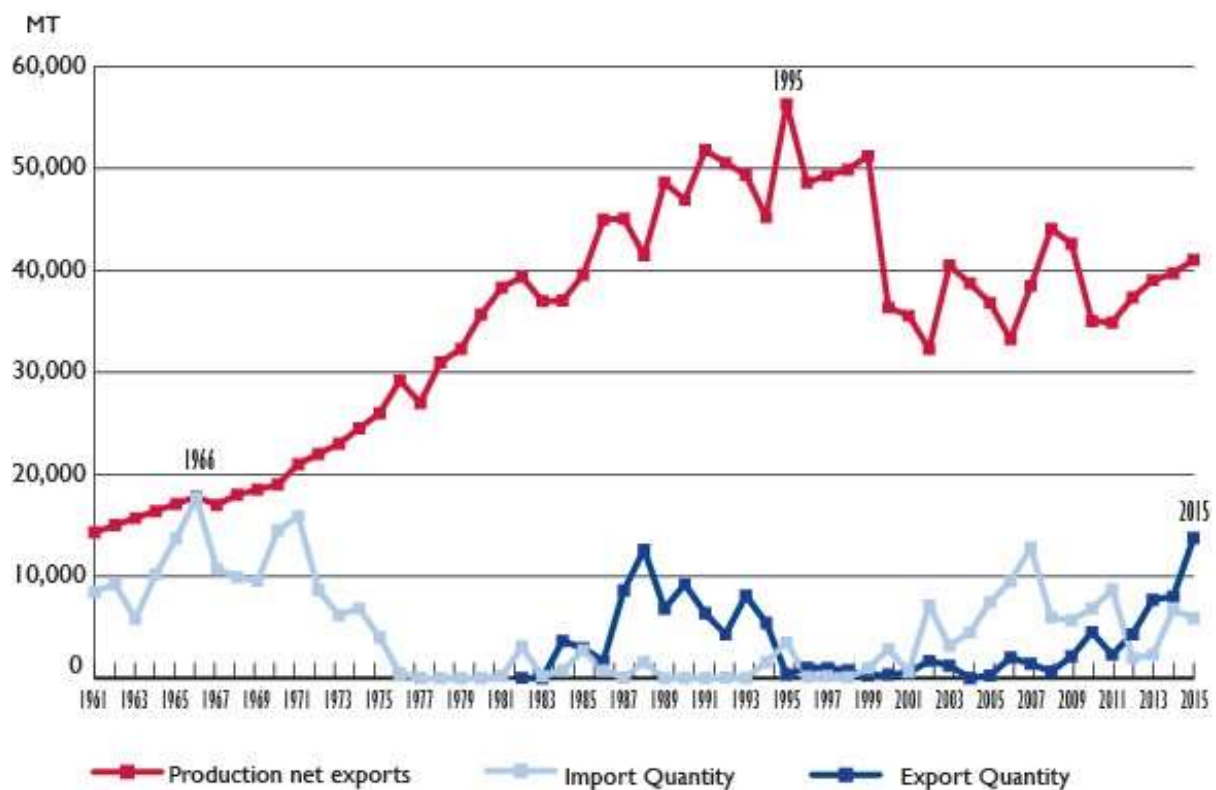
Quantitatively speaking, we can explore the qualitative trends described above and how they have impacted, in aggregate, cacao supply and demand in Colombia. According to data from Baquero Lopez for 2015, total domestic consumption of cacao is slightly more than 47,000 MT. Exports accounted for slightly more than 24,000 MT in 2015, leading Colombia to import nearly 17,000 MT to meet domestic demand in that year (Baquero Lopez, 2016). This situation represents an improvement over previous years where Colombia imported cacao from neighboring countries despite registering little or no exports (Figure 5). The achievement of near parity between Colombian supply and demand comes from significant donor and government investment in the expansion of cacao area as an alternative crop to coca production and not from any improvement in

⁸ Cacao supply and demand is ever evolving. At the time of writing cacao supply was estimated to outstrip demand and world prices were on a downward trend. See Economist Intelligence Unit, July 2017 EIU’s monthly cocoa outlook, and <https://www.reuters.com/article/us-cocoa-surplus/supply-glut-risk-as-cocoa-expansion-plans-backfire-idUSKBN16S266>



historically low levels of productivity on most cacao farms. Between 2000-2015, the total area cacao was harvested in Colombia grew from 83,138 ha to 165,006 ha, nearly doubling (98.5% change). During the same period, production increased from 36,731 MT to 54,796 MT, a 49.2% increase. With harvested acreage far outpacing production, calculated yields have decreased by 24.9% from 441.8 kg/ha to 332kg/ha. While there are a variety of agronomic factors at play each year, the basic lesson learned is that the intended effect of efforts to expand acres will be muted if productive capacity is not addressed concurrently.

Figure 5. COLOMBIAN CACAO PRODUCTS (NET OF EXPORTS), EXPORTS AND IMPORTS IN METRIC TONS (MT), 1961 – 2015



Source: FAOSTAT, 2017; Comtrade, 2017. Note: the production net exports plus exports equals total Colombian production (supply). In contrast, production net exports plus imports equals total Colombian consumption (demand).

Starting in 2012, Colombia became a net exporter (Table 2). In most situations, this is a result of excess supply or the only market available being in chocolate producing countries. In the case of Colombia, given strong domestic demand, export markets are being sought for a percentage (10.4-25.1%) of total production as an alternative to the domestic market. However, an economic development consideration is the value of the total amount exported less than the value of the quantity of imports required by domestic firms to replace exported cacao. For example, from 2007-2015, Colombia generated nearly US\$129 million in export revenue from cacao, but spent nearly US\$147 million importing cacao. More recently, from 2012-2015, Colombia has generated nearly US\$95 million in export revenue and spent US\$46 million on imports, primarily from (in order of importance) Ecuador, Venezuela, Peru and the Dominican Republic. It is unlikely that this situation will change in the near term given the importance of drinking chocolate in the Colombian diet. **This means that Colombia, unlike most other cacao origins, can effectively target both the domestic and international market with increased production volumes while prices will continue to track international market values.**

Table 2
EXPORTS OF COLOMBIAN CACAO & IMPORTS 2012 - 2015 (in Metric Tons, MT)

Year	Exports	Imports	Exports - Imports
2012	4321	1960	2361
2013	7693	2316	5377
2014	8018	6688	1330
2015	13744	5891	7853

Source: Comtrade, 2017.



A deeper examination into the destinations of Colombian exports reveals that, Colombia has exported cacao beans to thirty different countries since 2007 (Comtrade, 2017). From 2007-2011, Colombia exported 10,996 MT to sixteen destinations, generating US\$34 million in export revenue. Primary partners during this time, in descending order of importance were Spain (25.7%), Germany (16.7%), Netherlands (14.7%), United States (14.7%) and Canada (9.3%), accounting for 80.8% percent of all exports. In contrast, between 2012 and 2015, Colombia exported 33,776 MT of cacao to 25 destinations, generating nearly US\$95 million in export revenue. The top six destinations accounted for 80.7% of total exports and included Spain (24.7%), Mexico (23.9%), Malaysia (10.6%), Estonia (9%), Netherlands (7%) and the United States (5.5%).

From a regional demand perspective, destinations can be grouped to examine market share and unit values (Table 3). From 2012 to 2015, more than half of Colombian cacao exports went to Europe (51.2%), accounting for 52.7% of export revenue, generated by Colombian cacao. North America (30.2%) was the second most important destination and Asia (16.6%) was third. Central and South America were a distant fourth. Interestingly, the unit values for these transactions suggest that, on average, Colombian cacao has a higher value in Europe and Latin America, than in Asia and North America. A closer look at Asia, often highlighted as a premium cacao market, reveals that Malaysia is purchasing cacao at a lower unit value than Japan, but at much higher volumes.

Table 3
EXPORTS OF COLOMBIAN CACAO & IMPORTS 2012 - 2015 (in Metric Tons, MT)

Region	Share of Exports	Share of Export Revenue	Unit Value (\$/MT)
Asia	16.6%	16.1%	2728
Central & South America	1.6%	1.6%	2858
Europe	51.2%	52.7%	2892
North America	30.2%	29.2%	2711
World	33776 MT	\$94,918,863	2810

Source: FAOSTAT, 2017; Authors' calculations based on percentages indicated by the ICCO; Comtrade, 2017.

Additional analysis of unit values, from 2012-2015, highlights one of the challenges facing Colombian cacao exports (Table 4). Based on a comparison with the ICCO price, Colombian cacao was sold, on average, at a unit value that ranged from -0.8% in 2014 to -3.1% below the ICCO price in 2015. Colombian cacao did sell, on average, above the ICCO price in 2012 (2.4%). With a local market that is competing to keep Colombian cacao in the country for domestic use, buying center prices are approximately 90% of the ICCO price, and considering the transactions and search costs associated with identifying, developing and supplying export markets, entrants are having to make commercial decisions based on their expected return on investment and their ability to foster key business relationships (not to mention the quality and volumes necessary to attract interest). These lower unit values, calculated using trade data reported by the Colombian government were corroborated by interviews with exporters and calls into question the prevalence of premiums accruing to Colombian cacao exports that was claimed by some stakeholders that we interviewed.

Table 4
UNIT VALUES FOR COLOMBIAN CACAO EXPORTS IN COMPARISON WITH ANNUAL AVERAGE ICCO PRICES 2012 - 2015 (in US\$/MT)

Item	2012	2013	2014	2015
Colombia*	2,433.66	2,380.25	3,037.26	3,036.88
ICCO	2,377.07	2,439.09	3,062.76	3,135.17
Differential	56.59	-58.84	-25.50	-98.28

*Represents the total exports of Colombia to the world, without differentiating the country of destination.

As stated earlier, currently, the ICCO estimates that 95% of Colombia's cacao exports are 'fine and flavor'. However, globally, statistics on production, exports and imports do



not differentiate between bulk and ‘fine and flavor’ cacao. This practice generally conforms to how the export market operates. Even in countries designated as ‘fine and flavor’ by the ICCO, cacao is typically blended to meet international standards based on bean size, fermentation, defects, etc. To look into the destinations a bit further, it is of interest to examine the top ‘fine and flavor’ destinations as determined by the ICCO (Table 5). Between 2012 and 2015, 23.7% of all Colombian cacao exports went to countries that are major ‘fine and flavor’ consumers. However, this percentage has dropped from a high of 25.2% in 2012 to 14.8% in 2015. In terms of prices (unit values), exports focused on ‘fine and flavor’ destinations had a high and similar ‘premium’ (over US\$400) in 2012 in terms of the unit value of exports compared to all cacao exported from Colombia and the ICCO price. This ‘premium’ has not been stable even during years where the global price has been similar (2012 and 2013 or 2014 and 2015). If there is a premium for ‘fine and flavor’ demand from Colombia, it is much less than the estimates of others and is only applicable to a relatively small proportion of Colombian cacao exports.

Table 5
COLOMBIAN CACAO EXPORTS COMPARING TOTAL EXPORTS TO ‘FINE AND FLAVOR’ (FAF) DESTINATIONS, 2012 – 2015 (in Metric Tons, MT)

Item	2012 Quantity (MT)	2012 Unit Value (US\$/MT)	2013 Quantity (MT)	2013 Unit Value (US\$/MT)	2014 Quantity (MT)	2014 Unit Value (US\$/MT)	2015 Quantity (MT)	2015 Unit Value (US\$/MT)
Partner: World*	4,320.86	2,433.66	7,692.69	2380.25	8,017.97	3,037.26	13,744.42	3,036.88
Partner:	1,090.94		1,678.56		813.64		2,030.16	
% of Quantity of FaF	25.2%		21.2%		10.1%		14.8%	
ICCO Average Price		2,377.07		2,439.09		3,062.76		3,135.17
Faf Weighted Average		2,875.14		2,433.69		3,123.34		3,184.43
FaF Premium, World		441.48		53.44		86.08		147.55
Faf Premium, ICCO		498.07		- 5.40		60.58		49.26

Source: Comtrade, 2017.

* World represents Colombia’s overall cacao exports with the world, without differentiating by country. Note: ‘Fine and Flavor’ destinations,

A Note on Cacao and Peace

While Colombia's attachment to cacao is longstanding, one cannot examine the current status of the industry without recognizing the impact that the past fifty years of civil strife has wrought on the country and the industry. The Colombian armed conflict has affected virtually all of the potential cacao producing regions of the country. However, some departments were the location of more armed conflict related events than others. By comparing the median and average total number of armed conflict related events by department, we developed a list of conflict and non-conflict zones.⁹ Departments included as conflict zones (ordered from most events to fewest) were: Antioquia, Bolivar, Magdalena, Nariño, Cauca, Chocó, Cesar, Valle de Cauca, Caquetá, Córdoba, Tolima, Norte de Santander, Sucre, Putumayo, and Meta. On the other hand, the departments identified as non-conflict (ordered from most events to fewest) were: Huila, La Guajira, Caldas, Arauca, Cundinamarca, Guaviare, Casanare, Risaralda, Boyacá, Atlántico, Bogotá D.C., Vichada, Quindío Vaupés, Guainía, Amazonas, and San Andrés, Providencia y Santa Catalina. Santander was not included in the classification due to its ambiguous conflict situation in this analysis, being above median and below average, and its overall importance as a cacao producer.

Non-conflict zones accounted for 22.7% of all area planted to cacao and 24.9% of all production in Colombia in 2015 (Table 6). In contrast, conflict areas accounted for 46.1% and 34.2% of area planted and production, respectively. On its own, Santander accounted for 31.2% of total area planted and 40.9% of total production. Yields were highest in Santander (435 kg/ha) and lowest in the conflict areas (246 kg/ha). This outcome is likely influenced by the resources, or lack thereof, in each of the zones. It is also indicative of the regional differentiation that was observed in Colombia resulting in the need for regionally-oriented approaches that explicitly recognize the variation across all of the community capitals.

Consequently, smallholder farmers in conflict zones have received sporadic assistance and marketing channels have been challenged by limited access. With the advent of peace, opportunities for transforming Colombia cacao sector abound. However, many

⁹ An event is defined as an occurrence of a victimizing fact to a person, in a municipality and a certain date from 1985 until 2017. Unidad Administrativa Especial para la Atención y Reparación Integral a las Víctimas. Red Nacional de Información. Cutoff date: February 1, 2017. <http://cifras.unidadvictimas.gov.co/Home/Departamento?vq=1>



challenges remain and considerable investment is needed in order to elevate the importance of the cacao sector to Colombia's vitality through its contribution to rural Colombian incomes and gross domestic product. Case in point, in 2013, the gross production value of Colombian cacao beans was approximately US\$103.5 million while the gross production value of the Colombian agriculture sector was US\$22.1 billion or 5.8% of gross domestic product (FAOSTAT, 2016). Cacao may have a place in rural development with peace, but it is currently a very small part of the Colombian economy and its agricultural sector.

Table 6
COMPARING CACAO AREA PLANTED, PRODUCTION, AND YIELD BY
CONFLICT/NON-CONFLICT AREAS AND SANTANDER.

Zone	Item	Area Planted (ha)	Production (MT)	Yield (kg/ha)
Non-Conflict Areas	Quantity	37505	13651	364
	Share	22.7%	24.9%	
Conflict Areas	Quantity	76001	18720	246
	Share	46.1%	34.2%	
Santander	Quantity	51500	22424	435
	Share	31.2%	40.9%	

Source: Fedecacao, 2016 and Author's Calculations

Cacao Production in Ecuador

After nearly twenty years of historic growth (GDP rose from \$18.3B to \$100.1B in real terms between 2000 and 2015 according to the World Bank), agriculture continues to be important to Ecuador, and is considered its largest employer (US Embassy). Similar to Colombia, Ecuador is home to indigenous cacao varieties (*Nacional* or *arriba*), which have been cultivated in a number of specific regions of the country (Esmeraldas, Amazonas, Manabí, and others). Ecuador has been exporting cacao for more than a century and it continues to be a key agricultural sector accounting for ~8% of GDP or US\$814 million (Ministry of Agriculture), nearly eight times larger than Colombia. Nearly all the production is exported due to little chocolate consumption by Ecuadorians. This results in relatively low domestic demand (3% goes to local consumption, the rest to exports).

Now, Ecuador has become a global leader in exporting cacao (5th largest in the world, behind Ivory Coast, Ghana, Indonesia and Cameroon). Ecuador's long history of producing cacao, and its current position as the largest cacao exporting nation in Latin America, provides an excellent backdrop for examining the current opportunities and challenges facing the cacao sectors in Latin America and the best practices that have led to Ecuador's ascendance in the global marketplace.

Since 2000, Ecuador has seen huge increases in cacao exports, as total production went from 51,000 MT in 2000 to 265,000 MT in 2016, a 5-fold increase in a little over 15 years. There are a number of reasons for this increase, including governmental and non-governmental investments in programs focused on the cacao sector (for example, the Government of Ecuador, USAID, CRS and many others committed significant resources during this time) and private sector contributions that included upstream supply chain innovations, such as collective fermentation and drying facilities, and the evolution of large scale plantations. In addition, Ecuador experienced an increase in plantings of CCN51, a prolific variety (yielding up to 2500 kilos per hectare) that has been tested for more than 50 years, is considered somewhat disease resistant, can be produced with little to no shade, though it has been derided for its flavor-related challenges (a result of improper fermentation) and its monoculture cropping system. Several interviewees in Ecuador estimated that *Nacional* varieties yield between 250 – 400 kg/ha on average versus estimates for CCN51 that ranged from 800 – 1500 kg/ha or more. FAOSTAT data reveal that Ecuador's estimated national average yield rose from 248 kg/ha in 2000 to 419 kg/ha in 2014 based on reported harvested acres and production. Due to the introduction of high yielding varieties, many new hectares of area were converted to cacao as the production extended into multiple areas of the country, some of which had previously been in banana or cattle production (based on personal interviews with Ecuadorian officials, Blare and Usechi, 2013 and Wunder, 2001). According to FAOSTAT, over 100,000 ha of land where cacao was harvested was added between 1999 and 2013, rising from 301,160 to 402,434 hectares harvested. (Continue)



(cont.) Cacao Production in Ecuador

Currently, the Ecuadorian sector can be best described as being in transition. In one respect, it is heavily vested in the past, relying on the flavor profiles and historic bond to traditional low-yielding *Nacional* cacao varieties that are being used to develop new niche products that are differentiated by origin at the regional level.

On the other hand, farmers are realizing higher yields and benefiting from the resulting production gains through the adoption of CCN51 and introduction of international exporters interested in the marketing of bulk cacao on the global market. Based on our observations, a tension pervades in the Ecuadorian cacao sector and the line is definitively drawn between *Nacional* and CCN51.

Because of the yield differentials but no price differentials, there seems to be an ongoing debate that has pitted supporters of the *Nacional* varieties against supporters of CCN51. Both can be important tools for development strategies in the country. What needs to occur is some real technical assistance for producers to either ferment CCN51 well or bring the beans to fermentation or drying stations where trained people can take on the task of quality assurance. Poor fermentation can cause a vinegar tasting chocolate due to high levels of water in the mucilage. Leaving the system, the way it is, or continuing the debate, will not help the country to move beyond the problems since CCN51 is not going away.

The productivity of the variety and the fact that it has been in production for decades and all over the country, makes it the choice for many producers. The new higher yielding *Nacional* hybrids (some even crossed with CCN51) need to be tested over a longer period of time and in different ecological zones and nursery programs need to be scaled up to be able to meet the demands and needs of the producers.

In this vein, there is some interest by researchers, governmental organizations, chocolate manufacturers, and other key stakeholders, with regionalization and diversification in mind, to maintain *Nacional* genetic pools throughout the country for disease resistance, pest issues, or flavor profiles. Maintaining *Nacional* genetic pools makes sense, but doing so should be the responsibility of the government or chocolate corporations since the farmers are not compensated for the reduced yields. In other words, the current yields of *Nacional* are so low that any existing premiums do not come close to making up the difference in revenue relative to farmers who are farming in higher yielding systems (i.e. CCN51). (Continue)

(cont.) Cacao Production in Ecuador

As discussed in the introduction, most Ecuadorian cacao (more than 70%) is sold as bulk for mass-market chocolate. Some buyers will pay market price or a premium (US\$100 – 300 MT) for certification, quality or a special story, but we found that the overall Ecuadorian origin premium was about US\$10 MT.

Our research in Ecuador solidified our conclusion that the differentiated (not-bulk) cacao market is small and growing, but could not absorb the thousands of metric tons needed to raise thousands of cacao producer's incomes through stable price premiums (based on current market shares and price premiums). Given this situation, along with the tangible yield differences (between CCN51 and *Nacional*), it is not clear if simply embracing *Nacional* and certification (organic, fair trade, Rainforest Alliance, among others) can raise farm income at the same magnitude or rate as using high yielding varieties, irrespective of their flavor profile, and selling into relatively efficient bulk markets.



METHODOLOGY

The main goal of the USAID/USDA project, Cacao for Peace (CfP), is “to strengthen Colombia’s key agricultural institutions in the public and private sector for cacao with cooperative research, technical assistance, and extension education. The CfP vision is to improve rural well-being through agricultural development that is inclusive and sustainable with positive impact on cacao farmers’ incomes, economic opportunities, stability and peace.” Under guidance from USDA, this report was commissioned to examine the cacao supply chain in detail in a number of different regions in the country.

In this report, we will discuss the reasons Colombia has struggled to keep production up to meet local demand, through an in-depth analysis of the cacao supply chain. We also offer some possible ways forward to utilize the many assets that could be capitalized on to help cacao become an avenue for peace.

For the purposes of this study, a mixed methods approach has been taken. It is focused on essentially four research threads which examine (1) the physical cacao flows – from farm to processor to end user; (2) the prices received for cacao along the chain, including the costs related to procurement and processing; (3) the actors along the chain – including their roles, behaviors and recommendations for increasing efficiency; and 4) the contextual issues and considerations that affect market outcomes, including production, processing, and confectionary in general. In order to provide the baseline analysis needed to guide the implementation of Cacao for Peace’s goals of leveraging the potential of this sector to achieve sustainable and inclusive peaceful development, CIAT (International Center for Tropical Agriculture) and Purdue utilized a holistic supply chain framework (Figure 6) to guide the research (Lundy et al., 2007; Lundy et al., 2014). Our task was to provide a coherent package based on the available information, which was science, data, and stakeholder driven. The community capitals model guided the stakeholder input in the October meeting of stakeholders and the development of the recommendations. This model was selected because it is a framework that reflects the holistic model that takes into account all of the different assets that have impact and can be utilized to create efficiencies and improve the cacao supply chain in Colombia.

Figure 6. INTEGRAL MODEL OF THE PRODUCTION CHAIN WITH COMMUNITY CAPITALS



The Community Capitals model, an asset based approach, provided the framework for the October workshop. Participants collaboratively constructed a vision of what “Cacao for Peace” meant to them and how the cacao sector could be leveraged to produce inclusive, sustainable development. The authors used participant’s feedback to inform the construction of the recommendations found in this report.



In preparation for interacting with stakeholders, the working group from Purdue University and CIAT collected and analyzed more than 160 studies, assessments, and articles (Appendix A). The team sought to understand business and producer organization models, examples of support services (extension, rural credit, market information), and analyses of the contextual issues (policy, economic, social, technology, environment) in which the cacao supply chain operates. This literature review led to the creation of ten interview instruments used during stakeholder interviews that took place between June and August, 2016.

This study focused on some specific geographies selected in consultation with the USDA and USAID missions at the US Embassy in Bogota for the stakeholder interviews. These included Santander, areas around the Sierra Nevada de Santa Marta, the Departments of Valle del Cauca, Cauca, Guaviare, Caquetá, Nariño, Cesar, Montes de María in Bolívar, Caldas, Huila and the central part of the country. These sites were chosen because they were important cacao producing areas or were selected by USAID and USDA as key places for the project Cacao for Peace. The team conducted more than 110 interview sessions, predominantly in Spanish, across the cacao supply chain. We interviewed many types of cacao farmers (in terms of yields, size, and income), as well as whether they were associated or not-associated with local cacao producer organizations. We spent time meeting with governmental organizations such as the Ministry of Agriculture and Rural Development, Corpoica, local municipal government representatives, such as the San Vicente de Chucurí mayor's office, Santander Secretary of Agriculture, and municipal extension units (UMATAs). A number of interviews were conducted with members of Fedecacao (the national federation for cacao producers), including the president, technical advisors, people at purchasing points, demonstration farm managers, and field technicians. Included in the interviews were non-governmental organizations and international donor organizations. We also conducted interviews with farmer associations and cacao buyers and aggregators. We took time to understand the supply chain from local traders to large international corporations, such as the Colombia-based Casa Luker and Nutresa as well as ECOM, an international commodities trader. We also interviewed a number of small and medium sized chocolate manufacturers. (Appendix B).

Ten interview instruments were created using semi-structured questions pertaining to the description of the individual, firm or organization, their role in the cacao supply chain, provision and utilization of extension services, sales of cacao, price structures, post-harvest practices, infrastructure, market opportunities, cacao and chocolate business models among other topics (Appendix C). We conducted field interviews in the aforementioned geographical areas as well as interviews with domestic and international organizations in Bogota. Data collected from the interviews was analyzed qualitatively. The methodology used was not set up as a countrywide survey where these sorts of results could have been extrapolated, rather, the team triangulated results between sources to gain a better understanding of the sector dynamics, trends and underlying drivers. Unfortunately, there is very little regional secondary data that can be utilized for extrapolation either.

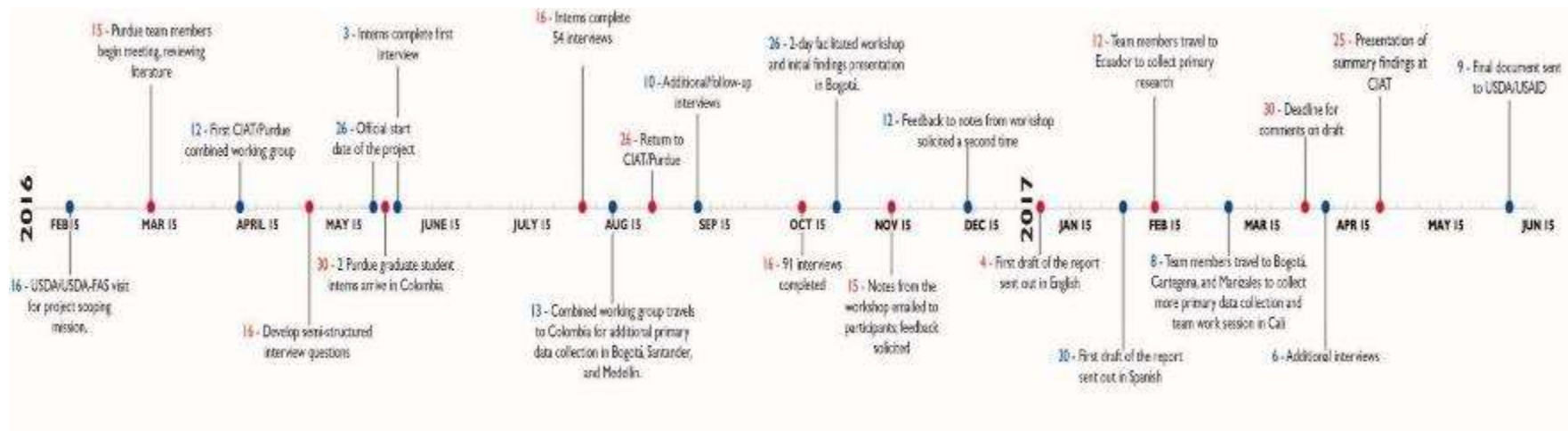
At its most granular, quantitative data is available at the departmental level for production, area and yield, resulting in a loss of information on variation across municipalities. Conversely, our qualitative data from the interviews was either regional in scope (with respect to political boundaries) or municipal/community level in scale. This results in information that does not adequately address variation within departments or agronomic regions. Nationally representative random samples of farmers and/or formal traders would better reveal cacao buying and pricing strategies throughout the country.

The stakeholder interviews were complemented by a workshop with forty stakeholders from the Colombian cacao sector. In addition to serving as a forum to review and complement preliminary findings from the study (Appendix D), the goals of the workshop included:

- Determine ways to foster prosperity and peace through a thriving cacao sector
- Build relationships among players in the cacao sector
- Understand the issues, needs and opportunities within the cacao sector
- Initiate the development of a collective vision for a thriving Colombian cacao sector
- Inform potential international partners interested in helping to address needs

As can be seen in Figure 7, a visual timeline provides an explanation of when and how we collected information. Notably, we talked to people multiple times to get clarification and we triangulated information as best as possible. During the year of the project (May 2016 – April 2017), virtual discussion meetings were held between the authors, an average of 3 to 4 times a month, as the data were collected.

Figure 7. PROJECT TIMELINE
(February 2016 - June 2017)



HOW CACAO MARKETS WORK – COLOMBIA VERSUS ELSEWHERE

Many studies on cacao supply chains across the globe bring attention to “long supply chains” (Cappelle, 2008). Typically, the amount paid to a farmer for the chocolate he or she produces is seen as quite small relative to the high prices that can be paid for premium chocolate bars in developed country markets. They allege that multi-national traders and chocolate manufactures exercise market power, resulting in low farmgate prices. Those firms counter by arguing that transportation and transactions cost, as well as processing and manufacturing costs, are substantial and easily account for the margins between prices that are observed along the supply chain. In the major exporting countries, cacao farmers can be quite remote and substantial effort is involved in evacuating large volumes of cacao from the countryside to ports, and several levels of traders are encountered along the chain. Those traders might also exercise market power, as well as governments who tax cacao exports. Work in West Africa was consistent with the arguments of the multi-nationals, and using new industrial organization methods, no evidence of market power exercised by multi-nationals was found (Wilcox & Abbott, 2006; Abbott, 2013; Homann & Frank, 2016).

The situation in Colombia is somewhat different from the cases of larger exporters (Cote d’Ivoire, Ghana, Ecuador). Global multi-nationals play a much more limited role, with only ECOM and OLAM showing a significant presence in Colombia¹⁰. Two Colombia-based multinational companies – Casa Luker and Nutresa – buy over 80% of Colombian cacao bean production (TechnoServe, 2015). They also process beans into intermediate products; supply a large domestic demand (relative to supply); export beans, butter, powder, paste and chocolate; and own buying, processing, production and distribution facilities in other Latin American countries. The smaller importance of international markets, extent of development and infrastructure in Colombia, and the

¹⁰ Firm level export data are not publically available and notoriously difficult to obtain.



presence of these two large buyers means the marketing structure within Colombia is different from that found in the major cacao exporting countries.

Much can be learned about the cacao bean buying process by looking at price data at various points along the supply chain. But that data needs to be interpreted with an understanding of how the supply chain is organized and how marketing functions in a country. While attention in much of the writing about cacao markets, and in policy discussions, focuses on farmgate prices, oftentimes the producer prices that are published are ones obtained at well-organized points in markets, generally corresponding with some wholesale price. While analyzing the outcomes at buying centers are welcome analytically - to ensure consistent, comparable information - it is also necessary to recognize that farmgate prices will not only vary across buying centers due to regional attributes, but also across market types (outside of buying centers), where substantially lower prices are received by remote farmers located far from those organized markets. Significant transportation costs may need to be incurred, and those costs vary depending on how remote the farmer is located. Our findings regarding prices draw on published price data as well as interviews conducted with key actors during the field component of this project from 4 different organized markets.

Colombia is different from the major exporters in another respect that is crucially related to how the marketing system operates. In the latter countries, itinerant traders, who may or may not be formally related to large scale central traders, travel to remote farms to buy cacao directly from farmers. This aspect of the supply chain is one most likely subject to abuse, because those remote farmers likely have poor information on current cacao prices. In the areas we visited in Colombia, which included the Santander region, one of the major producing departments, we did not encounter such itinerant traders. Rather farmers transport their cacao themselves to large central traders. Anecdotally, farmers select a buyer based on previous relationships and prices. Where there is enough cacao there is competition. For example, we visited the cacao market in San Vicente de Chucuri, where traders are clustered, and observed farmers bringing cacao to these traders.

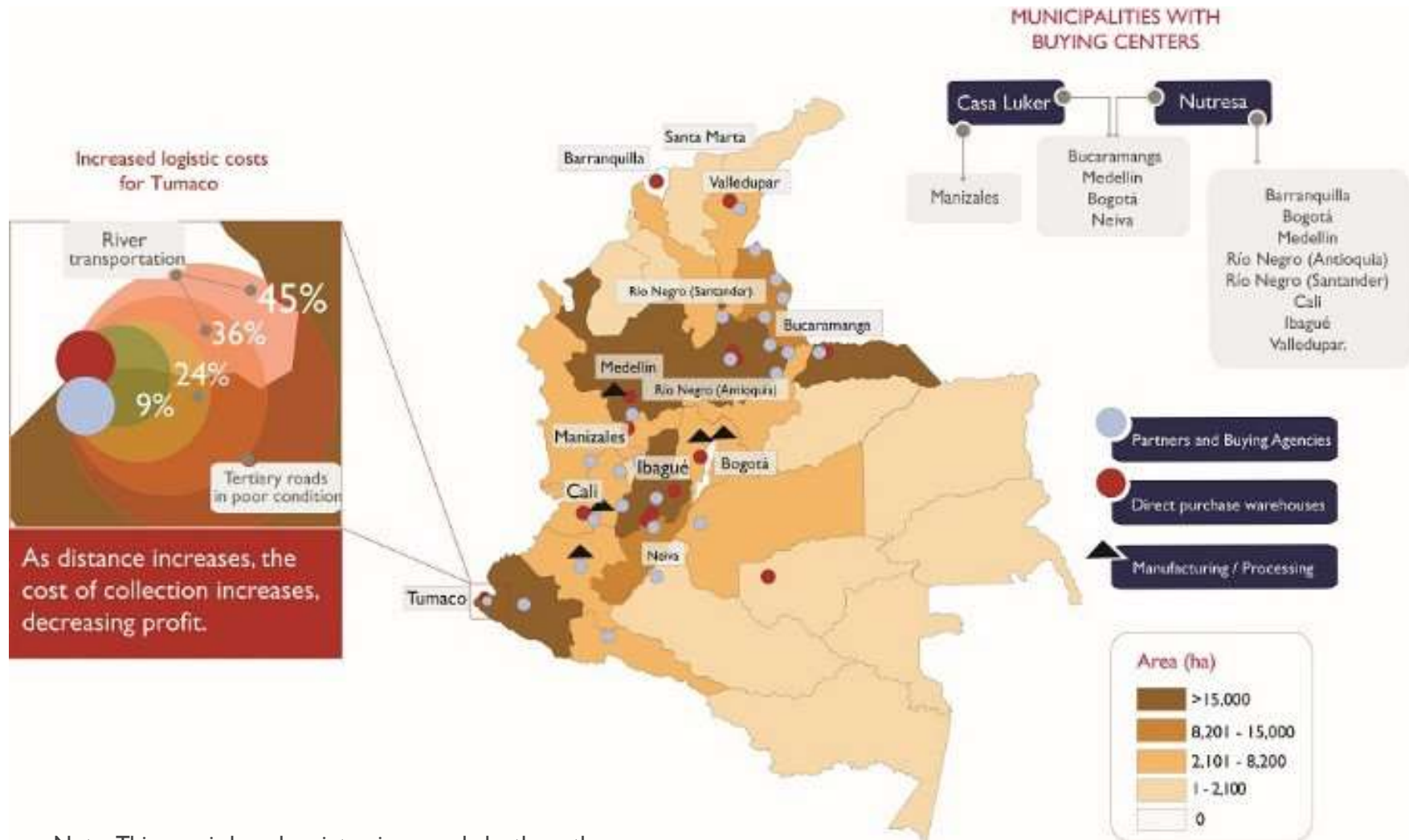
Itinerant traders may well exist in new and remote cacao producing regions of Colombia, but they are not a significant part of the established marketing channels for the vast majority of Colombian cacao, at least right now. Farmers will generally only make the journey to market when they have a sufficiently large amount to sell, or when

they have other reasons to travel. For those cases where transportation is challenging or from more remote areas in the country, buyers may collect cacao and bring it to larger buying centers.

Most of the central traders we encountered had at least informal relations with either one of the two large chocolate companies or with a small chocolate manufacturer, though they could be independent and can change those allegiances. Those associated with Casa Luker or Nutresa would ship their cacao to one of the buying stations operated by those firms, typically on large trucks owned by an independent shipper. Buying stations are located in Bucaramanga, Medellin, Manizales, Cali, and Bogotá. The majority of cacao produced in Colombia ends up going to one of these buying centers. There are also much smaller flows of cacao going from the central traders to small chocolate manufactures, and even to the port for export. There is no data that has been collected as to the quantity that this represents. In Colombia, and unlike West Africa, cacao processing/chocolate manufacturing firms are traveling into the more rural areas to acquire cacao, but still remain far from the farmgate.

As can be seen in Figure 8, the producer prices (prices paid at the central buying centers) are reported by Fedecacao and published in the databases of FAO, have followed world cacao prices of the ICCO and are above the majority of producer countries in the rest of the world. Based on our interviews and follow up conversations with Fedecacao and secondary literature, we encountered areas that traditionally have not been cacao production zones (remote areas, post-conflict zones, indigenous communities) where the prices are much lower, reflecting the high cost of collecting and transporting the cacao to buying centers (Figure 8: Medellin, Bogotá, Cali, Bucaramanga, Manizales) and the lack of market information. For example, the prices that producers received in July in Santander near the city center were COP\$8,000 per kilo, while some producers in the Sierra Nevada region were paid COP\$6.300 per kilo (21% less). In the case of Colombian cacao producers, the prices they receive are based on international prices and real transaction costs.

Figure 8. GLOBAL CACAO MARKET SEGMENTS, FROM THE LATIN AMERICAN INITIATIVE FOR CACAO



Note: This map is based on interviews made by the authors.

Colombian producer prices, reported by Fedecacao and found in the FAOSTAT database, are the prices paid at the buying stations maintained by Casa Luker and Nutresa (Figure 9). Determination of farmgate prices requires information on transportation and transactions costs. In regions where cacao is abundant (such as, Santander, Antioquia, Arauca, Huila, Nariño, Tolima), there are many central buyers, and marketing infrastructure is well developed, so those costs will be low. In more remote regions and in departments where cacao is less prevalent and/or new, infrastructure will be less well developed, and there may even be relatively few central traders to handle movement of cacao to buying stations. In those cases, transactions costs will be higher, and in some cases central traders may exploit a degree of market power. Unfortunately, data does not exist to substantiate these potentialities. It is difficult analytically to disentangle market power from high transactions costs, as the remote locations potentially subject to exploitation are also those where realistically high transactions costs are very likely.

The standard global price for cacao is the ICCO price, shown in Figure 10. As can be seen for August 2016, prices were at nearly an all-time high. The high price was driven by surging demand, especially in Asia, and shortages in West African cacao production. When global demand for cacao was growing at 5-6% per year from 2009 to 2013, the ICCO price averaged US\$2,500/MT. In recent years, weak global macroeconomic performance may have limited demand expansion, but supply issues in West Africa led to higher international prices – peaking at over US\$3,100/MT. Demand trends may have slowed, but high prices were largely due to those perceived supply constraints rather than the demand trend. According to The Economist Intelligence Unit, demand is forecasted to remain weak at 0.5% for 2016/17 (October – September) and 0.8% for 2017/18.

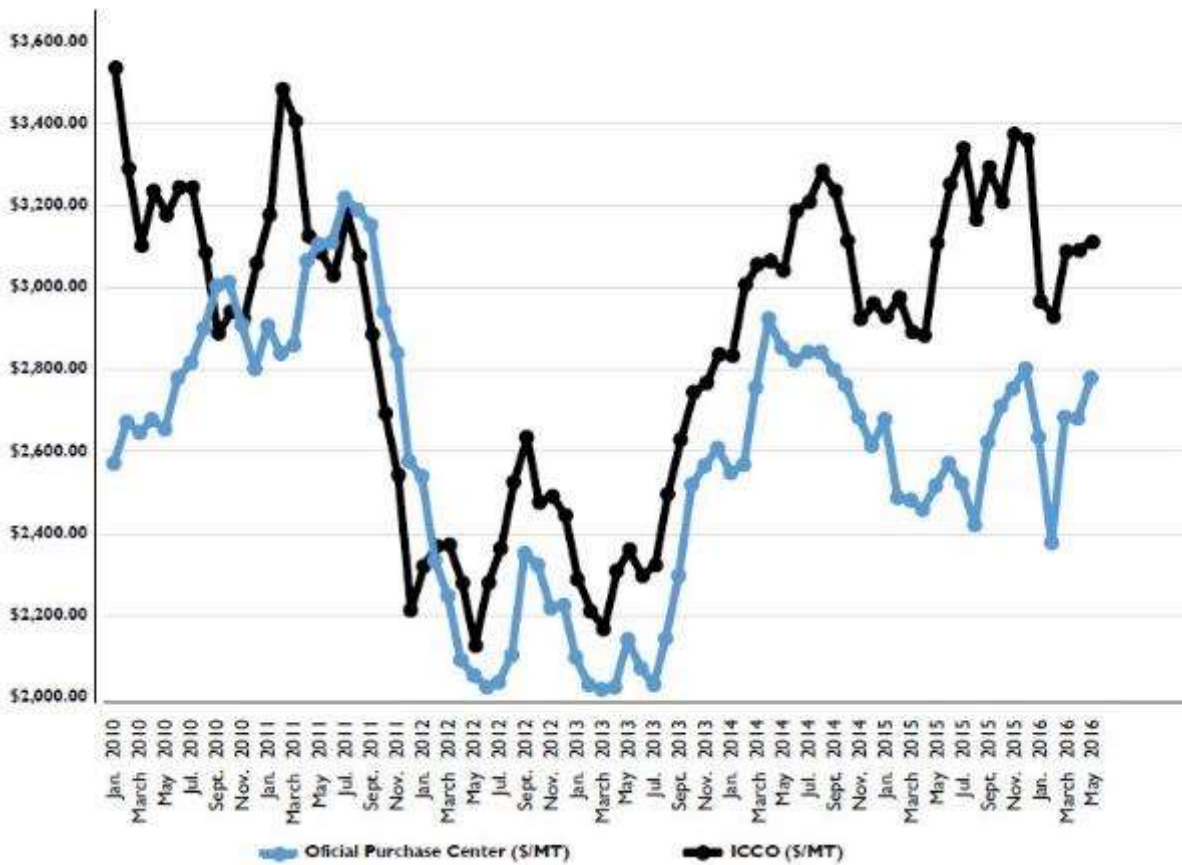


Figure 9. ANNUAL AVERAGE CACAO PRODUCER PRICES (AT PURCHASING CENTERS) in US\$/MT for select countries, 2000 - 2014



Source: FAOSTAT, 2017 and author's calculations based on news reports in Factiva

Figure 10. MONTHLY COLOMBIAN CACAO PRICES PAID AT OFFICIAL PURCHASE CENTERS AND BY ICCO (in US\$/MT, January 2010 – May 2016)



Source: FAOSTAT, 2017 and author's calculations based on news reports in Factiva Database.



Commodity markets (and especially cacao) generally exhibit significant volatility, and long run prices are difficult to predict. Simplistically assuming high prices are here for the foreseeable future, and can only increase, is not a good basis for business planning. The past six months has shown that to be the case, as cacao prices have plummeted below US\$2,000/MT in February 2017. The expected longer run cacao price may well be in the US\$2,500-\$3,000/MT range, but assuming it will be much higher in the future would expose an investor to significant financial risk. Projects to expand cacao production should not presume excessively high prices when assessing economic viability. Several of the cost-benefit analyses of cacao expansion proposals we saw, in Colombia and elsewhere, are based on unrealistic assumptions on future prices.

There has been an effort to promote a regional branding strategy based on the *trinitario* and *criollo* varieties that differentiate Latin American ‘fine and flavor’ cacao, from cacao from other regions in the world. Many companies, institutions, and farmers believe that large premiums can be gained for ‘fine and flavor’ cacao that can be produced from varieties that thrive in Colombia. We have received numerous unverifiable claims on the magnitude of such premiums, many of which cite presentations made by a small number of promoters of ‘fine and flavor’ (Homann & Frank, 2016).

While there are no published premiums to ‘fine and flavor’ cacao on either the New York or London commodity exchanges, the origin premium now on beans from Colombia over the ICE (New York and London) or ICCO price is only US\$80 per MT. Origin premium corresponds to a country based premium in the future’s markets. Premiums and discounts accrue to countries of origin based on reputation for quality and consistent quantity. This is the same premium that other Latin American countries receive and is lower than the country premium to Cote d’Ivoire or Ghana (historically they have received approximately US\$200 per MT according to a variety of sources). Unit values from COMTRADE trade data for various Latin American origins are also consistent with low premiums simply based on origin (COMTRADE, 2016). The higher premiums on cacao sales that are found are on individual transactions between suppliers, specialty exporters and direct trade, and high end or luxury manufactures or processors. There is a wide range of premiums on such transactions, based on anecdotal evidence – as organized data reporting for prices differentiated by cacao quality does not exist.

Confusion arises because there are small niche markets for high quality beans from around the world. Anecdotal accounts claim premiums can be very high, but this market seems quite small. While there are over 175 specialty chocolate manufactures in the U.S. potentially demanding these ultra-premium beans, few purchase more than 100-150 MT per year, and all have existing suppliers (who might be displaced). Many acquire their quality chocolate from the bulk processors in West Africa and struggle financially. In one interview with a buyer from Europe, it was suggested that most of these firms purchase 30 MT, that 100 MT is quite a large enterprise, and that these firms often fail. While it is asserted that this sector is growing rapidly, it is from a very small base¹¹. It is unreasonable to expect that this segment will become a large share of the cacao market in the foreseeable future.

In other markets that pay slight premiums over the ICE or ICCO price, such as the certified market, there is some data, and it shows supply racing well ahead of demand (IISD State of Sustainability Initiatives, 2014). Any excess supply gets sold into the bulk market. Moreover, fair trade premiums are too low to be relevant to current market conditions, even after the recent fall in global prices. There is ongoing discussion as to whether price targets for fair trade and associated premiums should be raised, but excess supply of certified cacao suggest it would be hard to market that cacao at higher prices (Fountain & Hütz-Adams, 2015).

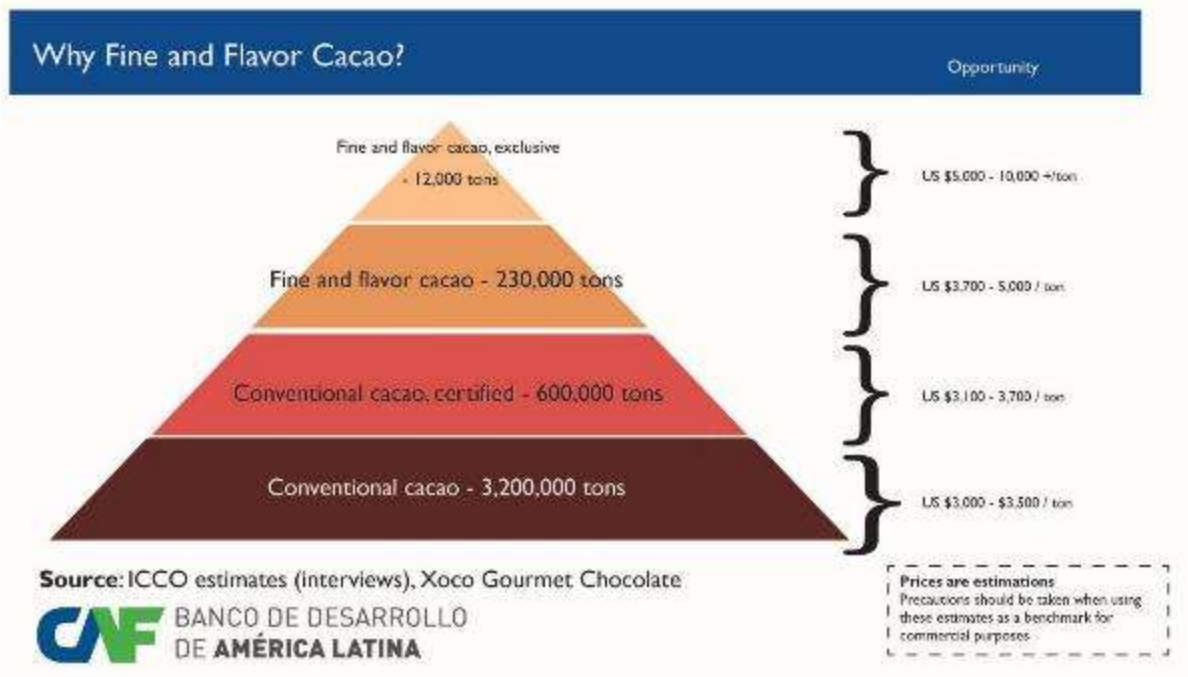
Future price estimates for global cacao trade by quality segment remain problematic. The most widely used figures (Figure 11) we encountered come from a presentation by a representative from the Corporacion Andina de Fomento (CAF) based on an interview with Xoco, a 'fine and flavor' promoter in Central America (Vignati, 2016). The only cited reference for the calculations is Xoco. Prices reported for the cacao segment seem overstated given the unit values we calculated and the interviews conducted with specialty cacao traders and the Fine Cacao and Chocolate Institute in the United States. Those interviewed reported lower estimates both in terms of volumes and prices. Key traders such as Atlantic, which focuses on 'fine and flavor' and certified cacao, reported much smaller demand, much lower premiums, and slow

¹¹ See <https://chocolateinstitute.org/blog/sizing-the-craft-chocolate-market/> for more information on the size of the market for high quality cacao beans.



market growth than those being perpetuated by the industry (personal communications, Richard Fallotico, ECOM).

Figure 11. GLOBAL CACAO MARKET SEGMENTS, FROM THE LATIN AMERICAN INITIATIVE FOR CACAO



Source: From a presentation by the Latin American Development Bank (CAF) at the ICCO World Cocoa Conference, based on an interview with Xoco, a fine and flavor cacao promoter in Central America (Vignati, 2016).

Finally, the CAF presentation itself recommends against using these figures for commercial operations. The data in the CAF presentation is not based on observations of actual market transactions, as even the bulk cacao price is exaggerated, being above the highest level the ICCO price has ever achieved. Despite these flaws, versions of this

figure have continued to proliferate across Latin America, leading to an explosion of ‘fine and flavor’ cacao initiatives driven by unsubstantiated assumptions rather than data-driven demand trends. Even the most transparent of efforts recognize the market limitations and the difficulty of passing any premiums that do exist back to individual farmers. This is a function of working with farmer groups over individual farmers. Groups may or may not pass through premiums but provide the necessary volume and quality. Also, given the limited demand, typically not all of the potential volume generated by these groups are sold through premium channels.

For example, in the case of the producer organizations that are lucky enough to access a premium channel (one that receives a premium price), the increased price paid is usually only received by a small number of producers for small volumes of cacao (See Cortepaz and Cacao Hunter Unique Business Model Box). This is seen in particular for Taza Chocolate, one of the largest companies with Bean to Bar chocolate in the USA that has a direct marketing program. In their transparency report from 2016, they document that the price premium is less than US\$500 above the bulk cacao price for high quality certified organic cacao and is paid to less than 2,000 producers for 233 MT of cacao (Taza, 2016). This is the equivalent of each producer selling 114 kilos of cacao. This demonstrates that only a very small proportion of the total producer’s production is dedicated to this market, the rest is sold as bulk cacao on the local market. This is clearly an important market for those producers who are able to participate, but it is not necessarily relevant for a large number of small cacao producers.

Cortepaz and Cacao Hunter Unique Business Model

Although the specialty cocoa market is growing, it currently represents a small niche market in Colombia and globally. Despite its incipient nature, this market has the potential to pay higher prices to producers and may represent an opportunity to reduce poverty in post conflict areas as part of a broader economic development strategy. (cont.)



Cont. Cortepaz and Cacao Hunter Unique Business Model

The aim of this case study was to describe the development of inclusive business models between an organization of cocoa producers from Tumaco and a buyer from the Colombian specialty cocoa market.

We applied the LINK methodology, which utilizes a participatory approach to enable the parties involved to understand how their business models currently connect, and to design innovations that empower producer groups to engage more effectively and support buyers to act in ways more amenable to smallholder farmers.

The results of the study show that the producers face many challenges in terms of infrastructure, roads, access to quality services, and access to capital. These challenges cause farmers to seek better financial outcomes through illicit crop production despite having the potential to offer exceptional cocoa to the market. CortePaz and its producers possess traditional varieties with valuable organoleptic traits, suitable weather, the skills to manage cacao cultivation and the infrastructure to implement high quality fermentation and drying protocols effectively. CortePaz has the ability to provide high quality cacao to the specialty market, which would pay them better than traditional markets.

Cacao Hunters collaborated with CortePaz for four years to identify specific cocoa farmers and build fermentation and drying protocols to achieve exceptional quality. This collaboration led to award-winning chocolate recognized globally, a pricing structure that rewards farmers and covers the significant additional costs incurred in fermentation and drying underpinned by a strong business relationship valued by both parties. Despite these gains, CortePaz only processes and sells 8% of its total cocoa production to the specialty market due to limited demand and willingness to pay the true costs of fermentation and drying. The remaining cocoa is sold on the national market with no price premium.

This case study highlights the potential and limitations of specialty cocoa as a vehicle for post-conflict rural development in Colombia. A small niche market exists for specialty cocoa. Colombian producers and processors can, under the right conditions, meet exacting quality standards and produce exceptional cocoa and chocolate. Despite this success, demand for cacao of this quality remains limited which stunts the overall gains from a successful inclusive business model. Complementary interventions in productivity, reduced transportation costs, access to finance, technical assistance and inputs among others could spread the gains from cacao more widely and help more farmers while, at the same time, improving the enabling environment for a more competitive and inclusive cocoa sector. If Colombia can achieve competitive cocoa sector with higher productivity and stronger organization, the potential exists for additional success stories to emerge over time as the specialty market matures. In the meantime, however, the majority of cocoa producers and producer associations need to get the basics right to become profitable in the conventional market.

POST-HARVEST PRACTICES & PRICES

Post-harvest practices (drying and fermentation) are critical to the quality of cacao beans sold. At present, price premiums for high quality cacao may not adequately compensate farmers for extra costs that are incurred when high quality standards are desired. Farmers are receiving only a slight price increase for the added labor of careful fermenting and drying correctly. The system now in place provides farmers an extra COP\$200 per kilo for cacao that meets high quality standards (Table 7). Through multiple interviews, producers suggested that the added labor cost should have a price premium of an additional COP\$1,000 per kilo instead of the current COP\$200-300 per kilo, this is added to the regular price. This is considered the break-even point for a farmer, the additional labor would be covered by the increased cost. For an average farm of 3 hectares with a yield of 400 kilos of cacao per hectare, this equates to approximately COP\$960,000 additional funds or approximately US\$320 total for the average farm. This is gross revenue based on an increased premium and is roughly half what is being paid on a limited basis for ‘fine and flavor’ cacao. This is a way for **all** farmers to increase income by meeting higher quality standards in terms of the industry standard cut test. Presently, adequate price incentives (covering additional labor costs) are not in place to encourage the production of higher quality cacao for the majority of cacao farmers in the country.

In spite of the rhetoric about needing additional higher quality cacao throughout the supply chain, the actual low premiums being paid for quality suggest that it is not a scarce resource. Farmers typically bring well-fermented cacao to points of aggregation as opposed to traders going out and purchasing cacao at the farm. The vast majority of this cacao is fermented on farm as opposed to being sold wet or “en baba”. Currently, due to a lack of demand for quality and the need for consistency, all qualities of beans are typically mixed during the aggregation process. Most buyers reference “Norma ICONTEC 1252”, which defines different classes of cacao and standards for differentiating. Table 7 provides the minimum standards used for qualifying cacao and was shown to us at all of the buying stations when we interviewed the buyers and traders. The issue is whether the incentive or compensation for the added work is enough for a farmer to do a good job.



Table 7
CACAO BEAN QUALITY STANDARDS

Requirements	Prime	Bulk	2nd
Moisture Content in % (m/m). max	7	7	7
Impurity, foreign material content in % (m/m). max	0	0.3	0.5
Moldy beans, number of beans/100 beans	2	2	3
Insect damaged beans and/or germinated, number of beans/100 beans	1	2	2
“Pasilla” beans, number of beans/100 beans	1	2	
Content of inner bean cotyledon in % (m/m). min	-	-	40 - 60
Mass (weight), in g/100 beans, min	120	105 - 119	40
Well-fermented beans, number of beans/100 beans, min	65	65	60
“Pizarroso” beans, number of beans/ 100 beans, max.	1	3	3

Source: Norma Técnica Colombiana NTC 1252-Cacao Beans ICONTEC, 2003

Some advocates of selling on high quality markets question whether farmers can ferment and dry properly, so they pursue business models where these activities are conducted by producer organizations or chocolate manufacturers. Some international clients seeking luxury cacao for craft bars demand highly controlled fermentation conditions to produce specific flavor profiles. Meeting their requirements has led to the sale of cacao *en baba* (cacao still in its mucilage) to a centralized fermentation and drying facility managed by a producer organization or chocolate manufacturer as standard practice. The share of these types of farmers in the national production is unknown, but likely small.

Furthermore, improving infrastructure (fermentation stations and drying areas), whether on farm or by a processor, will have a cost that will need to be covered by someone. A business that chooses this route will need to build these costs into their business plan and not expect foreign donor agencies to cover these costs, which will limit the sustainability of both the business and the practice of purchasing wet cacao and processing for the farmer. It is also important to take into consideration that this is a

value-added practice that accrues funds to the farmer if they do a good job at maintaining quality. It is possible that by removing this additional income generating activity from a farm, there will be less money flowing into the household income and farmers will be further de incentivized from caring for their cacao and producing more quantity and at a higher quality. If a farmer does choose to ferment and dry at home, they will need access to credit, training, and a reasonable expectation that he or she will be able succeed in producing and selling cacao so that these debts can be repaid. Processors and farmers will need to evaluate several factors (such as time, distance, financing, premiums or discounts due to quality) to determine which is the appropriate path; selling/buying *en baba* or fermented and dry.



THE SUPPLY CHAIN OF CACAO IN COLOMBIA

A depiction of the Colombian cacao supply chain, seen in Figure 12, describes the functional aspects of the supply chain, illustrating the activities from production, to post-harvest, aggregation and transport, processing, marketing, internal consumption and export. This process takes place amid several layers of organizations and institutions that collaborate formally or informally. The processes and services occur within larger social, economic, political, environmental, and technological contexts. Several actors take on multiple steps within the physical production from bean to distribution of the final product, such as Casa Luker and Nutresa. Many institutions that play leadership roles, provide services such as technical assistance, provide financing, and help coordinate sector activities. Some actors such as Fedecacao and Red de Cacaoteros offer more than one support service. The larger private actors such as Casa Luker, Nutresa, and smaller ones (e.g. Cacao Hunters) also provide some support services principally to producer organizations.

In Table 8, all of the actors found in the cacao supply chain in Colombia are outlined along with their roles or services that they provide.

Farmers

Based on our interviews with four different types of farmers from various ethnic groups, we decided to not divide the producers into large and small scale. Instead we looked at their yield or land holdings and evaluated the role cacao plays in their regional farming culture. Based on the diverse perspectives, geographies, economic and socio-cultural aspects we identified four farm typologies for the Colombian cacao sector.

Figure 12. THE CACAO SUPPLY CHAIN Following the bean to finished product

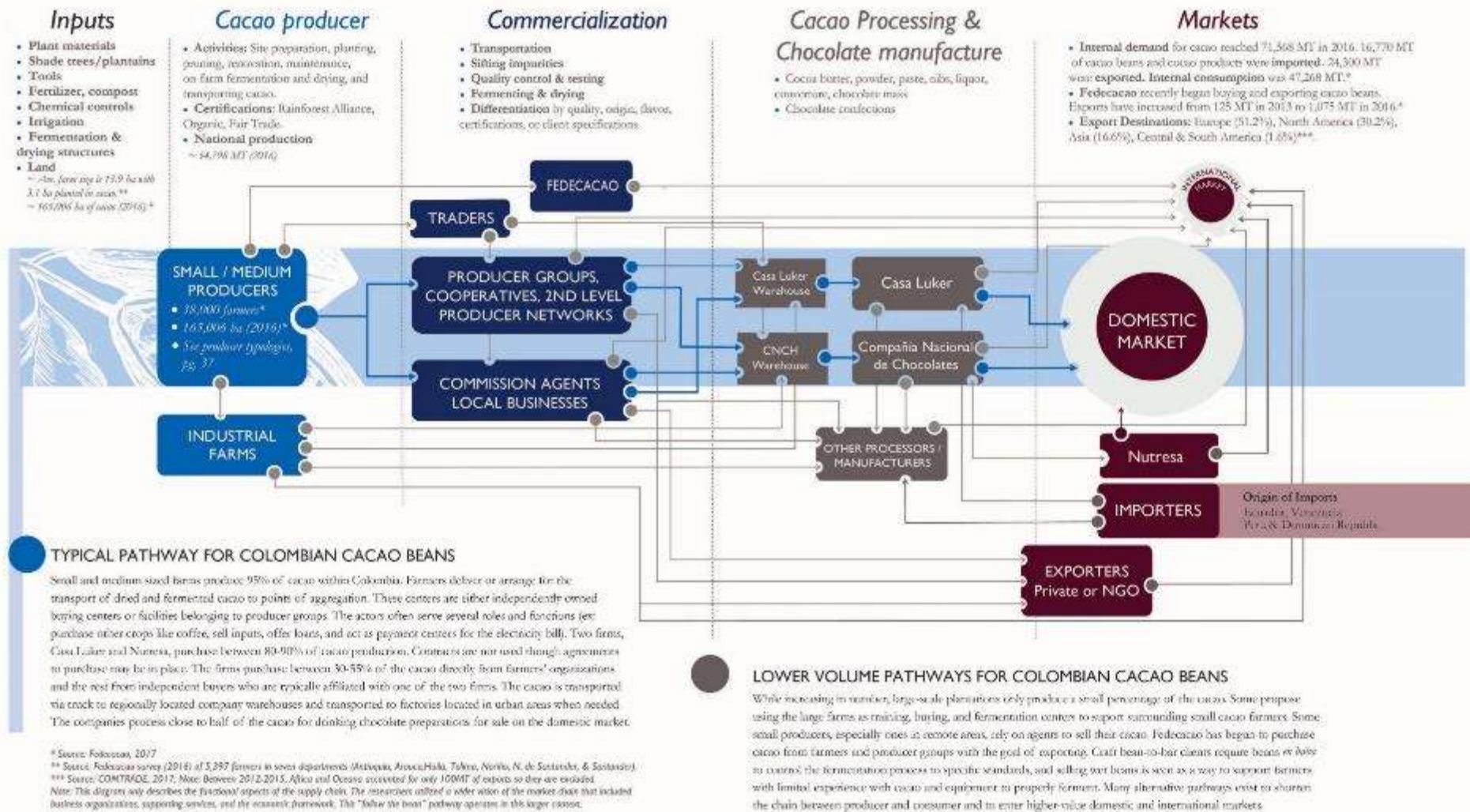




Table 8
CACAO STAKEHOLDERS AND THEIR ROLES

● Indicates that the role is always or almost always fulfilled by this group
○ Indicates that the role is mostly or sometimes filled by this group

See Glossary for abbreviations.

Actor	Production	Fermentation and Drying	Purchasing	Quality Assurance	Secondary Transformation (powder, etc.)	Chocolate Manufacturing	Export (beans)	Export (intermediates)	Export (chocolate)	Technical Assistance	Research	Production Inputs	Credit	Building Institutional Support	Transportation Services	Acreage Expansion	Examples
Producers																	
Small/Medium Producers	●	●		○													●
Large-scale Plantations	●	●	○	○													●
Average producer association			○	○						○		○	○				●
Exceptional producer associations		○	●	●	○	○	○			●		○	○				●
National Organizations																	
Fedecacao			●	●			●			●	●	●		●			●
Red de Cacaoteros	●						●							●			
Public-Private Partnerships and Coordinating Organizations																	
Consejo Nacional														●			
ProColombia														●			
EPSAGROs									●								
Public Organizations																	
CORPOICA											●						
Universities										○	●						UNAL, U-Caldas
MADR														●			
Finagro													●	●			
SENA						●				●							
Instituto Colombiano Agropecuario (ICA)				●													
UMATAs										○							
Non-Governmental Organizations																	
USAID/USDA-funded projects and contractors										●		●		○			●
International and domestic NGOs										●		○		○			●
Private Companies																	
Nacional de Chocolates / Nutresa			●	●	●	●	●	●	●	●		●	○*		○		
Casa Luker			●	●	●	●	●	●	●	●		●	○*		○		
Chocolate de Mesa producers			●	●	●	●			○								Girones, etc.
Fine Flavor Chocolate Bar Producers		○	●	●	●	●	○		●	○							Cocoa Hunters, Mariana Cocoa Co., etc.
Investment houses			●				●										Pacific Agri Capital
Trade houses (Exporting agents)			●		○		●										OLAM/ECOM, Fenicia Trading
Intermediaries			●	○								○	○				
Transportation providers															●		
Banks													●				Banco Agrario

* Nutresa and Casa Luker provide advance payment to producer organizations so that they have the cash flow necessary to purchase cacao from their farmers. Source: The authors, 2017.

Marginal

This type of farm typically lacks adequate water and the plants lack nutrition. This results in high tree mortality. These areas are either not suitable for growing cacao or the plants fail due to bad agricultural practices. Farms typically have between 800 – 1,000 total cacao trees per hectare with annual production of below 300 kg / hectare. There is some level of intercropping with other food and market crops but these often face difficulties due to water scarcity. The cacao from these farms is not profitable as costs exceed income. New cultivation or maintenance of cacao plants may create risk for producers, especially if the area is not suitable for growing cacao. This type of farm usually does not meet the minimum quality standards and therefore prices paid to these producers are low.

Traditional

This type of farm is common throughout Colombia. While the ecological conditions, principally rainfall patterns, exceed those found on marginal farms, cacao management remains rudimentary. Plants receive occasional nutrition, pruning, and phytosanitary management, but it is usually in response to the presence of pests and diseases. These farms typically have between 800 to 1000 cacao trees per hectare and annual yields of between 300-500 kg / hectare (i.e. yield per plant is between 0.2 - 0.5 kg). Often cacao on these farms is not managed per se but rather forms part of a diverse agroforestry system from which the farmer extracts different products during the year. In some cases yields from these farms can increase due to a development project or program. Cacao from these farms tends to be sold on the bulk cocoa market. Income from cacao constitutes less than one minimum wage over a 10-year period¹².

Technical

This approach prioritizes cacao as a cash crop. Technified producers have access to capital and periodic technical assistance. These farms have access to water and apply technological packages in accordance with the planted genetic material. Annual yields fluctuate between 1200 - 1800 kg / hectare, but can be higher. This is the most common

¹² We use a 10 year time horizon to assess profitability due to the long-term nature of cacao as a tree crop.



type of system promoted by development interventions, but the most difficult to find in the field. A technified cacao farm requires an investment of COP\$12 - 15 million (US\$3,980 – US\$4,975) per hectare depending on the terrain and whether it requires irrigation or not. Due to improved management practices and investments, these farms require additional labor. A well-managed technified cacao farm can earn a minimum wage income over a 10-year period.

These types of farms are rare but can be found in the departments of Arauca, Santander, Huila and Tolima in areas with better road access, functioning land markets and improved security. We did not visit any farms like this in our trips to Colombia but we discussed this type of farm with numerous investment firms.

Diversified

This type of farm varies a lot in size, ranging from 0.5 - 15 hectares. The land has multiple uses including commercial agriculture as well as household food security and livelihood needs. These needs include trees for wood, aromatic plants for health and / or condiments, and environmental stewardship. Diversified farms have between 600 and 700 cacao trees per hectare with annual yields that fluctuate from 300 to 600 kg / hectare (i.e. yield of 0.5 to 1 kg / plant), although not all these farms are as productive. This type of farm has improved cacao yields due to rural development projects and programs that promote restoration with new material, as well as a combination of traditional and new management practices. These programs often provide specialized technical assistance, as well as seeds and inputs that expand the growing area and increase yields. Diversified farms often struggle due to a lack of infrastructure and are vulnerable to armed conflict due to their geographic location and the fact that the ecological niche for cacao production aligns with that for major illicit crops such as coca. Diversified farming systems such as these have been able to meet the basic needs of producer families in times of crisis due to multiple uses, the sale of diverse crops during the year and the important role given to basic food security needs by farmers in this farming class. The on-farm diversity makes these farms more resilient than the other farming classes identified.

These types of farms can be found in Nariño, Cauca, Chocó, Huila, Caqueta, Guaviare, Magdalena, Santander and Cesar. The localization of these farms is explained by the

smallholder economies present in most of these areas as well as limited financial access to invest in more intensive production practices.

Based on our interviews and secondary literature review, there was some consensus that cacao bean quality and consistency could be assured by fermenting and drying at a centralized aggregation center. There is interest by larger scale cacao producers (Technical Farms above) to purchase cacao from neighboring smallholder farms (satellite production system) in order to aggregate the product and ferment in bulk. These purchases would allow for an increase in economies of scale and improved quality and consistency of cacao beans sold to exporters. Key limitations to achieving more centralized processing include generally weak producer organizations, individualism among farmers and pricing mechanisms including quality differentials that do not provide viable incentives for improved post-harvest management. For centralized processing to make sense, the Colombian market would need to provide stronger quality based premiums that recognize the additional costs inherent in careful fermentation and drying. For further information, please see the previous section on post-harvest practices and prices and the case study of Cacao Hunters and CORTEPAZ.

Within our study, we were able to characterize on a limited basis five different groups of cacao farmers in diverse regions of the country:

- Afro-descendant communities in North Cauca. Asprofinca:
These producers are located in the municipalities of Guachené, Caloto, Corinto, Miranda, Padilla, Puerto Tejada and Villarica in northern Cauca. This group is made up of 800 families that use traditional farming practices. According to leaders, this local concept favors efficient land use, where cacao is fundamental to household income. Cacao is part of an integrated system of crops that generate additional income and complement household nutrition. Among the associated crops are banana, citrus, corn, yuca, other fruit trees and livestock such as chickens, turkeys and some pigs. For these communities, the use of the land has more value than the land itself.
- Arhuaco Community of the Sierra Nevada:
Indigenous communities have their own way of seeing the world and growing cacao is no exception. Cacao is an ancestral, cultural asset that is being revived. For that reason, they do not view cacao as a means to realize commercial gains,



rather as a way to access products that are important to the development of their community. These products include fuel, transportation, health, education, etc. Cacao is found in the Arhuacan territories along with other crops that complement the basic nutrition of the community. Unfortunately during most visits, there were indicators of childhood malnutrition, despite the appearance of available but uneaten fruit, both on the ground and in trees in the territories. During discussion with community leaders, there was mention of child malnutrition and they were looking for ways to reduce it, but they have not yet begun to address it. This was the only group for which the cost structure was not calculated, since the value of cacao does not have a direct economic value. A more detailed study with a multidisciplinary group of the community's spiritual leaders (Mamos), anthropologists, and economists is needed to identify an equivalent value.

- Farmers of the Sierra Nevada:

These farmers live and farm mostly along the Santa Marta, Magdalena - Dibulla, and Guajira highway routes, which could mean a distance of up to 2-3 hours away from one of these main highways. Most of them migrated several decades ago, often moving from the center of the country to seek new opportunities. Producers have described that dry periods have increased each year, significantly decreasing productivity. In several locations, cacao trees have died due to lack of water. An unusual case is the banana growing zone of Aracataca, where there is a very small group of cacao farms with access to gravity-fed irrigation. They do not have any type of fertilization but have yields between 700 and 900 kilos per hectare, which is almost double the production of the areas along the Dibulla highway. According to Fedecacao and other experts, however, these yields do not reach the optimal production amount of equal to or greater than 1500 kilos / hectare.

- Santander Farmers (technical and traditional):

This area has the most technical assistance, development and implementation in the country. Two types of producers were found. The vast majority of producers have a traditional system, with some integration of agroforestry techniques. They use few inputs and have low yields. Usually this type of system is of one of standard collection but with an area greater than in other regions of the country. We found only one example of a "technical" farm in San Vicente de Chucurí. The

farm was approximately 10 hectares and incorporated inputs as well as periodic pruning. For these two systems, lack of water was the main component preventing yields per hectare to increase.

- Caquetá and Guaviare Farmers:

These areas are very remote and have very little institutional presence. Over the last 30 years, violent armed groups have forced displacement, and have pressured communities to grow illicit crops. These communities have had to make a choice between higher earnings from illicit crops of COP\$60,000 to COP\$90,000 / day, and lower earnings from legal crops of COP\$20,000 to COP\$30,000 / day. These farms are located in different municipalities of both departments with an average size of 5 to 15 hectares. In addition to cacao, they also grow sugarcane, beef and milk cows, bananas, citrus, wood, yuca, pigs, etc.

PRODUCER ORGANIZATIONS

Through our interviews and secondary literature review, we found that producer organizations in the cacao sector have a mixed track record in Colombia. For the most part, cacao producer organizations were formed with the support of development programs such as MIDAS and ADAM, with the intention of serving as a conduit to receive inputs (planting materials and fertilizers principally) for establishing new plantations. In theory, these organizations can help farmers access resources that might otherwise be unavailable, such as access to credit, technical assistance, the purchase and marketing of cacao beans, supplying production inputs, or support for quality control.

Based on our interviews with CELI (USAID project) and Fedecacao, the establishment of economically sustainable group credit funds has been a failure. These schemes provide farmers credit through a producer organization with repayment based on marketing their cacao through the organization. If a farmer chooses to sell his/her cacao to a different buyer, then the credit is not paid back to the producer organization. This problem of side-selling is common in smallholder systems globally. Principal causes include better prices offered by traders and a lack of cash flow in the producer organization, which means farmers deliver their cacao but must wait for payment or a market diversification strategy employed by farmers to reduce risk and dependency on



one buyer. Consistent access to credit remains a problem¹³ and many producer associations offered few services other than a means to access planting materials to support acreage expansion.

We did find some well-functioning producer organizations (associations and cooperatives). Strong producer organizations are those able to profitably provide multiple services to their members and other actors in the value chain. They played important roles in the supply chain by aggregating product, finding buyers for the cacao beans, providing technical assistance, and ensuring quality standards in their beans. These associations are run as a business and they are often linked with private industry, selling the beans that have been aggregated into domestic chocolate processors or export agencies. Some also offer fermentation and drying services, secondary transformation or chocolate manufacturing, access to credit, production inputs, and export capabilities. Please see the text box above on CORTEPAZ as an example of a producer organization that functions as a viable rural business.

Unfortunately, no centralized records exist regarding producer organizations in the Colombian cacao sector. The Red de Cacaoteros represents more than 50 such organizations and the Productive Alliances program (PAAP) of the Ministry of Agriculture and Rural Development (MADR) supported more than 140 between 2002 and 2014 but beyond those anecdotal figures no actual organization census exists. Based on our interviews with Red de Cacaoteros and a review of PAAP dataset, it appears that the majority of cacao farmers do not belong to well established/well-functioning producer organizations.

PRIVATE COMPANIES

Large producers of chocolate

Nutresa and Casa Luker comprise a significant industry presence in the cacao supply chain. Estimations of the total national production that these two firms acquire range from 80-90%

¹³ According to the recent Agricultural Census (DANE, 2014), only 11% of all farmers in Colombia report reliable access to credit. Clearly this issue extends beyond cacao farmers but, nonetheless, remains critical for a dynamic and profitable sector.

(Corporacion Andina de Fomento, 2015; TechnoServe, 2015). In 2013, Nutresa and Luker captured an estimated 85%. Colombina S.A. utilized 4% of national production, Chocolate Andino 3%, Chocolate Girones 2%, Comestibles Italo 1%, and all other processors shared the remaining 5% (TechnoServe, 2015).

Both Nutresa and Casa Luker supply the domestic market and export cacao beans, intermediary cacao products such as powder, paste, semi-elaborated products such as couverture and semi-sweet chocolate, and finished consumer products. The majority of the production of both companies is for the domestic market, mainly for chocolate de mesa or bars for hot chocolate. Nutresa imports some beans, mainly from Ecuador and Peru because of the similarity in bean profile and quality. Casa Luker indicated that it does not import. Both firms commented in interviews that access to additional cacao beans is their biggest limitation to expansion, not bean quality¹⁴, factory capacity, or access to markets. Lack of technical assistance, plant diseases, and weak producer associations were cited as main reasons for low productivity. Both offer technical assistance to farmers, field days and demonstrations farms.

Nutresa and Casa Luker have networks of buying centers with warehouses for storing dried fermented cacao beans across the country. Both have centers in Bucaramanga, Medellin, Bogota, and Neiva. Casa Luker has an additional center in Manizales, while Nutresa is also found in Barranquilla, Cali, Ibague, and Valledupar.

Nutresa has played an active role in increasing cacao production for over 50 years. Currently as part of their “social commitment,” Nutresa has a Productive Projects-Inclusive Business program. Through the Productive Alliance Support Project (PAAP), Nutresa forms alliances with farmers to assure the purchase of their product directly and will help provide technical, social and corporate support. Nutresa has two demonstration farms, a larger one in Magdalena Medio and a small farm near Medellin. In total these farms provide training to several hundred cacao producers and technicians on an annual basis.

¹⁴ Both Nutresa and Casa Luker operate modern processing facilities designed to manage the quality variations found in Colombian bulk cacao. This includes additional efforts to remove foreign objects in incoming shipments as well as techniques and recipes designed to manage variable levels of bean fermentation. Their processing systems have been optimized for Colombian cacao over many decades of experience.



Casa Luker is a Colombian family-owned company that was established in 1906 in Manizales. Casa Luker promotes and capitalizes heavily on Colombia's reputation as a source of cacao 'fine and flavor' types, and diversifies its product line by origin (Santander, Arauca, Huila, and Tumaco) and sensory profiles. Casa Luker also sells cacao derivatives such as liquor, powder, butter, and beans. Luker also has a model plot arrangement with some farmers. Farmers receive subsidies from Luker in the form of free training, plant materials, various farm tools, and supplies to improve their crop. In return, farmers agree to convert their farms into models to be used to train other producers as well as sell their cacao to Luker. Luker demonstrates cacao production in three-crop cultivation agroforestry systems (wood, fruit trees or plantain, and cacao) which takes into account the temporal aspects of the system, timing production so that the farmer has one "main crop" and two others that support the system.

The two large processors in Colombia export a percentage of final product to regional and international markets. The bulk of this export consists of mass consumer products with a low unit value and relatively low cacao content often in the form of confectionary. In addition to these exports, Nutresa and Luker manage semi-finished products which promote specific origins within Colombia. With declining global cacao prices, however, it is possible that these firms will pay more attention to developing higher value products from specific origins. In regions such as Tumaco where Luker developed a specific line of semi-finished products, prices paid for quality cacao increased. Examples of origin specific final chocolate products also exist but interviews with both Nutresa and Luker suggest that these markets remain small.

NATIONAL ORGANIZATIONS

Fedecacao

The Cacao Producers' Guild, Federacion de Cacaoteros (Fedecacao), was founded in 1960 and represents 38,000 cacao farmers (approximately 70% of all producers) with 165,000 planted hectares of cacao located in 22 departments. It is primarily dedicated to research, technology transfer, and commercialization support. It also administers the National Fund for cacao, a parafiscal fund collected through the Cacao Development Fee. According to Law 67 of 1983, the fee is three percent (3%) on the selling price of each kilogram of dry cacao beans

grown in Colombia. In 2015, this fund was approximately \$3.92 million USD. Its efforts are dictated by where cacao is sold, since that is the main traceability source for returning the fee to farmers. For example, if a producer has his or her farm in Bolivar but sells in Santander, the cacao is counted as being from the department of Santander, not Bolivar. Funds are thus allocated to the Santander Department instead of Bolivar, from where the cacao originated.

This organization serves a number of roles in the supply chain including the purchase of cacao and assurance of the quality that is being purchased¹⁵. They are the primary providers of technical assistance, mainly based in high production areas of the country. They operate ten demonstration farms located across the country, with areas for farmers to spend the night while receiving training. The majority of workshops are hosted in the Villa Monica demonstration farm in San Vicente de Chucuri, Santander, due to the prevalence of and history with cacao in the region. They also provide supplies, such as chainsaws, sealant, and fungicide for plantation renewals. Fedecacao is a founding member of the Consejo Nacional de Cacao (see below), where they are helping to build institutional support among the many actors along the supply chain. They purchase a small quantity of beans that have been well fermented, dried, and selected and sell at a premium, allowing them to act somewhat like a private business.

Asociación Nacional Cacaotera de Colombia Red Cacaotera

The Red de Cacaoteros (Network of Cacao Producers) is an apex organization of 54 producer organizations from the six main areas of cacao production in Colombia. Their goals include working with producer organizations to export cacao either by the producer organizations or under the Red de Cacaoteros umbrella. In addition, they implement development projects funded by international development agencies with a focus on strengthening producer organizations in their network. Their main roles in the supply chain are to purchase and export cacao beans for a small number of cacao producers. They also work heavily with partner producer organizations to build institutional support to help them access international markets and guarantee the quality of beans being exported, including finding international donor funds to support building fermentation and drying centers.

¹⁵ Fedecacao has a mixed track record as a cacao purchasing and marketing agent with several failed attempts to establish a dedicated export channel. While Fedecaco is legally entitled to support commercialization, it is not necessarily directly commercializing cacao.



Within the overall supply chain, the Red de Cacaoteros represents producer organizations as opposed to Fedecacao which represents individual farmers.

PUBLIC PRIVATE PARTNERSHIPS AND COORDINATING ORGANIZATIONS

National Cacao Council

The National Cacao Council (Consejo Nacional del Cacao) is a sector-wide body comprised of producers, associations, private industry, governmental organizations, and Fedecacao¹⁶. The Council was one of the first multi-actor working groups to be formalized by the Colombian Ministry of Agriculture and Rural Development (MADR) under its Supply Chain (Cadenas Productivas) division. The Council was formally established in October 2001 to represent the cacao sector. To achieve formal government recognition as the cacao sector representative, the Council first negotiated and agreed on a specific strategy to develop the sector, known in Spanish as an Acuerdo de Competividad. This agreement served as the basis for the development of a public policy framework for supply chain development. The common strategy seeks to improve productivity and competitiveness, reduce transaction costs, develop strategic alliances, improve information flows, include small scale producers and businesses, promote sustainable natural resource management, strengthen human capital and a plan for research and technology development. Law requires that the national government provide direct support to the competitive agreements by incorporating them into government policies and budgets and provide priority access to these resources to members of legally constituted chain organizations. The goals of these policies were to establish bodies that could represent the needs of supply chain members, coordinate development strategies, interact with MADR and provide guidance on public initiatives relevant to the sector. The Council in coordination with the five regional councils,

¹⁶ Actual members of the Consejo include the Ministry of Agriculture and Rural Development, the Ministry of Commerce, Industry and Tourism, Fedecacao, ECOCACAO, APROCASUR, Nutresa, Casa Luker, Colombina, Chocolates Gironés, Corpoica and ANDI.

which represent the needs of key production areas, has played this role since its inception in 2001.

The five regional councils are found in Santander, Antioquia, Tumaco, Arauca and Huila. The goal of these councils is to mirror the coordination functions of the National Cacao Council but also adapt national cacao strategies to regional needs. These constitute an important space to include recommendations for different cacao production systems based on producer innovations, adapt extension materials to local needs (i.e. which varieties, which densities, what management practices), flag regional research demands and dialogue with sub-national governments to identify investment needs and opportunities. An additional advantage of regional councils is that they provide a more accessible space for a wide range of actors to participate, especially small farmers and producer organizations, who are unable to travel to Bogota and participate in a regular basis in the National Council.

The current Acuerdo de Competitividad negotiated between the members of the National Council runs from 2009 to 2022 and focuses on four key areas of collaboration:

- (i) production and technology transfer;
- (ii) investigation and innovation;
- (iii) market development; and,
- (iv) institutional arrangements.

The role of the Council is to provide coordination around these topics, improve access to information, represent the interests of the sector with the national government and permit the implementation of sector-wide development strategies that benefit the Colombian cacao sector. The Council evaluates the implementation of the strategy on a periodic basis with notable advances reported in production and technology transfer and lesser gains in the other areas of collaboration.

ProColombia

ProColombia is a government agency of the Executive Branch of the Government of Colombia in charge of promoting Colombian non-traditional exports, international tourism and foreign investment to Colombia by providing domestic companies with



support and integral advisory services for their international trade activities, facilitating the design and execution of their internationalization strategies, and by providing foreign companies with trade, legal, and educational information about Colombia's market, products, services and companies. ProColombia has been highly active in promoting foreign investment in the cacao sector, searching for new international markets for cacao, creating concise and visually appealing information resources, and hosting product expos and networking events. For activities related to cacao, ProColombia coordinates directly with the Council mentioned above.

EPSAGRO

This is a program managed by MADR that pays individual consultants to give technical assistance in cacao production systems to farmers. We were never able to find definitive information on how this program works, but an individual or organization that is qualified (has degrees or experience in the area of expertise) and has been certified by the MADR as a quality provider of technical assistance in certain crops, can then take on contracts at the departmental level. We are unaware as to how well this program has worked or how prevalent it is across the country, since we saw no signs of actual impact from the program during our field work.

PUBLIC ORGANIZATIONS

Corpoica

Corpoica, is the agricultural research division of MADR. They play an important role in the supply chain since they set the research agenda for the cacao sector (National Agenda for Cacao Research) in consultation with other members of the National Cacao Council, conduct cacao research, maintain cacao clonal gardens and germplasm, provide demonstration farms, and provide technical assistance to trainers through a “train the trainer” model. Most of the research being conducted by Corpoica falls in the area of genetic improvement, best management practices, disease management, and organoleptic qualities of different varieties.

Universities

Similar to Corpoica, Universidad Industrial de Santander, and Universidad Nacional in Bogotá are conducting research within sections of the supply chain. It seems that most of the research that is currently occurring is in the area of cacao varieties, cadmium, sensory characteristics, disease resistance, and management practices (agroforestry, pruning, fertilization). There is little being done in the area of social and demographic issues, economics, or supply chain analysis. The university research agendas should align with the national cacao research agenda led by Corpoica and negotiated with other members of the National Cacao Council. The glue that holds this together are funding calls from the Colombian National Science Federation (Colciencias) which need to align with the national research agenda. In practice, however, universities raise additional sources of funding and are not fully beholden to only follow the topics in the national research agenda.

MADR

The Ministry of Agriculture and Rural Development (MADR) develops, drives, coordinates, and evaluates policies through its Vice Ministry on Production Chains (Dirección de Cadenas Productivas) which provides oversight for the National Cacao Council. The ministry also develops actions to promote alliances between national and department institutions such as Corpoica, SENA, ICA, Finagro, local governments, and others, which leads to the implementation of plans, programs, and projects.

Finagro

Finagro, Financing Fund for Agriculture, through the use of financial instruments and incentives for investment, supports the development of the rural sector in Colombia. Finagro provides funds to retail financial institutions (such as Banco Agrario) who in turn lend to farmers. It is charged with implementing different credit policy instruments for rural development (agricultural risk management, rural investment promotion, productive and social strengthening) and financial services (credit lines, access to financing, and regularization of overdue agricultural portfolios and partial or total relief of debts). The economic objectives for the rural sector are outlined in the National Development Plan.



SENA

The National Training Service (SENA – Servicio Nacional de Aprendizaje) is a public institution attached to the Ministry of Labor. It offers free training in technical, technological and complementary programs that focus on the economic, technological and social development of the country, to increase the productive activities of companies and industry. SENA establishes mechanisms of direct and permanent interaction with unions, companies, governmental and non-governmental institutions, and educational institutions of the country, to update and adjust curriculum designs of existing training programs.

SENA offers face-to-face and virtual training programs in different areas, including some related to agriculture. They coordinate with the MADR and are responsible for the agricultural training programs which include: the management of agricultural companies, agricultural production, agrobiotechnology, agricultural mechanization, among others. They have courses on cacao production and post-harvest management¹⁷, provide technical assistance, and have a production factory in Bucaramanga where they produce truffles and bonbons and provide training for other small-scale chocolate processors. They certify professional training programs that have been based on relevant criteria, quality, convenience, and flexibility to all Colombians and certified foreign residents interested in studying.

SENA also offers training for those who give technical assistance. The objective is to provide conceptual elements and practical tools for the planning and operation of technical assistance initiatives. With Corpoica, they designed a “technological specialization” on the management of technical agricultural assistance. It seems that it is focused on training people working in EPSAGROs. SENA, with Fundación Manuel Mejía, offers a Rural Extension Training Program as part of the program Rural Development with Equity (Desarrollo Rural con Equidad) of the Ministry of Agriculture. SENA has Centers for Agriculture and Livestock (Centros Agropecuarios) in many Departments, with crops, greenhouses, livestock, laboratories, processing plants (fruits, bread, dairy, and others), where they train, advise, research and offer technological

¹⁷ For more information please see: <http://oferta.senasofiaplus.edu.co/sofia-oferta/buscar-oferta-educativa.html>

services to companies, guilds, organizations and people linked to the sector. They also have the program “SENA Emprende Rural” (SER) that seeks to promote income generation through the development of capacities and skills of the rural population through the accompaniment and strengthening of productive initiatives.

Since 2015, SENA and the program, *100,000 Strong in the Americas*, have been working in collaboration to support the Innovation Fund grant competition, a program which supports dynamic exchanges and training opportunities for students in agriculture, aquaculture, biotechnology, environment, engineering, information and communications technology (ICT), tourism, and gastronomy. In May 2017, SENA announced eight new partnerships between U.S. community colleges and U.S. land-grant colleges and universities, bringing the total to 13 partnerships to date. The second Innovation Fund partnership awards will support approximately 122 more students in study abroad programs between the U.S. and Colombia.

UMATA

As part of the decentralization process initiated with the Colombian Constitution of 1991, municipal governments established technical assistance units called Unidades Municipales de Asistencia Técnica Agropecuarias (UMATA). The UMATA form part of the municipal government structure and their mandate focuses on providing technical assistance to all agricultural and livestock activities within their jurisdiction. Under the agricultural sector policies established in the aftermath of the 1991 constitutions, the UMATA should depend on the local Municipal Council for Rural Development (Consejo Municipal de Desarrollo Rural, CMDR), chaired by the mayor and comprised of representatives of other public-sector actors and producer organizations. The CMDR holds ultimate responsibility for the formulation of municipal level rural development strategies. At the departmental level, the UMATA connect to the Secretary of Agriculture which, in turn, relates to the Ministry of Agriculture and Rural Development at the national scale. In practice, the capacity and effectiveness of any given UMATA depends greatly on the funding provided by the municipal government and the importance given to rural development by the mayor. Many initial concerns that surfaced at the inception of the UMATA model, that UMATAs play a more political than



technical role, persist today, as discussed by some of our interviewees, but there is a broad spectrum of efficacy which varies by municipality.¹⁸

Instituto Colombiano Agropecuario (ICA)

The Colombian Agriculture Institute (Instituto Colombiano Agropecuario – ICA), advises farmers and value chain actors in the formulation, preparation, and implementation of policies, plans, programs, projects, measures, and procedures to protect plant health, to protect the rights of breeders of new plant varieties, to verify production quality, commercialization and the safe use of seeds and agricultural inputs. Their objective is to improve the phytosanitary status of plant production, by developing plans for the control and eradication of pests.

International Donor Agencies

Colombia has had a number of international cooperation agencies and non-governmental organizations (NGO's) support activities in cacao with a focus on planting new areas, developing producer organizations and establishing additional processing capacity both at the farm and collective level. They have also been involved in technical assistance to cacao producers. Some key countries active in this space include the U.S., Canada, the European Union and Switzerland. International donor agencies working on Productive Alliances as well as international cooperation agencies implementing donor supported projects. Examples of international donor agencies active in cacao include Socya, Swisscontact, ACIDI-VOCA, Chemonics, Lutheran Relief Services, USAID, and others. (See Foreign Aid to Colombian Cocoa Production Box)

¹⁸ Gottret, MV. 2007. Rural innovation and smallholders' livelihoods: modes of intervention in hillside communities in Latin America. https://www.researchgate.net/publication/37790524_Rural_innovation_and_smallholders'_livelihoods_modes_of_intervention_in_hillside_communities_of_Latin_America. Molina, JM. 2010. Territorial perspective of agricultural extension policies in Colombia. *Agronomía Colombiana* 28(3): 456-463.

Foreign Aid to Colombian Cacao Production

USAID and other international donors have been supporting cacao production as an alternative to illicit crops since at least 2000 in Latin America. A big push in Colombia came when two alternative development projects were launched: More Investment in Sustainable Alternative Development (MIDAS) in 2006 and Areas for Municipal-Level Alternative Development (ADAM) in 2005. These complex, multifaceted projects addressed improving “conditions for rural citizens through productive projects, community participation, public policy development and strengthening municipal governments.” Agricultural production was only a part of these efforts, which emphasized institution building in post-conflict areas. Funding amounted to \$369 million through 2011 and post implementation evaluations claim to have benefited over 330,000 families and to have supported agricultural production on 272,000 hectares.

Cacao was/is a small but important part of USAID’s alternative development strategy, and was not the only crop encouraged as an alternative to illicit crops. Cacao initiatives included providing farmers free trees for planting, technical assistance to get farmers better prepared to grow new crops in areas where they were uncommon, research and institutional support to identify areas where cacao production is appropriate, planting materials likely to offer higher yields and better-quality beans, and training on production methods and post-harvest practices. In order to insert farmers into the supply chain, these projects also addressed marketing channels and provided support for the creation and improvement of producer organizations.

USAID funding was complemented by support from other donors who shared objectives and supported similar or complementary initiatives. One goal was to provide alternative livelihoods for rural citizens that incorporated cacao production. Another was to improve institutions of the cacao sector to benefit farmers, especially in new areas where the potential for cacao production existed. Marketing efforts have emphasized exporting “fine flavor” cacao, an issue addressed elsewhere in this report. To these ends they have recently funded Red de Cacaoteras to organize and support producer organizations and high-end chocolate manufacturers like Cocoa Hunters to support specialty cacao exports. More recent and less massive efforts, prior to the Cacao for Peace initiative that began in 2016, (such as CELI/N) have emphasized helping rural minorities and strengthening the cacao value chain.

In some respects, the cacao initiatives of these projects were quite successful. ADAM and MIDAS report planting over 50,000 new hectares of cacao trees with a focus on high-yielding bulk varieties. This outcome is seen in recent aggregate data (Fedecacao, FAO) as an increase in area harvest of cacao in 2014-15 of 70,000 hectares, above a total harvest area of only 95,000 hectares in 2010 (and 70,000 hectares in 2004). The only other explanation beyond the various donor and government supported initiatives to expand cacao production is the high prices, which are too recent and too small to elicit such a strong supply response in such a short time. (cont.)



(cont.) Foreign Aid to Colombian Cacao Production

This has resulted in an increase of 40% in cacao production, from about 39,000 metric tons in both 2004 and 2010 to 54,700 metric tons in 2015. In addition, these development initiatives supported the establishment of new producer organizations and the strengthening of existing organizations to both deliver planting materials and technical assistance and to assist in post-harvest and marketing activities.

The successes in increased area and production needs to be tempered by the yield trend that has accompanied those increases. National average Colombian cacao yield was a low 520 kilograms per hectare in 2004, and fell to 410 kilograms in 2010 and an even lower 330 kilograms per hectare in 2015. The drops in yield are evident from 2103 onward, and are not a one year phenomenon. This is substantially lower than the 1.5 to 3 metric tons per hectare that is technically feasible, and was at times used in cost-benefit evaluations promoting cacao initiatives. Low yields also mean low incomes to farmers, who typically plant less than 3 hectares to cacao. Many development projects focused on planting cacao trees but neglected other critical aspects such as fertilization, grafting, pruning and general crop management.

The record on producer organization effectiveness is also mixed. While we encountered some exceptionally well-run producer organizations who offered technical assistance, marketing help and institutional support to their farmers, most served only as conduits to funnel development funds to their farmers. Our interns asked organizations what services were now being provided to members, and more often than not were told that was not their function. Evidence also shows that farmers quit or participate only sporadically producer organizations despite the fact that may have provided them free trees or initially offered technical assistance.

Post-implementation evaluations by those who implemented ADAM and MIDAS present several of the problems that account for the weak performance. The evaluation notes difficulties in establishing the production of crops which were uncommon to an area, and this was frequently the case with cacao as it was introduced into post-conflict areas. Efforts to strengthen producer organizations and training farmers in a difficult crop were problematic when cacao production had not been significant in a region. In some cases, regions identified for expanded production were inappropriate for cacao, especially due to lack of sufficient water. The evaluation notes that over a third of trees planted had died by 2014. Contributing to this may have been the discontinuation of technical assistance when projects terminated. Moreover, the evaluation observes that priority was placed on tree planting over provision of technical assistance, since quantitative targets affecting implementer payment were based on the number of trees planted and not on the extent of support services offered. Given the difficulties in offering services to farmers in new areas, and the lack of incentives to bolster those services, it is not surprising that evidence supports the notion that these new farmers are not adopting best production practices. (cont.)

(cont.) Foreign Aid to Colombian Cacao Production

Another possible explanation of the poor yield performance is that many rural citizens who received free trees do not view cacao as important to their livelihood. These “dilatant” farmers simply harvest a few beans for supplementary cash, but do not put in the hard work, nor hire the labor necessary to prune trees, weed plantations, manage diseases like *Monilia*, nor effectively carry out post-harvest practices (fermentation and drying) necessary to achieve high yields of good quality cacao.

Projects elsewhere (e.g. in the Cocoa Alliance in Peru) seem to have been more successful in establishing good producer organizations, adopting best practices in production, and successfully marketing the harvest. Those projects specialized in enhancing cocoa production. Another limitation to ADAM and MIDAS’ success in cocoa may have been the lack of focus on this crop. Other project objectives achieved consistent successes.

The outcomes from aid supported cacao initiatives in Colombia highlight both the difficulties in training new farmers and establishing supporting institutions in regions where cacao production is not common, and the need especially for long term technical assistance and institution building if alternative development strategies are to feature cacao as an alternative to illicit crops.



CACAO PRODUCTION - THE BASICS

A contextual understanding of what is found in a Colombian cacao farm, planted predominantly as a mixed agroforestry plantation such as found in the marginal, traditional, and diversified farms outlined previously, can be helpful for delineating how cacao plays a role in the household income. Cacao trees can be planted at a density between 100-1000 trees per hectare. In our interviews with farmers we saw wide variations in cacao production systems. In Colombia, cacao producers normally establish and manage their cacao plantations under shade using various configurations depending upon climate, soils, household food needs and potential for generating income. These arrangements tend to include banana plants, fruit trees, and taller shade trees.

While some farms were managed extremely well (with yields upwards of 1,500 kilos/ha), others were struggling to produce 400 kilos / ha. When cacao production was well-managed, it was clearly the primary business of the owner. Regular fertilization and disease control were carried out by family labor, and hiring labor was usually a necessity for harvesting, pruning, and weed control. Among the farmers with lower yields, cacao might be one of many income-generating activities and little or no time was spent fertilizing, pruning, or controlling diseases.

Good agricultural practices should include fertilization (up to four times a year), pruning to maintain a shorter stature and more open canopy for flower production and fruit setting, weeding, and disease control. In especially dry regions, such as parts of the Sierra Nevada, successful farmers also had access to passive irrigation systems. The MADR national plan (MADR & Consejo Nacional Cacaotero, 2008) and Grand Alliance (*Gran Alianza*)¹⁹ mention these same practices as a means for increasing production. However, improved management practices come at a cost. Agricultural costs have

¹⁹ The mission of the Grand Alliance (*Gran Alianza*) is to “increase exports of fine cocoa of Colombia flavor and aroma in a sustainable manner over time.” The full working group is divided into three branches of action, 1) Investigation (Minagricultura, CORPOICA, Fedecacao, USAID), 2) Production (Minagricultura, Fedecacao, Procolombia), and Commercialization and Production (Procolombia, Mincomercio – PTP, Minagricultura, Swisscontact, Casa Luker, USAID). The goal is to increase cacao production to 100,000 tons per year.

increased in the last decade. According to a report compiled by TechnoServe and ANDI (2015), over the last decade, labor costs have gone up 97% and the price of urea has increased by 49%.²⁰

Location matters in Colombia, since prices vary (local input costs, transportation costs, etc.) and environmental factors can impact production levels, disease incidence, and varietal differences. For farmers new to cacao farming, high substantial upfront costs must be incurred (see Appendix H for costs associated with establishing cacao plantations in one geographical region in Colombia) and income from cacao does not accrue until several years later. The first harvests for cacao plantations are dependent upon the variety and management of the trees. Some trees produce pods 2-3 years after planting but larger harvests are usually seen 4-6 years after planting. Early on farmers grow other crops (varying by geographical region), such as plantains and citrus in order to ensure a more stable income. As the cacao matures, farmers may (or may not) specialize in cacao and spend more time and energy on this crop and less on other crops.

Given the long lead time needed for cacao to produce, income from fruit (soursop, guava, citrus, and other tropical fruit) trees, timber species, and banana plants can be important to a farmer's livelihood. Banana plants produce for the first 4-5 years, until the cacao trees begin to produce. By the time the cacao is ready to be replaced (20-30 years), the shade trees, which tend to have good timber quality, are ready to be cut down and sold. A producer's ability to harvest trees are limited because of governmental policies.

²⁰ The main increase has been in fertilizer costs (which is common globally but acute in Colombia). Labor costs have increased in some regions as competition increases from both legal and illicit activities. For example, in Cauca the day rate for agriculture is around COP\$30,000 while illegal gold mining pays COP\$80,000. Coca processing is in line with the gold mining. For areas with better rural urban connectivity, farmers may opt to diversify their activities out of agriculture. Day labor does the same thing with people moving into selling labor for construction or into service provision in activities like informal transport (mototaxis), small-scale commerce and maid service, among others.



Cacao Varieties and Planting Materials

One of the objectives of the Cacao for Peace program is to investigate the cacao varieties found in Colombia. Numerous entities (Fedecacao, Corpoica, Nutresa, Luker, CIAT) have developed and assessed cacao varieties that improve yield, resist diseases, and may be adapted to local Colombian environments. These varieties appear to be capable of much higher yields, but there are numerous reasons why they are not having an impact on yield increases in the country. For instance, many producers do not have access to these new varieties. Seedlings from the new varieties have not been mass produced and made available to all regions of the country. Many of the new varieties have not been vetted to ensure that they are suitable for the different regions and microclimates. Another limiting factor is possibly due to improper management practices, including insufficient amounts of applied fertilizer and incorrect pruning practices. We observed a mixture of cacao varieties in the plantations, where they are all harvested, fermented, and intermingled together. In specific cases where plantations utilize good management practices (fertilizer use, appropriate pruning techniques, etc.), a yield boost can occur. Because there are numerous entities competing to find the next high yielding variety, there is little collaboration and trust.

Experimental stations realize high yields with the available varieties, however in their competition with each other, these entities do not enhance the reputation of Colombian cacao science. The collaboration that has occasionally occurred seems prone to break down. Mistakes may have been made in the past to rush new varieties to market. Available varieties seem to offer tradeoffs between yield and disease resistance on the one hand and flavor profile on the other.

Post-Harvest Management

Post-harvest management includes fermenting cacao beans, drying them, and storage. Investment in wooden fermentation boxes for properly fermenting cacao are the industry norm and considered best practices, but in our conversations with producers many commented that cacao is also fermented in sacks. The use of burlap sacks for fermenting causes low consistency and/or incomplete fermentation, which negatively impacts final quality.

In the Santander region, the most productive farms had invested heavily in post-harvest infrastructure, such as *casas elbas*, which provide removable rooftops for effectively drying cacao and protecting it from rain (Figure 13). Nationwide, consistency in drying is lacking, because the quality of on-farm drying locations and practices differs among farmers. Sometimes beans are also being purchased wet, *en baba*, and a producer organization would maintain a centralized area where post-harvest practices are performed on aggregated cacao. The lack of capital to invest in improved post-harvest infrastructure (fermentation boxes and *elbas* or drying areas) was mentioned as a reason for not incorporating new infrastructure on the farms in numerous cases by producers. While there is a general understanding that everyone would like to have improved infrastructure to maintain high quality cacao, we also received anecdotal evidence suggesting centralized processing facilities were underutilized.

Figure 13. ELBA, ROOFTOP DRYING SYSTEM



Photo Credits: Colleen Kelly, 2016



Extension and Technical Assistance Services along the Supply Chain

Extension services “are the Achilles heel of the Colombian agricultural innovation system (OECD, 2015, p 272). “The current technical assistance system is unstable, relatively costly, disconnected from R&D, and education...,” and “technical assistants lack the required skills and would need re-training” (p 275). Our analysis of the decentralized system that provides extension services to cacao producers aligns with this critical assessment, however we also found instances of providers with programming that can increase yields substantially. We found that the access and quality of extension services is highly variable between locations. International development agencies and NGOs play a large role in providing technical assistance to cacao growers, especially in areas with nascent supply chains. Producers in these may be left without support when projects and funding end.

Technical assistance services are rarely coordinated, validated, or made consistent to ensure a clear message is delivered in a format that is best for the farmer and in a timely fashion. Competition among technical advice providers has at times generated mixed messages to farmers, and with so many different people giving out information it is challenging to make sure the content is correct. There is no mechanism in place to coordinate and verify that accurate and consistent information is being provided to farmers. Also, the technical assistance model currently being used and largely based on one-on-one interactions with farmers, is a resource-intensive and expensive approach. Hence, the reach is limited by budget constraints. And, there are only a few examples of online approaches (Table 9).

Table 9

EXAMPLES OF EXTENSION (TECHNICAL ASSISTANCE PROGRAMS)
RECENTLY/CURRENTLY SUPPORTED IN COLOMBIA

Entity	Current/ Recent Program	Date	Description ²¹	Cacao Specific?	Web page
Ministry of Agriculture and Rural Development	Colombia Sowing (Colombia Siembra)	2015- 2018	<p>'Program objectives include increasing the area, yields, production and promotion of agricultural and agroindustrial exports, promote the development of agricultural businesses to improve the income of producers, strengthen technological development and services in the agricultural sector.'</p> <p>There is an Incentive to Rural Capitalization that can be used for machinery and equipment, planting, soil improvement, and agricultural infrastructure. This incentive is managed by Finagro.</p>	No, but cacao is one of the crops supported for the Incentive to Rural Capitalization	http://bit.ly/2AvJe7C
	Rural Development with Equity (Desarrollo Rural con Equidad, DRE) (Preceded by Agro, Ingreso seguro, AIS from 2007-2010)	2011- 2014	<p>'This program established incentives to promote productivity, including :</p> <ul style="list-style-type: none"> • <i>The Incentive for Rural Direct Technical Assistance</i>, a subsidy which co-financed up to 80% of the costs of execution of the General Plans of Direct Rural Technical Assistance prepared by the municipalities or Provincial Agribusiness Management Centers. It provided technical 	Not specifically, but cacao is an eligible crop.	http://bit.ly/2GI4m

²¹ This description is about the aspects related to Extension (technical assistance), some programs may have other components.



			<p>assistance to small and medium producers through the hiring of EPSAGROs;</p> <ul style="list-style-type: none"> • <i>The Incentive for Technical Guild Assistance</i>, an economic support of 50% of the costs of providing technical assistance services to and the training/updating of technical assistants for the agricultural sector guilds; • <i>The Incentive for Special Technical Assistance</i>: Provision of technical assistance to small agricultural producers in conditions of vulnerability in prioritized regions.' 		
Support for Productive Alliances Program (Apoyo a Alianzas Productivas)	<p>Phase III: 2016-2018;</p> <p>Phase II: 2008-2015;</p> <p>Phase I: 2002-2007</p>	<p>'This program links small rural producers to markets through an agribusiness scheme with a formal commercial ally.</p> <p>The program promotes initiatives in which small producers participate to increase their income and sustainable development by connecting them to value-added markets, and promoting competitive production.</p> <p>The program supports sustainability and subsequent growth of agribusiness through the creation of a revolving fund owned by the producer organization. Managed by Corporación Colombia Internacional.</p> <p>In phases I and II (2002-2015): 147 alliances (20%) were for cacao. There were 81 alliances with Compañía Nacional de Chocolates, 5.538 families, in the case of Casa Luker, there</p>	<p>No, but cacao has been one of the crops that benefited the most.</p>	<p>http://bit.ly/2wqdkXT</p>	

			were 71 alliances benefiting 4.955 families. ²²		
	Proyecto de Construcción de Capacidades Empresariales Rurales: Confianza y Oportunidad	2012-2017	<p>'Program targets groups of rural people, instead of individuals, and focuses on capacity building for groups through a combined approach of technical assistance, workshops and training sessions and study trips. It is comprised of three components: (a) Formation of Associative Social Capital and Business Development, (b) Development and Strengthening of Rural Financial Assets, (c) Knowledge Management, Capacities and Communications.'</p> <p>This program is related to the former 'Development Program for Investment Opportunities and Capitalization of the Assets of Rural Microenterprises - Rural Opportunities (Programa Desarrollo de las Oportunidades de Inversión y Capitalización de los Activos</p>	No	http://bit.ly/2KPI6er

²² <http://documents.worldbank.org/curated/en/433011496956067376/pdf/PI61247-06-08-2017-1496956063582.pdf>



			de las Microempresas Rurales – Oportunidades Rurales) which ran from 2007 - 2014		
	Implementation of Income Generation and Development of Productive Capacities (Implementación Generación De Ingresos y Desarrollo de Capacidades Productivas)	2015	Sustainable Productive Projects focus on entrepreneurship and Comprehensive Projects for Strengthening Productive Capacities is a focused intervention aimed at associations. Both programs are aimed at increasing the capacity of rural producers for productivity, competitiveness and direct market integration.	No	http://bit.ly/2ru3gby
Agency of Rural Development	Comprehensive Agricultural and Rural Development Projects with a Territorial Approach (Proyectos Integrales de Desarrollo Agropecuario y Rural con Enfoque Territorial)	2015	'Program includes technical assistance for agricultural producers on: agricultural site selection based on soil type; planning for marketing and exporting; application and use of productivity enhancing technologies and resources; access to investment financing, promotion of producer organizations; management of marketing and process technologies; infrastructure development and market information systems.'	No	http://bit.ly/2vWHBub
Ministry of Commerce, Industry and Tourism	Productive Transformation Program (Programa de Transformación Productiva)	2009-	'The program offers technical assistance and support to businesses promote the adoption of advanced methods for productivity improvements. The program uses specialized training in alliance with companies and educational institutions along with financing to obtain certifications as a requisite for	Yes, "Cocoa and its derivatives" is the first of twelve sectors that this program covers	http://bit.ly/2B9h6HC

			entry to international markets, etc.. .		
Swisscontact	Colombia + Competitiva (Formerly “Promoción de la Producción y Exportación de Cacao Fino y de Aroma en Colombia” – COEXCA” from 2012-2016)	2017-2020 2012-2016	The objective is to strengthen the value chain, focusing in the international market. Swiss Expert Network is also available to support capacity development, competitiveness, access to financing, internationalization, and standards and certifications.	Yes, “special cacaos and chocolate” is one of the four value chain supported	http://bit.ly/2M4pgGm
Companies providing agricultural technical assistance services - EPSAGROS		2000 - Present	They are public, private and mixed companies registered under the Ministry of Agriculture or the Departmental Secretaries of Agriculture, for the provision of technical assistance services. As for 2017, there were 559 EPSAGROS registered.	There are EPSAGROS specialized in cacao.	http://bit.ly/2G2QO7e

With the potential to increase yield, unmet domestic demand, and the support from donors and the government, many actors have gotten into the technical assistance business (Table 10). Best practice messages are not always consistent and with so many different people giving out information it is challenging to make sure the content is correct. We found that Fedecacao, Luker, SENA, Nutresa, EcoCacao (and other farmer associations), Corpoica, and international development agencies all provide some type of technical assistance services and yet they are rarely coordinated, validated, or made consistent to ensure a clear message is delivered in a format that is best for the farmer and in a timely fashion. Competition among technical advice providers has at times generated mixed messages to farmers. When numerous organizations are providing



technical assistance, there is a need for coordination to ensure accurate and consistent information is being provided to farmers.

Table 10

EXAMPLES OF ONLINE EXTENSION RESOURCES FOR CACAO IN COLOMBIA

Entity	Title	Description	Website
Ministry of Agriculture and Rural Development	Information and Communication Network of the Agricultural Sector (Red de Información y Comunicación del Sector Agropecuario) – AGRONET	Online courses, statistics, weather information, and a digital library with articles, books, booklets and magazines. This information is aggregated by Agronet to assist producers with decision making.	http://bit.ly/211Q4Fg
	CELUAGRONET	Subscription by cellphone, free of charge, covering these topics: <ul style="list-style-type: none"> • Market information system for main wholesale centers. • Weather information by region. • Technical production guides for specific crops. • Official information reported directly from the Ministry of Agriculture and Rural Development. 	http://bit.ly/2K9BY19
Fedecacao	Documentos técnicos	Information about good agricultural practices and techniques for cacao.	http://bit.ly/211MmeE
	Revista Colombia Cacaotera	Information about cacao, news, events, and Fedecacao	http://bit.ly/2M1NlrG

Swisscontact	Promotion of the Production and Exportation of Fine Cocoa and Aroma in Colombia	From their project COEXCA, created online resources including: Quality control for cocoa beans; Good Agricultural Practices for harvest, fermentation, and drying of special cocoa; Basic Guidelines for Sustainable Cocoa.	http://bit.ly/2KEoUQW
Corpoica	Cacao Videos	Educational videos about cacao techniques.	http://bit.ly/2wrwsVH
PNUD Colombia	Guide for the cultivation of cocoa	Practical guide for the maintenance of cocoa cultivation in which peasant families from Oriente Antioqueño work	http://bit.ly/2IbQkNC
ICA	Phytosanitary management of cocoa crops: Measures for the winter season	'This booklet offers general information on the cultivation of cocoa and a practical guide for the management and control of these diseases.'	http://bit.ly/2G0vr6i

The national agricultural policies which have decentralized and privatized extension services have materialized as highly fragmented support for cacao farmers. By design, there are many actors providing extension services.

In Colombia, a cacao farmer may receive extension services from:

- Fedecacao
- Casa Luker / Nutresa or other private chocolate manufacturers
- A producer organization such as Ecocacao
- One of the contracted Companies Providing Agricultural Technical Assistance Services (EPSAGROS) (which could be a private enterprise, a producer organization, an NGO, etc.)
- An NGO such as Fundación Socya
- Agricultural universities' students completing compulsory internships in their final semester
- A program supported by an international development agency such as USAID
- An UMATA



- ☐ A co-financed MADR program that may have a technical assistance component such as: Equitable Rural Development (Desarrollo Rural con Equidad) DRE, Producer Alliances (Alianzas Productivas) and Rural Opportunities (Oportunidades Rurales)

Of these options, the two primary extension models funded with public resources are:

- ☐ Technical assistance provided by EPSAGROS and UMATAs under The Direct Rural Technical Assistance (ATDR) plan
- ☐ Technical assistance provided by Fedecacao with resources from the National Fund for Cacao, the parafiscal fund supplied by the 3% Cacao Development fee.

The manner in which technical assistance services are funded results in a non-integrated, patchy implementation. Colombian law states that state and local governments are responsible for providing technical assistance to small and medium sized farms²³. The diversified, traditional, and marginal farms fit within this definition. Municipalities develop programs to receive federal funding and hire a provider such as EPSAGRO to implement the desired program. Technical assistance programming timeframes follow funding cycles and trends in the most recent issues impacting farmers. The resultant technical assistance takes the form of short-duration projects rather than stable programming with an impact assessment. We were told, by multiple stakeholders including governmental organizations, cacao producers, chocolate manufacturers, farmer organizations, that this lack of sustained extension programming is especially problematic when combating systemic, persistent problems such as *Moniliophthora roreri*.

Funding structures for technical assistance services also greatly impact program delivery and coverage. We found that the farmers in Santander largely had access to high-quality technical assistance and that farmers had a favorable opinion of Fedecacao. In other areas, Fedecacao was viewed as absent or spread too thin and unevenly. Colombian law directs Fedecacao to allocate the 3% Cacao Development Fee back to the areas from which they were obtained. Fedecacao's programs and projects, therefore, must prioritize attention to regions already producing large amounts of cacao rather than

²³ Colombia uses a system called 'unidad agrícola familiar' (UAF). A UAF is defined as the minimum land holding needed for a family to make three times the minimum wage. The size of the UAF varies depending on where it is located. For example, in the coffee region a UAF is 4 hectares while in the Llanos (Eastern Plains) it varies from 13 hectares (along the river Meta) to 1,840 hectares in hilly terrain.

emerging areas. For there to be large scale sectoral growth, there needs to be resources allocated such that all growing areas receive some attention. If it cannot be done by a sole entity, then all the more reason for fostering effective collaboration. The infrastructure of how cacao enters the market chain exacerbates this issue further. While fees should be assessed at every transaction, in reality, fees are collected only at central buying centers. When cacao from distant areas is brought in for sale by a trader, it invariably crosses jurisdictional lines. The fees are linked to the point of aggregation rather than production as are any funds that are reinvested in the region.

There is also a mismatch between the financial support structure for cacao technical assistance services and the reality of the diverse farming system of small-holder farms. Cacao is often grown with multiple crops but services are offered from providers primarily interested in increasing cacao yields and quality. Offering extensive advice for integrated systems is especially critical when expanding cacao to new areas in order to support income and household food security during the multiyear gap between planting new trees and harvesting the first pods.

Fedecacao, with 35 agronomists and 148 technicians among its 21 technical units, has the most expansive and integrated technical assistance network across the country, however it was reported to us, by multiple stakeholders found within the supply chain, that Fedecacao presence and on-the ground impact in areas new to cacao was sparse or non-existent. Between 2010-2015, Fedecacao made: 89,444 individual visits; held 192 field days benefitting 15,192 participants; conducted a total of 3,752 days of “Cacao Producer School” for 5,440 producers; held 63 farm tours; and conducted 164 capacity training courses for 4130 beneficiaries at demonstration farms. In 2014, Fedecacao expanded their technology transfer event portfolio to offer methodological demonstrations, farmer field schools, workshops, and 36 national training courses. Fedecacao also employs mass communication methods, such as a Fedecacao newspaper, online videos, radio programs and publishes booklets and technical guides. Despite these efforts, the fact that Fedecacao does not reach all cacao producers directly is a source of discontent for those they do not reach given the obligatory nature of the 3% fee for the Cacao Fund.

Fedecacao does manage a beginning farmer program at all of their offices when feasible, both from a personnel and financial perspective. One farmer in the jurisdiction of the Rionegro Fedecacao office, who was just starting, implied that when someone starts out Fedecacao visits them at least around four times during the first year. It seems that



information on new farmers tends to reach Fedecacao either through word of mouth (“Juan’s neighbor is planting cacao this year”) or when the new farmer contacts them, so it is doubtful that the programs are found in areas where cacao is not an important cropping system. It is much easier under current technical assistance models to work with farmers who already have experience with cacao, and in regions where cacao is prevalent so that neighbors can reinforce messages. In new “post-conflict areas”, where cacao is not now prevalent, are to realize expanded production and high yields, even more resource intensive support services will be required. It is not sufficient to just subsidize the cost of planting trees and hope that new farmers succeed. Oftentimes these farmers are in areas where the infrastructure is not in place to earn a higher price for their cacao. Traders infrequently stop by to pick up cacao purchases because there is not enough supply for their trip to be worthwhile. Input costs can be higher in areas where infrastructure has not been established or the inputs might not even be available. Fedecacao’s presence is often lacking in areas that do not have high populations of cacao farmers. New organizations have sprung up in these areas to support cacao farmers but their programs are usually tied to donor dollars and when the money is no longer available these organizations leave the area. Even though there is a national policy for research and development specifically for cacao, in reality there is no practical evidence that consistency and defined roles are part of national institutions to follow these policies.

The current technical assistance system in Colombia is costly, unstable, inconsistent, unevenly distributed, and disconnected from research, innovation, and education. Few stakeholders in extension, policy, or research view cacao as part of an integrated system. Programs involving youth are almost entirely absent, an unfortunate exclusion given the utility of youth programming in diffusing innovation to older family members and training the next generation of producers.

Targeting domestic versus export markets

There is a high potential to meet demand in domestic and bulk export markets, so if more cacao is produced, it is likely to be sold. Meeting that demand can raise incomes of small producers and increase employment in rural areas.

We observed several distinct approaches to tapping export markets for luxury cacao and paying price premiums. Some models are more realistic than others in light of the demand for cacao in Colombia and on international markets. The luxury cacao market

is a competitive business and we found initiatives to produce and export fine flavor, single origin, or bean-to-bar cacao in a number of other Latin American countries. Based on these initiatives, Colombia should not expect to quickly become a large supplier to higher end cacao markets of sufficient size to employ a large number of farmers.

There have been efforts to tap these markets ongoing in Colombia for a number of years (>5). To date these efforts have exported only a very small volume of cacao, and so benefited only a few farmers. Moreover, some started by offering high premiums over the international price, but those premiums have shrunk as time passes – since the captured value is not from farmers’ activities but by the exporters’ activities. The “socialist business models,” where farmers are paid more than the value they generate, are not sustainable. When processors are under financial stress, they will reduce the prices paid to farmers. The relative scarcity of models such as Taza and Cacao Hunters, who have paid farmers premiums for higher quality cacao, seems to indicate limited market appetite for these products as well as other income opportunities for farmers that may be more profitable. The demand for this chocolate is quite small, so the true impact for poverty reduction on a large scale using this business or development model is questionable.

Emphasis on expanding cacao to sell in ultra-premium markets is a mistake because:

- 1) expected premiums are exaggerated and have not been realized in sales for Colombia,
- 2) the market niche for ultra-premium cacao may be growing, but it is still very small and highly competitive,
- 3) the value generating activities to attract these premiums are marketing and post-harvest processing, thus any premiums will accrue to businesses conducting these activities and not necessarily farmers,
- 4) beans to supply this ultra-premium market are readily available, even in surplus – hence low premiums should be expected (as is the case for certified sustainable cacao),
- 5) processing can overcome issues with low-quality beans and sort them out of the supply,
- 6) past longstanding efforts to penetrate this market in Colombia have generated only very small exports.



In order to reach some of Cacao for Peace's goals, we must be able to scale up activities that reach the maximum number of people. Foreign or domestic aid should improve the livelihoods for farmers and provide employment opportunities, not just benefit a few businesses. The goal should be to provide the appropriate technical support to increase production, develop consistent post-harvest processing and get it marketed. Extension will play a key role if the available land (and labor) can be found with the expansion into new areas.

Financing

The Colombian government has a history of subsidizing credit for agricultural activities. Credit subsidies exist, and can be quite large. While many government agencies appear to offer subsidized credit for agricultural projects, this has not been taken advantage of as much as it could be. Farmers cite difficulties in filling out paperwork and the long timeframe as barriers to accessing credit, despite assistance offered by some extension services and producer associations. Several experienced cacao technical experts expressed their difficulty in accessing credit from the private sector specifically for purchasing land, as many banks do not see cacao as a profitable crop. Other producer organizations have attempted to take advantage of government programs and only certain members have succeeded.

More proactive assistance from government financial institutions may be needed to connect farmers to the financial resources they need. One function of technical assistance programs should be to help farmers gain access to credit, whether through these subsidized programs or through commercial loans. Repayment plans also need to be sensitive to the long-term requirements of growing cacao, which often takes several years to become profitable. As such, cacao is not a good option for micro-credit. Since cacao often takes several years to become profitable, repayment plans also need to be sensitive to long-term requirements. For cacao, loans generally have a three-year grace period without payment or interest while cacao matures. Interest is very low, around 1.1% or 1.2%. The interest rate is calculated according to the land size of the farm and depends on whether you are a large, medium or smallholder farmer. There are also programs that will cover large percentages of the loan, i.e. 40%. Some years, programs from the federal government loan out most of the money available for projects early, meaning there is a scarcity of money by the middle of the year. When someone takes a

loan from the bank for a project, Fedecacao will provide technical assistance free of charge (funded by the 3% tax).

The well-run cacao farms we encountered had substantial capital investment – trees, drying rooftops, fermentation boxes, and other good agricultural practices. For those farmers with access to credit, there are good options available for cacao farmers for inputs, renewal of trees, etc. if a farmer can figure out the paperwork. Not all farmers have access to this credit because they do not live in an area where it is available. However, financing to purchase land to get into cacao is not as available.

Youth and Labor Constraints

In order to ensure growth and long-term viability of the cacao sector, the attractiveness of cacao farming to younger generations as an appealing profession and income opportunity must be greatly enhanced. The cacao sector faces an aging rural population, youth migration to urban areas, and an array of land access issues, such as high prices for land, land tenure issues, and farmland close to alternative income sources. For the traditional and diversified cacao farms, full time year-round labor is not required but they also do not provide stable incomes. The older generation is remaining on their farms and providing the primary labor and decision-making until they reach old age; we commonly saw farmers in their 60's and above. The younger generation (18-30 years old) we talked with, who were involved in cacao (for example those employed by Fedecacao), often return home on weekends and holidays to assist their parents but their help isn't necessary full time.

Because cacao farmers are working until their 60s+, when they retire their children will be 30-40+ years old (if a parent works until 80 years old their child could easily be 60). Youth have no hope to inherit the land during their peak years, so they leave the farm in order to make a living, meaning that the farming lifestyle is skipping a generation. The younger generation we interviewed expressed frustration with respect to purchasing their own land as not a viable option in most of the departments that produce cacao in the country. By the time parents are ready to hand off the farms, the appropriate generation to take the land would be the grandchildren who have now grown up in a different lifestyle. The only successful multi-generational family farm we saw functioned because the grandfather had enough land to give each of his sons a few hectares to farm independently, but on a family compound, to support their nuclear families. However, this pattern may not hold for children who find temporary careers outside the farm, or



in cases where children are unable to find jobs that pay highly enough to make living apart from their parents practical.

Post-Conflict Environment

The post-conflict environment in Colombia constitutes a challenge to rural development in general, with specific implications for the cacao sector. Key issues include rural outmigration, land tenure, poor transportation infrastructure and competition with off farm activities and illicit crops. The competition for labor is principally with illicit activities and off-farm income. Illicit activities include coca and poppy production, harvesting and processing as well as illegal mining and contraband. All of these activities pay a higher day rate for unskilled labor than anything in the licit agricultural economy. In addition, off farm income activities including construction, transportation and the service sector offer an increasing number of opportunities even in rural territories and/or small to mid-size cities. These activities normally have higher social status and may pay better than agriculture.

In terms of land issues, in addition to the continual division of land among children (which leads to commercially non-viable farms) many farmers lack legal ownership and/or tenure. This is especially problematic in areas of post-conflict where land titles either don't exist or are managed in a collective fashion, such as is the case with Afro-Colombian and indigenous communities. The lack of a clear title effectively disqualifies a farmer from formal credit and may limit their access to other public support like training, extension and/or input provision. Context matters, the situation in Tumaco – Afro-Colombian communities with collective land titles – varies significantly from what one finds in Huila, Antioquia or Arauca. As such it can be challenging coming up with a general answer for all of Colombia.

The 50-year old Colombian conflict displaced 6,360,000 people. Most relocated to urban areas, particularly the larger cities such as Bogotá, Cartagena, Barranquilla, Medellin, Cali, Bucaramanga, Villavicencio, and Pasto. Most fled conflict zones that were well-suited to cacao production, or zones where cacao was already in production. These migrations contributed to the lack of labor in cacao producing areas, a significant level of abandonment of cacao plantations as well as the continued aging of the producer population. In areas that are more remote, with poor road access and a lack of utilities such as electricity and potable water, land is less expensive. However, these areas are less likely to receive technical assistance while also carrying a security risk. As such, land

conflict in many major cacao producing areas is an obstacle to the development of the sector.

STATUS OF RURAL EDUCATION AND AGRICULTURAL EDUCATION

Favorable winds for revitalizing rural education

On September 26, 2016, President Juan Manuel Santos and leftist rebel leader Timochenko signed a peace deal between government and FARC rebels using very special pens - re-purposed 50-gauge bullet casings had been fashioned into the barrel of the stylists. Nicknamed “balígrafos” (*bala* for bullet and *bolígrafo* for pen), the pens bear the inscription, “Bullets wrote our past. Education, our future.” In 2015, for the first time in the nation’s history, funding towards education exceeded that going towards national defense. Fiscal policy appears to be backing up Santos’s promise to make Colombia the most educated country in the region by 2025.

The CfP initiative similarly places education at the center of its strategy by identifying cooperative research, technical assistance, graduate student scholarships, and extension education as the tools through which public and private agricultural institutions supporting the cacao sector will be strengthened. They also align with the objectives found in the National Planning Department’s proposal “Mission to Transform Rural Colombia” (*Misión para la Transformación del Campo Colombiano*) and the most recent draft of the peace accords, “Final Agreement for the Ending of Conflict and the Construction of a Stable and Durable Peace.” Both call for the development and expansion of a more integrated technical assistance and deep changes to rural education.

Agricultural education for youth and young adults

The peace agreement articulates a Comprehensive Rural Reform and the creation of “Special Rural Education Plan.” Seventy-two members of the IV Congress for Rural Education formed a National Roundtable to draft a roadmap for rural education initiatives to meet the conditions stipulated in the peace accords as well as Ministry of Education guidelines. Policymakers are careful to word recommendations regarding rural education to navigate the delicate balance between recommending agricultural and vocational education strategies and not creating a classist system which channels rural youth into low-earning occupations. The key to negotiating this balance lies in combining



student-centered, experiential learning approaches and agricultural to teach STEAM (Science, Technology, Engineering, Agriculture and Mathematics) material, leadership, civic engagement, and entrepreneurial skills. This approach not only provides students with a suit of transferrable life skills, it prepares students entering the rural workforce and those desirous of continuing their education at either technological schools or universities.

The following Table 11 lists the 13 criteria to be met by this plan as well as potential areas of alignment with CfP objectives and examples of interventions. While CfP cannot re-cast these complex systems itself, the initiative can be directed to support an integrated education approach and rural education as it relates to the cacao sector. Unique opportunities exist for CfP to support school-based agricultural programming models with proven track-records for success, extension programming dedicated to positive youth development, education programs which strengthen links between higher education institutions and businesses within the cacao sector, and training resources within tertiary institutions which train future researchers and extension professionals.

Table 11
CRITERIA OF THE SPECIAL RURAL EDUCATION PLAN AND EXAMPLES OF HOW CFP ACTIVITIES COULD ALIGN WITH THESE CRITERIA

Objectives for the Special Rural Education Plan	Potential activities that serve the objectives of CfP and the Special Rural Education Plan
1. Ensure universal coverage with comprehensive early childhood care.	N/A
2. Provide flexible models of preschool, basic and secondary education, adapted to the needs of communities and the rural milieu, with a difference approach.	<ul style="list-style-type: none"> ● Create developmentally appropriate agriculturally themed content and experiential learning activities to build relevance to coursework, increase student interest, and model a modern scientific approach to agriculture. Example: High school students learn the concepts of fermentation and steps in the scientific method by manipulating the factors involved in cacao fermentation.
3. Implement the construction, reconstruction, improvement and adaptation of the rural education infrastructure, including the availability and permanence of qualified personnel and access to information technologies.	<ul style="list-style-type: none"> ● Information and Communication Technologies (ICT) employed for technical assistance (i.e. Vive Digital Kiosks) could serve a dual purpose of supporting agricultural education for youth. ● Create online classes and conduct workshops to help train teachers in experiential learning and student-centered teaching methods.
4. Ensure free education for pre-school, basic and secondary education.	N/A
5. Improve the conditions for access and permanence in the educational system of children and adolescents through free access to supplies, texts, school meals and transportation.	<ul style="list-style-type: none"> ● Help provide basic resources to support for project-based learning at home and at outdoor learning labs such as school gardens. ● Information and Communication Technologies (ICT) employed for technical assistance (i.e. Vive Digital Kiosks) could serve a dual purpose of supporting agricultural education for youth.

Table II Continued

(Continued)

Objectives for the Special Rural Education Plan	Potential activities that serve the objectives of C&P and the Special Rural Education Plan
6. Generate offer of programs and infrastructure of recreation, culture and sport.	<ul style="list-style-type: none"> ● Develop after-school clubs which borrow from the 4-H model of positive youth development and incorporate hands-on learning. ● Support the creation of an intra-curricular student organization (i.e. FFA) for those interested in agriculture or leadership and help sponsor career and leadership development events for this organization as they relate to the cacao sector.
7. Incorporate agricultural technical training in middle school (tenth and eleven).	<ul style="list-style-type: none"> ● Develop cacao / agroforestry learning modules and training opportunities that demonstrate good agricultural practices for cacao, leadership and entrepreneurial skills, and farm enterprise management. ● Support programs such as Universidad en el Campo that utilize a type of project-based learning known as a "supervised agricultural experience." ● Support the creation of an intra-curricular student organization (i.e. FFA) for those interested in agriculture or leadership and help sponsor career and leadership development events as they related to the cacao sector. ● Create online classes and conduct workshops to help train teachers in how to use modules and the principles behind experiential learning and agricultural education.
8. Provide grants with reasonable credit rates to facilitate the access of poorer rural men and women to technical, technological and university training services, including, where appropriate, support for child support.	<ul style="list-style-type: none"> ● Provide financial support for economically disadvantaged students interested in pursuing fields related to cacao production, agroforestry, agribusiness, rural development, and agricultural education and extension.
9. Promote the professional training of women in non-traditional disciplines for women.	<ul style="list-style-type: none"> ● Help develop teaching materials with gender-balanced representations and examples to normalize women's participation in STEM+A (agriculture) fields aligned with the cacao sector. ● Provide sponsored opportunities for female students grades 8-11 to tour universities and female professionals in the workplace affiliated with the cacao supply chain and cacao research and innovation.
10. Implement a special program for the elimination of rural illiteracy.	<ul style="list-style-type: none"> ● Ensure content for adult education courses is relevant to rural context (i.e. lessons in vocabulary prioritize terms from environment) and have immediate application to daily life. For example, a technical workshop for managing <i>monilla</i> could be integrated within a literacy lesson. A reading primer could describe the travails of forming an effective producer organization.
11. Strengthen and promote research, innovation and scientific and technological development for the agricultural sector, in areas such as agroecology, biotechnology, soil, etc.	<ul style="list-style-type: none"> ● Help provide outdoor learning spaces (I-I) and science labs (grade 1 -11). ● Assist universities in creating agroforestry research/training plots so that students may study cacao production and conduct research. ● Offer research grants for university faculty formulated so that they incentivize applied cacao research and research done in collaboration with farmers.
12. Progressively increase technical, technological and university quotas in rural areas, with equitable access for men and women, including persons with disabilities. Special measures will be taken to encourage access and retention of rural women.	<ul style="list-style-type: none"> ● Provide financial support to students from rural areas who are interested in pursuing fields related to cacao production, agroforestry, agribusiness, rural development, and agricultural education and extension.
13. Promote the expansion of supply and technical, technological and university training in areas related to rural development.	<ul style="list-style-type: none"> ● Colombia has a lack of teacher training programs specialized in agriculture and rural extension. Support Colombia student exchange to land-grant universities in the US.



RECOMMENDATIONS

The Colombian cacao sector presents opportunities specifically in the context of post-conflict development. Cacao has the potential to be grown in areas emerging from conflict if managed using diverse farming systems (similar to the diversified cacao plantation section mentioned earlier in the document) by smallholder farmers. Unlike other producing countries, Colombia possesses a strong domestic market for cacao and chocolate and is home to two large confectionary companies that demand high volumes of, and add value to, Colombian cacao. This strong private sector provides a wide range of services (including research and education) and opportunities for public-private partnerships. On the public side, Colombia invests significant resources in the sector for technical assistance and training (through the levy of an internal tax) as well as through investments in cacao research. Fedecacao, a public institution, is in place to support farmers and through institutional building and technical assistance, but the breadth and depth of their reach is constrained by available resources. The public policy environment has an established entity, Consejo Nacional de Cacao, which has the potential to support collaboration and can convene the key actors in the cacao sector or a new institution could be introduced that benefits from the lessons learned from the Consejo. Given the regional diversity of the sector (population, demographics, topography, among other factors), similar attention should be given to the Consejo's that are in place at the departmental level. All these factors seem to constitute good conditions for a competitive, profitable, sustainable and socially inclusive cacao sector in Colombia.

Recent efforts to promote the Colombia cacao sector have focused on expanding cacao production and to a lesser degree post-harvest management, the establishment of producer organizations and the exploration of niche markets. Despite these interventions, the sector still underperforms its potential.

Rather than focus only on cacao production, we propose a different strategy that starts by clarifying roles and responsibilities in the sector to avoid duplication and enhance coordination and collaboration amongst national and regional actors, identify investments that strengthen producer organizations to become viable rural businesses and provide clear market signals and incentives for improved practices. This could be achieved by a National Strategic Plan for the cacao sector. As we have stated throughout the document, the major challenge facing the Colombian cacao sector

remains low productivity, varying quality and low or negative profitability for farmers. To date most support focused on a technology push strategy whereby public funds (donor and Colombian government) promoted production technology packages to farmers. Results of this strategy – as shown by our analysis of annual yield per hectare – remains modest at best. Given the limited return on a supply push strategy, we propose to examine the institutional arrangements in the cacao sector to see if better alignment, coordination and the provision of key incentives can help create demand pull that leads to more effective adoption of technologies and contributes to improved investment and yields. This approach postulates that many of the issues holding back cacao production are not technical in nature and that continued investment in production will not move the needle significantly. Rather, care should be paid to how actors in the sector work more efficiently together to ensure access to technology, finance to implement, and clearer purchasing relationships to incentivize quantity and quality of cacao. This means doubling down on organizations like the National Cacao Council and the Regional Cacao Councils and using funding to achieve alignment among research, extension and finance. Additionally, conversations with buyers around business models and pricing schemes that effectively incentivize volume and quality are needed. For large buyers like Nutresa and Casa Luker, greater price differentiation between high-quality and low-quality cacao would help. For specialty buyers, additional incentives for quality that take into account the higher post-harvest costs associated with consistent fermentation and drying processes are needed. Finally, all of this is constrained by the global market for cacao which remains principally a commodity crop. Incentives, coordination and alignment need to improve but they need to do so within the constraints that operate in the global cacao market. After considering all of the stakeholder input (Appendix E), interviews conducted in Ecuador (Appendix F) and available data (Appendix A), we feel that these interventions in combination with specific actions to improve the competitiveness and productivity of cacao production can help the cacao sector live up to its potential.



Recommendations to increase productivity, sustainability, and competitiveness of cacao production

Improve Coordination and Consistency in Extension/Technical Assistance

Since agroecological zones vary considerably within Colombia, cacao production systems must address climatic, and edaphic conditions specific to each region while taking into account differences in the social, economic, and cultural circumstances that influence productivity. In order to take into account the diversity of cacao producing areas, there is a need to develop key training materials for cacao production, adapted to regional specifications. Specific gaps in existing knowledge should be systematically identified, prioritized and targeted for additional research for each cacao producing region. Regionally-tailored training materials should be incorporated into extension programs, with a feedback loop that allows lessons learned in cacao production to define additional research to continuously improve best practices. Therefore, extension and technical assistance approaches should be adjusted for specific regions, promoting production systems and best practices that fit within the regional context.

Organizations providing technical assistance or extension services such as Fedecacao, producer associations, and other groups should be identified and brought together in order to clarify roles and avoid duplication. The oversight role might be placed with the Consejo Nacional de Cacao or perhaps delegated to Fedecacao and/or Corpoica to assure technical assistance quality and regional consistency. We suggest that the training materials and learning processes be certified by the group that is providing the oversight role (undergone rigorous peer review) so as to ensure that the various organizations operating are delivering consistent technical assistance services that have been confirmed to be the correct information for farmers.

Area expansion and rehabilitation for cacao production continues to increase demand for extension and technical resources. Improved collaboration and sharing of resources can help to meet the needs of more cacao farmers. Extension services and technology transfer can also be enhanced by Peer to Peer learning, including demonstration farms and farmer field schools. In order to ensure that producers become profitable, training should also highlight business skills and record keeping. The limited resources for such

work is a binding constraint and building efficiencies into the system of development and delivery of these services can contribute to a more equitable and accountable system.

Increase innovation in Extension/Technical Assistance by leveraging the peace process and utilizing face-to-face and digital resources

When considering options for extension/technical assistance, it is important to recognize that this sector is currently evolving based on structural reforms developed during the peace process. For example, the recently adopted peace accord calls for an overhaul in the delivery of technical assistance to make it more integrated with other extension type programs and provides increased support for rural education in general. The accord specifically calls for more school-based agricultural education²⁴. The details of the peace accord, which is still under negotiation, provide up to COP\$8mm (~\$2,700) for every FARC member that has a “viable” entrepreneurial project. A definition of what a “viable” entrepreneurial project has not been agreed upon but will likely be determined by a technical committee of the National Reconciliation Commission (made up of the usual FARC, government, experts mix).²⁵

An additional initiative by the National Planning Department and by former MADR director, Jose Antonio Ocampo, called Mission for the Transformation of the Colombian Rural Area (Misión para la Transformación del Campo Colombiano), suggests the creation of a new entity – the Administrative Unit of Technical Assistance and Integrated Support (Unidad Administrativa de Asistencia Técnica y Acompañamiento Integral) to resolve the systemic problems to the current Extension-on demand system. According to Ocampo:

“The idea is to lead, in the company of the territorial entities, the execution of the resources of the National Government destined to

²⁴ See section 1.3.3. Stimulus to agricultural production and solidarity economy and cooperative. Technical assistance. Subsidies. Credit. Income generation. Marketing. Labor formalization and Section 3.2.2.6 Identification of the needs of the process of economic and social reincorporation may provide the basis for a suggested CfP intervention

²⁵ As outlined in section 3.2.2.6. of the peace accords, “(c) Development and implementation of sustainable productive projects and programmes. Every member of FARC-EP in the process of reintegration will have the right to one-time economic support to start an individual or collective productive project, in the amount of 8 million pesos (Col\$ 8 million). Programmes and projects with ECOMÚN A fund will be set up, on a once-only basis, for the establishment of productive and service projects in the process of economic and social reintegration through ECOMÚN, the viability of which will be verified in advance by the National Reintegration Council.”



provide technical assistance and accompaniment to integrate small and medium producers. This unit should fulfill other functions such as leading and coordinating the training program updating and specialization of rural technical assistants and extensionists; Designing and putting into operation the accreditation system of companies providing this service at the territorial level; Advise and accompany the Secretariats of Agriculture in the formulation of the general plans of technical assistance; And to manage the national level of information systems related to said service.”

This or any other institutional reform should be built on a comprehensive and multi-sectoral institutional arrangement that incorporates clear policies alongside adequate resources (human, financial, etc.) that provide for a wide and tangible presence that has the capacity for implementation at the appropriate level (department and/or municipalities). Partners involved in such arrangements should include all stakeholders, including the private sector, in planning and decision-making. Ultimately, there needs to be a balance struck between recognizing and deploying country-level expertise and developing the capacity at the local level for the successful execution of programs and projects, and the monitoring of results/impacts. CfP can serve as a conduit between all actors in the cacao supply chain, including government entities and university-based expertise in order to foster the appropriate system that will not only generate and disseminate knowledge and skills to strengthen the Colombian cacao sector, but to also to give rural people a leading role as managers and actors of their own development. Because CfP is working with a diverse group of actors (farmers, producer organizations, governmental organizations, NGOs), it has the ability to create discussions and collaborations between the multiple actors. This alignment, laterally across those that are or should be engaged in the extension/technical assistance system with the stakeholders of the Colombian cacao supply chain, upstream and downstream, will play a key role in the success of future endeavors.

To operationalize such an alignment will require a combination of locally-based, ‘high touch’ efforts, and ones that allow stakeholders the opportunity to learn and apply skills through experiential techniques. Such face-to-face efforts require that high quality extension professionals are available to meet the demand for technical assistance and research-based education. In addition, a multiplier effect can be applied if peer learning networks can be put into place via farmer field schools. In both cases, however,

deploying an adequate number of extension professionals to meet the needs of Colombian cacao farmers scattered across the country will require a significant amount of resources and an intentional examination of how/where the myriad of institutions/organizations are currently deploying their resources and looking for ways to more effectively and efficiently serve the sector.

One way to complement ‘high touch’ extension efforts is by developing and deploying ‘low touch’ methods that rely on technology. There are several Information and Communication Technology platforms that already exist. CfP may want to try to develop apps specifically for establishing cacao plantations, cacao diseases, a registry of cacao varieties that tell farmers if the variety is auto-compatible or not, how resistant to *Monilia* sp. etc. Outlined below are a number of programs already in place in Colombia that could be leveraged to link the ICT technologies and make them more accessible for educators, extensionists, and farmers.

Agronet is the Information and Communication Network of the Agricultural Sector of Colombia, led by the MARD (the Ministry of Agriculture and Rural Development) with the support of the Food and Agriculture Organization of the United Nations. Agronet attempts to centralize and disseminates sector information to support decision making and to establish synergies with other national and regional sectoral information management units to government entities, research centers, universities and field projects being carried out by different national or international organizations.

In 2011, the Vive Digital (Live Digital) initiative, the Colombian Government’s technology program run by the Ministry of Information Technologies and Communications (MinTic), expanded Agronet’s reach with Celuagronet, a text message based service for agricultural producers. In 2013, Agronet began development of mobile applications (Agronet, n.d.). In 2015, Celuagronet had 369 thousand registered users with the platform sending 15 million text messages containing information on climate, prices, calls and productivity (MARD, 2016).

Vive Digital kiosks (Kioscos Vive Digital) are community internet access points for children, youth and adults in rural areas with more than 100 inhabitants. The kiosks bundle a server computer, a wifi network with a 50-meter range, a printer, and furniture. Technicians are on hand for free training and use. Even those located in the most remote areas of Colombia are connected to the internet via high-speed internet satellite. The kiosks are mainly installed in establishments and educational sites in which



during the teaching hours, teachers and students can access ICT to support their pedagogical activities, and in extracurricular hours, the community in general can make use of the services provided. Kiosks have also been installed in reserves and indigenous communities, military bases, natural national parks, and consolidation zones. As of far, 6,885 kiosks have been installed.

Linkata (C(k)omunidad de Asistentes Tecnico Agropecuarios) is an online community for agricultural technical assistants. The program requires registration to explore the site. The cacao group has 204 members as of June 2017.

Corpoica manages the Siembra Network, (*Sistema de Información, Emprendimiento, Búsqueda, y Recolección Agroindustrial*, Information System, Entrepreneurship, Search, and Agroindustrial Collection) information on research activities in supply chains. The vision of Siembra online portal is to “to support knowledge management through the production and use of statistics and indicators that will guide and evaluate sectoral, national, regional and international policy” and “to stimulate the action of various actors of the National System of Science and Agro-industrial Technology (SNCTA), as well as the flow of knowledge and information among those responsible for agricultural research and development in Colombia” (Corpoica, (n.d.)).

The Siembra network facilitates information sharing as stakeholders in each chain identify areas where innovation is needed, define objectives, research and technological gaps, the needed disciplines to research the problem, and possible solutions to issues facing the chain. Siembra network attempts to coordinate the sectors’ research request with the work being done in private research centers to avoid duplicating effort once the supply chains’ initial requests are defined and research priorities established on regional and/or municipal levels by the CPGA as General Plans for Technical Assistance (PGATs).

The portal offers many highly useful features, such as allowing users to consult with an expert via chat or hosting virtual classrooms for technical assistance, a page dedicated to regulations and useful documents, links to helpful software, and a searchable database of actors for each supply chain. However, the portal appears to be a work in progress, with some portions of the site populated with little information. While the “Agricultural library” feature returns 125 technical publications, the cacao supply chain information page only contains one document. The supply chain actor search engine only produces results for one of the eight actor categories - “Universities, Research and Development

Centers.” “Parastatals and Associations” produces no results. There may be some overlap in vision between the Siembra Network and Agronet. The potential usefulness of the Siembra Network can be clearly illustrated by the Direct Rural Technical Assistance (ATDR - Asistencia Técnica Directa Rural) database which can be found on the portal.

Take into Account Total Factor Productivity

We recommend a systems approach where producers will manage their farms for multiple benefits. This includes planting agroforestry systems (e.g. banana or plantains) where incomes can be earned in the first years of cacao tree establishment. Total income per hectare should be adopted as a metric so as to include cacao and other relevant crops in the system. Lastly, given the differences across cacao varieties in terms of management, productivity, disease resistance, etc, more effort needs to be made towards aligning planting and grafting recommendations made by technical assistance providers with prevailing and potential future agro-economic conditions.

Prepare Sector for Production Risks

The stakeholders in the cacao sector should prepare to anticipate, mitigate and manage production risks. These risks include such factors as:

- **Cadmium.** Meeting the expectations of the European Union by January 1, 2019 and continuing/expanding research into cadmium-cacao issues and offering technical assistance to stakeholders on management
- **Climate shifts.** Recognizing the effects of climate shifts and anticipating new/expanding cacao production zones
- **Pest and disease pressures.** Coordinating and deploying a national strategy for cacao disease prevention and management
- **Land transitions.** Identify the constraints for marginal areas (i.e. lack of precipitation, low labor pool, non-existent technical assistance and others) to decide whether cacao is a viable crop
- **Labor constraints.** Recognize that cacao is a somewhat labor intensive cropping system and without the human power for the necessary management practices



- **Post-conflict.** Address social capital issues in post-conflict areas where farmer organizations have not been introduced, faltered or require strengthening
- **Ongoing generational shift among farmers.** Conduct an agricultural census to better understand generational dynamics taking place on the farm and offer technical assistance that build capacity for beginning farmers and assist with generational farm transition (succession planning)

Provide Business Development Services

The workforce along the cacao supply chain needs to be developed to increase production and value added. For example, rural entrepreneurs appropriately trained and prepared could provide services for grafting, nurseries, inputs, transportation, pruning, fermentation, drying, and other areas. This presents an opportunity to increase overall rural employment and income related to the cacao sector.

Develop Livelihood Indicators and Set Up a Monitoring and Evaluation System to Evaluate the Effectiveness of the Cacao Sector

The indicators should address the sustainability of the production units, competitiveness of the producers and those that support the cacao production system, accurate measurement of productivity, and consistent cacao production data. The management of such a sector-wide information system should ideally reside with Fedecacao, with a clear commitment to public accessibility.

Recommendations to transform associations into competitive and sustainable rural businesses

Define Roles and Responsibilities of Associations

Associations need to be defined, identified, and legitimized. An accreditation process needs to be set up and a directory formed of producer organizations that the appropriate entity agrees are efficient and sustainable businesses. Institutions and organizations that have experience in farmer association development and management

(e.g. Fedecacao) may be well placed to lead this initiative with input from commercial actors. We suggest that an entity (e.g. Consejo Nacional de Cacao) should develop a list of criteria for accrediting associations and maintain an up-to-date and readily available directory for all stakeholders in the cacao sector. In addition, provision of follow-on organizational strengthening services needs to be offered to associations.

Develop and Promote Good Business Models for Associations

We suggest that a review of good business models from other producer associations (domestically and in nearby countries) be carried out. The business model structure should drive fidelity and consistent quality and volume for the associations and increase competitiveness in the cacao sector. The portfolio of services provided to the associations and their members should be strengthened and broadened, ensuring the inclusion of:

- a) Business plan development
- b) Savings
- c) Inputs
- d) Quality control
- e) Post-harvest services
- f) Market information
- g) Market access
- h) Credit
- i) Disease management
- j) Pruning and other good agricultural practices

Associations need to function efficiently and add value both to producer members as well as commercial partners. We suggest that the focus be placed on sustainable and profitable producer organizations as a first priority, then these associations may be able to perform peer to peer learning opportunities for others. We suggest that indicators for livelihoods be developed and avoid focusing just on production, and taking into consideration regional differentiation reflecting diverse production systems and cultures. Lastly, fostering organizational transparency is paramount as delivering value to stakeholders and ensuring that the necessary social capital is in place will play a significant role in sustaining these associations in the long run.



Provide Extension and Technical Assistance to Associations

As with individual farmers in the above recommendation, peer to peer learning opportunities between producer organizations could help fill the gaps in the ability of extension and technical assistance providers to strengthen associations. These learning opportunities could cover topics such as:

- a) Business planning capacities
- b) Business skills
- c) Networking with cacao stakeholder organizations
- d) Post-harvest
- e) Quality control
- f) Transparency
- g) Negotiation with market actors

Build Credit Worthiness

Develop credit packages tailored to association needs taking into account regional variability and other pertinent factors. Financial services should focus on associations and ensure accountability to their members and likewise, hold members accountable to the associations. Solid credit worthiness could assist to bring investors into the cacao sector with a ripple effect both in the Colombian financial sector as well as in the agricultural impact investing space with organizations such as Root Capital, Fair Trade Access Fund, Incofin, etc. who are searching for additional clients for financial services.

Organize Business to Business Roundtables

Over the medium and long term, organizing business-to-business roundtables with the participation of associations and other stakeholders could strengthen the success and sustainability of cacao producers' associations. As associations gain capacity, regional business to business roundtables to develop production, post-harvest management, service provision and market access strategies could prove especially useful especially if orientated around clear market demands.

Recommendations to strengthen the sector to respond to markets – consistent quality and volume

Fortify Extension/Technical Assistance Services Linking Producers to Market

Ensure that extension and technical assistance must take into consideration market access for both producer associations and smallholders. Production strategies should align with market demand over the short, medium and long-term. Appropriate post-harvest management practices of producers should enhance access to markets and prices and sufficient incentives should exist to drive adoption. To enhance adoption of current quality standards, it may be necessary to review price differentials between grades of cacao and how a premium is/might be transmitted and who captures them to inform the identification of effective means of incentivizing improved post-harvest practices at the farm and producer organization level.

Leverage the Safety Net (National Market)

The existence of a strong domestic market for cacao differentiates Colombia from most other cacao producing countries. This demand constitutes an important safety net for the sale of cacao regardless of inevitable global price fluctuations. Finding ways to produce efficiently and profitably for the domestic market represents a first step towards potentially accessing higher value niche markets in the future. These niche markets remain small and will remain so for the foreseeable future. They do not currently constitute a broad solution for rural poverty, but can provide incentives for improved post-harvest and organizational management for a small sub-set of growers and producer organizations that get the basics right in domestic markets. Accessing higher value markets without first producing efficiently and with consistent volumes and quality for the domestic market remains highly problematic.

Search/Transaction Costs for Multiple Market Segments

Crowding in more buyers for Colombian cacao may take decades. We believe that reducing search costs through up-to-date, publicly available information will significantly help develop the cacao sector in Colombia over the long-term. This might be done by identifying specific geographies as differentiated origins based on the unique interplay of



genetics, environment and management, organoleptic profiles and a consistent story and share this information publicly. Industry leaders in Colombia, such as Casa Luker and Nutresa as well as emerging specialty chocolate producers such as Cacao Hunters and others, want good cacao and we should work with them on potential markets so they are better positioned to find and open novel markets. We should leverage their knowledge and financial muscle to position Colombian cacao on the global stage. In addition, it should be noted that the transactions costs between the farmgate and factory gate / port are real and represent opportunities for an examination into how margins are distributed along the supply chain. Efficiency gains in this context represent an opportunity to positively affect cacao producer income and ensure that all actors along the supply chain operate in a strong, competitive market.

Build Analytical and Research Capacity

Stakeholders in the cacao sector need to better understand and leverage market trends. Institutions such as the Consejo Nacional de Cacao, Fedecacao, Corpoica and local universities should be monitoring and analyzing cacao markets domestically and abroad – and developing recommendations to enhance Colombia’s competitiveness in domestic and international markets.

Answering the question “who trains the trainer?” to support the cacao sector highlights the need for higher education institutions within Colombia to re-frame student preparation. Universities may impart students with scientific competence in agronomic disciplines, however becoming an effective extension professional requires specific disciplinary training in areas such as diffusion of innovation, conducting participatory research, program planning, youth development, community development, and impact analysis. The current incentive structure in universities almost exclusively prioritizes theoretical research to the detriment of more applied research, training students in these skill sets, and direct interaction with farmers (See Pilot Project with the Universidad de Caldas Box).

Pilot Project with the Universidad de Caldas

University of Caldas professor Carlos Parra Salinas demonstrated how project-based learning can produce significant outcomes for both learners and community stakeholders. Parra, aware of the growing trend in the Eje Cafetero or Coffee Axis to grow cacao at lower latitudes and an increasing in the number of municipalities advocating the crop, saw a need in learning more about the status of these producers and their access to markets and services. The CfP Supply Chain Analysis (SCA) working group shared their semi-structured interview questions with Parra who utilized the questions as a starting point for a two-semester experiential learning project. Parra, two graduate students, and four undergraduate students developed and tested an 84-item survey developed to characterize cacao producers in western / central Colombia. Pedagogically, the project aimed to familiarize the students with cacao, provide research experience, and offer insight in the role that extensions and researchers play in rural development. The team also hoped that the survey results would help guide decision makers in supporting the cacao sector.

Random sampling was not possible due to the relative scarcity of cacao growers in the region and the reliance upon associations, businesses, and municipal offices to direct the students to cacao growers to interview. The surveys took around an hour to conduct, and despite often long and arduous treks to farms, collectively the students conducted close to 250 interviews among nine municipalities across six departments (Caldas, Risaralda, Quindío, Valle de Cauca, Huila, and Tolima) between November and December 2016 and March 2017. At The students coded and analyzed 156 of the surveys.

Overall, the team determined that the region currently lacks a cacao culture. The majority producers possess less than four years of experience working with the crop, and the many planting are less than four years old, especially in Huila. Average prices received per kilogram ranged from \$5434 pesos (Victoria, Caldas) to \$7270 pesos (west-central Caldas). Buenaventura presented a special case with farmers selling their cacao still in the pods for \$1869 peso per kilogram. The municipality also contained significantly larger farms – 19 ha on average compared to 1.9 ha in all other areas. In all the municipalities, the clear majority of the cacao was sold via associations or cooperatives.

Many of the producers were unaware of the specific cacao genetics on their farm. For respondents who aware of the cacao genetics, no single variety dominated farms in Tarqui, Huila or the Central of Caldas. However, in Libano, Tolima, CCN51 was the most common variety; Victoria, Caldas CCN51 and ICS 95 were most often planted; Buenaventura (Valle de Cauca), contained CCN 51 and IMC 67. (cont.)

(cont.) Pilot Project with the Universidad de Caldas

In terms of technical assistance, access appeared less than ideal. Only producers in Tarqui reported receiving assistance from Fedecacao (Producers in this area reported assistance from the cooperative Colcocoa as well.). Buenaventura reported assistance from the association ASOSA. The west-central portion of Caldas 25% reported assistance from Casa Luker, while producers in the municipalities of Libano and Victoria claim that they receive no technical assistance.

One member of the CfP SCA working group met with the students. The students had a high initial motivation for the project due to the potential of their work to be useful for CfP; as they interacted with farmers and associated homes and families with the productive chain, they became more emotionally invested and motivated to help the producers. All gained knowledge and enthusiasm for working with cacao. In a discipline that often prioritizes quantitative data over qualitative, students reported a gained appreciation for the type of a data that couldn't be checked by a box on the survey instrument, some suggesting that they gained a richer sense of the farmers' realities through their conversation and direct observation. Students reported that the exercise underscored the importance of collecting baseline data and leaving the confines of the lab and classroom to interact with producers on their farms, and the value of extension and applied research.

Increase market demand for Colombian cacao

There is no formal market for fine and flavor cacao on the world market. Large premiums to cacao only accrue when a willing buyer and seller agree that a seller's lot of cacao embodies special characteristics the seller can provide and the buyer desires. There are two cases where this happens on global cacao markets. 1) Cacao can be certified by an independent entity (ie. UTZ, Fairtrade, Rainforest Alliance) that it is produced using 'organic' methods, or is produced based on environmental standards set out by the certifier, or that producer organization practices meet certain "ethical" requirements. 2) Alternatively, either a chocolate manufacturer or trader dealing in specialty cacao prefers certain characteristics of the cacao purchased (e.g. organoleptic properties).

Typically, certified cacao transactions involve a producer organization that has met criteria of the independent evaluating entity, and a buyer who wants to market their beans based on that certification. Currently, there are hundreds of thousands of metric

tons of certified cacao produced, but less than half of that production is actually sold as certified cacao. The majority of the certified cacao is traded as bulk cacao because supply greatly outstrips demand. When a characteristic is not scarce, it will not accrue a significant premium. In addition, certification systems operate on the premise of higher prices to farmers, but we found that often the additional cost that goes to paying for certification services (ie. paperwork, inspections) or other transaction costs for certification serve as an implicit tax on any premiums that may find their way back to the farmer.

A limited number of small companies (less than 300 worldwide) purchase directly from producer organizations, or from specialty traders, at higher prices and for extremely small quantities of cacao. We estimate that less than 100 MT are demanded by the majority of these companies, with only a handful (about 10 companies) purchasing over 250 MT, due in part to economic limitations of scaling up the capacity of their processing and manufacturing equipment to process more than 100 MT in a year. The result is a specialty market involving less than 20,000 MT of cacao traded annually. They most often involve contractual relationships (e.g. between Taza and producer organizations in the Dominican Republic) because one characteristic the specialty manufacturers require is consistent quantity (albeit low) and quality (high) over time. These transactions account for less than 1% of the market and the transaction costs to find, establish, and maintain these markets remain high.

The high-end chocolate market is slowly expanding, but the cacao used for this niche presently comes from more consistent quality and quantity sources such as Ghana. Ghanaian sources are able to deodorize the cacao and fit into established recipes and flavor profiles. 'Fine and flavor' advocates prefer to use the ICCO thumbnail guesses associated with 'fine and flavor' market share from the designated origins to estimate demand. Careful analysis of global trade data, along with interviews with leaders in the specialty cacao field, have convinced us that this niche is much smaller than the quantities promoted by advocates of establishing a fine and flavor niche (as much as 8% of the existing cacao market).

Efforts to expand 'fine and flavor' exist all over Latin America, so the likelihood of the supply of this niche exceeding demand is high, and the distinction is not sufficient by itself to entice a specialty purchaser. A cursory review of development donor and NGO websites shows large projects (with more than 10,000 farmers each) currently ongoing in Peru, El Salvador and the Dominican Republic, not to mention public support in Ecuador. As these come online it is likely that supply will grow to consistently outstrip



demand leading to a significant reduction or even disappearance of a price premium. This already happened with certified cacao and we see no data to indicate that something similar can be avoided in the case of ‘fine and flavor’. Our recommendation is to move with caution when encouraging farmers to invest in varieties that meet the ‘fine and flavor’ designation without markets in place to sell at higher prices.

Brand Colombian Cacao/Certification

Stakeholder institutions should develop incentives to increase the margin between premium and non-premium cacao, reject bad quality beans or pay significantly less for them, and incentivize good practices. We recommend reviewing current pricing models based on quality and exploring ways to create clearer market signals that favor well managed cacao as opposed to low quality beans.

The cacao sector stakeholders should evaluate the Juan Valdez model of a national brand or, alternatively, regional model based on distinct flavor profiles with regional brands. Fedecacao has initiated a campaign with Maria del Campo as the face of Colombian cacao. We also believe that licensing the Colombian brand could generate additional revenue. This process should include all commercial actors in the country with a unified strategy that focuses on maximizing the value and reputation of Colombian cacao on the international market. Given domestic demand, Colombia has the potential to focus export promotion on highly differentiated cacao and chocolate products. A clear focus on quality, consistency, unique value propositions and brand recognition could play a key role in maximizing income from these sales and position Colombia well. But this should not be the only strategy that is pursued since the market is extremely small and very few farmers will be able to benefit.

Improve the institutional architecture of the cacao sector – clear rules and specialization

Strengthen the Role and Credibility of National and Sub-National Institutions in the Cacao Sector

The Consejo Nacional de Cacao has played a key role in sector governance and planning. Now is the time for the public and private sector to consider the most

effective way to develop new or strengthen both the national and regional institutions concerned with governance and planning in the cacao sector. Key steps include, first, an increase in farmer and industry participation. Key organizations such as Red de Cacaoteros and representatives from smaller chocolate makers should be included to most adequately represent the diversity of the sector. Second, roles and responsibilities need to be defined with the acceptance and support of all stakeholders in the cacao sector. This includes clearly defining specific leadership roles among the institution's members for topics like research, extension, organizational strengthening, financial inclusion and market intelligence. Such clarity will allow organizations to play to their strengths and avoid duplication. Third, the institution should provide oversight and review of all projects and extension programs active in the sector to identify synergies, build common messages and provided consistent guidance and feedback to all actors. This includes coordination with international donor programs and other organizations that are offering extension and technical assistance programs operated by Luker, Nutresa, Swisscontact, USAID and operators, Corpoica, SENA and others. Finally, we recommend that the institution serve as an advocacy arm of the sector and provide oversight of the cacao fund.

At the sub-national scale, the regional institutions should be strengthened to play a similar role vis-à-vis departmental and municipal actors to ensure adequate communication and coordination across initiatives. The regional institutions should offer an important space for dialogue between national level strategies and regional needs. To that end, we recommend a review of current participation in the regional councils and the construction of regionally adapted strategies for sector development in terms of research, extension, organizational strengthening, financial inclusion and market intelligence. The diversity of cacao production in Colombia requires clear national strategies that incorporate regional needs and adaptations to be effective. A well-functioning network of national and regional institutions will play a critical role in achieving this goal.

In order for the national and regional institutions to carry out their respective coordination responsibilities, we suggest an initiative to build their institutional capacity be undertaken. This would include the construction of coherent strategic plans (short, medium and long-term), and structuring the institution so that there is a representation of key actors (national / regional scales) within the organization, strengthening the



coordination capabilities of all representatives and a concerted effort to place the institution at the center of the sector.

Define a Focused Role for Fedecacao

We believe that Fedecacao needs to focus on its core business. Fedecacao should have a central role in bridging research and extension through applied research and consistent extension materials – ensuring its quality and providing continuous oversight. In addition, Fedecacao should support access to credit for farmers as part of extension services through credit preparation and presentation. Given the resource constraints faced by Fedecacao, and the need to prioritize efforts to increase effectiveness and impacts on the sector as whole, Fedecacao should re-examine its business plan and thoughtfully consider which investments bring the highest returns to the sector in addition to securing Fedecacao's long term sustainability. A review of funding is needed to ensure that Fedecacao can access sufficient resources to provide national coverage in these topics consistently. In addition to funding, Fedecacao should continue to build on and leverage existing alliances with key Colombian public sector actors such as SENA and universities to expand access to training, planting materials and good post-harvest processing.

Improve and Leverage the Fondo Nacional de Cacao – Fomento

We suggest that a review be conducted to determine if the funds currently raised through the Fondo Nacional de Cacao are sufficient and are being efficiently used. This review should assess the following issues. First, is the levy currently applied to cacao bean sales sufficient to meet the development needs of the sector? Could additional funds be raised connected to value addition in terms of chocolate production? Second, are the current rules governing use of the fund for extension activities adequate and fairly applied? How can the fund better account for cacao produced in one department but sold in another? Third, how efficient is the use of the funds in terms of achieving sector targets around improved volumes and quality of cacao? What strategies exist or can be developed to improve the efficiency of these investments? These questions need careful thought and consideration and for answers to be given in order to move forward to better leverage the use of these funds.

Improve the Effectiveness of Finagro in the Cacao Sector and Other Financial Service Providers

Finagro should develop regionalized credit products in line with different production systems. Credit should not just be for cacao production but for improving farming systems that are linked to livelihood indicators. This would ultimately enhance the agility in the finance sector. We also recommend that better information be provided to Finagro on production systems, profitability and time horizons for cacao production in order for credit risk to be appropriately assessed, and thereby improve risk assessment of both cacao farmers and producer organizations. This requires increased coordination between the Consejo, Fedecacao, and Finagro.

In addition to producer level credit access through Finagro, we recommend exploring opportunities for financial services to producer organizations. Globally the field of agricultural impact investing shows strong growth with a focus on providing credit to producer organizations alongside training in financial literacy and good administrative practices. Strategic support to professionalize Colombian cacao producer organizations and make them credit-worthy could potentially open opportunities for additional funding beyond that offered by Finagro at the farm level. This connects to recommendations above on producer organizations.

Improve Coordination among Public Sector Programs and International Donor Programs

Cacao can play an important role in Colombia's transition to peace given its potential in most key post-conflict areas of the country. For this to happen, however, requires improved coordination among national public policies and investments relevant for the sector. These include diverse topics ranging from funding for research, to the support of programs such as Productive Alliances managed by the Ministry of Agriculture and Rural Development, to training by SENA and key investments in infrastructure to reduce transport costs for producers in more distant areas. In order for cacao to provide a solid peace dividend, these diverse initiatives require coordination to achieve synergies that benefit the sector.

In addition to Colombian public-sector investments, the cacao sector is poised to receive significant investments under international donor programs in support of post-conflict development. Previous experiences managed principally by international implementing agencies show both successes and failures. For these programs to



effectively support the Colombian cacao sector, they should be aligned and coordinated both among themselves and, most importantly, with the key supply chain actors. Stand-alone programs that do not contribute to lasting capacity and institutional development will not serve the best interests of post-conflict economic development in Colombia.

As part of the institutional strengthening process delineated above, we believe that an expanded, more representative and reinvigorated national institution should take charge of coordinating national public sector and international donor support to the cacao sector. This would rightfully place the direction of international assistance in the hands of the Colombian cacao actors.

CONCLUSIONS

As part of the research that was conducted over the past year, our working group thoroughly analyzed various market options for cacao producers in Colombia. During our assessment, we interviewed a variety of cacao purchasing entities, including both traditional traders and new enterprises that are pursuing niche, specialty markets (e.g. Cacao Hunters and Red de Cacaoteros in Colombia and Republica de Cacao and Pacari in Ecuador). At the time the international development community was considering the “fine and flavor” cacao market as an integral development strategy for boosting the income of cacao producers in the country. Our findings led us to conclude that focusing on the limited specialty market for cacao, and especially the attempt to differentiate into a non-existent “fine and flavor market”, faces significant limitations for reducing poverty or impacting large numbers of cacao producers in Colombia.

Cacao has the potential to contribute meaningfully to development in Colombia when **market infrastructure is in place and technical assistance** is available. There is demand on both the domestic market and bulk international market to absorb significant increases in Colombian cacao production. Marginal areas (e.g. where irrigation will be necessary) need to be evaluated carefully to determine whether the return on investment is worthwhile, however. Assessment of the potential for cacao production expansion also needs to utilize more realistic price expectations than is now the case, and should not be based on exaggerated premiums that are not found in large volumes on global markets. The extent to which any premiums might be passed back to the farmgate must also be taken into consideration, as transactions costs to get cacao to the port or to domestic processors must be considered.

Institutional strengthening is vital in order for the Consejo Nacional de Cacao and Fedecacao to be able to coordinate research, development, and extension activities across the country. Business planning skills need to be put in place for producer associations and training needs to occur to ensure that they have a sustainable plan for how to market their members’ cacao to markets available to them. Producers across the country need to have access to technical assistance that covers production strategies, post-harvest capacities, and marketing capabilities.



In our opinion, far too much time and energy is being focused on justifying the current development community fascination with specialty cacao and far too little on a sober analysis of current and forecasted market conditions, not only at the port, but more importantly, at the farmgate. A poverty reduction strategy based on pursuing niche premiums (which may or may not develop over time, and which are likely to involve a relatively small quantity of cacao) where benefits accrue primarily to downstream actors and where price gains for producers are eroded by significant transactions costs is not a viable or scalable solution. Focusing on fundamental supply chain competitiveness such as production, post-harvest, consistent quality, farmer group capacity building, infrastructure, market information, diversification, etc. will deliver results for the majority of cacao producers in Colombia. This strategy would address all stakeholders engaged in the various links along the supply chain, ultimately raising overall sector revenue and smallholder household income.

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APPENDICES

Appendix A. List of Documents and Resources Utilized for the Development of the Colombian Cacao Supply Chain

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Appendix B. List of Organizations and Individuals Interviewed for the Colombia Cacao Supply Chain Study

	Interview subject	Category	Location	Date
1	Red de Cacaoteros	3 National Producer Organization	Bogota	6/3/2016
2	Cacao de Colombia	7 Chocolate manufacturers	Bogota	6/14/2016
3	USAID	1 Government Organizations	Bogota	6/16/2016
4	ACDI VOCA	2 Non-Governmental Organizations	Bogota	6/16/2016
5	Swiss Contact	2 Non-Governmental Organizations	Bogota	6/21/2016
6	(Ex) Nacional	6 Independent buyers	Bogota	6/21/2016
7	UNODC	2 Non-Governmental Organizations	Bogota	6/23/2016
8	Mariana Cocoa Export	7 Chocolate manufacturers	Santander	6/27/2016
9	Chocolate Girones	7 Chocolate manufacturers	Santander	6/27/2016
10	COOPERCACAO	4 Independent Producer Organizations	Santander	6/28/2016
11	Fedecacao	3 National Producer Organization	Santander	6/28/2016
12	FUINMUCAR	4 Independent Producer Organizations	Santander	6/28/2016

13	Cortipaz	4 Independent Producer Organizations	Santander	6/28/2016
14	Large farm	5 Cacao Producers	Santander	6/28/2016
15	San Vicente Department of Agriculture	1 Government Organizations	Santander	6/29/2016
16	Chocolate de Chucuri	7 Chocolate manufacturers	Santander	6/29/2016
17	Fedecacao	3 National Producer Organization	Santander	6/29/2016
18	San Vicente Intermediaries	6 Independent buyers	Santander	6/29/2016
19	Large farm	5 Cacao Producers	Santander	6/30/2016
20	Large farm	5 Cacao Producers	Santander	6/30/2016
21	Large farm	5 Cacao Producers	Santander	6/30/2016
22	Fedecacao	3 National Producer Organization	Santander	6/30/2016
23	Fedecacao	3 National Producer Organization	Santander	7/1/2016
24	Group of farmers	5 Cacao Producers	Santander	7/1/2016
25	UIS	8 Universities/Research Centers	Santander	7/1/2016
26	SENA	8 Universities/Research Centers	Santander	7/1/2016
27	CORTEPAZ	4 Independent Producer Organizations	Bogota	7/7/2016
28	Cacao de Colombia (follow-up)	7 Chocolate manufacturers	Bogota	7/7/2016



29	USAID (Ex, currently AmCham)	1 Government Organizations	Bogota	7/8/2016
30	National Parks	1 Government Organizations	Sierra Nevada	7/11/2016
31	Secretary of Economic Development	1 Government Organizations	Sierra Nevada	7/11/2016
32	Guardabosques	4 Independent Producer Organizations	Sierra Nevada	7/12/2016
33	Small farmer	5 Cacao Producers	Sierra Nevada	7/12/2016
34	Intermediary, SN	6 Independent buyers	Sierra Nevada	7/12/2016
35	Large farm	5 Cacao Producers	Sierra Nevada	7/13/2016
36	Arhuaco farm	5 Cacao Producers	Sierra Nevada	7/14/2016
37	APOMD	4 Independent Producer Organizations	Sierra Nevada	7/14/2016
38	UMATA	1 Government Organizations	Sierra Nevada	7/15/2016
39	AGROCOOP	6 Independent buyers	Sierra Nevada	7/15/2016
40	Mid size farm	5 Cacao Producers	Sierra Nevada	7/15/2016
41	Large farm	5 Cacao Producers	Sierra Nevada	7/15/2016
42	Cacao de Colombia	7 Chocolate manufacturers	Sierra Nevada	7/15/2016
43	Fondo Accion	2 Non-Governmental Organizations	Bogota	7/18/2016
44	Technoserve	2 Non-Governmental Organizations	Bogota	7/19/2016
45	Pacific Agricapital	5 Cacao Producers	Bogota	7/25/2016

46	Manifesto Cacao	7 Chocolate manufacturers	Bogota	7/26/2016
47	Universidad Nacional	8 Universities/Research Centers	Bogota	7/28/2016
48	Casa Luker	7 Chocolate manufacturers	Bogota	7/28/2016
49	Nacional	7 Chocolate manufacturers	Bogota	7/29/2016
50	Nacional buying center	7 Chocolate manufacturers	Valle de Cauca	8/1/2016
51	SAG	1 Government Organizations	Valle de Cauca	8/2/2016
52	Asprofinca	4 Independent Producer Organizations	Valle de Cauca	8/3/2016
53	Small farmer	5 Cacao Producers	Valle de Cauca	8/3/2016
54	Cacao de Colombia	7 Chocolate manufacturers	Valle de Cauca	8/4/2016
55	Secretary of Agriculture and Rural Development	1 Government Organizations	Valle de Cauca	8/4/2016
56	Experts, Agribusiness venture	8 Universities/Research Centers 5 Cacao Producers	Bogota	8/8/2016
57	Pacific Agricapital / Fenicia Trading	6 Independent buyers	Bogota	8/8/2016
58	Fedecacao	3 National Producer Organization	Bogota	8/8/2016
59	Casa Luker	7 Chocolate manufacturers	Bogota	8/8/2016
60	Cacao de Colombia	7 Chocolate manufacturers	Bogota	8/8/2016



61	Swiss Contact	2 Non-Governmental Organizations	Bogota	8/9/2016
62	Corpoica	8 Universities/Research Centers	Bogota	8/9/2016
63	Chamber of Commerce Cartagena	1 Government Organizations	Bogota	8/9/2016
64	Red de Cacaoteros	3 National Producer Organization	Bogota	8/9/2016
65	Consejo de Cacao	3 National Producer Organization	Bogota	8/9/2016
66	Nacional	7 Chocolate manufacturers	Bogota	8/9/2016
67	Nacional buying center	7 Chocolate manufacturers	Santander	8/10/2016
68	Agrotropical	5 Cacao Producers	Santander	8/10/2016
69	APRIMUJER	4 Independent Producer Organizations	Santander	8/11/2016
70	Mayor of San Vicente de Chucuri	1 Government Organizations	Santander	8/11/2016
71	Fedecacao offices and lab	3 National Producer Organization	Santander	8/12/2016
72	Large farm	5 Cacao Producers	Santander	8/12/2016
73	Villa Monica (Fedecacao demonstration farm)	3 National Producer Organization	Santander	8/12/2016
74	Ecocacao	4 Independent Producer Organizations	Santander	8/13/2016
75	Organic farm	5 Cacao Producers	Santander	8/13/2016

76	ASOCAVIZ	4 Independent Producer Organizations	Santander	8/14/2016
77	SENA	8 Universities/Research Centers	Santander	8/14/2016
78	Farm and chocolate producer	5 Cacao Producers	Santander	8/15/2016
79	Farm	5 Cacao Producers	Santander	8/15/2016
80	Corpoica La Suiza	8 Universities/Research Centers	Santander	8/16/2016
81	Retired CORPOICA researcher	8 Universities/Research Centers	Bucaramanga	8/16/2016
82	Grupo NovoAgro	5 Cacao Producers	Medellin	8/17/2016
83	EAFIT	8 Universities/Research Centers	Medellin	8/17/2016
84	UNAL	8 Universities/Research Centers	Bogota	8/18/2016
85	Socya	NGO	Bogota	8/19/2016
86	Grupo Nutresa /CNCH	7 Chocolate manufacturers	Bogota	8/19/2016



Appendix C. Interview Tools Used to Gather Information for the Colombian Cacao Supply Chain Analysis Study

Survey I – Government Organizations

1. Can you explain the role that your organization plays in supporting the cacao industry during the production stages (cacao farms, cacao purchasing, chocolate production)?
2. Can you explain the role that your organization plays in supporting the cacao industry during the marketing stages (domestic, export)?
3. Do you have information that is collected or aggregated for the quantity and price of cacao/chocolate produced or sold? If so, what do you have and would we be able to access it? How?
4. What are the sources of the information – collected directly or obtained from another entity?
5. Has your organization conducted a census for cacao producers, cacao traders/buyers, chocolate processors, chocolate sellers/exporters? Anyone along the value chain? What questions were asked? Do you have a unfilled census form? Can this information be accessed publicly or are we able to gain access to it?
6. Does your institution or other institutions collect information on cacao imports? If so, is that information available – or do you know where we can get it?
7. Does your organization provide any extension services to cacao producers, buyers, chocolate manufacturers? If so, what services has your organization provided? In what parts of the country? How is it provided?
8. Do you have regional, departmental or municipal level offices in cacao producing areas?
9. Who else do you recommend that we talk to?
10. Please tell us who your institution collaborates with on activities related to cocoa.
11. Does your organization provide any credit to farmers or financial support for improvements in their cacao plantations or to chocolate manufacturers in their small/medium or large businesses?

Survey 2 – Non-Governmental Organizations

1. Can you explain the role you are playing along the cacao value chain in Colombia (linking farmers with traders, buying, trading, processing, marketing, exporting)?
2. What areas are you working in Colombia?
3. Does your organization provide any extension services to cacao producers, buyers, chocolate manufacturers?
4. If so, what services has your organization provided? How is it provided?
5. Do the extension agents have a viable “message” to convey to farmers? Does it involve tree planting, production method, post-harvest practice, marketing practices, other “business practices”?
6. Will adoption of the recommended practices raise yield? Increase farm income? Fit into the farming system without bumping into constraints? How long before benefits from following recommendations are realized?
7. Are the farmers adopting extension recommendations? If not, why?
8. Are there some models of extension services that work, while other do not? (Compare Fedecacao, Ministry of Agriculture, Red de cacao, Swiss contact, etc. – each seems to offer some extension services?)
9. Do you offer any marketing opportunities or services to cacao producers? If so, which ones?
10. Does your organization provide any credit to farmers or financial support for improvements in their cacao plantations or chocolate manufacturers in their small/medium or large businesses?
11. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia specific best practices)?
12. Who else do you recommend that we talk to?
13. Please tell us who your institution collaborates with on activities related to cacao?

Survey 3 – National Producer Organizations

1. Can you explain to us your organizational structure?
2. Can you explain the role you are playing along the cacao value chain in Colombia (linking farmers with traders, buying, trading, processing, marketing, exporting)?
3. What areas are you working in Colombia?
4. Does your organization provide any extension services or technical assistance to cacao producers, buyers, chocolate manufacturers?
5. If so, what services has your organization provided? How is it provided?



6. Do the extension agents have a viable “message” to convey to farmers? Does it involve tree planting, production method, post-harvest practice, marketing practices, other “business practices”?
7. Will adoption of the recommended practices raise yield? Increase farm income? Fit into the farming system without bumping into constraints? How long before benefits form following recommendations are realized?
8. Are the farmers adopting extension recommendations? If not, why?
9. Are there some models of extension services that work, while other do not? (Compare Fedecacao, Ministry of Agriculture, Red de Cacaoteros, Swiss Contact, etc. – each seems to offer some extension services?)
10. Does your organization participate in the sale or purchase of cacao? If so, please explain how you participate.
11. Does your organization offer contracts to cacao farmers either informal or formal? What are the conditions of those contracts?
12. What price was the farmer paid for his cacao? More specifically, how many times did he sell beans, to whom, and at what prices?
13. What was the nature of the buyer? (small trader, wholesaler, buying agent, producer organization,..) Where did the transaction take place?
14. Did the farmer receive premiums or discounts related to quality?
15. Were the beans well-fermented, dry, with few spoiled beans? If not, were any sales refused – did the quality affect the price the farmer received?
16. Did the farmer have other options to sell the cacao? Of similar or different types of buyers? If the farmer used other buyers, would different quality restrictions apply?
17. Would sale to other buyers require incurring additional transport costs (how much)?
18. Do you offer any marketing opportunities or services to cacao producers? If so, which ones?
19. Do you collect domestic or international marketing information? If so, where do you get your information?
20. Do you maintain any databases on cacao production, farmers, organizations, marketing? Would you be willing to allow us access to those?
21. Do you work directly with cacao farmer organizations? Which ones?
22. What are some of the challenges or limitations of working with farmer organizations?
23. Can you tell us some of the opportunities or where working with farmer organizations has been beneficial to your organization?
24. Does your organization provide any credit to farmers or financial support for improvements in their cacao plantations or chocolate manufacturers in their small/medium or large businesses?

25. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia specific best practices)?
26. Who else do you recommend that we talk to?
27. Please tell us who your institution collaborates with on activities related to cacao. Does your organization have any partnerships with manufacturers, exporters, NGOs (Swiss Contact Chemonics) or other private public partnerships (PPP)?

Survey 4 – Independent Producer Organizations

1. Can you explain to us the organizational structure of your association (number of members, paid employees)?
2. Can you explain how your organization serves the members in your association (post-harvest processes such as fermentation, drying or roasting, linking farmers with traders, buying, trading, processing, marketing, providing inputs at a lower cost, participation in governmental or non-governmental programs)?
3. Does your organization provide any extension services or technical assistance to cacao producers, buyers, chocolate manufacturers?
4. If so, what services has your organization provided? How is it provided?
5. Do the extension educators have a viable “message” to convey to farmers? Does it involve tree planting, production method, post-harvest practice, marketing practices, other “business practices”?
6. Will adoption of the recommended practices raise yield? Increase farm income? Fit into the farming system without bumping into constraints? How long before benefits from following recommendations are realized?
7. Are the farmers adopting extension recommendations? If not, why?
8. Are there some models of extension services that work, while other do not? If so, which ones seem to be better models for teaching concepts?
9. Does your organization participate in the sale or purchase of cacao? If so, please explain how you participate.
10. Does your organization offer contracts to cacao farmers either informal or formal? What are the conditions of those contracts?
11. What price was the farmer paid for their cacao? More specifically, how many times did he/she sell beans, to whom, and at what prices?
12. What was the nature of the buyer? (small trader, wholesaler, buying agent, producer organization,..) Where did the transaction take place?
13. Did the farmer receive premiums or discounts related to quality?
14. Were the beans well-fermented, dry, with few spoiled beans? If not, were any sales refused – did the quality affect the price the farmer received?
15. Did the farmer have other options to sell the cacao? Of similar or different types



- of buyers? If the farmer used other buyers, would different quality restrictions apply?
16. Would sale to other buyers require incurring additional transport costs (how much)?
 17. Do you offer any marketing opportunities or services to cacao producers? If so, which ones?
 18. Do you collect domestic or international marketing information? If so, where do you get your information?
 19. Do you maintain any databases on cacao production, farmers, organizations, marketing? Would you be willing to allow us access to those?
 20. Do you work directly with Fedecacao or other national organizations? Which ones?
 21. What are some of the challenges or limitations of working with these organizations?
 22. Can you tell us some of the opportunities or where working with these organizations has been beneficial to your association?
 23. Does your association provide any credit to farmers or financial support for improvements in their cacao plantations or chocolate manufacturers?
 24. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia specific best practices)?
 25. Who else do you recommend that we talk to?
 26. Please tell us who your institution collaborates with on activities related to cacao. Does your organization have any partnerships with manufacturers, exporters, NGOs (Swiss Contact Chemonics) or other private public partnerships (PPP)?

Survey 5 – Cacao Producers

1. Where do you produce cacao?
2. How long have you been producing cacao?
3. How many hectares of cacao do you produce on?
4. What is your yield for this area?
5. Are you a member of a local cacao association? Which one?
6. What are some benefits from being in the association?
7. Does your association provide any credit to farmers or financial support for improvements in their cacao plantations or chocolate manufacturers?
8. Do you participate in any extension programs for producing cacao, processing cacao or marketing/selling your cacao? If so, which ones?
9. What types of programs have you participated in?

10. Did your local cacao producer organization provide these services? Are there other organizations that have provided these activities?
11. Do you feel the extension programs have a viable “message”? Does it involve tree planting, production method, post-harvest practice, marketing practices, other business practices?
12. Will adoption of the recommended practices raise yield? Increase farm income? Fit into the farming system without bumping into constraints? How long before benefits from following recommendations are realized?
13. Are you adopting the extension recommendations? If not, why?
14. Are there some models of extension services that work, while other do not? If so, which ones seem to be better models for learning?
15. Do you receive technical information or support on cacao production/processing/selling/marketing from a governmental or non-governmental organization? If so, which ones?
16. What types of technical information support or information have you received in the past?
17. What price do you receive for the cacao you produce?
18. How many times did you sell your beans during the year?
19. How do you sell your beans? Wet, fermented, dried?
20. Who buys your beans? (small trader, wholesaler, buying agent, producer organization,..) Where did the transaction take place?
21. Did you receive premiums or discounts related to quality?
22. Do you have other options to sell your cacao? To similar or different types of buyers? If you would sell to other buyers, would different quality restrictions apply?
23. Would sale to other buyers require incurring additional costs such as transportation (how much)?
24. What are your costs of producing cacao? (labor, inputs, equipment, etc)
25. How do you ferment your beans?
26. Do you have access to fermenting boxes at a cooperative or association? Does this have a cost?
27. How do you dry your cacao seeds? Do you have access to other drying facilities?
28. Are you associated with Fedecacao, Red de Cacaoteros or any other national organizations? Which ones?
29. What are some of the challenges or limitations of working with these organizations?
30. Can you tell us some of the opportunities or where working with these organizations has been beneficial to you as a producer?



31. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia specific best practices)?
32. Who else do you recommend that we talk to?
33. Please tell us who your local association collaborates with on activities related to cacao. Does your organization have any partnerships with manufacturers, exporters, NGOs (Swiss Contact Chemonics) or other private public partnerships (PPP)?

Survey 6 – Independent Buyers

1. Do you purchase cacao? If so, please explain the process.
2. What price was the farmer paid for their cacao? More specifically, how many times did he/she sell beans, how was it sold, and at what prices?
3. Where did the transaction take place?
4. Did the farmer receive premiums or discounts related to quality? Explain if this occurred.
5. Were the beans well-fermented, dry, with few spoiled beans? If not, were any sales refused – did the quality affect the price the farmer received?
6. Once the beans are purchased, what happens to the beans? Do you aggregate the beans in a warehouse with other purchases? At what point (volume, age, purchase agreement for your aggregated beans) do you procure transportation to move the beans to somewhere else?
7. Where do you sell the beans? To whom do you sell the aggregated beans?
8. Do you have contracts with chocolate manufacturers? How are these contracts set up? On a yearly basis? For a certain amount of volume?
9. Are there price premiums involved for high quality beans when you sell to the next purchaser? Do you receive a premium for volume?
10. Do you know the outcome of the beans that you sell? Do they go for export or for domestic production of chocolate?
11. Did the farmer have other options to sell the cacao? Of similar or different types of buyers? If the farmer used other buyers, would different quality restrictions apply?
12. Would sale to other buyers require incurring additional transport costs (how much)?
13. Does your organization offer contracts to cacao farmers either informal or formal? What are the conditions of those contracts?
14. Do you purchase any other commodity crops (coffee)?
15. Do you offer any marketing opportunities or services to cacao producers? If so, which ones?

16. Do you work directly with Fedecacao or other national organizations? Which ones?
17. What are some of the challenges or limitations of working with these organizations?
18. Can you tell us some of the opportunities or where working with these organizations has been beneficial to your association?
19. Does your association provide any credit to farmers or financial support for improvements in their cacao plantations or chocolate manufacturers?
20. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia specific best practices)?
21. Who else do you recommend that we talk to?
22. Please tell us who your institution collaborates with on activities related to cacao. Does your organization have any partnerships with manufacturers, exporters, NGOs (Swiss Contact, Chemonics) or other private public partnerships (PPP)?

Survey 7 – Chocolate Manufacturers

1. Do you purchase cacao? If so, please explain the process.
2. Who do you purchase cacao beans from? What percentage of your purchases comes from producers/traders/etc.? Are purchases cash transactions?
3. When are cacao beans sold to you? What volumes do you purchase by month over the course of the season?
4. What price did you pay for the cacao beans? How is price determined, and does it vary by season?
5. Do you sort the beans based on quality (fin de aroma/bulk cacao seeds)?
6. Were the beans well-fermented, dry, with few spoiled beans? If not, were any sales refused – did the quality affect the price the farmer received?
7. Did the cacao bean seller receive premiums or discounts related to quality or volume? How much? What quality characteristics are considered?
8. Do you have a traceability system in place? If so, please explain how you maintain your records to keep track of where high quality beans may be coming from in your value. What aspects are traced (farm, or farmer group, production method (organic), etc.)?
9. Do you maintain any certifications for your cacao (organic, Fair Trade, Rainforest Alliance, UTZ)?
10. Do you have contracts, either informal or formal, with cacao farmers/buyers/aggregators/producer organizations? How are these contracts set up? (Forward contract? On a yearly basis? For a certain amount of volume?) Do the contracts set the price or are they based on an index like the ICCO price?



11. Are buyers self-financed or bankrolled by your organization?
12. Once the beans are purchased, what do you do with the beans? Wash? More drying? Sorting?
13. Where do you store purchased cacao? How do you transport lots, or do the downstream buyers come to you?
14. Do you import beans to increase your capacity to produce chocolate products? If so, where from? Is the value steady? What is the proportion of the imported beans in comparison to the domestic beans that you purchase in your manufacturing?
15. What is your grinding capacity in your operation? How many tons of beans can you process in a month? Do you have excess capacity that could be utilized to handle increased production? What limits the size of your operation?
16. What products do you manufacture? Chocolate liquor? Cocoa butter? Cocoa powder? Consumer goods (bars)? What are the proportions of each product in your operation?
17. What proportion of the products goes for domestic consumption and what goes to export?
18. What is your potential to increase in the future? In what time frame? What are your limitations to increase production of the chocolate products you manufacture?
19. Do you offer any marketing opportunities or services to cacao producers? To producer groups? If so, which ones?
20. Do you collect domestic or international marketing information? If so, where do you get your information?
21. Do you maintain any databases on cacao production, farmers, organizations, marketing? Would you be willing to allow us access to those?
22. Do you work directly with Fedecacao or other national organizations? Which ones? What services do they provide to you?
23. What are some of the challenges or limitations of working with these organizations?
24. Can you tell us some of the opportunities or where working with these organizations has been beneficial to your association?
25. Do you provide any credit to farmers and/or farmer organizations or financial support for improvements in their cacao plantations or chocolate manufacturers? How is it repaid? What is the interest rate?
26. What are your perceptions of opportunities and challenges for scaling up cacao production, chocolate processing, marketing opportunities or exporting options (Colombia best practices)?
27. What is the current role of the government and what role should they play moving forward if the sector is going to grow and prosper?

28. Who else do you recommend that we talk to?

29. Please tell us who your institution collaborates with on activities related to cacao.

Does your organization have any partnerships with manufacturers, exporters, NGOs (Swiss Contact, Chemonics) or other private public partnerships (PPP)?



Appendix D. Agenda and Methodology of the Facilitated Discussion Workshop and List of Participants Attending

Agenda: Creating the best cocoa for Colombia

Wednesday, October 26, 2016

8:00 to 9:00 am	Arrival of the participants
9:00-9:15	Welcome and presentation
9:15 to 10:15	Purpose of the project Logistics of the plan of work Explanation of the methodology The role of the facilitators and participants Rules for the operation of the Group
10:15 to 10:30	Recess
10:30 to 12:00	What is the role of the cocoa in the creation of prosperous communities?
12:00-1:30	Lunch
1:30 to 2:45	Imagine and share your ideas to express as it would be the ideal of the cocoa sector in Colombia.
2:45 to 3:30	By Tamara Benjamin community capital
3:30-3:45	Recess
3:45 to 5:00	That is working well in the sector cocoa today? What are the qualities positive of the sector cocoa?
5:00 to 5:30	Closing of the session

Thursday, October 27, 2016

8:00 to 9:30	Report on the cocoa sector in Colombia by Tamara Benjamin and Mark Lundy Reactions on the contents of the report
9:45 to 11:00	Strategies and recommendations
11:00 to 12:00	Formulation of a Plan of action
1:30 to 2:00 pm	Formulation of a Plan of action
2:00 to 3:00	Feedback and reports in English and Spanish

Methodology

As part of a larger research project funded by USAID and USDA, Purdue University and the International Center for Tropical Agriculture (CIAT) partnered to propose an innovative alternative for addressing some of the challenges in the emerging Colombian cacao sector in achieving its development goals. Bringing stakeholders from across the value chain together in a facilitated workshop for two days, the partners sought to engage the sector in building trust, collecting and sharing information broadly, creating a shared vision for the sector in reducing poverty and promoting peace, and identifying key strategies and actions to begin to achieve the vision.

Background Information

The “Cacao for Peace” (Cacao para la Paz) project funded through USAID and managed by USDA in Colombia has a mission of building peace in rural regions through the growth of the cacao sector. Prior funding had supported various research projects as well as efforts to boost production or improve processing, distribution, and marketing. Purdue and CIAT were invited to complete a supply chain analysis with recommendations for future funding. The facilitated workshop was a part of this larger research effort.

Program Design & Description

The facilitated workshop of the Cacao for Peace project took place over two full days in October, 2016. The preparation was critical, primarily in ensuring that different voices and interests were represented in the process. Many in-country and international



partners gave input into the invitation list. The 37 participants included small and large producers and marketers, niche and conventional producers and marketers, processors, association representatives, nongovernmental and governmental agencies, educational partners, and more. Concerns about the influence of certain partners who benefit from the status quo were taken into account in the planning and design.

Two experienced facilitators, who were not involved in other aspects of the project, led the group through many kinds of activities and discussions over the two days utilizing facilitation techniques and tools that are not uncommon in Extension but were less familiar to some of the Colombian participants. Some of the tools included ground rules, small group discussions, creating a visual representations of a vision, asset mapping, establishing a criterion grid, sticky dot prioritization, rotating flip charts and more. The facilitation was done entirely in Spanish, the participant's native language. The main questions advanced from one to the next:

- How can the cacao sector build peace and prosperity in Colombia?
- What does an ideal cacao sector look like?
- What assets are available?
- What is working well in the sector? What needs improvement?
- What does the data say?
- What strategies should the sector pursue?

Conclusions/Implications & Recommendations for practice

Facilitation can help create buy-in when there is dis-alignment within a loosely-affiliated group that shares some common economic and, or, socio-political goals. Much of the planning and design conversations centered around ways to structure the gathering to prevent potential power plays, ensure inclusive participation, and manage conflict in a productive way. Certain techniques proved effective at accomplishing all of these.

While our planning team had an ambitious vision for what the group could accomplish in two days, the reality of the participants' relationships to each other, their depth of understanding of some of the issues affecting the sector, and our commitment to a facilitated process, led us to adapt and pull back on some of what we were able to accomplish together. The value of facilitation is that it tracks the pace of the group and adjusts as the process in conversation with the group. In complex situations, this can help the group to take ownership of the process as well as the outcomes of it.

Participants in Attendance

Participants	Organization
1 Aaron Beydoun	Fencia Trading
2 Isaac Lopez Cordés	EcoCacao
3 Andres Felipe Zabala	Corpoica
4 Bernardo Saenz	ex-Consejo
5 Carlos Parra	Universidad de Caldas
6 Carlos Vasquez	Secretary of Ag- Antioquia
7 Cecilia Rivera	Swiss Contact
Corina Buendia	
8 Grigoriu	Corpoica
9 Diana Ballesteros	Chocolate Girones
10 Eliecer Torres	Arhuacos
11 Emilio Huertas	Lutheran World Relief
12 Esperanza Torres	Universidad Nacional
13 Estanich Grant Pinilla	Manifesto Cacao
14 Fernando Gomez	USAID
15 Gilberto Gomez Saenz	Fedecacao San Vicente
16 Gustavo Mindineros	Cortepaz
17 Jaider Nieves	Guardabosques
18 Jesse Last	Taza
Jorge Enrique Ángel	
19 Poveda	Socya
20 Juan Carlos Arroyave	Casa Luker
21 Juan Carlos Botero	Finagro
Juan Fernando	
22 Valenzuela	Nutresa
23 Julia Ines Ocampo	Colcocoa
24 Juan Carlos Agudelo	Colcocoa
25 Sebastian Escobar	Corpoica
26 Liliana Arias	Red Alma Femenina
27 Luis Alejandro Perea	FAO
28 Rocio Ramirez Arias	Ascoviz
Luz Mery Gutierrez	
29 Solano	Cortipaz
30 Dra. Nubia Martinez	Fedecacao
Maria del Pilar Gómez	
31 López	Mariana Cocoa Export



32	Mariángela Ramirez	Pacific Agricapital
33	Martha Acevedo Miguel Angel Vargas	EcoCacao
34	Caro	Aprocasur
35	Nelson Ardila	Nutresa
36	Sebastian Alvarado	USAID / LRDP
37	Vivana Hernandez	ECOM, Colombia

Appendix E. Facilitated Discussion Notes

October 25-26, 2016

Bogotá, Colombia

¿Como puede el sector cacaotero colombiano contribuir a la creación de comunidades prosperas y pacificas?

- Reconversión social
- Rentabilidad con sentido de pertenencia
- Reconstrucción del tejido social
- Promover la asociatividad
- Integración de cadena
- Promover y fortalecer la asociatividad productiva, buscando ser más competitivos
- Fomento a la asociatividad con modelo de negocio
- Generar capacidades integrales que permitan enfrentar los retos del sector en todos los niveles (cultivo, medio ambiente, comercial)
- Fortalecer el trabajo familiar y el relevo generacional
- Desarrollar el liderazgo de la mujer en la actividad de cacao
- Promover la puesta en valor del producto cacao entres las comunidades cacaoteras, que genere apropiación y autoestima y asegure el relevo generacional. Ello con un concepto de prosperidad más allá de la económico.
- Políticas claras y planificadas desde las necesidades del territorio
- Proporcionar un instrumento de ordenamiento territorial que le permita a los productores establecer cultivos en zonas apropiadas
- Fortalecer tradiciones y costumbres
- Fortalecer el equilibrio entre medio ambiente y desarrollo social
- Hacer del cacao en las regiones centros eco productivos turísticos
- Mejorar la productividad y la calidad en el cultivo para garantizar una buena rentabilidad para promover la sustitución de los cultivos ilícitos
- Fortalecer la participación de los productores en la cadena de valor (capacitación, certificaciones, tecnología)
- Reconversión productiva
- Aumentos en competitividad en temas productivos en la cadena en general
- Mejor unidad y articulación del gremio
- Proporcionar los medios para que las comunidades sean mas productivas – competitivas (infraestructura, recursos, capacitación, transferencia, valor agregado)



- Vincular las particularidades regionales en la búsqueda de modelos de negocios sostenibles

Capitales Comunitarios

1. Capital Construido
 - a. Elbas y otros sistemas de secado
 - b. Cajones de fermentación
 - c. Centrales de beneficio
 - d. Vías para movilidad
 - e. Laboratorios de análisis de cadmio
 - f. Bodegas de clasificación
 - g. Bodegas de comercializadores en los municipios
 - h. Fabricas de chocolate/transformacion
 - i. Diseño de imagen de asociaciones
 - j. Entidades de investigación
 - k. Oficinas
 - l. Granjas de Fedecacao
 - m. Centros de acopio
 - n. Puertos
 - o. Riego
 - p. Cultivos establecidos
 - q. Agroindustria (Casa Luker, Nacional de Chocolates)
2. Capital Cultural
 - a. Fiestas cacaoteras locales (reinados, concursos, ferias, festivales, grupos de baile, encuentros deportivos, concurso de desgranadores de mazorcas)
 - b. Sentido pertenencia por el hecho de ser una región cacaotera y unida
 - c. Grupos artísticos
 - d. Mujer cacao cultora
 - e. Premios internacionales
 - f. Concurso Cacao de Oro
 - g. Casa de Chocolate
 - h. Rutas turísticas
 - i. Cultura campesina
 - j. Diferenciación cultural en las regiones
 - k. Consumo interno de tomar chocolate caliente
 - l. Inclusión culinaria
3. Capital Político
 - a. Consejo Nacional Cacaotero
 - b. Fedecacao

- c. Política pública para siembras (SIEMBRA)
 - d. UMATAs
 - e. Alcaldías
 - f. Ministerio de Agricultura
 - g. Ministerio de Comercio
 - h. Cámaras comerciales
 - i. Cooperación Internacional
 - j. Programas y proyectos de entidades del gobierno
 - k. Inversión de las instituciones del gobierno
 - l. Bancos: BANCOLDEX, Banco Agrario, BANCOLOMBIA
 - m. FINAGRO
 - n. Inversionistas
 - o. Acuerdos de competitividad
 - p. Consejos regionales de cacao
 - q. Secretaría Agricultura de los departamentos
 - r. Red Cacaotero
4. Capital Financiero
- a. FINAGRO
 - b. Fondo parafiscal de cacao (Fondo Nacional del Cacao)
 - c. Política de precios
 - d. Demanda asegurada
 - e. Incentivos para siembra
 - f. Findeter
 - g. Banco Agrario
 - h. Bancos internacionales
 - i. Tecnologías de información
 - j. Líneas de crédito
 - k. Industria – empresas compradoras
 - l. Fondos de comercialización
 - m. Financiera Comuctrasan
 - n. Cooperativas - Coopcentral
 - o. Cooperación Internacional
5. Capital Social
- a. Núcleos familiares
 - b. Participación en asociaciones de productores (Ecocaco, Aprocafrum, Ascoviz, Misión Chocolate, mujeres)
 - c. Comunicación entre industria y productor
 - d. Red Nacional de Cacaoteros
 - e. Fedecacao
 - f. Universidades



- g. Agencias de cooperación
 - h. Juntas de acción comunal
 - i. Comunidades productoras
6. Capital Humano
- a. Centros de Investigación (Corpoica, CIAT)
 - b. Equipo técnico de Nacional de Chocolates
 - c. SENA
 - d. Universidades – (Universidad de la Paz – Magdaleña,
 - e. Productores (mano de obra, mingas)
 - f. Inversionistas
 - g. Líderes de asociaciones
 - h. Expertos en el cultivo del cacao
 - i. Conocimiento técnico/Extensión
 - j. Experiencia del agricultor
 - k. Consejo Nacional de Cacao
 - l. Fedecacao
 - m. Asociaciones
 - n. Directivos, personal técnico y administrativo
 - o. Chocolateros
7. Capital Natural
- a. Agro ecosistema – cultivos establecidos combinados con frutales, forestales, ambientalmente amigable
 - b. Condiciones ambientales – clima, fuentes hídricas/precipitación
 - c. Tierra y suelos fértiles y apropiados para el cultivo
 - d. Recursos genéticos – viveros y jardines clonales de cacao
 - e. Ecoturismo
 - f. Certificaciones ambientales
 - g. Biodiversidad y paisaje
 - h. Geo posición del país (ubicación geográfica)
 - i. Fertilización orgánico
 - j. Bonos de carbono
 - k. Granja Yarigure (Nacional de Chocolates)

Financiero y Entidades de Apoyo y Proveedores de Servicio

Funcionando Bien

- a. Promoción reciente del sector cacaotero – gobierno
- b. Buena interacción/comunicación de la Red Cacaotero
- c. Mejoramiento de la coordinación del sector liderado por entidades de apoyo

Mejoramiento

- a. Mayor apoyo para promoción del cacao colombiano en eventos locales y extranjeros (gobierno/ProColombia)
- b. Fomento de cultura alrededor de cacao por parte de los gremios
- c. Enfoque de inversiones de cooperación
- d. Fuentes de financiamiento deben ser más diversas
- e. Mayores líneas de financiamiento para transformadores

Productores y Proveedores de Insumos

Funcionando Bien

- a. Confianza en el cultivo del cacao
- b. Deseo de asociarse
- c. Negocio familiar
- d. Tenencia de la tierra
- e. Conocimiento de las prácticas agronómicas
- f. Armonía con el medio ambiente, conservación del territorio y las prácticas productivas y culturales
- g. Amplia oferta

Mejoramiento

- a. Aplica los conocimientos de las prácticas agronómicas
- b. Modernización de los cultivos
- c. Tecnificación en las prácticas pos cosecha
- d. Conocimiento y aprovechamiento del recurso genético
- e. Soberanía alimentaria
- f. Acceso a financiación
- g. Asistencia técnica y transferencia de conocimiento y tecnología
- h. Altos costos

Canales de Comercialización, Consumidores y Comercialización

Funcionando Bien

- a. Global – crece más la demanda que la oferta
- b. Hay hábito de consumo
- c. Inicio al consumo de cacao fino local
- d. Mercado internacional, hay demanda cacao fino y de aroma
- e. Hay diversidad en canales de comercialización
- f. Gran oferta de comercializadores nacional e internacional



Mejoramiento

- a. Se necesita incrementar consumo local
- b. Mejorar condiciones de conocimiento del cacao (atributos) como aroma, salud
- c. Crear canales para cacao social
- d. Muy alto el nivel de intermediación
- e. Fortalecer encadenamiento
- f. Incrementar coberturas
- g. Disminuir riesgos de precio, mala calidad

Transporte

Funcionando Bien

- a. Protección al transporte vereda comunitario
- b. Confianza de productores y transportadores
- c. Seguros de transporte
- d. Consolidación de envíos

Mejoramiento

- a. Transporte animal del cultivo al centro de beneficio
- b. Cable vías
- c. Mejorar las vías de acceso
- d. Costos elevados
- e. Transporte fluvial y marítimo para el cacao e insumos
- f. Abuso por transporte informal
- g. Recipientes para transporte de cacao en baba
- h. Condiciones de vehículos de transporte
- i. Trazabilidad

Industria

Funcionando Bien

- a. Cobertura de compra del Cacao Nacional (consumo del 87% aproximado)
- b. Buena difusión de precios de mercado
- c. Mecanismos de financiación para la compra de caca a las asociaciones
- d. Apertura de líneas de financiación enfocada al escalamiento de la industria de la transformación
- e. Posicionamiento en el exterior
- f. Alianzas con asociaciones y productores

Mejoramiento

- a. Incentivas económicas por calidad del grano y segmentación de mercado
- b. No hay suficiente reinversión en la base de proveeduría
- c. Valor compartido
- d. Mas competidores en el mercado (industriales y exportadores)

Educación/Universidades/Investigación/Asistencia Técnica

Funcionando Bien

- a. Hay oferta educativa para sector rural mas técnica y tecnológica presencial y virtual
- b. Hay capital humano en investigadores
- c. Hay buenos trabajos en genética y selección de materiales genéticos (colecciones y entidades)
- d. Buena oferta en investigación en diseños de siembra y sistemas agroforestales
- e. Hay avances en la calidad del cacao, sistemas de fermentación y calificación calidad
- f. Trabajos en transformación de productos, por industrias y entidades del sector de apoyo (SENA)
- g. Hay oferta de transferencia en el país por varias entidades (Fedecacao, Industria, SENA, UMATAs)

Mejoramiento

- a. Mejorar la calidad de la educación
- b. Vinculación Academia – Sector Productivo
- c. Investigación a largo plazo
- d. Mejorar al acceso a la educación
- e. Direccionamiento de la educación empleado a empresario
- f. Mejoramiento enfoque asistencia técnica
- g. Diferencia entre extensión y asistencia técnica
- h. Pertinencia de educación e investigación
- i. Aplicación de la investigación (transferencia)
- j. Metodologías de transferencia (adopción)



Metas para el Sector Cacaotero en Colombia:

1. Mejorar la Institucionalización del Sector de Cacao

- a. Ampliar representatividad de productores en el consejo nacional cacaotero
- b. Convocar al gobierno nacional para definir una hoja de ruta de reforzamiento de la institucionalidad cacaotera y de la construcción de la política pública
- c. Comparar a Colombia con la institucionalidad regional (de México hasta Perú) y su posible adaptación
- d. Desarrollar líneas de crédito para incentivar el fomento de la industria de transformación del cacao colombiano
- e. Incentivos a la exportación por el gobierno a asociaciones
- f. Fortalecer a la red cacaotera para mejorar representatividad de las organizaciones de productores
- g. Promover que el MADR cuente con 1 responsable del sector (no junto con otros)
- h. Apoyo a secretarías técnicas de la cadena de cacao por regiones
- i. Las universidades como se podrían vincular al sector cacao

Prioridades:

- Divulgación y fácil acceso al crédito
- Generar una articulación de los sectores y de los recursos en pos del aumento y la productividad
- Mejoramiento de infraestructura
- Política clara de legalización y acceso de tierras
- Modelo diferenciado (pertinente) de educación rural (capital humano en el campo, relevo generacional, pertinencia productiva)
- Articulación y unificación de los actores (marco estratégico)

2. Aumento de la Producción y la Productividad, Sostenibilidad y Competitividad

- a. Promover la investigación participativa (universidad – productor)
- b. Contratar expertos que propongan metas razonables y posibles para aumentar la productividad por regionales (presupuesto razonable)
- c. Convocar a las universidades para definir modelos tecnológicos con enfoque regional y énfasis en producción agroecológica y agroforestal, posteriormente incluirlos en los currículos de ciencias agrarias
- d. Asistencia continua
- e. Capacitación de líderes locales en extensión y asistencia técnica

- f. Fortalecer el intercambio entre productores
- g. Censo cacaotero
- h. Investigar y desarrolla modelos productivos que se adapten a los territorios
- i. Preparar profesionales, tecnólogos y técnicos con énfasis en el sector cacaotero
- j. Hacer ejercicios de retroalimentación con países donde funcione mejor la cadena para adaptar lo que sirve Colombia
- k. Fortalecer las escuelas productivas
- l. Formación en manejos culturales del cacao a los productores cacaoteros
- m. Promover capacitaciones sobre liderazgo y comunidad
- n. Trabajar en focos de innovación en todos los eslabones de la cadena
- o. Crear centros de acopio colectivos
- p. Transferencia de tecnología para los transformadores
- q. Participación activa del productor en los programas
- r. Concretar y definir lo referente a la extensión con un “servicio de extensión” moderno, con personal técnico preparado en el cultivo, el mercado, la calidad y apoyo, pero con preparación y capacitación en “métodos y medios” de extensión para la adopción. Servicio de extensión del gremio y las asociaciones, financiado por el estado como un bien público y como un servicio del gremio y de las asociaciones para los productores de cacao.

Prioridades:

- Prioridad esquemas agroforestales y producción agroecológica con enfoque regional
- Política nacional de investigación y transferencia de tecnológica regional
- Enfocar esfuerzos en mejorar la productividad (de acuerdo a realidades regionales y culturales), no en extensión de área para pequeños y medianos productores cacaocultores.
- Crear o estructurar un adecuado programa de extensión y asistencia técnica y crédito tecnología
- Fincas espejo
- Investigación y extensión rural fortalecida y diversificada de acuerdo a las necesidades regionales, que garanticen la productividad y calidad del cultivo con sostenibilidad social y ambiental
- Servicios de extensión y asistencia técnica para mejorar productividad a la medida de cada región



- Invertir en investigación, desarrollo e innovación participativa para generar modelos de sistemas productivos de cacao competitivos y sostenibles dadas las condiciones ecológicas y culturales de cada eco región
- Disponibilidad y acceso a recursos necesarios que permitan garantizar la adopción de tecnología

3. Fortalecer al sector para responder a los mercados

- a. Iniciativas para reducir # de productores que venden a intermediarias informales
- b. Sobre la base de estudios de mercados existentes llamar a una macro rueda de negocios “exploratoria” de volúmenes de compra durante el próximo decenio
- c. Facilitar el acceso a recursos para escalamiento y preparación adecuada para acceder a mercados para transformadores
- d. Continuar la promoción de Colombia en el mercado internacional
- e. Fomentar al consumo de productos a base de cacao en los jóvenes
- f. Comparar a Colombia en la competitividad mundial de costos por kilo
- g. Desarrollar el turismo de conservación y producción con cacao
- h. Consolidar el concurso “Cacao de Oro” como medio para crear cultura de calidad
- i. Educación a consumidores
- j. Desarrollar capacidades para proceso de pos cosecha (generar CFA)
- k. Continuar impulsando vinculación comercial entre organizaciones/regiones y compradores internacionales
- l. Crear opciones de fortalecimiento y preparación cualitativa para el eslabón de transformación
- m. Creación de oportunidades para acceder a capital semilla para fortalecer emprendimientos en la cadena
- n. Promover el consumo de cacao especial y orgánico
- o. El papel de los exportadores de grano debe ir mas allá de compra grano
- p. Desarrollar un perfil del cacao colombiano para ofrecerlo en dos vías, uno “estándar” y otro especializado, con el ánimo de alimentar mercados diferenciados

Prioridades:

- Fortalecer la industria del cacao en Colombia
- Promoción y reconocimiento del cacao colombiano en el mundo

- Desarrollar una oferta que permita posicionar a Colombia como un país que ofrece CFA (Cacao Fino y de Aroma) de orígenes regionales con mayor valor para el productor
- Impulso a generar valor agregado hasta la transformación final en Colombia “énfasis en vincular a familias productoras”
- Recuperar y fortalecer mercado nacional e internacional
- Generar procesos enfocados a la mejora de la cadena de cacao convencional para generar oportunidades para todos
- Crear un perfil de cacao colombiano
- Desarrollo y ejecución de posicionamiento del origen regional en el segmento de caca fino y de aroma
- Evolución del proceso de compra “justicia en las ganancias”

4. *Fortalecer la asociatividad hacia la competitividad y sostenibilidad*

- a. Fortalecer iniciativas de transformación que están luchando por escalar en chocolatería
- b. Hacer un diagnóstico de la situación de las mujeres en la cadena del cacao en Colombia
- c. Enfocarse en competitividad en calidad, cantidad, costo eficiencia, transformación y agregación valor
- d. Desarrollar programas gerenciales con enfoque social para los directivos de las asociaciones con énfasis en prácticas éticas en manejo de recursos, desarrollo de planes de negocio
- e. Incrementar capacitación y fortalecimiento en la asociatividad productiva a la base social de las organizaciones productivas
- f. Fortalecer el intercambio de experiencias y productos entre el campo y la ciudad – mercado
- g. Como retener la mano de obra en el sector rural
- h. Crear proyectos para fomentar la participación de las mujeres en la asociatividad

Prioridades:

- Fortalecimiento de la asociatividad (reducción de costos, poder de negociación, calidad, acceso a mercados)
- Enfoque de género, ampliación de la participación y visibilidad de las mujeres en las asociaciones
- Fortalecer las asociaciones de productores para crear negocios rentables y sostenibles



Próximos Pasos

1. Concretar una ruta junta con el gobierno
2. Actualizar y precisar las metas de crecimiento del sector
3. Identificar el potencial del mercado
4. Crear un equipo de seguimiento a este proceso
5. Crear una plataforma por estrategia (son 4) para continuar el trabajo
6. Convocar a las universidades que están haciendo trabajo con el cacao

Appendix F. Action Steps and Priorities Defined by the Key Stakeholders at the Facilitated Participatory Discussion

I. Improving the Institutionalility of the cacao sector

- a. Augment the representation of producers in the Consejo Nacional de Cacao
- b. Ask the national government to define the route to strengthen the institutionalization of cacao and the construction of the public policies
- c. Compare Colombia's institutional support to the region (from Mexico to Peru) and any possible adaptations or adoptions
- d. Develop lines of credit to incentivize the strengthening of the transformation industry of Colombian cacao
- e. Incentives to export for the government to associations
- f. Strengthen the Red de Cacaoteros to improve representation of producer organizations
- g. Promote the Ministry of Agriculture has at least one person from the sector, not joined with another sector
- h. Support the technical secretaries of the cacao supply chain in each region
- i. Link universities to the cacao sector

Priorities:

- Disclosure and easy access to credit
- Generate a linkage between sectors and resources in a post-conflict era to increase productivity
- Improve infrastructure
- Clear policies on the legalization and access to land
- Differentiated model for rural education (human capital in the field, generational differences, productive pertinence)
- Linkages and unification between actors (strategic plan)



2. *Increasing the production and productivity, sustainability, and competitiveness of the sector*
 - a. Promote participatory research (university – producer)
 - b. Contract experts that propose reasonable goals and possible increases in productivity in the regions (reasonable budgets)
 - c. Call on universities to define technological models with a regional focus that emphasize agroecological and agroforestry production, and later include these in the curriculum for agricultural sciences
 - d. Continued assistance
 - e. Training of local leaders in extension and technical assistance
 - f. Strengthen exchanges between producers
 - g. Cacao census
 - h. Research and develop productive models that are adapted to the different territories
 - i. Prepare professionals, technologists, and technicians with an emphasis in the cacao sector
 - j. Study countries where the cacao supply chain is functioning better and that can be adapted for Colombia
 - k. Strengthen farmer field schools
 - l. Provide opportunities for cacao producer to learn about cultural management of cacao
 - m. Promote training in leadership and community development
 - n. Work on innovation foci in all parts of the supply chain
 - o. Create collective centers of storage
 - p. Transfer technology to transformers in the industry
 - q. Active participation of producers in programs
 - r. Define extension as a modern Extension Service with technical personnel prepared to work in the crop production systems, market, quality, and support but with preparation and training in the methods and means of extension for adoption. The service should be provided by the cacao guild and associations and financed by the state as a public good and as a service for the guild and associations of the cacao producers.

Priorities:

- Agroforestry and Agroecological production schemes with a regional focus
- National policy for research and technological transfer on a regional basis
- Focus work on improving productivity (in agreement with the regional and cultural realities), no in the extension of area for small and medium cacao producers

- Create or structure an adequate extension program with technical assistance and technological credit
- Demonstration farms
- Research and rural extension strengthened and diversified in agreement with the regional necessities, that guarantee the productivity and quality of the crop with social and environmental sustainability
- Extension and technical assistance services to improve production in each region
- Invest in participatory research, development, and innovation to generate models of productive systems of competitive and sustainable cacao given the ecological and cultural conditions of each eco region.
- Availability and access to the necessary resources that allow for the guarantee of technology adoption

3. *Strengthening the sector to respond to markets*

- a. Initiatives to reduce the number of producers that sell to informal middlemen
- b. Based on existing market studies determine the possible volumes for exploratory business that they will purchase in the next ten years
- c. Facilitate the access to resources through scaling up and adequate preparation for accessing markets for transformers
- d. Continue the promotion of Colombia in the international market
- e. Strengthen the consumption of cacao products with youth
- f. Compare the global competitiveness of Colombia for costs per kilo
- g. Develop conservation and production tourism with cacao
- h. Consolidate the “Cacao de Oro” competition as a means to create a quality culture
- i. Education of consumers
- j. Develop capacities for post-harvest process
- k. Continue to promote the commercial linkages between organizations/regions and international buyers
- l. Creation of opportunities to access seed capital to strengthen new activities along the supply chain.
- m. Create options to strengthen and quality preparations within transformation links
- n. Promote the consumption of special and organic cacao
- o. The role of the exporters of beans should be more than just purchase beans



- p. Develop a profile of Colombian cacao to offer two different ways, one standard and another specialized, with the hope that different markets will be served

Priorities:

- Strengthen the cacao industry in Colombia
 - Promote and recognize Colombian cacao in the world
 - Develop a supply that allows Colombia to position itself as a country that offers fine and flavor cacao from regional origins with high value for the producer
 - Promote the generation of value added through final transformation of cacao in Colombia, emphasizing the linkages for family farms
 - Recover and strengthen the national and international markets
 - Generate processes focused on the improvement of the conventional cacao supply chain to create opportunities for everyone
 - Create a Colombian cacao profile
 - Develop and execute the positioning of regional origin cacao in the segment of fine and flavor
 - Evolution of the process of purchasing “justice in profits”
-
4. *Strengthen the associations to be more competitive and sustainable*
 - a. Strengthen transformation initiatives that are being conducted to scale up chocolate making
 - b. Make a diagnostic of the situation of women in the cacao supply chain in Colombia
 - c. Focus on the competitiveness in the quality, quantity, cost efficiency, transformation, and value added
 - d. Develop management programs with a social focus for the directors of the associations with an emphasis on ethics and management of resources, development of business plans
 - e. Increase training and strengthen the productive association of the social base of the productive organizations
 - f. Strengthen the exchange of experiences and products between the rural and urban areas in the country
 - g. How to retain labor in the rural sector

- h. Create projects that strengthen the participation of women in the association

Priorities:

- Strengthen the associations (reduction of costs, negotiation power, quality, Access to markets)
- Focus on gender, increasing participation and visibility of women in the associations
- Strengthen the producer associations to create more profitable and sustainable businesses.



Appendix G. Ecuador Trip Report

Trip Overview and Objectives

After nearly twenty years of historic growth (GDP rose from \$18.3B to \$100.1B in real terms between 2000 and 2015 according to the World Bank), agriculture continues to be important to Ecuador, and is considered its largest employer (US Embassy). Ecuador has been exporting cacao for more than a century and it continues to be a key agricultural sector accounting for approximately 8% of GDP or US\$814 million (Ministry of Agriculture). Nearly all the production is exported due to little chocolate consumption by Ecuadorians, resulting in relatively low domestic demand (3% goes to local consumption, the rest to exports). Ecuador is now a global leader exporting cacao (5th largest in the world, behind Ivory Coast, Ghana, Indonesia and Cameroon)¹. Ecuador's long history of producing cacao, and its current position as the largest cacao exporting nation in Latin America, provides an excellent backdrop for examining the current opportunities and challenges facing the cacao sector in Latin America and the best practices that have led to Ecuador's ascendance in the global marketplace.

During our week-long visit, we interviewed government officials, university faculty, researchers, producers, producer associations, exporters, traders, and NGO personnel among others (See Appendix for itinerary for trip). The original objectives for our trip were the following:

1. Understand the governmental support system that created a successful cacao supply chain
2. Determine how extension has played a role in the increase in cacao yield and acreage
3. Study the farmer producer organization structures that helped to create a favorable supply chain for cacao producers
4. Gain an appreciation for the financial mechanisms that have been put in place for the scaling up of the cacao sector in the country
5. Understand the role of cacao in poverty reduction strategies

Similar to Colombia, there are indigenous varieties (*Nacional* or *arriba*), which have been cultivated in a number of specific regions of the country (Esmeraldas, Amazonas, Manabí, and others). Although these varieties are highly prized because of their genotype and phenotype (genetic diversity, flavor profiles, potential disease resistance characteristics, etc.) by producers, government, research institutions, and others, they are often not as

productive as the variety CCN51. So, while we collected information that pertains to each of these objectives, the prevailing discussions revolved around the viewpoints of factions that support the notion that *Nacional* varieties of cacao are the foundation for moving forward and those that see Ecuador's future in the CCN51 cacao variety developed in Ecuador in the 1960's. In this report, we provide an overview of our findings and discuss, at length, several pressing issues that we uncovered during our trip.

Overview of Cacao in Ecuador

Since 2000, Ecuador has seen huge increases in cacao exports, as total production went from 51,000 MT in 2000 to 265,000 MT in 2016, a 5-fold increase in a little over 15 years. There are a number of reasons for this increase, including governmental and non-governmental investments in programs focused on the cacao sector (for example, the Government of Ecuador, USAID, CRS and many others committed significant resources during this time) and private sector contributions that included upstream supply chain innovations and the evolution of large scale plantations. In addition, Ecuador experienced an increase in plantings of CCN51, a prolific variety (yielding up to 2500 kilos per hectare) that has been tested for more than 50 years, is considered somewhat disease resistant, and can be produced with little to no shade. Along with the introduction of high yielding varieties, many new hectares of area were converted to cacao as production extended into multiple areas of the country, some of which had previously been in banana or cattle production. According to FAOSTAT, over 100,000 ha. of land where cacao is being harvested was added between 1999 and 2013, rising from 301,160 to 402,434 hectares harvested. Currently, the Ecuadorian sector can be best described as being in transition. In one respect, it is heavily vested in the past, relying on the flavor profiles and historic bond to traditional *Nacional (arriba)* cacao varieties that are being used to develop new niche products that are differentiated by origin at the regional level. On the other hand, farmers are realizing higher yields and benefiting from the resulting production gains through the adoption of CCN51 and introduction of international exporters interested in the marketing of bulk cacao on the global market. Based on our observations, a tension pervades the Ecuadorian cacao sector and the line is definitively drawn between *Nacional* and CCN51.



Nacional versus CCN51

For the ease of comparison, important variables for the Ecuadorian cacao industry are listed under separate CCN51 and Nacional columns in Table A. The remainder of the report will follow the order of the variables listed in the table. Market outcomes are referred to throughout as many of the variables examined potentially have some effect on prices received.

Table A. Comparison between the cacao varieties CCN51 and *Nacional* (*arriba*)

Item	CCN51	Nacional
Planting Material	Private sector	Public and private sector
Farmer Groups	Few, if any	Grouped for certification and/or vertically integrated with exporter or manufacturer
Plantation	Smallholder and large-scale	Smallholder
Yield	High	Low
Production	Increasing	Stable to Decreasing
Fermentation	On farm	On farm / Collective
Acreage	Increasing	Stable to Decreasing
Flavor	Evolving	Fine and Flavor
Overall Quality	Increasing	Regionalization
Government Support	None	Research, Marketing, Plantation Management
International Community Support	None	Farmer group strengthening

Private Sector Support	Fermentation techniques, planting material, tech transfer	Supply chain development
Cacao Processing and Chocolate Manufacturing	Local / International	Local / International
Cacao Exports	Local / International	Local / International
Farmgate Price	SAME	

Planting Material

CCN51 – We visited Hacienda Cañas in Naranjal, Guayaquil. There we learned that CCN51 cuttings are grown for grafting and prepared for shipment across Ecuador and beyond. CCN51 plant material is only available through private sources such as Hacienda Cañas. While the source material is limited in origin, the quantities produced continue to face high demand (Figure A).



Figure A. Preparing the grafting material for CCN51 plantation at Hacienda Cañas.

Nacional – Planting material for these varieties are available through commercial and public outlets. The Government of Ecuador, through the research conducted by INIAP (El Instituto Nacional de Investigaciones Agropecuarias / National Institute for Agricultural Research), maintain clone variety trials on *Nacional* varieties. During our visit to INIAP at their Tropical Experiment Station in Pichilingue, we were introduced to the latest clones EETP-800 and EETP-801 (Figure B). These high yielding clones are actually crosses between *Nacional* and CCN51. The difference is that these clones have a flavor profile that resembles *Nacional* and yields, during trials, that rival CNN51. It remains to be seen if these clones are widely adopted. There are multiple constraints facing adoption, such as continued trials across Ecuador’s diverse cacao growing regions to see how they respond to disease and differing management practices, as well as the resources at the government level available to commercialize these new clones.



Figure B. New *Nacional* clones at INIAP experimental station in Pichilingue.

Farmer Groups

CNN51 – There are few, if any, farmer groups that focus their collective energies on *CNN51*. We were told that a more common scenario is that farmers have both *Nacional* and *CCN51* on their farms. The variety, *CCN51*, is sold individually and, if part of a farmer group, the *Nacional* production is destined for market transactions mediated by the farmer group.

Nacional – We were told that no more than 10% of all Ecuadorian farmers maintain a membership in a producer group. Those that are members have access to markets directly mediated by Ecuadorian and international exporters and collective fermentation (necessitating the purchase of cacao *en baba*, seen Figure C – cacao freshly removed from the cacao pod and still encased in mucilage - instead of individually fermented and



dried), which is used as a quality control measure by downstream actors (Figure D). This post-harvest practice is to ensure consistency, limit risk, and increase certification assurance as much of the output purchased through farmer groups carries some type of certification. Ecuadorian cacao processors, such as Cofina, work with farmer groups to ensure supply of a variety of certified cacao (organic, Fair Trade, Kosher, UTZ, Rainforest Alliance, etc.). Chocolate manufacturers, such as the Ecuadorian firms Pacari and Republica de Cacao, work with farmer groups in different regions to ensure that they have access to high quality cacao that carries the desired flavor profile. It was mentioned by several entities that work with farmer groups, that members often receive extension-like technical assistance that is conducted by the entity directly and/or its partners.



Figure C. Collection of wet cacao (*en baba*) at a community collection point to increase consistency and uniformity for quality control to meet certification requirements.



Figure D. Communal fermentation boxes to increase the uniformity and consistency in the fermentation of *Nacional* cacao varieties to improve quality control.

While approximately 10% of Ecuadorian cacao producers are organized, one must keep in mind that they do not sell all of their output through the farmer organization. We were told that of the total amount of beans a producer might sell to an association, about 50% are sold through the association's channels, while the other 50% is sold individually by the producer.

Plantation

CNN51 – This cacao variety is grown on both smallholder plots (typically less than 10 ha. and oftentimes less than 5 ha.) and much larger haciendas that cover hundreds of hectares. *CNN51* is usually grown as a monocrop with little shade and planted at relatively high densities (Figure E). As Ecuador has become a major player in the global cacao trade, there has been an increase in the number of large scale plantations. No one in our group had ever seen the size and intensity of cacao plantations anywhere else in the world. The elimination of shade trees, density of tree plantings, and the extensive



areas that have been planted were overwhelming. The planting of trees on an industrial basis has definitely had an impact on the overall production of the cacao sector in the country as well as the productivity on a per hectare basis.



Figure E. Cacao Variety CCN51 planted at Hacienda Cañas in Naranjal, Guayaquil

Nacional – The *Nacional* varieties are almost exclusively grown on smallholder farms that employ agroforestry systems which afford needed shade and a variety of economic opportunities for the farm household. Given the relatively low planting densities and small acreage, the diverse portfolio of output found in these systems offers much needed additional sources of income.

Yield

CCN51 – *CCN51* yields were quoted as anywhere between 800-2500 kg/ha. Producers have tended to prefer *CCN51* due to the resulting increased productivity (and the market at the farmgate not transmitting any price differentials based solely on variety).

Nacional - The yields for *Nacional* that were quoted to us varied between 200-500 kilos per hectare. As mentioned earlier, there were instances reported where these yields were reportedly higher than the national average (~450kg/ha, though this figure is highly contested by both sides).

As with most crops, planting density, along with variety, input use, farm management, prevailing weather conditions, etc. all play a role in determining yield.

Production

CNN51 - Undeniably, there has been a marked increase in *CNN51* production all over the country, with estimates running anywhere from 30-60% of total cacao production in the country. It is challenging to find the exact number since there isn't necessarily a market channel for only this variety. However, export data suggests that at least one third of all Ecuadorian cacao exports are *CNN51*. Given its use internally, the overall proportion of production is likely higher than the export data suggests. Based on our discussions with stakeholders, *CNN51* production is expected to continue to expand as farmers either convert away from *Nacional* or additional acreages are brought into production.

Nacional – Despite efforts aimed at staving off the decline of *Nacional* plantings and holdings, in addition to those focused on increasing demand for chocolate that requires use of *Nacional* varieties, *Nacional* production continues to decline. Partly a function of yields, *Nacional* doesn't appear to be sustainable at the farm level for a large number of farms, regardless of any existing price premiums. This is primarily due to the relatively low production of these varieties, which cannot be compensated for in any economically feasible way at the farmgate. The only farms that seem to be benefitting from a price premium are those that have a direct market to a “bean to bar” company or are connected to a producer organization that has invested in certifications. We were able to find with our research that very few producers benefit in a meaningful way from certifications, mainly because of the lack of a robust market in other countries for these products. As can be seen in Figure F, this farmer association was paying an increased price for organic certification but only for a few days because there wasn't enough demand to purchase everything from the farmers.



Figure F. Sign at the producer associations community post-harvest facilities, which states that they will stop purchasing cacao during the week of February 20-28, a peak period for farmers to sell cacao.

Fermentation

CCN51 - A considerable amount of time was spent during our trip discussing the poor quality of *CCN51*. The government sees *CCN51* as a “disease” and is at risk of jeopardizing the local treasure, the *arriba* varieties. Part of this is due to the perceived flavor profile of *CCN51*. As with all cacao, the fermentation process has a significant effect on the final flavor profile of the resulting fermented and dried cacao.

Compared to Nacional, *CCN51* has an increased amount of mucilage, which can easily convert to a vinegar tasting chocolate when it is fermented the traditional way in wooden boxes. INIAP, industry, and some producers have worked collaboratively to modify the fermentation process for *CCN51*. The new process helps to reduce the moisture from the beans in the first stages to eliminate the buildup of acetic acid and the astringent flavor profile that ensues (Figure G). Properly fermented *CCN51* results in a flavor profile that is pleasant tasting and does not require blending of non-*CCN51* beans to make chocolate. Surprisingly (to us), we were treated to chocolate made purely with *CCN51* beans. Unlike our experience tasting unpalatable cacao liquor in Colombia,

using poorly fermented CCN51, the CCN51 dark chocolate we tasted in Ecuador was proudly being served to the public.



Figure G. Burlap bags are used to ferment CCN51 cacao to increase the drainage of excess liquid from the mucilage and to change the fermentation process so the cacao does not taste like vinegar.

Whether they are employing the new fermentation technique or not, smallholder farmers typically sell CCN51 already fermented and dried. This is partly because CCN51 is currently destined for international ‘bulk’ markets and sold by individual farmers rather than farmer groups (who are more likely to be involved in collective fermentation arrangements). Large-scale plantations also sell fermented and dried beans, albeit in much larger and more frequent transactions. This output is fermented on much the same scale (or larger) as the collective fermentation units. The difference being that the cacao is owned by the same entity and simply aggregated from across the farm rather than individual farmers.



Nacional – As mentioned above, *Nacional* is either fermented collectively by the farmer group or the entity contracting with the farmer group. Individual farmers that do not belong to farmer groups ferment and dry their *Nacional* beans on their own.

Acreage

CCN51 – As discussed in the Production section, acreage of *CCN51* is expected to continue to increase in Ecuador. The new acreage will likely be a combination of *Nacional* cacao farm conversion or conversion of non-cacao farms into *CCN51* farms. Several of our interviewees expressed that far fewer acres would be brought into production through the conversion of forest.

Nacional – Acreage in *Nacional* is expected to stabilize or continue on its downward trend. This will be determined by market demand for *Nacional*, perceived profitability and the introduction of higher yielding *Nacional* varieties or *Nacional* production systems.

Flavor

CCN51 – As discussed in the Fermentation section, the flavor of *CCN51* is partially a function of its genetics and partly due to the application of fermentation techniques that are appropriate for *Nacional*, but not *CCN51*. With appropriate fermentation techniques being refined and disseminated, oftentimes through *CCN51* producer (commodity) groups and trainings held at large haciendas and the growing demand from international exporters, the quality of *CCN51* from a flavor perspective should continue to increase.

Nacional – The government, non-governmental organizations, and private firms have put many resources into recognizing the organoleptic qualities of *Nacional* at the regional level. This push is aimed at developing high value niche markets that focus on the specific regional attributes of Ecuadorian *Nacional* (fruit, floral, etc.) cacao. While there are examples of successfully marketing such a product, the market is extremely small and the prices commanded at the retail level do not offer the opportunity for premiums that can overcome the relatively low production currently experienced in the traditional *Nacional* production system. At a more global scale, *Nacional* is the source of ‘fine and flavor’ cacao from Ecuador. Based on our secondary data analysis, Ecuador is positioned to be one of the leading purveyors of this differentiated cacao, but the production share of *Nacional* continues to decline. At this moment in Ecuador, based on official export

data, the share of *Nacional* is roughly 27% of exports – a complete reversal from the ICCO’s ‘fine and flavor’ benchmark of 75% ‘fine and flavor’ for Ecuador. Through the efforts of several Ecuadorian firms, processors, and chocolate manufacturers, market penetration for *Nacional* continues to occur as does investigation into find new and securing known flavor profiles.

Overall Quality

The quality measurements that show up in official export data for Ecuador are assigned much later in the supply chain, when the trader is planning on exporting. Traders will sample and sort their lots of beans and then sell based on the quality standards being met (see below). CCN51 beans are prized by processors for their relative size. Larger beans have more cacao butter based on weight and *Nacional* beans are sought after for their organoleptic qualities.

Export data that was shared with us (from MAGAP) suggests that at least 34% of all exports are comprised of CCN51. This runs counter to the ICCO rule of thumb that 25% is not considered to be ‘fine and flavor’. Additionally, the data suggests that, between January 2012 and September 2015, 72% of cacao exports were considered ‘conventional’ and the remainder met the A.S.S.S. or A.S.S. qualifications, quality standards that are based on bean weights that correlate to % fermentation. The higher the grade (A.S.S.S.), the higher percentage of beans that have been fermented (a cut test to determine if there were 75% well fermented) and heavier weight (130-135 grams per 100 beans). During this time, the overall difference between the unit value of conventional and the A.S.S.S. or A.S.S. designated cacao was approximately \$85.

Based on 100 beans, from highest quality to lowest quality for *Nacional* beans:

A.S.S.S	130 - 135 grams	75% fermentation
A.S.S	120-125 grams	65% fermentation
A.S.N	110-115 grams	54% fermentation
A.S.E	105 - 110 grams	53% fermentation
CCN51	135 - 140 grams	76% fermentation

The buyer (for example ECOM or a farmer cooperative or producer association) sample the beans and "assume" the cost of sorting to achieve the desired grade. This is



one of the reasons why beans are being purchased *en baba* and the processing is done by several middlemen or some cooperatives. The majority of farmers do not know about the quality standards (based only on weight and fermentation percentages), unless they receive a quality based payment. This practice is being reduced at most collection centers because a large percentage of buyers are purchasing *en baba* or paying the same price for all dried beans, regardless of whether they are well fermented or are CCN51 or a different variety.

There is little consistency and only physical quality measures are taken (to whether the beans have been well fermented and dried based on physical characteristics) when purchased. At this time, the market is not concerned about where the beans are coming from or what variety. The only time that a differentiation is made between *Nacional* and CCN51 is when the beans are sold through a producer association and few farmers are members of a producer association or cooperative.

Government Support

CCN51 – Publicly funded research on CCN51 is essentially focused on using its genome to introduce positive attributes to new *Nacional* clones. Additional government support has been lent through research collaboration on fermentation methods.

Nacional – The Ecuadoran government has taken a particular interest in supporting the cacao sector. A governmental program for improving productivity of the *Nacional* variety, *Minga de Cacao*, was initiated to increase technical assistance for cacao producers, predominantly pruning cacao trees to increase yields. There is hope that the next governmental program will focus on post-harvest and quality as well as grinding potential in the country, currently they are only able to grind 2% of the production. At the experiment station level, research is being conducted on disease resistance and treatment, sustainable production systems, developing new cultivars and quality control. At the university level, some of the cutting-edge research on cadmium in cacao is being conducted.

One issue that requires more attention is that collection and use of fees that were previously used by the Asociacion Nacional de Exportadores de Cacao (ANECACAO) are now a domain of MAGAP. The ‘best use’ of these resources should be examined and priorities set based on potential and actual impacts on the sector.

International Community Support

CCN51 – The international community has not been particularly interested in CCN51, despite its production potential. Though it was developed in Ecuador, CCN51 does not appear to fit the non-governmental organization narrative as it is typically not grown in extensive agroforestry systems but rather in intensive monoculture system that can be scaled up well beyond the smallholder household (typically the focal point of international efforts).

Nacional – Virtually all current efforts funded by the international community are focused on positioning *Nacional* farmers to supply niche markets. This includes exercises that effectively shorten the supply chain, in an effort to increase margins for cacao farmers, and expand opportunities for farmers beyond simply selling their output to potentially unscrupulous intermediaries. Farmer groups are a key institutional ingredient for these efforts. As mentioned previously, the vast majority of Ecuadorian cacao farmers are not organized into farmer groups, and those that are oftentimes need additional capacity building. Lastly, most of the internationally funded efforts rely on certification in order to further differentiate the product. To that end, sourcing *Nacional* beans is a necessary but not sufficient condition.

Private Sector Support

CCN51 – Support for CCN51 is almost exclusively the domain of the private sector. We met with CCN51 ‘advocates’ from the production, processing, and export sectors. These entities are leading efforts to continue to refine the fermentation regime and production systems, including the scaling up to commercial, large-scale systems. The private sector is also actively working towards increasing market penetration for CCN51 and advocating for CCN51 amongst downstream actors. With so much effort being expended by governmental and non-governmental organizations focused on promoting *Nacional*, the private sector is recognizing that CCN51 requires similar efforts. Several of the interviewees discussed the income potential for smallholder farmers that are converting, or should be converting to CCN51. They would like the conversation amongst all of the actors to focus on the economic outcomes at the farm household level given the prevailing agronomic conditions in Ecuador.

Nacional – Private sector support for *Nacional* appears to originate from the downstream actors, especially processors and chocolate manufacturers. In contrast, the export sector is less divided by cacao variety and more focused on the local versus international exporter divide.



The Mars Company recently purchased a farm in Ecuador and is working to improve efficiency, including determine better ways to shape trees to use an automatic picker, and improving cacao farming systems to ensure a supply of cacao to their factories. This could be thought of as a risk management strategy that combines large-scale production with intensive research that can be disseminated to smallholders as well as large-scale plantations.

Cacao Processing and Chocolate Manufacturing

The processing and chocolate manufacturing industries in Ecuador continue to evolve. Firms like Cofina, process Ecuadorian cacao to meet demand for butter, powder and paste in Ecuador and beyond its borders. Other firms, such as Universal Sweet Industries (Chocolates la Universal), seek 'bulk' cacao to process for their needs. While other firms intensively seek out specialized batches of cacao for specific products.

As mentioned previously, some private firms and the government of Ecuador have truly taken on the idea of embracing regional diversity. Ecuadorian Bean to Bar companies (Pacari, Republica de Cacao, etc.) have seen the need to identify, highlight, and market the regional differences in cacao to satisfy a growing, albeit relatively small, consumer demand. Where price differentials are paid for those varieties, producers are able to continue to preserve these varieties, but the actual metric tons that are needed for these markets is extremely small (impacting hundreds, not thousands of producers) and it is highly unlikely this niche will grow sufficiently to become significant in the global export market in the future.

Cacao Exports

The Ecuadorian export sector has been in significant flux over the past few years. Traditionally, ANECACAO, the exporter association, was primarily made up of members that were Ecuadorian. The introduction of ECOM and OLAM, along with the bankruptcy of Transmar, has significantly impacted the export sector.

Both ECOM and OLAM are large trading houses that export cacao from all over the globe. Both have a relatively large presence in Ecuador. Both are exporting certified and bulk cacao. ECOM has reached into the cacao growing regions relatively further than OLAM. Both rely primarily on intermediaries to secure cacao supplies.

While the two major international exporters have secured market share, there are still many Ecuadorian exporters, many of which are extremely small. Based on data shared with us upon our return, it appears that the top five exporters had roughly 40% of the market, leaving 60% to be shared amongst nearly sixty other entities between 2012 and September 2015. Based on our interviews, this has potentially tightened a bit with Transmar's departure from the market and OLAM and ECON are expanding their reach.

Seemingly, because of the issue of inconsistent fermentation in CCN51 and the negative image the variety has in the region, Ecuador has seen a reduction in the amount of cacao that is classified and exported as 'fine and flavor'. Among our research team, there is real concern that the 'fine and flavor' percentages for each country is a political issue and not so much an actual objective criterion based system. We heard the opposite sentiment from government officials in Ecuador. They are committed to carrying the mantle of *Nacional* and, by association, 'fine and flavor'. However, even if Ecuador could reverse the trend and claim 100% of all cacao exported is 'fine and flavor', it is unclear (unlikely) that the market is available to absorb the additional output at premium prices.

Farmgate Price

At this point in time, Ecuadorian cacao beans purchased at the farmgate are a reflection of what the farmer has planted; a mixture of CCN51 and *Nacional* or plantings of one or the other. We were told that when cacao is purchased from the farmers, over 90% of the time farmers are not compensated for high quality or 'fine and flavor' beans. Farmers are simply paid based on how much the cacao weighs and the form that it is sold in (dried and fermented or *en baba*). There is little to no selection process that occurs at the time of sale. A price is set for dried beans in those areas that do not have the capacity to collectively ferment and dry or a separate price is set for *en baba*, wet beans that have not been fermented or dried. Subsequent to our return, one of our local contacts shared market transaction data that differentiates between province, district and form (dried/fermented or *baba*). The basic conclusions were:

- 'Fine and flavor' receives a higher price than CCN51 (3% to 5%) when sold dried.
- 'Fine and flavor' receives a lower price than CCN51 when sold wet or *en baba*.
- The 3% to 5% price difference cannot compete with the returns associated with higher yields (+/- 20%) from CCN51, net gain seems higher from CCN51 (considering same planting density).



The other striking difference with other cacao producing areas in the world is the purchasing of *en baba* (wet cacao beans) to better control the quality and consistency of cacao being sold. Farmers who are members of associations that sell certified beans (UTZ, organic, Fair Trade, Rainforest Alliance), bring their wet cacao beans to a centralized fermentation and drying facility. The price that they receive would be less than what they would normally receive if they held on to the beans and did the processes themselves, but because the beans are certified, they are able to get a higher price. These beans are normally only for *Nacional* varieties but because of the fermentation issues with CCN51, this process is becoming more prevalent with those beans as well (Cofina discussed this at length as well as with Eduardo Marquez de la Plata and Vincent Zeller).

Premiums were only mentioned in the context of specific certifications (UTZ, organic, etc.) and for overall quality (for output from a large CCN51 plantation that has sorting capacity and relatively large volumes). Additionally, there appears to be some benefit accruing to farmer organizations, and potentially to their members, through arrangements with private firms that provide some services (technical assistance, inputs, forward contracting, etc.). There has been an increased level of regionalization in terms of markets, flavor profiles, and other factors fostered by government-led research and marketing.

In many ways, the country is well positioned to increase price premiums due to consistency, quality, and quantity because they have been able to produce large quantities that lead to more companies contracting cacao purchases in the country. However, at this point in time most of the increased prices being attributed to quality are due to certification programs, such as Free Trade, UTZ, organic, or Rainforest Alliance. These markets are incredibly small, even if they are growing, and still impact hundreds and not thousands of cacao producers in the region.

In any case, we uncovered no evidence of farmers receiving premiums for their cacao based on the quality designation that was ultimately received at the port, nor was there evidence that their cacao was being discounted solely because it was from the CCN51 variety.

Conclusion

Because of the yield differentials but no price differentials, there seems to be an ongoing war that has pitted the *Nacional* varieties against CCN51. People across the country line up on one side or the other. The issue is that both can be important tools for development strategies in the country. What needs to occur is some real technical assistance for producers to either ferment CCN51 well or bring the beans to fermentation and drying stations where trained people can take on the task of ensuring the quality of the beans. Leaving the system the way it is, or continuing the war, will not help the country to move beyond the problems. CCN51 is not going away, the productivity of the variety and the fact that it has been in production for decades and all over the country, makes it the choice for many producers. The new higher yielding *Nacional* hybrids (some even crossed with CCN51) need to be tested over a longer period of time and in different ecological zones and nursery programs need to be scaled up to be able to meet the demands and needs of the producers.

In this vein, there is some interest with regionalization and diversification to maintain genetic pools throughout the country for disease resistance, pest issues, or flavor profiles. This makes sense, but this should be the responsibility of the government or chocolate corporations since the farmers are not compensated for the reduced yields. In other words, the current yields of *arriba* systems are so low that any existing premiums do not come close to making up the difference in revenue relative to farmers who are farming in higher yielding systems (ie. CCN51). We do not expect corn producers in the USA to give up their hybrid corn varieties to maintain genetic diversity in the fields. We expect that to happen at research institutions and through funding from the corn industry.

Most Ecuadorian cacao is sold for mass market chocolate and some large corporations, who hold most of the market share, will pay market price or a little amount more (\$100 – 300 MT) for certification, quality or a special story. All of our conversations in Ecuador and Colombia have led us to believe that this market is small and growing but could not absorb the thousands of MT needed to raise thousands of cacao producer's incomes through stable price premiums. Given this situation, along with the tangible yield differences, it is not clear if simply embracing regional diversity can raise farm income at the same magnitude or rate as using high yielding varieties, irrespective of their flavor profile.



Agenda Quito and Guayaquil, Ecuador • February 12 - 18, 2017

MONDAY, FEBRUARY 13

9:00 AM: Meeting with US Ambassador Todd Chapman, FAS Ag Attaché Kirsten Luxbacher, FAS Ag Specialist Henry Vega, US Embassy, Avigiras E12-170 y Ave Eloy Alfaro

10:30 AM: Jorge Gaibor and Marco Fernando Guilcapi, (MAGAP - Gerente de Proyectos de Reactivacion de Cacao y Café), Avenida Eloy Alfaro y Amazonas, 13° Piso, Edificio MAGAP, Centro de Quito

1:30 PM: Leonor Zambrano, La Gran Minga de Cacao Nacional, Hernando de la Cruz, N32-153 y Av. Atahualpa, Quito (<http://www.mingadelcacao.com>)

3:00 PM: Jose Luis Zambrano, INIAP, Avenida Eloy Alfaro y Amazonas, 4^{to} Piso, Edificio MAGAP, Centro de Quito

4:30 PM: Juan Rodriguez, Programa ProCambio, Pedro Ramírez, Programa Amazonia Norte, GIZ, 2^{do} Piso, Edificio MAGAP, Centro de Quito

TUESDAY, FEBRUARY 14

9:00 AM: Regula Chavez, Swiss Contact, Av. Orellana E11-14 y Coruña, Edificio M. Gabriela, 5° piso, Quito

10:30 AM: Gabriela Paredes, Project Management, Pacari, Julio Zaldumbide N24-676 y Miravalle, La Floresta

1:30 PM: Thomas Hollywood, Alex Moncada, Jairo Andrade, Catholic Relief Services, De los Naranjos N44-491 y Las Azucenas, Quito

4:00 PM: Gonzalo José Chiriboga, Republica de Cacao, Ave. Colón E8-85 y Yanez Pinzon

Edificio El Dorado, Piso 3, Quito

WEDNESDAY, FEBRUARY 15

8:30 AM Juan Pablo Zuñiga and Merlyn Casanova, ANECACAO, Asociacion Nacional de Exportadores de Cacao, Avenida Miguel H. Alcivar, Edificio Torres del Norte, Torre B, Local 6

10:00 AM: Lina Marcela Naranjo, Chocolates La Universal, Eloy Alfaro 1103 y Gomez Rendon,

Guayaquil

11:30 AM: Luis Valverde, Vice Minister of Agriculture for Ecuador and Patricia Fietz, Consul General, US Consulate, Av Rodriguez Bonin, Guayaquil

12:30 PM: Lunch and Meeting with Roberto Granja, Jose Carbo, OLAM, Vignesh Thirukonda, OLAM and Aldo Zolezzi, Barry Callebaut at Lo Nuestro, Victor Emilio Estrada 903, Guayaquil

3:30 PM: Renato Proaño, Coordinator of Sustainable Development, and Ricardo Zambrano, Vice President of Cofina, Km 11 ½ via Durán Tambo (300 metros despues del peaje)

6:30 PM: Dinner with Kate Cavallin, Randall Camacho, Pam Schreier, Patricio Espinoza ECOM, Hector Ballesteros, Andino Veco Km. 4.5 Via Duran Yaguachi

THURSDAY, FEBRUARY 16

9:30 AM: Danilo Vera, Rey Gastón and Juan Jimenéz, Programa de Cacao, INIAP, Km 5 de la vía Quevedo - El Empalme

1:00 PM: Producer associations (Ricardo Alvarez from INIAP is setting up)

4:00 PM: Intermediaries or Points of Sale (Ricardo Alvarez from INIAP is setting up)

FRIDAY, FEBRUARY 17

8:00 AM: Dr. Paola Calle Delgado, Deputy Dean of the Faculty of Life Sciences, Ramon Espinel, Dean of the Faculty of Life Sciences, ESPOL, Kilómetro 30.5 Vía Perimetral, Campus Gustavo Galindo - Prosperina. Facultad Ciencias de la Vida

11:30 AM: Sergio Cedeño Amador, Farm Administrator, Hacienda Cañas, Naranjal

2:30 PM: Lorena Vera, Administrator for producer organization, APROCAFA

6:00 PM: Dinner with Eduardo Marquez de la Plata and Vincent Zeller, Brokers and Exporters, Hilton Hotel in Guayaquil Centro



Appendix H. Enterprise Budget Tables

SUMMARY OF COCOA BUDGET - 10 YEARS

(in US\$)

Productive system from...	Process (planting for first time or rehabilitation)	Initial investment	Yield - kg/ha (10 year avg)	Incomes									Complementary questions		
				Income/ ha/ month	Average ha in each region	Total Income	total # of days (10 years)	Labor cost/day	Income/ labor at farm/ Month/ha	Total Income by labour	Required external workers	Total income (Labour + Cocoa/ musacea)	Do you receive additional income from intercropping?	Do you consume the crops you grow at your farm?	How many crops do you have on your farm?
Norte del Cauca*	To rehabilitate	\$ 1,942.74	352.5	\$ 28.64	1.5	\$ 42.95	316	\$ 8.62	\$ 22.70	\$ 34.05	No	\$ 77.00	Yes	Yes	>12
Guarda Bosques de la Sierra	First planted	\$ 1,238.28	286	\$ 16.54	2	\$ 33.07	414	\$ 10.34	\$ 35.69	\$ 71.38	No	\$ 104.45	No	No	2
San Vicente	First planted	\$ 1,740.00	324	\$ 0.33	7	\$ 2.31	384	\$ 12.07	\$ 38.62	\$ 270.34	Yes	\$ 272.65	Yes	No	2
Tecnificado	First planted	\$ 3,932.79	1120	\$ 45.12	5	\$ 225.58	847	\$ 12.07	\$ 85.19	\$ 425.93	Yes	\$ 651.51	No	No	1

TRM: US\$ 1 = COP\$ 2,900

* 600 trees

Activity	Unit	Cost	Year1		Year2	
		Unit	#	Cost	#	Cost
Direct costs		COP\$		COP\$		COP\$
Soil analysis			NA			
Soils preparation						
Trees clearance	Daily	60000	7	\$420,000	-	
Prepare soil	Daily	30000	8	\$240,000	-	
Layout	Daily	30000	4	\$120,000	-	
Dig holes	Daily	30000	8	\$240,000	-	
Shade Establishment						
Prepare, plant banana	Daily	30000	6	\$180,000	-	
Sowing of timber trees	Daily	30000	NA	\$-	-	
Cacao Establishment						
Cacao hybrid plant	Plant	600	800	\$480,000	70.00	\$42,000
Banana seed	Root	1000	400	\$400,000	-	
Timber trees	Plant	NA	NA		-	
Plant cacao	Daily	30000	5	\$150,000	1.00	\$30,000
Fertilization						
Sowing						
Organic fertilizer	Kg.		NA		-	
Chemical fertilizer (10 - 30 - 10)	Kg.		NA		-	
Crop			NA			

Urea	Bag	70000	NA		1.00	\$70,000
Triple Phosphate	Kg.		NA		-	
Potassium	Kg.		NA		-	
Application of fertilizer	Daily	35000	NA			
Weed control						
Herbicide glyphosate	Gal.	55000	1	\$55,000	-	
Apply herbicide	Daily	30000	3	\$90,000	-	
Weeding	Daily	30000	24	\$720,000	24.00	\$720,000
Phytosanitary Control						
Copper oxychloride 50 PM	Kg.		NA		-	
Clorotalonil	Kg.		NA		-	
Lime	Kg.		NA		-	
Fixative	Lt.		NA		-	
Apply Fungicide	Daily		NA		-	
Shade						
Pruning of shade trees	Daily		NA		-	
Management of banana crop	Daily	30000	0	\$-	2.00	\$60,000
Pruning						
First pruning	Daily	30000	NA		-	
Second pruning	Daily	30000				
Phytosanitary pruning	Daily		NA		-	
Harvest & post-harvest						
Banana	Daily	30000	NA		2.00	\$60,000
Cacao	Daily	30000	NA		-	
Subtotal direct costs				\$3,095,000	-	\$982,000
Indirect costs						
Equipment and tools						
Motorized irrigation	Unit		NA	\$-	-	
Manual irrigation	Unit	240000	1	\$240,000		
Small chainsaw	Unit		NA	\$-		
Pruner	Unit	45000	NA	\$-		
Pruning shears	Unit	65000		\$-		
Weed trimmer	Unit	1200000	0	\$-		
Blades for weed trimmer	Unit	4000	0	\$-	-	\$-
Machete	Unit	12000	3	\$36,000		
Bucket	Unit	15000	NA	\$-		
Vine basket	Unit	60000	NA	\$-		
Bag	Unit	3000	NA	\$-		
Fuel	Gal.	7500	0	\$-	-	\$-



Oil	1/4 Gal.	14000	0	\$-	-	\$-
Maintenance and spare parts	Daily	25000		\$-	-	\$-
Transport						
Banana	Unit	120	200	\$24,000	-	
Cacao		120	800	\$96,000	-	
Dried cacao	Trip	10000				
Rent land/farm (annual tax)	Ha	100000	1	\$100,000	1.00	\$100,000
Subtotal Indirect costs			1005	\$496,000	1	\$100,000
Total costs				\$3,591,000	1.00	\$1,082,000
Incomes						
Plantain	Kg.	800			3500	\$2,800,000
Cacao	Kg.	6500				0
Total Incomes				\$-		\$2,800,000
Income – Total Costs				\$(3,591,000.0)		\$1,718,000
Profitability						\$(1,873,000)

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