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Market study of fine flavour cocoa in 11 selected countries – revised version

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Pre – read of revised version

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The *'market study of fine flavour cocoa'* was published in June 2013, commissioned by the Royal Tropical Institute (KIT) in collaboration with the Russian trading company Inforum. However, important comments were made after publishing that are worth being mentioned in the report. Therefore, this revised version has been written which is published in October 2013. Although this version can be considered as final, there is still a lot to learn about this topic. For KIT it is journey that we have just started. The fine flavour cocoa (FFC) market is a relatively new area of interest. The cocoa sector is in need of clear and accurate information about FFC since there is a lot of confusion about numerous aspects of FFC, as was learned during this research. However, it turned out to be quite difficult to get access to accurate information and consensus is lacking about definitions and numbers.

The *'market study of fine flavour cocoa'* was conducted as a quick market scan, carried out in the short period of 5 weeks. The countries were chosen by the client (Inforum), and do not represent the fine flavour cocoa sector. (Joint) work is still on going to understand the FFC sector better. In the coming months, KIT will conduct new research regarding fine flavour chocolate and sustainability.

Overview of the main revisions

Revisions in general

- The use and definition of *Theobroma cacao L*, regarding its genetic clusters has been adjusted. The 'old version' (June 2013) of the study used the subdivision of Criollo, Forastero and Trinitario to define the variety of cocoa. However, more recent studies (e.g. Motamayor et al. 2008) have differentiated 10 genetic clusters (and more), making the discussion about the variety of FFC a more complex matter. The revised version has acknowledge this discussion.
- Pricing was greatly missed in the 'old version'. However, it should be kept in mind that this was a quick market scan. Pricing is therefore mentioned at the reflections.
- The countries are not ordered form high to low potential, as was the case in the 'old version'

Revisions per country

- Peru was said to have the Criollo variety to produce FFC in the 'old version'. However, after receiving some comments on this, it was concluded that the term Criollo is used not only as DNA variety but also as marketing term to indicate 'local' cocoa. This caused a lot of confusion which is indicated in the revised version. Also, the use of CCN-51 cocoa in Peru has been taken into account in the revised version.
- Ecuador has been complemented with more information, and some errors have been removed. For example, Original Beans is not an Ecuadorian company, which was wrongly stated in the old version.

- Dominican Republic: this section has been complemented with more information. For example, Valrhona and Felchlin are mentioned as companies using cocoa from the Dominican Republic.
- Venezuela: Chuao was mentioned as a variety of cocoa. This has been corrected: it is a region which produces many varieties of cocoa, including Criollo. Also, more information about the (political) situation in Venezuela was added.

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First off all, this research could not have been possible made without the help of Anna Laven, senior advisor at KIT, who has helped me throughout the entire project.

Furthermore I would like to mention Erik Sauer, 'the Chocolate man' and founder of El Sauco. Thanks to an interview with him, I have been able to use general knowledge on fine flavour cocoa through the entire study.

Many thanks also to Pro Ecuador, especially to Bernarda Perez, who has helped me a great deal by translating Spanish texts and providing information on fine flavour cocoa in Ecuador.

Moreover, Moises Gomez from the ICCO has been very helpful, as well as Mr. Pierre Etoa from the Office National du Cacao et du Café (Cameroon), Mr. Soetano from the Cocoa Board of Indonesia, Bo van Elzakker from Agroeco - Louis Bulk Institute and Jamie Freire from Papacacao, all providing helpful information on specific countries.

I would also like to thanks all people that have helped me with the revised version, giving comments on the first report (see *pre read).*

Executive summary

This research was conducted to produce a mapping of the fine flavour cocoa (FFC) market for 11 countries of interest[1] in Latin – America, Asia and Africa, and to define the potential of fine flavour cocoa for these countries. The research focussed on the varieties of fine flavour cocoa, the fine flavour cocoa value chain, the regulatory environment in the various countries and quality assurance of fine flavour cocoa. See Table 1 for an overview of the fine flavour cocoa status for each country.

In general, it can be concluded that investing in the fine flavour cocoa sector in Latin – America is the quickest and safest option, since one can build on an already existing market structure. However, the risk of saturation of the fine flavour cocoa market should be considered when getting involved in this FFC - market. West – Africa is an interesting region for companies that are looking for long term commitment and a more entrepreneurial approach. Especially companies already sourcing cocoa in this region can explore new opportunities. For Asia, it is not possible to draw conclusions based on only two countries. Papua New Guinea however was an interesting case study, since it is likely that the existing FFC market will continue to grow since the cocoa industry is expanding to new areas and research is conducted on the potential of manufacturing chocolate. Asian cocoa countries could have a lack of knowledge and government focus because it has no national cocoa culture, as Latin – American countries have, but there is no problem with saturation of the market, as could be the case in Latin – America.

Considering the time available, this study should be regarded as a quick market scan for 11 countries. A more in-depth market study will be necessary to give a more detailed recommendation on fine flavour cocoa investments for a particular country. For example, pricing, quality and volumes should be extensively studied. Also, linkages can be made with other niche markets, for example the organic niche market and other markets for sustainable cocoa.

[1] (provided by the client: Inforum)

Country	Score potential	ICCO recommendation[2]	Fine flavour cocoa status
Latin – America			
Ecuador	+	75%	Ecuador has the 'Nacional' or 'Arriba' cocoa variety, numerous (FFC) bean to bar projects and is the biggest exporter of FFC (65% of the world). Governance has a focus on FFC, through e.g. numerous associations. A threat is the mixing with the high yield CCN-51 variety.
Peru	+	90%	Peru has high yields, various varieties, a good quality control and numerous bean to bar initiatives; opportunities exist to improve quality and increase quantity of FFC production. But there is also a lot of confusion about the used terminology of Criollo in Peru.
Colombia	+	100%	Colombia has a strong FFC market, and is busy promoting it; it has numerous incentives for the development of the sector; threats are mixing of cocoa beans.
Dominican Republic	+	40%	The DR is mostly focussing on organic cocoa, but this can be connected with FFC production, since in some cases Criollo and Trinitario varieties are used, creating opportunities.
Mexico	±	100%	Mexico struggled with a decline of quality in the last decade but is now making a comeback and is rewarded by the ICCO with a 100% export recommendation.
Venezuela	±	95%	Venezuela has a FFC market with numerous varieties, cocoa as national product and premium pricing. But problems with political situation and governance; however investments are being made
Asia			
Papua New Guinea	+	90%	PNG has a FFC market, overall small but 9% of the world market; incentives to develop the cocoa market
Java	±	1%	Java has a FFC market, however government based and problem with diseases (1% of total Indonesia); no incentives to increase quality/quantity of FFC market
Africa			
Cameroon	+	x	Has no FFC market, but is now working on developing the FFC production and is trying to increase quality for bulk
Togo	-	x	Has no fine flavour cocoa market; organic niche market
Uganda	-	x	Has no fine flavour cocoa market; organic niche market

Table 1 Summary fine flavour cocoa status 11 countries

[2] From the recommendations of the 2012 Ad Hoc Panel on Fine Flavour Cocoa of the International Cocoa Organization – Annex C of the International Cocoa Agreement (2001)

Content

Research [3]

This research gives a mapping of the fine flavour cocoa market for 11 countries of interest (selected by the client: Inforum[4]) and identifies the main fine flavour cocoa market players in these countries. The research focusses on the varieties of fine flavour cocoa, the fine flavour cocoa value chain and regulatory environment in the various countries and the quality assurance of fine flavour cocoa.

Method

This research is carried out as a desktop study, to gain information about the various countries and their fine flavour cocoa market. Information is gathered from online information (internet) and interviews with players through the whole supply chain by email, skype- and telephone calls.

The scope of the study will be a surface scan of the market (data of key players) for *low potential fine flavour countries* and a somewhat deeper analysis of the market structure for *high potential fine flavour countries.* The potential will be analysed by means of 17 variables, summarized in a table for each country (see Table 2 for the general variables and starting points).

The 11 countries will be discussed per region: Latin – America, Asia and Africa

Research questions

- Mapping of the market and categorizing fine flavour cocoa per country looking at:
    - What are the main varieties of fine flavour cocoa and what is their yield?
    - How is the supply chain for fine flavour cocoa organized? Looking at producers, processers, manufacturers, market organization and traders/exporters, for each country.
    - What is the regulatory environment in which the fine flavour cocoa sector is set? What are export regulations and taxes/duties for cocoa beans and cocoa products?
    - What are the barriers and opportunities for the development of the fine flavour sector per country?
    - Quality assurance: which systems of quality assurance are used in the field of FFC and single origin per country?

[3] See annex 2: draft outline fine flavour cocoa

[4] This research is carried out for the Russian company Inforum in co-operation with the Royal Tropical Institute (the Netherlands). The selected 11 countries are not the only countries of interest for this subject, but were chosen by the client Inforum. Other countries of interest might be Grenada, Madagascar, Bolivia and more countries recognized by the panel of the International Cocoa Organization as fine flavour cocoa exporting countries.

Selected countries per region

South America	**Asia**	**Africa**
Ecuador	Indonesia – Java	Cameroon
Peru	Papua New Guinea	Togo
Colombia		Uganda
Dominican Republic		
Mexico		
Venezuela		

Output

The output of this research is a mapping of a part of the fine flavour market looking at varieties, market structure, the supply chain, information on quality assurance, the barriers and opportunities and the regulatory environment per country. Also, a categorizing (organization, quality, scale etc.) of the fine flavour market will be given[5]. This report can also be seen as a start up for a research of KIT to link sustainability with the fine flavour cocoa market.

[5] See annex 3 for the categorization

Definition (fine flavour) cocoa

Recent research on genetic clusters of the *Theobroma cacao L.* has identified more than 10 genetic clusters of cocoa, as opposed to the two genetic groups traditionally recognized, the Criollo and Forastero. For example, Motamayor et al. (2008) presented a new classification of the cocoa germplasm with 10 genetic clusters[6]. But further research is still being done and it is likely that further groups, or sub-groups, will be defined as further information on the genetic structure of wild populations becomes available (*personal communication with Michelle End, Cocoa Research Association Ltd*.).

This raises the question which new genetic varieties can be seen as fine flavour cocoa. According to the International Cocoa Organization (ICCO), there is no universally-accepted criterion that could be used to determine whether or not cocoa can be classified as fine flavour cocoa. Relevant criteria could include the genetic origin of planting material, morphological characteristics of the plant, flavour characteristics of cocoa beans produced, chemical characteristics of cocoa beans, colour of the cocoa beans and nibs, degree of fermentation, drying, acidity and off-flavours[7]. But it was generally said that fine flavour cocoa was produced from the 'Criollo' or 'Trinitario' variety, while bulk cocoa was produced from the 'Forastero' trees. The main exception was the 'Nacional' variety from Ecuador, which is a kind of Forastero, but produces fine flavour cocoa with the right post harvesting techniques[8].

However, it is not so straightforward to link the new genetic groups with fine flavour cocoa varieties. Currently, the Cocoa Research Centre is working on a new project *(RDI Flavour and Quality Research)* where one of the aims is to look at the flavour attributes of cocoa clones from the 10 genetic groups presented by Motamayor et al. The project is still in its early stages and the first year flavour assessments are not completed yet. Until those results are obtained, evidence on flavour attributes from the clusters can only be circumstantial (*personal communication with Professor Path Umaharan, director of the Cocoa Research Centre*).

Another noticeable fact is that 'Criollo' cocoa is not only used to describe the variety of cocoa, but it is also a meaning for 'local' or 'native' cocoa, used in a variety of circumstances to distinguish the cocoa types that exist in a given geographical location from the varieties that have been introduced from other regions (*personal communication with Martin Christy, founder seventy%).* This can lead to a lot of confusion and inaccurate information in the cocoa sector.

[6] Motamayor et al. (2008) *Geographic and Genetic Population Differentiation ofthe Amazonian Chocolate Tree (Theobroma cacao L)*

[7] Source: http://www.icco.org/about-us/international-cocoa-agreements/doc_download/198-the-difference-between-fine-and-bulk-cocoa.html

[8] http://www.icco.org/faq/53-cocoa-beans/116-fine-or-flavour-cocoa.html

Since there is no official (genetic) definition of fine flavour cocoa, the description of fine flavour cocoa used in this research will be: *"Criollo, Trinitario and Nacional varieties can be classified as fine flavour cocoa, but additional work is being done. The combination of genetics, cultivation environmental conditions and post-harvest and processing techniques makes high quality chocolate/fine flavour products"*[9].

Fine flavour cocoa production

The market share of 'fine or flavour' cocoa is rather modest at the moment, around 5 to 7% of the total cocoa production. But it is increasing steadily with more and more fine flavour incentives and consumers shifting their focus from cheap commodities to quality products. A special fine flavour panel of the ICCO recognized 17 countries as fine flavour producers[10] in 2010, written down in the Annex C of the International Cocoa Agreement (of the ICCO). Of these, eight are classified as exclusive fine flavour cocoa producers: Bolivia, Costa Rica, Dominica, Grenada, Jamaica, Madagascar, Mexico, Saint Lucia and Trinidad and Tobago. Colombia, Venezuela, Peru and Papua New Guinea are exporting about 90% of their cocoa production as fine flavour, according to the ICCO panel in 2010.

Most of the fine flavour producing countries are located in South – America, in contrast with bulk cocoa, which comes mainly from (West -) Africa. Another difference with bulk cocoa, is the fine flavour value chain. Most often, the fine flavour cocoa seems to have a short and transparent supply chain. The farmers produce and process the cocoa themselves and sell their cocoa to traders interested in this quality cocoa and therefore receive a premium price, instead of selling it on the market for a regular price[11]. Or in some cases, there is only one company in the entire production- and manufacturing process, this is called 'bean to bar' chocolate. Most fine flavour cocoa is also linked with 'single origin' cocoa, meaning that the cocoa beans (or chocolate) are originating from the same country, region or even farm.

An interesting case is the link between the fine flavour cocoa niche market and sustainability. There are numerous initiatives internationally to increase the share of cocoa produced in a sustainable way. The most common way to guarantee sustainable cocoa nowadays is by using certifications. UTZ certified, Fair Trade, EKO organic and Rainforest Alliance are certification schemes that all focus on a particular aspect of sustainability. Especially organic cocoa will be mentioned in this research, since it is often found in combination with fine flavour cocoa (for example in the Dominican Republic), creating opportunities for the fine flavour market. The fine flavour niche market is said to have aspects that are characteristic for a sustainable cocoa production, without having a certification. This interesting subject will be mentioned in this research, but will not be elaborated, since a more extensive study is necessary on this topic[12].

[9] This will be elaborated in a follow up study carried out by KIT, linking fine flavour chocolate with sustainability.
[10] This ICCO report gave recommendations about the share of FFC export of the producing countries. In this report the 'ICCO recommendations' are used as measure of the FFC market
[11] Donovan. Diversification in international cacao markets (2006)
[12] This will be elaborated in a follow up study carried out by KIT, linking fine flavour chocolate with sustainability.

Definition high/low FFC potential

Determining the potential of fine flavour cocoa for a particular country or region is a complex exercise. The potential depends on a number of variables, such as variety of cocoa, yield etc. Moreover, it requires a supporting enabling environment and incentives in the chain to invest in this specialty cocoa. To define the potential a number of variables are used which were gathered during this study, and which are known to have a big influence on 'potential'[13]:

- The variety of trees, and therefore cocoa beans, is of significant value for the quality. The various varieties have different characteristics including yield, taste, colour, etc. **To estimate the potential, we will look at the variety in use, yield, age, disease resistance and the level of mixing of varieties** (which can be of influence on the overall quality). Taste and colour will not be included, since these variables are too divers in each country. To elaborate on the used variety: we will look at both the percentage of fine flavour cocoa of total export share per country (as recommended by the ICCO panel) and the type of (genetic) cocoa that is used for the production.
- For quality, two other factors play a significant role, besides variety: **the production of the cocoa and post-harvest management.** If these two are well performed, the potential will be high. **Quality control and quality status** (the already existing quality of the cocoa beans) of fine flavour cocoa in a country are also considered. **Mixing** with bulk cocoa during or after production/processing is also happening in some countries, which can influence the potential in a negative way. **Inputs and knowledge** are also of influence on the potential: if farmers have a lot of knowledge about fine flavour cocoa production (i.e. history, processing etc.) and if they have the right inputs (variety, fertilizer, soil etc.), the potential will be high.
- An integrated production system, access to market/finance and processing on/off farm are all factors influencing the cocoa and its quality. For potential, we will look at this '**enabling environment**' (including the mentioned factors etc.) that is present in the cocoa chain.
- The **regulatory environment and governance** also influence the cocoa production in its entire supply chain. For potential, we will look at the rules and regulations, tax and export duties, and the governance of the chain in itself in the specific countries.
- The value chain is often a complex combination of **market players, the market organization and involved institutes**. If there are numerous institutes, organizations or associations revolving around fine flavour cocoa, the potential will be scored high. The **level of farmer organizations, and the level of local processing, the market integration and the export in volumes** will also be discussed to determine potential.

To determine whether the potential of a country is high, the countries were scored on the different variables. See Table 2 for a list of the variables and their definitions of potential. The variables in this table are only scored on the fine flavour cocoa market, unless it says differently.

[13] Pricing is not taken into account as variable in this research due to lack of time and resources. This will be elaborated in the section *reflections.*

Structure	Variables	Negative	Neutral	Positive	No Info[14]
Variety in use	Age of trees	Old > 30	Average 15 - 29	Young < 15	?
	Resistance of pods	Not resistant	Average	Very resistant	?
	Variety in use	30% < Export share	30 – 60% export share	> 60% export share	?
	Yield	Below average < 350 kg/ha	Average 351 - 450	Above average > 450 kg/ha	?
Market structure Fine flavour cocoa	Level of farmer organization	Low	Medium	High	?
	Local processing	Low	Average	High	?
	Enabling environment	Few services	Some services	Many services	?
	Market integration (suppliers - buyers)	Market relations	Loose relations	Tight relations	?
	Export in volumes	Very small	Considerable	Significant	?
Regulatory environment	Tax	Not favourable	None	Favourable	?
	Export regulations	Not favourable	Existent	Favourable	?
	Governance	Not favourable	Not active	Favourable	?
Barriers/ Opportunities	Inputs and knowledge	No	Reasonable	Yes	?
	Projects quality/quantity	No	Some	Yes	?
	Mixing bulk cocoa	No	Some	Yes	?
Quality assurance	Quality control	Low	Medium	High	?
	Quality status	Low quality	Medium	High quality	?
Total score 17)					

Table 2 Variables defining the potential of cocoa producing countries

[14] Unfortunately, no information (N.I.) was found in this research for this variable in a particular country. Therefore, no score can be given to this variable.

Latin - America

Latin – America is known for its specialty cocoa: 14 out of the 17 fine flavour cocoa exporting countries (according to ICCO) are located in Latin – America. It is the origin of the *Theobroma cacao L.* and it has mostly Criollo and Trinitario varieties. The countries exporting *exclusively* fine flavour cocoa in Latin - America (according to the ICCO panel) are Grenada, Bolivia, Costa Rica, Mexico, Dominica, Jamaica and Saint Lucia. Brazil and Ecuador are the largest cocoa producers of Latin - America, with respectively 249.000 MT and 224.000 MT in 2012. Ecuador is currently the largest fine flavour cocoa exporter, accounting for 65% of the world production. Countries that are producing fine flavour cocoa but have not been included in the ICCO – Panel list are Panama, Guatemala and Nicaragua. In this research, the following countries will be discussed: Ecuador, Peru, Colombia, Mexico, Dominican Republic and Venezuela.

Ecuador[15]

General cocoa situation

In Ecuador, the cocoa cultivation started in the province Los Ríos and from there it spread along the rivers Babahoyo and Guayas. Cocoa is nowadays produced almost everywhere in the country (though not in the highlands), the most significant provinces being Esmeraldas, Manabí, Guayas, Los Ríos, El Oro, Sucumbios and Orellana. Ecuador has two main varieties of cocoa: the exclusive fine flavour variety 'Nacional' or 'Arriba' and the CCN-51 Forastero clone. Genetically, the 'Nacional 'or 'Arriba' is also a Forastero type, but due to the flavour and aroma of the chocolate it provides, is it considered to produce fine flavour cocoa[16].

Fine flavour cocoa

Ecuador is the main producer of fine flavour cocoa, accounting for approximately 65% of the global supply of fine-flavour cocoa[17]. It constitutes a large part of the Ecuadorian identity and the country received several cocoa awards including the "Cocoa of Excellence" from Salon du Chocolat in France (2011) and several prices at the International Chocolate Awards in London (2012) thanks to the chocolate brand Pacari. In Ecuador, the Nacional can be divided into 5 classes, corresponding to the quality standards according to the genotype (size and weight) and phenotype (post-harvest) of the seeds *(see market organization)*:

1. ASSS "Arriba Superior Summer Selecto"
2. ASSPS "Arriba Superior Summer Plantación Selecta"
3. ASS "Arriba Superior Selecto"
4. ASN "Arriba Superior Navidad"
5. ASE "Arriba Superior Época"

In 2005, the ICCO downgraded Ecuador's cocoa from being rated as 100% fine aroma to 75%, due to the introduction of - and problems with the CCN-51 variety, especially the mixing of CCN-51 with their nacional. It was developed by a farmer named Homero Castro, and it is a clone of a crossing between nacional and Forastero trees. CCN stands for Colleccion Castro Naranjal, where 51 stands for the cross number of this variety[18]. The CCN-51 variety produces higher yields, larger pods and has more disease resistant trees. As CCN-51 requires longer fermentation, mixing declines the quality of both types of beans since neither variety ends up getting optimal fermentation when mixed[19].

Market organization

In Ecuador, the National Institution of Standards (INEN) controls the quality of cocoa beans. It has classified cocoa beans in 5 classes, corresponding to quality standards according to the genotype (size and weight)

[15] Most of the information given for Ecuador is derived from a report of Pro Ecuador (Institute for the Promotion of Exports and Investments)
[16] Source: http://cocoasustainability.com/2012/04/cocoa-breeding-to-enhance-production-and-combat-disease-in-ecuador/
[17] Source: http://worldcocoafoundation.org/wcf-newsletter-march-april-2013/
[18] Source: http://onthecocoatrail.com/2012/06/19/from-tree-to-bean-the-cocoa-harvest/
[19] Source: http://jeffreygstern.com/ecuadorian-cocoa-varieties/the-history-of-ccn-51/

and phenotype (post-harvest) of the beans. According to the National Association of Cocoa Exporters (ANECACAO), the export quantities of the different classes in 2012 were as following[20]:

- A.S.S. 33.686,49 MT
- A.S.S.S. 9.341,91 MT
- A.S.N. 600,04 MT
- A.S.E. 60.028,58 MT
- CCN-51 48.579,08 MT

The total production in Ecuador amounted to 152.236 MT in 2012 and coupled with the processed products (cocoa liquor, butter and paste) reached 184.898 MT. The average yield per hectare in Ecuador is 560 kg/ha for cocoa[21]. The exports of cocoa and its derivatives are mainly destined to two markets: the United States, with a share of 26.8% and the Netherlands, with a share of 21.8% (during the period 2006 – 2010). The distribution chain for the nacional variety in Ecuador is as following:

Individual producers account for 90% (> 100.000 producers) of the total production, and the majority of them are small scale producers. They cooperate directly with intermediaries or associations located in the closest villages. There are around 100 active groups of producers which participate in production, and some of them also in supply and commercialization, providing their products to importers, international industries, and national intermediaries and exporters. About 1000 intermediates are active at the national level. Ecuador also has an industry of semi-finished products, that process cocoa and transform it to one of its intermediary phases (butter, paste, liquor) and final products producing chocolate. Examples are:

- Pacari: providing award winning organic chocolate and the first single – origin organic chocolate entirely made in Ecuador[22]
- Kallari: is an association of Amazon organic cocoa producers, providing gourmet organic chocolate bars[23]
- Caoni: providing single origin dark chocolate from Arriba cocoa[24]
- Cofina: produces and exports cocoa powder, liquor and butter[25]
- Hoja Verde: providing dark fine flavour chocolate from Ecuador[26]
- Ananda: a Dutch company producing high quality, organic chocolate in Ecuador[27]
- Others include: Chocoart, Fine & Favour, Ecuartesanal, Garyth, Cofiesa, Dikaty, Cacaoyere, Republica del Cacao, Chchukululu, La Universal, Fresh Costa, Camino Verde and Catarama's

[20] For a more specific picture see http://www.cofinacocoa.com/ecuador-cocoa-beans-specifications
[21] Source : http://faostat.fao.org
[22] Source: http://www.pacarichocolate.com/
[23] Source: http://kallari.com/
[24] Source: http://www.caonichocolate.com/
[25] Source: http://www.cofinacocoa.com/
[26] Source: http://www.hojaverde.nl/
[27] Source: http://www.anandachocolate.nl/

Producer. The latter two have won the cocoa of excellence and recognition in the salon du chocolat, a worldwide event dedicated to chocolate and cocoa[28].

- Original beans is an example of a (Dutch) small chocolate company using Arriba cocoa to produce fine flavour chocolate, but processing the cocoa in Switzerland[29].

- Bigger manufacturers using cocoa from Ecuador are Felchlin, Callebaut and Nestle[30].

A number of associations actively involved in the cocoa sector of Ecuador are:

- ANECACAO is the National Association of Exporters of Cocoa and Semi-Elaborated Products in Ecuador, which focusses on the welfare and development of the national cocoa sector and its exports[31]. In 2009, it registered 40 exporters on a regular basis and about 30 occasional ones. These are the main suppliers and their products reach the foreign markets in accordance with the quality standards required by the Ecuadorian state and quality requirements of the clients.

- ACEPROCACAO stands for the National Coordinator Association of Producers of Fine Flavour Cocoa (Asociación Coordinadora Nacional de Productores de Cocoa Nacional Fino de Aroma), and represents the Ecuadorian cocoa sector on an national and international level, designated by the Ecuadorian government. This organization represents 540 producers organizations, with approximately 35.000 producers. It also carries out the Cocoa Development Act and the National Fine Flavour Aroma Cocoa Project, working together with numerous organizations nationwide, as Aproca and the '*Consortium for the Promotion of Exportation of Chocolate' (see barriers and opportunities)* [32].

- APROCA is a business association producing high quality cocoa, helping the farmers by paying a premium price for the high quality of cocoa. They are also certified with Organic and Rainforest Alliance, assuring chemical free high quality cocoa[33]

- AGROCALIDAD (the Ecuadorian Agency for the Securing of the Quality of Agriculture), is set up to strengthen the position of "fine flavour" cocoa and is responsible for the quality of the cocoa process. It carries out strict policies to secure the safety of the seeds and traceability of the entire export chain, providing certification from the tree nurseries to the exported cocoa beans. Numerous providers of raw materials (cocoa plants) mostly micro entrepreneurs and public- and private organizations are regulated under AGROCALIDAD.

- In 2011, the government of Ecuador established an "Association of Producing Countries of Fine Aroma Cocoa" (FINACAO), together with the governments of Bolivia, Colombia, Costa Rica,

[28] Source: http://www.salonduchocolat.co.kr/main/main.php
[29] Source: http://originalbeans.com/chocolate/esmeraldas-milk-ecuador/
[30] Source: http://www.nestlecocoaplan.com/cocoa-origins/ecuador/
[31] Source: http://www.anecocoa.com/index.php/es/anecocoa/quienes-somos.html
[32] Source: http://www.aceprococoa.ccd.ec/aceprococoa/aceprococoa-mision-vision-principios-y-valores.html
[33] Source: http://www.programaacua.org/page/productores-de-cocoa-ecuador

Nicaragua, Peru and Venezuela, with its headquarters in Guayaquil-Ecuador[34]. FINACAO has as objective the positioning of the fine flavour cocoa in the global market in order to improve the living standards of the producers and to promote sustainable development throughout the value chain. The key aspects to achieve these objectives are: capacity building within the small and medium size producers in the Latin American countries that are initially participating in this initiative, as well as the promotion of international cooperation. The official signing and establishment of this association for Ecuador is scheduled for the present year (2013).

- Asociacion de chocolateros del Ecuador - Association of Ecuadorian Chocolatiers

- PRO ECUADOR is the Institute for the Promotion of Exports and Investments, attached to the Foreign Ministry, and responsible for implementing the policies and rules to promote exports and investments of the country, in order to promote the supply of traditional and non-traditional markets and Ecuador actors and thereby promoting the strategic insertion in international trade[35], e.g. cocoa.

Governance and regulatory environment

The government of Ecuador initiated a national cocoa plan in 2011, which includes links with other organizations working towards the commercialization in cocoa such as: INIAP (Investigation), MAGAP (Production), MIPRO (Industrialization), IEPI (Denomination of Origin) and MRECI-PROECUADOR (Promotion of exports and commercial protection). The National Program of Fine Aroma Cacao has been set up, to strengthen the position of Ecuador as the leading producer and exporter "Cocoa Arriba" worldwide by:

- Increasing production, productivity and export of 'Arriba' cocoa with social responsibility.
- Developing and implementing efficient quality processes in the value chain.
- Promoting national industrialization and "Cocoa Arriba", and promote domestic consumption.
- Increasing international market share and diversification.

Ecuador is therefore investing over $ 80 million in the next 10 years to support the sector of FFC.

There is also a law proposal for the cocoa sector called the 'Cocoa Law' which has been discussed and promoted by the Ecuadorian cocoa producers, and is in the process of being submitted to the National Congress. This is also linked to the establishment of the National Committee on Fine Flavour Cocoa, responsible for setting up governance for this specialty cocoa[36]. Ecuador also signed the Abidjan Cocoa Declaration (2012), which aims for a sustainable cocoa economy[37].

[34] No more information found on these countries and FINACAO
[35] Source: http://www.proecuador.gob.ec/institucional/quienes-somos/
[36] Source: http://www.scribd.com/doc/113318694/Ley-Del-Cocoa-Final
[37] Source: http://www.icco.org/about-us/icco-news/219-indonesia-signs-the-abidjan-cocoa-declaration-in-bali.html

Barriers and opportunities

As said before, the Nacional variety is facing problems because of its aging trees, lower productivity and lack of resistance to disease and pests[38]. But as already indicated, the government has committed itself, through an investment of over 80 million USD in the next ten years, to support the sector of "Nacional" fine flavour cocoa. The government is also working on a standardization of infrastructure, commercialization and processes to initiate a process of standardization of quality, which is reinforced by the implementation of a system of traceability that AGROCALIDAD is designing and which will be ready by the end of 2013.

In 2006, Ecuador's Institute of Intellectual Protection (Instituto Ecuatoriano de Propiedad Intelectual, IEPI), which is responsible for trademarks and other intellectual property rights, approved an "Arriba" Protected Denomination of Origin that covers all beans of the Nacional variety from Ecuador. The denomination functions as a stimulation to keep the original Nacional cocoa variety in use, establishing a link between producers and a region. For example, mixing of Arriba with other varieties has been corrected by teaching the difference and application of traceability this processes, handled by AGROCALIDAD.

Another development in Ecuador is the establishment of the '*Consortium for the Promotion of Exportation of Chocolate'*[39]**.** This consortium is an alliance created in March 2013, in order to explore international markets, determined to share costs of promotion and administration. The objective is to position a product as Ecuadorian characterized by its quality, opening markets for the members in the Consortium. The consortium was formed by: Pacari, Fine&Flavour, Hoja Verde Gourmet, Chocoart, Kallari, BLK Cooperation – Caoni and Ecuartesanal. The companies associated with the consortium are able to sell their products in a direct way. The consortium uses Nacional Arriba cocoa and has different certifications (Organic, Fair Trade, Rainforest Alliance).

[38] IIC4 – Estudio de caso: denominacion de origen 'cacao arriba'
[39] Source: http://www.agricultura.gob.ec/magap-impulsa-proyecto-de-reactivacion-del-cacao-fino-y-de-aroma/

Ecuador - Information table [40]

Ecuador	
Varieties FFC	Cocoa 'Nacional' or 'Arriba'.
Per variety: yield	Per quality class (2012): A.S.S. 33.686,49 MT A.S.S.S. 9.341,91 MT A.S.N. 600,04 MT A.S.E. 60.028,58 MT CCN-51 48.579,08 MT ± 560 kg/ha 152.236 MT (2011)
Market structure	
• Producers	> 100.000 small scale farmers Sometimes organised in farmer organisations
• Processors	APROCA Asociacion de chocolateros del Ecuador
• Manufacturers	Pacari Kallari Caoni Hoja Verde Cofina Casa Luker Chocoart Fine & Favour Ecuartesanal Garyth Cofiesa Dikaty Cacaoyere Republica del Cacao Chchukululu La Universal Fresh Costa Camino Verde Catarama's Producer Original Beans Felchlin Callebaut Nestle

[40] See Annex 2 for the complete overview of the fine flavour cooca sector of Ecuador

• Market organization	FINACAO ANECACAO ACEPROCACAO AGROCALIDAD PRO ECUADOR
• Traders / exporters	ANECACAO – 40 exporters
Regulatory environment	A cocoa Law is being developed
Barriers and opportunities	Denomination of Arriba cocoa Government investment of > 80 mill USD - Nacional Cocoa Plan with the National Program of Fine Aroma Cacao and National Committee on Fine Flavour Cocoa Set up of the the Consortium for the Promotion of Exportation of Chocolate
Systems of quality assurance	Is in place, AGROCALIDAD is responsible for quality control

Table 3 Information table for Ecuador

Potential fine flavour cocoa

It can be concluded that the potential for fine flavour cocoa in Ecuador is 'high'. Looking at Table 4**,** numerous variables have scored positively: Ecuador produces the right variety, and has a high yield. The level of farmer organization is high, and the same goes for local processing, since most farmers have the inputs and knowledge to process the beans themselves. The enabling environment is also high, since there is a premium price setting for fine flavour cocoa, there are numerous bean to bar initiatives and chocolate manufacturers using Ecuadorian cocoa, and it has a good fine flavour cocoa reputation, which is being maintained by a quality control system (AGROCALIDAD). There are numerous cocoa associations, investments and projects to develop this sector. The government recognises their fine flavour cocoa production as very important, and has a strong focus on this market, resulting in an investment through a 'National Programme of Fine Aroma Cacao'.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees		±		
	Resistance of pods	-			
	Variety in use			+	
	Yield			+	
Market structure	Level of farmer organization			+	
	Local processing			+	
	Enabling environment			+	
	Market integration (suppliers - buyers)			+	
	Export in volumes			+	
Regulatory environment	Tax		±		
	Export regulations			+	
	Governance			+	
Barriers/opportunities	Inputs and knowledge			+	
	Projects quality/quantity			+	
	Mixing bulk cocoa	-			
Quality assurance	Quality control			+	?
	Quality status			+	
Total (17)		2 (-)	2 (±)	13 (+)	1(?)

Table 4 Score of variables defining the potential of cocoa producing countries for Ecuador

Conclusion for Ecuador

Ecuador has a strong fine flavour cocoa market, with 75% of their export being recognised as fine flavour cocoa, according to the ICCO. It makes up 65% of the world market, producing 'Nacional' or 'Arriba' fine flavour cocoa. A premium price is paid for this high quality cocoa, and numerous manufacturers use fine flavour cocoa from Ecuador for their specialty bars. The potential for Ecuador to grow (quality and/or quantity) as fine flavour country is 'high'. It has an enabling environment, strong knowledge relating fine flavour cocoa (national culture), (relatively) good yields, good level of farmer organizations and market integration and a quality control system. These are all **strengths** of the Ecuadorian fine flavour cocoa production. **Weaknesses** and **threats** the cocoa sector currently faces are the spread of diseases and the mixing of fine flavour varieties with the CCN-51 clones, reducing the overall quality of cocoa. However**,** **opportunities** are the strong focus on fine flavour cocoa of the government and the numerous initiatives to improve the quality and quantity of the Ecuadorian cocoa. ANECACAO, ACEPROCACAO, APROCA, AGROCALIDAD, FINACAO and the Consortium for the Promotion of Exportation of Chocolate are all working towards this goal. A new 'cocoa law' is being developed by the National Committee of Fine Flavour Cocoa, focussing on fine flavour cocoa. Therefore, the potential of Ecuador can be defined as high.

Peru

General cocoa situation

Peru grows around 84.000 hectares of cocoa, mainly in La Convención and Lares, Huallaga, Apurímac-Ene and Alto Marañón, all in the Eastern Andes. Although Peru is now producing only 1% of the total cocoa consumption, the country's share of world markets is growing: between 2001 and 2007 exports from Peruvian cocoa rose 424% from 8.5 to 44.6 million dollars annually while the cocoa exports rose 500%, going mostly to Switzerland, France and the Netherlands. The prices for cocoa, especially organic products, have also grown significantly the last 5 years, because of the growing recognition of the quality of Peruvian cocoa and the high market prices of competitors. Cocoa butter is the main export product, however the export of cocoa beans is rising and has reached ±56.500 tons in 2011[41], with an average yield of 670 kg/ha[42], which is high for a fine flavour production country.

Fine flavour cocoa

It turns out to be difficult to assess the potential of fine flavour in Peru; Peru is one of the countries where 'Criollo' or 'Creollo' seems to be (also) used to indicate that the cocoa is 'local' (instead of referring to the Criollo variety). Some experts argue that there is no Criollo in Peru (*personal communication with Martin Christy, founder of seventy%, and Maricel Presilla, food historian specialized in the foods of Latin America and cocoa*), while other sources tell a different story. For example, in the '*cocoa productivity and quality improvement*' report of the ICCO and CFC, it is said that 63% of Peru's cocoa land is still made up of the traditional varieties (or 'Criollos') which include landraces (e.g. cultivars 'Porcelana' and 'Chuncho') as well as traditional hybrid varieties produced locally or introduced[43]. The variety grown in the majority of the cocoa-growing areas is the traditional cocoa variety called 'Criollo'. Zotter, Wilkie's Chocolate, Bonnat (Porcelana) and Original beans (Porcelana) are examples of companies which use the term Criollo from Peru. The ministry of Foreign Trade and Tourism also mention 'Creollo cacao' in their publication 'Cacao in Peru'[44]. The 'Asociación de productores de Cocoa de Buenos Aires ' from Morropón say they are producing the Porcelana Criollo beans[45]. For this study *we will not be able to verify whether and when* this traditional cocoa is a Criollo variety or that Criollo is only used to indicate traditional 'local ' cocoa.

Peruvian cocoa varieties

The CCN-51 variety occupies 36% and 1% is planted with Trinitario clones and Forastero clones. The U.S. Agency for International Development (USAID) introduced CCN-51 cocoa hybrid to Peru in 2002[46]. It now is a reasonably high share of the total cocoa production in Peru. The ICCO panel, which decides about the fine flavour cocoa share per country, includes representatives of some large chocolate producers, who

[41] Source: http://faostat3.fao.org/
[42] Source: http://faostat.fao.org/
[43] ICCO/CFC/Biodiversity International Project on "Cocoa productivity and Quality improvement, a participatory approach (2004 – 2010)
[44] Ministry of Foreign Trade and Tourism (Unknown) Cacao in Peru, a rising star
[45] Source: http://batchgeo.com/map/edeaf7a4afd5feda17ce3d608a7fbd8e
[46] Copal (2012) – Cocoa information newsletter

consider Peruvian CCN-51 to be better fermented and treated than in Ecuador and therefore 'fine' – which resulted in Peru having 90% fine flavour cocoa even though CCN-51 is produced (*personal contact expert)*.

The 'Nacional' variety of Peru has a special story, since it only has been (re)discovered in 2011, found in the Maranon Canyon. According to USDA ARS (United States Department of Agriculture), the Peruvian Nacional variety is genetically the same as the Nacional from Ecuador. However, there are some key differences between the two: Nacional of Peru contains high percentages (40-60%) of pure white seeds, it grows at very high elevations for cocoa - more than twice what is considered "normal", it is high yielding when compared with Nacional of Ecuador and it is very disease resistant compared with other fine flavour cocoa varieties[47]. Farmers in the Maranon canyon sell the beans to Switzerland via the name Maranon chocolate[48].

The Piura valey in Peru has very good white cocoa[49]. Bonnat, Teo chocolates and Rogue are examples of chocolatiers using Piura cocoa. The storing centre in La Quemazon (piura) has 33 genetically distinct types of white cocoa. There are four region designations of origin of Piura under the name of Cacao Chilalo: Gran Blanco, Cacao Chulucanas, Cacao Tondero and the Piura Blanco.

Market organization

APPCOCOA[50] is the National Peruvian Association of Cocoa Producers, representing more than 15.000 producers with about 30.000 hectares of cocoa plantations. It is divided in 20 partner organizations, to reach farmers all over Peru.[51] The main producer organizations in 2012 were e.g. Acopagro, Cafetaleras Cocla, cac the Quinacho, Cepicafe and VRAE (all part of APPCOCOA). The agricultural cooperative Cocoa Acopagro (part of APPCOCOA) was the first exporter of special cocoa beans in Peru, working on quality, quantity and constant innovation. Currently, their entire crops (cocoa beans and coconut) is certified organic and they have chocolate companies in Europe and the United States as clients for fine flavour cocoa. According to APPCOCOA, the main exporting companies in 2012 were a.o.t. Sumaqauo, Amazonas trading Peru, Coffee Colca Canyon Peru, Export Romex SA, Peru Sac Natural, Machu Pichu Foods, exporting both bulk cocoa as cocoa for niche markets, like the fine flavour market.

Almost 1.000 families growing cocoa have joined together at the Amacado plantation in the Amazon, forming a cooperative, arranging the cocoa harvest, ferment and dry the cocoa beans and even market them. The Rausch Plantagen-Schokolade chocolate-manufacturer from Germany uses this Peruvian fine flavour cocoa for its 'Amocado' chocolate.

Peru also has numerous bean to bar projects evolving around fine flavour cocoa and chocolate. An example is La Orquidea chocolate, a bean to bar company from the region of San Martin, producing organic fine flavour beans. Original beans is a Dutch chocolate company using white cocoa from Peru. At the same

[47] Source: http://www.thechocolatelife.com/forum/topics/maranon-chocolate-cocoa
[48] Source: http://www.maranonchocolate.com
[49] Source: http://www.youtube.com/watch?v=JhM52p-OyXs&list=HL1380892756
[50] On their website you can find information on the statistics of cocoa products
[51] Source: http://www.appcocoa.org/index.php?option=com_content&view=article&id=12&Itemid=42

time, they have set up a replanting program to stimulate the growth of this variety of cocoa. The company Casa Luker is using beans from Peru, Ecuador and Colombia to make its covertures[52]. These chocolates are mostly not certified, but by producing fine flavour cocoa in a high quality manner, they have numerous sustainable characteristics, for example no use of chemical and training farmers in land management[53].

A national competition is organized every year by the Peruvian Cocoa and Coffee Producers Association, which is searching for the finest cocoa produced in the country[54]. 809 samples of the finest Peruvian cocoa competed in 2012. The associations and cooperative mentioned below are all participants of the event[55]:

- Kemito Ene is an association of Ashaninka communities in Satipo (Peru). The Ashaninkas have grown cocoa since ancient times in Peru. The association started growing cocoa three years ago and started a commercial relationship with Cooperativa Pangoa, a cooperative that exports cocoa to France. Kemito Ene has 150 associates, which are organized in 7 groups of collectors.
- Cooperativa CEPROAA is formed by small farmers from Utcubamba. They started growing cocoa 5 years ago and export part of their production under their brand UTKKU.
- The Cooperativa Agraria Industrial Naranjillo from Tingo Maria (Huanuco) was created in 1964 with the objective to protect the farmers from commercial abuse from intermediaries which paid very low prices for their production. Naranjillo currently has 5,000 associated farmers and exports to USA, Europe and Asia. Their main objective is to reach a premium product, guarantee the life quality of its associates and partners in harmony with the environment. Naranjillo have a broad variety of products and brands, among others Grand Inka 75% dark chocolate and Mechsa Osha 75% organic premium dark chocolate and a new brand called “Justo Campos”.
- The Central de productores Cajamarquinos de Cocoa grows cocoa in Cajamarca. It is formed by 34 associations of small cocoa farmers, representing around a 1,000 families generating its main income through this activity. Their brand, CAXA, includes delicate products made from fine organic cocoa. This association was born under the project ‘Sustainable Increases in the Income and Employment of Small Organic Cocoa Producers’ from CARE PERU.
- The ‘Asociación de productores de Cocoa VRAE Pichari’ is an association of farmers that grows cocoa in La Convencion. Its production is Fair Trade certified.
- The Cooperativa Campoverde is a cooperative that grows cocoa in Ucayali, run by 15 female farmers. They commercialize chocolate under their own brand Situlli, and their products have been very well received by the local demand.

Governance and regulatory environment

Peruvian government officials, supported by international cooperation agencies like USAID (US agency for International Development) as well as producer organizations (represented by APPCOCOA), have launched a vast program to standardize Peruvian cocoa by identifying quality beans from various cocoa growing

[52] Source: http://www.lukeringredients.com/index.php/en/productos/luker-cocoa
[53] Source: http://www.peruvianchocolate.com/localchocolate.php
[54] It is therefore assumed that the cocoa used in this competition is of fine flavour origin
[55] Source: http://peruviansuperfood.com/tag/cocoa-farmers/

areas, and to homogenize and improve production processes, in particular in the post-harvest stage when the fruit's aroma and taste develops. Peru is also paying much attention to increasing the cocoa yields. Most of the seen progress has been accomplished in the transition from traditional to organic cocoa crops, to meet increasing world demand[56], making Peru the second largest producer of organic cocoa[57].

Barriers and opportunities

The Ministry of Agriculture declared the Peruvian cocoa as the Nation's Natural Heritage, and created the National Cultivar Registration of Peruvian Cocoa (RNCCP), led by the National Institute of Agricultural Research (INIA). Different varieties of cocoa will be recorded based on the genetic, morphologic and anatomic indicators. This can create new opportunities for the fine flavour niche market. The resolution also indicates that Peru is the second largest producer of organic cocoa, with a highly verified genetic variety and variability in different populations, native races or ecotypes of cocoa that are located in different areas of the country.

From 2013 – 2016, the Peru Cocoa Alliance, a new public private initiative, will try to propel Peru to become the market leader in traceable high-quality cocoa, which is increasingly in demand. By good agricultural practices, environmental protection and mitigation it aims at ensuring the protection of the country's biodiversity and natural resources[58]. Founding partners of this alliance are: Armajaro Trading Ltd., AZMJ, CARANA Corporation, Source Trust and USAID. Calvert Foundation, Casa Luker, Exportadora Romex, GeoTraceability, Grassroots Business Fund, HIVOS, Inter-American Development Bank, MicroVest, Root Capital and Verde Ventures are all partners of the alliance. The new cocoa alliance project will be planting a mix of universal Trinitario clones, so this will affect the variety mix in Peru (*personal communication with Martin Christy, founder seventy%)*.

[56] Ministery of Foreign Trade and Tourism – Cacao in Peru, a rising star
[57] AZMJ – Peru Cocoa Alliance

[58] AZMJ – Peru Cocoa Alliance

Peru Information Table[59]

PERU	
Varieties FFC	Trinitario, CCN- 51 and Criollo as variety/marketing term 1% of world cocoa market 90% fine flavour cocoa (ICCO)
Per variety: yield	±670 kg/ha ±56.500 MT (2012)
Market structure	
• Producers	Small scale farmers
• Processors	Asociación de productores de Cocoa de Buenos Aires Maranon chocolate Kemito Ene; CEPROAA ; Agraria Industrial Naranjillo; Central de productores Cajamarquinos de Cocoa; Asociación de productores; de Cocoa VRAE Pichari; Cooperativa Campoverde
• Manufacturers	Zotter Wilkie's Chocolate Bonnat Original beans La Orquidea CasaLuker Teo chocolates Rogue
• Market organization	APPCOCOA divided in 20 producer organizations National Cultivar Registration of Peruvian Cocoa
• Traders / exporters	Agricultural Cooperative Cocoa - Acopagro Amarjaro Trading Sumaqauo Amazonas trading Peru Coffee Colca Canyon Peru Peru Sac Natural Machu Pichu Foods
Regulatory environment	Cocoa is defined as National Heritage and is being registered (RNCCP)
Barriers and opportunities	Peru is involved in numerous niche markets a.o.t. organic and fair trade, as well as fine flavour Peru Cocoa Alliance
Systems of quality assurance	At the farmer cooperation level

Table 5 Information table for Peru

[59] See Annex 2 for the complete overview of the fine flavour cocoa sector of Peru

Potential fine flavour cocoa

Numerous variables for defining the potential of fine flavour cocoa in Peru have scored positively. Peruvian specialty cocoa has a high resistance against diseases and an overall high yield. The level of farmer organization and local processing is high, as well as the enabling environment, looking at the recognition of quality of Peruvian cocoa, premium pricing and the status of national heritage. However, there is a lot of confusion about the Peruvian 'Criollo', which makes it somewhat difficult to get accurate information. Also, mixing of Trinitario with CCN-51 or other clones could form a problem.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees				?
	Resistance of pods			+	
	Variety in use		±		
	Yield			+	
Market structure	Level of farmer organization			+	
	Local processing			+	
	Enabling environment			+	
	Market integration (suppliers - buyers)		±		
	Export in volumes			+	
Regulatory environment	Tax		±		
	Export regulations				?
	Governance			+	
Barriers/opportunities	Inputs and knowledge			+	
	Projects quality/quantity			+	
	Mixing bulk cocoa		±		
Quality assurance	Quality control			+	
	Quality status			+	
Total (17)		0 (-)	4 (±)	11 (+)	2(?)

Table 6 Score of variables defining the potential of Peru

Conclusion for Peru

Peru is only producing 1% of the cocoa market, but has expanded rapidly in the last decade. According to the ICCO, Peru is a partial exporter of fine flavour cocoa with 90% of their total exports being fine flavour cocoa. **Strengths** of the Peruvian cocoa industry are the high yields, the numerous varieties, the high resistance to diseases and pests, the good quality control and the general good quality of cocoa. Cocoa recently has been declared a national heritage and an old variety, the Nacional of Peru, has been re – discovered. APPCOCOA is the National Peruvian Association of cocoa producers, divided in 20 partner organizations, reaching more than 15.000 farmers in Peru. Niche markets in Peru are the fine flavour cocoa production, with bean to bar initiatives, and the organic cocoa production, using only organic farming techniques and inputs. A **weakness** of the cocoa from Peru is the confusion about the Criollo: some say there is no Criollo to be found in Peru, while other promote their Criollo cocoa/chocolate. This causes confusion and unreliability. A **threat** for the cocoa industry could become the mixing of fine flavour cocoa with bulk. But numerous developments are taking place, creating **opportunities** for the cocoa sector: the National Cultivar Registration of Peruvian Cocoa (RNCCP) has been set up, to record different varieties of cocoa, a program to standardize Peruvian cocoa by identifying quality beans has started, and from 2013 – 2016 the Peru Cocoa Alliance will try to propel Peru to become market leader in high quality cocoa. Therefore, the potential for fine flavour cocoa in Peru can be seen as high.

Colombia

General cocoa situation

Colombia exports 95% of their cocoa as fine flavour, according to the ICCO recommendations of 2010. Cocoa is being produced by approximately 25.000 rural families, and 90% is grown by small scale farmers. Colombia uses 147.000 hectares for the cocoa production, producing 42.254 MT in 2011 with an average yield of 419 kg/ha. These cocoa areas are planted with common, hybrid, and cloned cocoa, with Santander as the largest cocoa-producing zone, contributing to 38% of Colombia's production[60].

Current Production	Hectares Planted	Hectares in Production	Kg/ha	2010 Production (Tons)
Common (50s-60s)	40.000	40.000	160	6.400
Hybrids (70s-90s)	40.000	40.000	398	15.920
Clones (2002-2011)	67.000	21.000	950	19.934
Total	**147.000**	**101.000**	**419**	**42.254**

Table 7 current production in Colombia for common, hybrids ad clones

Fine flavour cocoa

Genetic material introduced to Colombia comes primarily from Trinidad, Ecuador and Costa Rica. This material has served as a base for creating hybrid seeds since the 1980s. Colombia has the necessary technology for growing cocoa based on genetic cloning, planting nearly 1,300 trees per hectare, and using management practices and organic supplies as part of its agro-forestry system. Fedecacao, an association of cocoa producers, the Ministry of Agriculture, the Colombian Agricultural Research Cooperation (Corpoica) and the cocoa industry have identified materials (clones) for planting that are renowned for their production, physical, and organoleptic (sensory) qualities and thus used in modern crops (see table). The varieties with the greatest productivity in Colombia are: ICS 39, ICS 1, EET 8, TSH 565, ICS 60, ICS 95, and CCN 51 (see table) [61].

Table 4. Clone Nomenclature Nomenclature	Name	Origin
ICS 1, 6, 39, 40, 60, 95	Imperial College Selection	Trinidad
TSH 565, 792, 812	Trinidad Selection Hybrid	Trinidad
EET 8	Estacion Experimental Tropical	Ecuador
UF 613	United Fruit Co.	Costa Rica

Table 8 Clones used in Colombia

[60] ProExport Colombia (2012) Colombian cocoa “High quality and distinctive aroma”
[61] ProExport Colombia (2012) Colombian cocoa “High quality and distinctive aroma”

Market organization

The Cocoa Producers Association of Santo Domingo de Mesa, ASOPAGRO SDM, has set up a productive alliance program with numerous projects, for example organizing farmers, training them and improving the general economic situation. It is now on its way to become a large scale cocoa production company[62].

ASOPPITAYA is an intermediary organization between the government and local small- and medium enterprises (SME's) in Colombia and has set up an aid for trade intervention for fine flavour cocoa producers. Aim of the projects is to increase the income of farmers as result of increasing production and export of fine flavour cocoa and an increase the international competitiveness of fine flavour cocoa farmers from Colombia. By 2015, at least five international chocolate companies that source FFC from the selected regions should be installed and Colombian FFC should be recognised in the international premium chocolate industry as a potential source of quality FFC[63].

In June 2011, the International Committee of the Red Cross started a cocoa project together with farmers from San Miguel. The goal was to increase the food supplies and income of 320 families by boosting cocoa production. By training farmers about pruning, disease control and use of fertilizers, production has risen. The farmers have set up an association and more farmers are joining[64].

Casa Luker is one of the largest producers of Colombian chocolates made from fine flavour cocoa beans of the Trinitario variety. In 2009 the company began selling couverture, the chocolate used by chocolatiers. To meet the high standards demanded by their international clients, Luker conducts research on their own cocoa plantation, "Granja Luker." By working with 35 growing co-operatives in Colombia, Luker is sharing its research findings with over 5.000 cocoa growing families, ensuring a steady supply of quality beans[65].

The company 'Nacional de Chocolates', one of the largest food and beverage companies in Colombia (providing also chocolate) has set up Chocolate Cordillera, a single origin chocolate using only Criollo and Trinitario cocoa beans from Colombia[66].

Governance and regulatory environment

Fedecacao stands for the 'National Federation of Cocoa', an association of cocoa producers in Colombia. It is involved in research, technology transfer and marketing to promote the cultivation of cocoa, improving the living conditions of producers, generating dynamic agribusiness development as a profitable, sustainable and competitive business[67]. Fedecacao is funded by the 'National Cocoa Fund', set up for financing programs and projects relating to the national cocoa industry by the government.

[62] Source: http://www.globalcommunities.org/node/37321
[63] ProExport Colombia (2012) Colombian cocoa "High quality and distinctive aroma"
[64] Source: http://www.icrc.org/eng/resources/documents/feature/2012/colombia-feature-2012-07-03.htm
[65] Source: http://www.thechocolatelife.com/profiles/blogs/the-future-of-chocolate-1
[66] Source: http://www.chocolatecordillera.com/OurQuality.aspx
[67] Source: http://www.fedecocoa.com.co/site/index.php/1ins-institucional

The chocolate and confectionery sectors are part of the Ministry of Commerce, Industry and Tourism's Productive Transformation Program (PTP). The goal of the program is to improve productivity, efficiency, quality, research and innovation in the cocoa-growing sector. The 2012-2021 Ten-Year National Cocoa Development Plan strives to position Colombia as a top producer on the international market for fine or flavour cocoa by increasing productivity, involving more farmers and improve the quality of life for farmers.

Barriers and opportunities

The relatively low yield in Colombia is caused by the aging trees, the type of planting material (prone to diseases and pest), the low tree density per hectare and the difficulties of farmers to implement the integrated crop management[68]. Therefore, the Colombian government released a 10 year plan to transform Colombia into a major cocoa exporter. According to this plan, Colombia will increase production of cocoa from 42.000 tonnes produced in 2010 to 246.000 tonnes by 2021. Fedecacao will be instrumental in achieving this plan by providing technical assistance on cultivation, fermentation and drying techniques to farmers, therefore improving yield and expand the cocoa production into new regions[69].

Chocolate producers are still not aware of the quality of Colombian cocoa. Therefore, Fedecacao is busy promoting quality Colombian beans to international buyers. In October 2011, through the support of Fedecacao, the farmer Saúl Tirado Fuentes won a Cocoa of Excellence award at the Salon du Chocolat in Paris, for cocoa grown on his Valparaiso plantation.

Colombia also has an income tax exemption on late harvest crops and productive alliances for new plantings established 2003-2014. Colombia offers an attractive incentive for investments in late harvest crops, including cocoa: a ten-year income tax exemption, so that investments in new plantings of late harvest crops, including cocoa, are exempt from income tax.

[68] Source: http://www.fedecocoa.com.co/site/index.php/1pro-programas
[69] Source: http://thecitypaperbogota.com/business/cocoa-semisweet-future/

Colombia – Information table

Colombia	
Varieties FFC	Criollo 95% fine flavour cocoa (ICCO)
Per variety: yield	± 420 kg/ha 42.254 tons (2010)
Market structure	
• Producers	25.000 households, 90% small scale farmers Asopagro sdm
• Processors	Santander
• Manufacturers	Casa luker Nacional de Chocolates – chocolate cordillera
• Market organization	Fedecacao Asoppitaya
• Traders / exporters	Casa luker Cadbury Nacional de Chocolates
Regulatory environment	Tax exemption
Barriers and opportunities	Number of incentives to increase quality/quantity
Systems of quality assurance	X

Table 9 Information table for Colombia

Potential fine flavour cocoa

The potential of Colombia with regard to fine flavour cocoa can be defined as 'high': the already existing market is generally doing well, and there are numerous incentives to increase the cocoa quality and quantity. The government introduced a tax exemption on late harvest crops, e.g. cocoa, and is therefore protecting its production from imports. Yields and resistance of pods are reasonable, with average inputs and knowledge about cocoa. The development of the cocoa industry is on-going: Fedecacao is involved in the 10 year government plan to increase the cocoa production, to promote the quality cocoa, increase the quality of cocoa but also improve living conditions of cocoa farmers.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees	-			
	Resistance of pods	-			
	Variety in use			+	
	Yield		±		
Market structure	Level of farmer organization		±		
	Local processing		±		
	Enabling environment		±		
	Market integration (suppliers - buyers)			+	
	Export in volumes			+	
Regulatory environment	Tax			+	
	Export regulations			+	
	Governance		±		
Barriers/opportunities	Inputs and knowledge		±		
	Projects quality/quantity			+	
	Mixing bulk cocoa		±		
Quality assurance	Quality control				?
	Quality status		±		
Total (17)		2 (-)	8 (±)	6 (+)	1 (?)

Table 10 Score of variables defining the potential of Colombia

Conclusion for Colombia

Colombia exports 95% of their total cocoa production as fine flavour cocoa, according to the IPCC recommendations (2010). Colombia's **strength** is the fact they produce fine flavour cocoa mostly from the Criollo variety and are actively trying to identify clones for their production, physical and organoleptic qualities (including fine flavour). The cocoa market consists both of cocoa beans and semi-products, produced by small scale farmers, mostly organized in farmer associations, and actual chocolate, made by Colombian and international manufacturers. **Threats** and **weaknesses** in the cocoa sector are the mixing of cocoa beans, aging and disease prone trees and the difficulty of farmers to implement sustainable and integrated crop management. Therefore, there are numerous projects running to increase the quantity and quality of cocoa, set up both by the government (National Cocoa Plan) as private companies (for example Casa Luker). Also, the government is busy promoting the fine flavour cocoa from Colombia, since not all chocolate producers are aware of their quality cocoa. This is creating **opportunities** for the cocoa sector and therefore, the potential of Colombia with regard to fine flavour cocoa can be defined as 'high': the already existing market is doing well, and there are numerous incentives to increase the cocoa quality and quantity.

Dominican Republic

General cocoa situation

Cocoa is one of the four traditional export crops in the Dominican Republic. According to statistics from FAO, the country produced 54.297 metric tons of cocoa in 2011, mostly exported to Europe and the US[70]. Dominican cocoa is classified into two types: the Hispaniola (fermented) and Sanchez (unfermented). The Sanchez type is produced under natural conditions, and makes up to 70% of the annual Dominican cocoa export[71]. The Dominican Republic is the only country in the world that *deliberately* markets unfermented cocoa. The US is the primary market for unfermented cocoa, because lack of fermentation limits the interests by European chocolate makers[72]. Hispaniola cocoa however can be considered high quality and is very successful in European markets[73].

Climate in the Dominican Republic has always been favourable and the country has not been plagued by any serious threats such as "witches' broom disease" which has severely damaged many other countries' cocoa crops[74]. It is able to grow most of the cocoa without having to use chemical inputs. However, the reputation of Dominican cocoa in the early 1980s was poor, because of poor post-harvest handling (mainly lack of/inadequate drying and fermentation). Since then, investments have been made in drying and fermentation facilities. They were initially led by CONACADO (the National Confederation of Dominican Cocoa Producers) and later on supported by other organizations, including ICAM[75].

Fine flavour cocoa

Several varieties are grown in Dominican Republic: Trinitario is predominant with 60 % of cocoa trees, Criollo percentage is about 2 % and the remainder is constituted of Forastero trees.

Some very fine chocolate has been made from Dominican Republic cocoa, including Valrhona's 'Caraïbe' and Michel Cluizel's 'Los Anconès'. The cocoa for both of these comes from the family owned Nazario Rizek company, a cocoa grower and processor focusing on the high quality market[76]. It seems as though the Dominican republic is mostly focussing on the organic- and fair trade niche markets (Conacado is the largest organic Fair Trade co-op in the world[77]) and not looking at its full potential for the fine flavour market. However, in 2010, the ICCO recognized the Dominican republic for the first time as a fine flavour producing country, with a recommended share of 40% of fine flavour exports. Organic cocoa farmers were using fine flavour cocoa, but were not actively promoting that characteristic. For example, the 'Cocoa Family' is an organic cocoa producer, and is involved in the organic market, but they are also using Criollo

[70] Source: http://faostat3.fao.org/home/
[71] Source: http://www.dominicanaonline.org/portal/english/cpo_cocoa.asp
[72] Siegel et al. (2004) - Export Commodity Production and Broad-based Rural Development: Coffee and Cocoa in the Dominican Republic
[73]Source: http://conacado.com.do/site/index.php?option=com_content&view=article&id=9&Itemid=35&lang=en
[74]Source: http://conacado.com.do/site/index.php?option=com_content&view=article&id=9&Itemid=35&lang=en
[75] Berlan et al. - Cocoa production in the Dominican Republic: sustainability, challenges and opportunities
[76] Source: http://www.seventypercent.com/
[77] Source: http://www.seventypercent.com/

and Trinitario cocoa beans, and are producing fine flavour cocoa[78]. 'Green&Black's organic also sell premium organic chocolate, produced from the Trinitario cocoa variety[79].

Since information on fine flavour cocoa in the Dominican Republic is hard to find, the focus in this chapter will be more on the organic market.

Market organization

The Cocoa Department in the Ministry of Agriculture classifies cocoa producers into three rough types. The first type uses no purchased inputs, minimum maintenance, and produces for own-consumption with surplus going to the market. Yields among such producers are about 250-300 kg/ha. The second type of producer has conducted renovation with improved varieties, uses good management has yields of between 700-1100 kg/ha. The third type is a CONOCADO producer who produces organic cocoa with good techniques where yields vary between 700-1300 kg/ha. The wide range in estimates reflects different levels of management. However, according to the FAO (2011), the average yields in the Dominican Republic are 350 kg/ha[80].

The marketing channels used by producers are[81]:

- Intermediary 38.9%
- Exporter 34.3%
- Cooperative 6.3%
- Producer Association 16.6%
- Other 9.6%

The main associations and companies engaged in the production, marketing of (organic) and exporting cocoa in the country are: CONACADO, Nazario Rizek and Comercial Roig. Other companies like Munné and Company; J. Paiewonsky and Sons; the Cortes Brother; Garcia and Mejia; Yacao, and the Association of Cocoa Producers of Cibao (Aprocaci), also have significant market shares[82]. Some of the major Dominican associations and companies dedicated to organic cocoa production include the National Confederation of Dominican Cocoa Growers and the Cibao Cocoa Producers Association[83].

Two farmer organisations (CONACADO and APROCACI) are properly structured to export their cocoa beans directly. CONACADO is a confederation of farmer associations, with 12.000 smallholders, who farm a total of 30.000 hectare covered with cocoa trees and 440 additional hectare are available for new plantations. CONOCADO is licensed to produce organic cocoa beans and to market its cocoa beans though Fairtrade

[78] Source: http://www.cocoafamily.com/cocoa-beans/
[79] Source: http://www.greenandblacks.com/ca/from-bean-to-bar/cocoa-beans.html
[80] Source: http://faostat3.fao.org/home/
[81] Siegel et al. (2004) - Export Commodity Production and Broad-based Rural Development: Coffee and Cocoa in the Dominican Republic
[82] Source: http://www.dominicanaonline.org/portal/english/cpo_cocoa.asp
[83] Source: ttp://www.godominicanrepublic.com/rd/index.php?option=com_content&view=article&id=30&Itemid=36&lang=en

and Rainforest Alliance channels. Cadbury and Barry Callebaut are the main European buyers of CONACADO's cocoa. CONACADO exports its entire production (i.e. 33 % of Dominican cocoa), mainly under organic certification[84]: organic Hispaniola cocoa (70 % of production) and organic Sanchez cocoa (30 % of production). The second association is called APROCACI, consisting of about 60 large or medium-size producers located in the region of Cibao. APROCACI's members farm a total of 1.060 ha covered with cocoa trees and exports a large part of its production[85].

Barry Callebaut partnered with CONACADO to establish an organic cocoa production program and to produce high-quality "fair trade organic" chocolate for the European market. CONACADO has looked for market niches, such as the organic cocoa market, to guarantee a reasonable price level to its members and thereby offer them some protection against the impact of the international market price fluctuations. It is promoting the necessary incentives to motivate growers to focus on the quality of cocoa on an on-going basis, and sharing the knowledge gathered with all CONACADO organic cocoa growers[86]. However, it is unclear if the fine flavour niche market has also been considered.

A bean to bar chocolate maker is 'Cocoa Prieto', a family business owning both the Coralina Farms providing their chocolate, as the Prieto chocolate factory. They produce mainly organic cocoa, but also use the Criollo single origin cocoa as fine flavour (organic) cocoa[87].

Governance and regulatory environment

The government has traditionally protected domestic cocoa processors targeting the local market. For example, tariffs on imports of cocoa beans were 14%. But like many Latin American and Caribbean countries, agricultural policy in the Dominican Republic was fundamentally restructured during the 1980s. Therefore, policies against exports have been lowered or removed, direct subsidies have become more infrequent, and the public role in agriculture has been altered.

The government's primary direct roles in the cocoa sector, carried out by the Department of Cocoa in the Ministry of Agriculture, include data collection and dissemination, research and extension, and some government funded programs targeted to cocoa producers. The Comisión Nacional de Cocoa (CNC) is a semi-public organization, tasked with maintaining the quality of exported cocoa and runs a free quality control lab for this process. It certifies Dominican cocoa and grants export licenses. The Department of Cocoa in the Ministry of Agriculture and the CNC collaborate on projects but are not formally linked. A bill currently before the Senate would put all cocoa activities outside the Ministry of Agriculture into a new organization, Consejo Dominicana de Cocoa (CODOCOCOA), which would be a permanent, autonomous organization whose decision making power would lie with a mix of public and private sector institutions. CODOCOCOA would undertake the same variety of activities currently done by the Cocoa Department. It

[84] CIRAD (2010) Caribbean Fine and Flavour Cocoa Industry and Commercialisation Caribbean Region CAR-RFO
[85] CIRAD (2010) Caribbean Fine and Flavour Cocoa Industry and Commercialisation Caribbean Region CAR-RFO
[86] Callebaut (2008) – Organic cocoa farming, expanding opportunities for cocoa farmers
[87] Source: http://cocoaprieto.com/category/chocolate/

would be responsible for research and cocoa extension, and will be tasked with advocating construction of infrastructure necessary to improve quality through post-harvest fermentation[88].

Barriers and opportunities

The Cocoa Research Unit (CRU) of the University of the West Indies and the Centre for Development of Enterprise (CDE), a regional ACP-EU institution, started a joint initiative in the Dominican Republic to substantially increase farm productivity and cocoa production via support to the provision of improved planting material, the promotion of best field and bean fermentation practices, solar drying techniques and a 'training of trainers' programme to widely disseminate innovations in cocoa production. CRU-led research on product development along cocoa value chains, including research on liqueurs, dark chocolates, pectin, syrups etc., on which a Caribbean cocoa value-added industry can be built[89].

Another project is the 'Quality Description of the Castillo Area Cocoa', and is being carried out by the Dominican Institute of Agriculture and Forestry Research (IDIAF), the National Council of Agricultural and Forestry Research (CONIAF) and the Roig Agro Cocoa company.

KAOKA is a cocoa company that has as objectives to have a close partnership with cocoa producers and having a sustainable approach. It works in partnership with more than 530 families of producers who cultivate the Trinitario variety of cocoa. Since 2010, KAOKA is involved in a partnership with CONACADO, having the goal of implementing a project for the reorganisation and rehabilitation of plantations, in cooperation with the Arroyo Toro coop, a member of CONACADO. The objective is a transfer of methodology through the creation of nurseries for the cocoa seedlings and the training of the technical management staff in charge of the rehabilitation of plantations[90].

In April 2013, Mondelez (the world's largest chocolate company) and the Peace corps started a partnership to promote sustainable development in cocoa crowing communities in the Dominican Republic[91].

In recent years, Dominican cocoa producers have rapidly adopted fermentation, certified organic production, and other quality improvements in response to price incentives, and mostly through a strong producer organization and considerable donor and NGO support. As a result, the Dominican Republic is now the world's largest exporter of fermented certified organic cocoa[92].

[88] Siegel et al. (2004) - Export Commodity Production and Broad-based Rural Development: Coffee and Cocoa in the Dominican Republic
[89] Source: http://agritrade.cta.int/en/layout/set/print/Agriculture/Commodities/Cocoa/Long-term-supply-agreements-emerging-in-Dominican-Republic-cocoa-sector
[90] Source: http://kaoka.fr/en/dominican-republic/
[91] Source: http://www.blackenterprise.com/small-business/cadbury-peace-corps-cocoa-entrepreneurs-dominican-republic/
[92] Siegel et al. (2004) - Export Commodity Production and Broad-based Rural Development: Coffee and Cocoa in the Dominican Republic

Dominican republic – information table[93]

Dominican republic	
Varieties FFC	40% FFC according to ICCO Hispaniola (fermented, fine quality, 11%) Sanchez (deliberately unfermented) Mostly organic cocoa Trinitario and Criollo varieties
Per variety: yield	350 kg/ha (FAO) ±54.000 tons
Market structure	
• Producers	Small scale farmers (± 50.000)
• Processors	Cocoa family Cocoa Prieto (bean to bar) Nazario Rizek company
• Manufacturers	Valrhona Michael Cluizel Green&Black's Struben Barry Callebaut Cocoa Prieto (bean to bar) Mondelez
• Market organization	Conacado (especially organic and/or certified cocoa) CNC (semipublic) Aprocaci KAOKA National confederation of Dominican Cocoa Growers
• Traders / exporters	Barry Callebaut Conacado APROCACI Nazario Rizek Comercial Roig
Regulatory environment	Government involvement low but increasing through numerous projects and new organizations. However cocoa is mainly led by the market Classification trough yields.
Barriers and opportunities	No diseases, but low average yield Organic niche market uses fine flavour cocoa Conacado and CNC are developing cocoa industry
Systems of quality assurance	Fair trade and organic certification Quality assurance by CNC

Table 11 Information table for the Dominican Republic

[93] See Annex 2 for the complete overview of the fine flavour cocoa sector of the Dominican Republic

Potential fine flavour cocoa

The Dominican Republic has a high potential for fine flavour cocoa. Looking at Table 12, it can be concluded that the Dominican Republic cocoa industry uses Trinitario and Criollo varieties of cocoa trees that are young and disease resistant, however also getting low yields. The enabling environment is seen as positive: it is focussing on niche markets like the organic cocoa production and the fine flavour production, there are numerous association and collaborations involved in developing the cocoa industry and there are bean to bar projects to manufacture chocolate. However, it has a small export volume, since it is mostly focussing on organic cocoa.

Structure	Variables	Negative	Neutral	Positive	N.I
Variety	Age of trees			+	
	Resistance of pods			+	
	Variety in use			+	
	Yield	-			
Market structure	Level of farmer organization			+	
	Local processing		±		
	Enabling environment			+	
	Market integration (suppliers - buyers)		±		
	Export in volumes	-			
Regulatory environment	Tax		±		
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge			+	
	Projects quality/quantity		±		
	Mixing bulk cocoa			+	
Quality assurance	Quality control			+	
	Quality status			+	
Total (17)		2 (-)	5 (±)	9 (+)	1 (?)

Table 12 Score of variables defining the potential of the Dominican Republic

Conclusion for the Dominican Republic

A s**trength** of the Dominican republic is the existence of the Criollo variety, consisting of young and disease resistant trees. Also, the existence of the control and certification of quality, the classification of cocoa and the existence of a commission for national cocoa (CNC) are strengths. However, **weaknesses** are the low yield and low use of inputs. The country is especially focussing on the organic production of cocoa, for which they receive a premium price and high demand. Fine flavour cocoa has gotten less attention, while it is used for the organic production. Therefore, **opportunities** exists to develop the fine flavour niche market more in combination with the organic market. The potential for the Dominican Republic with regard to fine flavour cocoa can therefore be defined as 'high', with a good market structure, a well-developed organic niche market and the use of right fine flavour varieties.

Mexico

General cocoa situation

The four biggest cocoa producing states in Mexico are Tabasco, with 80% of the total national production (Forastero), followed by Chiapas, Oaxaca and Guerrero. With 2.5 % of the global cocoa production, Mexico is the 13th largest producer in the world, and has an average yield of 450kg/ha[94]. However Mexico's production is oriented mainly to supply the national cocoa market and has declined from 600.000 in 2009 to 21.388 MT in 2011 because of flooding and the spread of diseases[95].

Fine flavour cocoa

The fine flavour cocoa market was traditionally ignored in Mexico but is now booming, with the ICCO panel giving a 100% fine flavour cocoa export recommendation to Mexico[96]. The top producing region in Tabasco is Chontalpa, with the main varieties Calabacillo (a local name for Trinitario) and Pico del Lagarto (Criollo)[97].

Market organization

The Association of Chocolate Producers (ASCHOCO) of Mexico was established 75 years ago, and is now representing over 45 companies from the chocolate industry. They also founded the Cocoa Foundation Mexico, a non-profit organization with the objective to support and promote sustainable cocoa farming[98].

The 'Royal cocoa of Xoconusco' is a producer association, consisting of 1,500 small scale, certified organic, indigenous Mayan growers. With the rapid commercialization of Forastero cocoa throughout the world and due to disease and destruction of native habitats, the original royal Criollo variety from Xoconusco has become extremely rare. It had almost been lost after Xoconusco were selected by the Mexican government to introduce their project to grow hybridised cocoa, to increase yields with the use of modern farming techniques and chemicals, but almost destroying the original Criollo variety. Xoconusco is currently working with a small group of cocoa growers to rescue this original variety[99]. Bonnat is an example of a chocolate making company which uses Xoconusco Criollo cocoa for one of their specialty bars[100].

The Local Agricultural Producers Association of Cocoa Huimanguillo is an association of producers in Tabasco. It was established in 1962 and currently has 1.000 full members and 2.000 "contributors". Together, they have over 3.000 hectares with an average production capacity estimated at 1,500 tons, mostly from Trinitario cocoa. An advantage of their production is the fact that the cocoa trees are younger

[94] Source : http:// http://faostat.fao.org/
[95] Source: http://geo-mexico.com/?p=5907
[96] Even though Mexico has a high level of fine flavour cocoa production (100%), the information on this specialty cocoa was hard to find during this research. Therefore, information on numerous variables used for the potential and/or the market structure are still missing.
[97] Source: http://www.slowfoodfoundation.com/pagine/eng/presidi/dettaglio_presidi.lasso?-id=879
[98] Source: http://www.confimex.org.mx/index.php?option=com_content&view=article&id=252&Itemid=269
[99] Source: https://lovingearth.net/growers/4/royal-criollo-cocoa-xoconusco
[100] Source: http://www.chocolatetradingco.com/buy/bonnat-cacao-real-del-xoconuzco-75-bar?by=cat&c=1808&o=2&pz=40&p=1

than elsewhere, with an average of 18 to 20 years, allowing a higher average production of 500-700 kg/ha, above the national average of 350 kg/ha.

Traditionally, farmers in the Chontalpa area have sold their cocoa to intermediaries, who then market it. However, in recent years, groups (co-operatives) of farmers have been formed, enabling farmers to cut out the intermediaries and get higher prices for their harvest. The cooperatives allow joint purchasing and other economies of scale. Also, the Chontalpa Cacao Presidium was launched in September 2008 to help farmers develop the sector and introduce organic certification and other modern developments. The quality of beans was improved by using better post-harvest fermentation and drying methods.[101].

Grains Sunuapa Creoles is a producer association in Chiapas, founded in 1994 and composed of 172 members, producing organic cocoa. Together, they harvested a total area is 577.8 hectares. They ferment and dry their Trinitario cocoa themselves in Samoa type dryers. This group also partnered with Barry Callebaut in Chiapas; they are the only organization in the region that has been able to sell through Barry Callebaut cocoa presence in Europe with an award of 10% above the average price in Mexico.

Agroindustrias Unidas de Cocoa SA de CV is the leading processor of cocoa in Mexico and a member of the Ecom Cocoa Group, part of Ecom Agroindustrial Corp. Ltd. Ecom Agroindustrial is a global commodity originating and processing company specializing in coffee, cotton and cocoa, with local presence in major producing and consuming countries. Ecom is one of the largest merchants of coffee, cotton and cocoa globally and is leader in sustainable agriculture and traceable supply chain management.[102]

As of 2009, Mexican chocolate was produced by 70 large and medium firms, and around 250 small firms with 10 or less workers. Multinational companies produce around two third of the total production and the remaining third is controlled by Mexican entrepreneurs. In order to protect local producers, the Mexican government has put in place a quota system by virtue of which national chocolate manufacturers are forced to buy the local production (at whatever quality and price available), and can import cocoa only when local supply is absorbed[103].

The major producers and distributors of cocoa and chocolate products in Mexico are: Cargill (U.S.), Archer Daniels Midland (EU) and Barry Callebaut (Belgian / French). Some smaller companies in the same production line are: Schokolade Schokinag Industrie, Guttard Chocolate Company Blommer Chocolate Company and World's Finest Chocolate. The chocolate companies that produce high quality and prestige chocolate are Lindt, Nestle and Valrhon. The market for the manufacture of industrial and consumer chocolate is concentrated too: Barry Callebaut contributes 24% of the global market followed by Nestle,

[101] Source: http://geo-mexico.com/?p=5907
[102] Source: http://www.thehersheycompany.com/newsroom/news-release.aspx?id=1706846
[103] Beganovic et al. (2010) The Mexican Chocolate cluster

with 21% to 13% Mai and together accounted for 58% [104]. Local manufacturing firms are Ricolino (part of Grupo Bimbo), Chocolates Turin, and La Corona[105].

Bean to bar chocolate makers are also located in Mexico. For example, 'KaoKao Mexico' is a family business producing their own Mexican fine flavour cocoa[106]. AH Cocoa is also a bean to bar company set up in Mexico and produce fine flavour cocoa for, mostly, the US market[107]. And the recently established Taza Company, supporting the cocoa farmer community through their chocolate production[108].

Governance and regulatory environment

In 1973, the National Cocoa Commission started, a decentralized entity that took charge of the commercialization of cocoa. This year, the government developed a National Cocoa Plan to stimulate the quality of cocoa, to integrate the cocoa supply chain, to improve the social – economic welfare of producers and to promote sustainable agricultural practices[109].

A National Union of Cocoa producers of Tabasco (UNPC) was also founded, which brought together all the state's coco producers and created the facility of Industrializadora de Cocoa de Tabasco (Incatabsa).

Barriers and opportunities

From 2001-2011 cocoa production declined 47%, from 46.700 to 21.388 tons. The fall in production is mainly linked to diseases, especially pod rot, and their rapid spread to 95% of the cultivated area in Mexico[110]. Also, average crop yields are also relatively low due to factors such as:

- Abandonment of plantations for the low price of the product (low quality, lack of certification)
- Aging trees (approximately 25% of the farms in Tabasco are over 40 years old)
- Lack of control of diseases and pests such as moniliasis, witch broom and black spot
- Lack of modernization in the crops
- Lack of sustainable agricultural practices that promote water conservation, use of natural fertilizers, etc.[111]

According to the Slow Food Foundation for Biodiversity[112], the quality of cocoa in Mexico is also diminishing because of the large domestic market. It requires only a single wash cocoa without going

[104] Comité Sistema Producto Cacao Nacional A. C. (2010) Convocatoria a la Construcción Colectiva de un Plan Nacional para el Desarrollo y Posicionamiento del Cacao de México.
[105] Porter (2010) The Mexican Chocolate cluster
[106] Source: http://www.chocolateskaokao.com/
[107] Source: http://www.ahcocoa.com/en/
[108] Source: http://www.tazachocolate.com/
[109] Usaid Mexico (2010) "Cadenas de valor café y cacao sustentables en México del Corredor Biológico Mesoamericano
[110] Source: http://www.cacaomexico.org/?page_id=207&lang=en
[111] Source: http://www.cacaomexico.org/?page_id=207&lang=en
[112] The Slow Food Foundation for biodiversity is a non – profit organization, coordinating numerous projects promoting environmentally sustainable agriculture. It has been involved in the Mexican cocoa sector after the flooding's of 2007.

through the phase of fermenting or drying, which are basic requirements for fine flavour cocoa. Moreover, in Mexico is the quality of the cocoa products not being rewarded with a higher price. The price of the Creoles Mexicans could be up to 80% higher from other varieties. This discourages further development of cocoa, reducing the quality of cocoa on the whole. In addition, corporate and large companies importing the lower quality cocoa Forastero from Asia and Africa to mix it with Criollo that give the aroma and flavour. Moreover, cocoa farmers cannot get technical assistance, process the cocoa using proper equipment and methods and cannot supply a semi-processed product which would guarantee returns. The local market is the only market that producers can access and intermediaries impose their own conditions[113]. Therefore, it is clear that there is need of institutional strengthening. This restructuring should consider undertaking the differentiation of the Criollo cocoa and its origin and quality of fermentation and drying process.

The Hershey Company and cocoa supplier Agroindustrias Unidas de Cocoa SA de CV (AMCO), a member of the Ecom Cocoa Group, have launched the Mexico Cocoa Project, a 10-year, $2.8 million initiative to reintroduce cocoa growing in southern Mexico and help restore the country's beleaguered cocoa farming industry[114]. They are working together with Cocoa Mexico, a non-profit organisation to support the increase of production of high quality cocoa in Mexico by promoting sustainable crops[115]

[113] Source: http://www.slowfoodfoundation.com/pagine/eng/presidi/dettaglio_presidi.lasso?-id=879
[114] Source: http://www.thehersheycompany.com/newsroom/news-release.aspx?id=1706846
[115] Source: http://www.cocoamexico.org/?page_id=1051&lang=en

Mexico - Information table[116]

Mexico	
Varieties FFC	Xoconusco criollo Calabacillo (trinitario) Soconusco Cocoa
Per variety: yield	±350 kg/ha ±21.000 t/y
Market structure	
• Producers	Small scale farmers Aschoco (chocolate); Xoconusco (organic); Local Agricultural Producers Association of Cocoa Huimanguillo; National Union of Cooca Producers of Tabasco; Grains Sunuapa Creoles (Chiapas);
• Processors	Kakao AH cocoa Taza Xocunusco Agroindustrias Unidas de Cocoa SA (ECOM)
• Manufacturers	Cargill Archer Daniels Midland Barry Callebaut Hershey Nestle Ferrero Bonnat Schokolade Schokinag Industrie Guttard Chocolate Company Blommer Chocolate Company World's Finest Chocolate Lindt Valrhon Effem Mexico
• Market organization	National Cocoa Commission
• Traders / exporters	*(no information - see manufacturers)*
Regulatory environment	Lack of government focus on ffc, but is being developed – National Cocoa Plan
Barriers and opportunities	Mostly produced for their national market
Systems of quality assurance	No, lack of quality a problem

Table 13 Information table for Mexico

[116] See Annex 2 for the complete overview of the fine flavour cooca sector of Mexico

Potential fine flavour cocoa

The potential for fine flavour cocoa in Mexico is 'medium'. At first, the potential seems to be high, with the right varieties and a high level of local processing, together with numerous incentives to increase the quality and quantity of the Mexican cocoa industry. However, Mexico faces problems with the spread of diseases, aging of trees and low yields combined with a lack of modernization and sustainable practices. This has resulted in a major decline in production in the last decade, and has also negatively influenced the quality of the cocoa beans. Moreover, most cocoa is produced for the local market, which doesn't requires good post harvesting techniques, there is no premium pricing for quality cocoa, and therefore there are no incentives for farmers to increase quality or invest in their cocoa production. However, the government is getting more and more involved in the last decade, and there are numerous associations that aim to increase the quality of Mexican cocoa. As result, the ICCO recommended 100% fine flavour export in 2012. Looking at the numerous variables mentioned above, the potential of Mexico is seen as medium in this research.

Structure	Variables	Negative	Neutral	Positive	N.I
Variety	Age of trees	-			
	Resistance of pods	-			
	Variety in use			+	
	Yield	-			
Market structure	Level of farmer organization			+	
	Local processing			+	
	Enabling environment		±		
	Market integration (suppliers - buyers)		±		
Regulatory environment	Export in volumes		±		
	Tax				?
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge		±		
	Projects quality/quantity			+	
	Mixing bulk cocoa				?
Quality assurance	Quality control	-			
	Quality status	-			
Total (17)		5 (-)	5 (±)	4 (+)	3 (?)

Table 14 Score of variables defining the potential of Mexico

Conclusion for Mexico

This research has found that it is complex to create a complete picture of the fine flavour cocoa industry for Mexico. Even though it has been given a 100% recommendation from the ICCO, it is difficult to get information on this specific market. Also, it has developed rather rapidly, since the recommendation in 2008 said that is was not considered as a producing country exporting fine flavour cocoa (ICCO, 2010). Therefore, the used information might not be up to date.

However, with the information found during this research, the potential is defined as medium. Mexico has both Criollo and Trinitario varieties to produce fine flavour cocoa, which is their biggest **strength.** Other strengths are the quota to protect the national cocoa production and the numerous associations and organizations that have been set up, for example the Cocoa Foundation Mexico. However, **weaknesses** of the Mexican cocoa industry are its old trees, which are very disease prone and have low yields, and the big fall in production in the last decade, because of neglect, flooding's and diseases. **Threats** to the cocoa sector are the lack of quality control, and the large domestic market, which demands a lower quality of cocoa than fine flavour cocoa. Also, the disappearance of Criollo varieties could be a threat for the fine flavour production. And the lack of premium pricing, which is not stimulating farmers to invest in their farm and/or in the quality of their cocoa. However, **opportunities** also exist: a national cocoa plan has been developed, resulting in more focus from the government and more investments and incentives for development in the fine flavour cocoa market trough for example cocoa associations. Also, the organic niche market is being explored. This all has paid off in an increase of quality cocoa in the last couple of years, resulting in a 100% recommendation of the ICCO. Looking at the numerous variables mentioned above, the potential of Mexico is seen as medium in this research.

Venezuela

General cocoa sector

During the colonial period in Venezuela (1600-1800), cocoa cultivation spread throughout Venezuela, and the first plantations arose in Barlovento. These first plantations were established by Capuchin monks. After that, major cocoas (large growing families) took over, who got very wealthy by the export of cocoa[117]. But today, smalls scale farmers are producing the cocoa, with 18.000 MT a year (2011) and an average yield of 390 kg/ha[118]. Cocoa has traditionally led the agricultural sector as one of the principal export commodities but production has declined in recent years as a result of low international prices, the effect of other developing industries in Venezuela (such as oil). Also, the (instable) political situation in Venezuela has its effect on the trade. [119] However, cocoa is still a very important part of the agricultural sector and Venezuela is an important market player in the fine flavour cocoa industry.

Fine flavour cocoa

95% of the total cocoa production in Venezuela can be defined as 'fine flavour cocoa', according to the ICCO fine flavour panel (2010). Some cocoa beans were reported as being only partially fermented, resulting in 95% instead of 100% fine flavour cocoa export[120].

The three major cocoa regions in Venezuela are the western region (Zulia, Merida, and Barinas), the Center Region (Aragua and Miranda), where the Chuao region is producing cocoa and the East Region (Sucre), producing Rio Caribe[121]. The fine flavour cocoa varieties that are being produced are:

- Porcelana
- Guasare
- Choroni
- Ocumare (61 + 67 varieties)
- Carenero Superior
- Rio Caribe

Market organization

One of the areas producing (a.o.) fine flavour cocoa is Chuao, were producers sell cocoa as a premium product using branding and marketing with Chuao as name of origin. The Chuao valley contains 36 different varieties of cacao, from Criollo through a range of Trinitarios and the Amazonian classic Forestaro Amelonado[122]. The community's own cooperative, the Empresa Campesina de Chuao (Campesina),

[117] Source: http://cara-cao.com/index.php?option=com_content&view=article&id=56&Itemid=199
[118] Source: http://faostat3.fao.org/home/index.html#DOWNLOAD
[119] Source: http://www.latin-focus.com/latinfocus/factsheets/venezuela/venfact_sectors_agriculture.htm
[120] Even though Venezuela has a high level of fine flavour cocoa production, the information on this specialty cocoa was hard to find during this research. Therefore, information on numerous variables used for the potential and/or the market structure are still missing.
[121] Source: http://cara-cao.com/index.php?option=com_content&view=article&id=56&Itemid=199
[122] Source : http://www.seventypercent.com/2011/08/chapon-chuao/

includes 100 farmers who harvest, dry, and ferment the beans, but also manufacture cocoa paste and cocoa nuggets. In 2000 they started a partnership with a chocolate company – Amedei s.r.l. of Italy – to supply their cocoa. Nowadays the term Chuao can be found on multiple bars, for example of Chuao Chocolatier and Pralus[123].

Domori is a manufacturer of fine flavour chocolate, and features a wide range of Venezuelan single-origin chocolate, for example the Domori Chuao bar, next to other manufacturers such as Bonnat, with its Hacienda "El Rosario", Michel Cluizel with his Venezuelan ''Concepcion", Willies Cacao which manufacturers Venezuelan cocoa in South England, Cacao Barry dark chocolate Venezuelan couverture and El Rey, producing gourmet chocolate made from cocoa beans in Venezuela. The latter is also, together with Nestle, leading Aprocao, an alliance which pays above market prices for cocoa beans, dealing directly with farmers without intermediaries[124]. Aprocao is now buying approximately 40% of all cocoa grown in Venezuela – all of which is bought directly from small-holder farmers. Since 2007, Aprocao has also been running a Farmer Assistance Programme, where participating farmers have increased their average harvest from 250 kg/ha to over 600 kg/ha[125].

Valrhona bought its first plantation in Venezuela 20 years ago. This company owned plantation has resulted in an estate grown chocolate, the Porcelana El Pedregal bar.[126] Felchlin Switzerland works together with three partners in the region. The first partner is the family Franceschi, who handle in premium quality cacao, including controlling the quality and the drying process before shipping the cacao beans to Europe. The second and third partners are Gustavo Bernal and Alejandro Prosperi. Both have a large network of contacts and close relationships with the local cacao farmers[127].

Incasuca is a cocoa company that exports about 1.000 metric tons of Venezuelan cocoa and has a strict quality control of the beans that are brought by the farmers. The beans are sorted for single and double beans (2 beans stuck together). Incasuca only exports the single beans because the double beans are hard to roast, they go to the local market[128].

The Venezuelan price is usually higher than the leading New York exchange market price indications for cocoa. Although the exchange market functions as a basis for negotiation for the prices of the premium cocoa market, prices are primarily determined by the quality of the cocoa and what the supplier can offer in terms of information and traceability[129]. Since Venezuela produces high quality cocoa with a relatively transparent value chain, they receive a premium price for their cocoa. However, it has been argued that

[123] Source : http://www.chocolatetradingco.com/magazine/features/chuao-chocolate
[124] Source: http://www.chocolates-elrey.com/fair-trade-chocolate.html
[125] Source: http://www.nestlecocoaplan.com/cocoa-origins/venezuela/
[126] Source : http://www.valrhona-chocolate.com/Commitment_ep_70.html
[127] Source ; http://www.felchlin.com/en/product/cacao-maracaibo
[128] Source:
http://www.worldagroforestrycentre.org/treesandmarkets/inaforesta/documents/agrof_cons_biodiv/cocoa%20harvesting.htm
[129] Ministry of Foreign affairs of the Netherlands - Prices and price developments for cocoa

their higher prices and current political situation could make trading more difficult, providing a good opening for other fine flavour countries, for example Peru .

Governance and regulatory environment

In 2006, the government started work on a cocoa-processing plant (Cocoa Oderi - Empresa Bolivariana de Producción Socialista) and a chocolate company (El Cimarron) in the region of Barlovento. 'Oderi was one of the country's first experiments with an 'EPS' - 51 per cent state-owned and 49 per cent worker-owned. The key government mechanism to distribute ground-rent exercised through the plant is the "fair price of 10.3 Bsf/kg of cocoa, about 20% above the market rate, which is designed to be extended to all the surrounding cocoa producers. In July 2013, the government opened another chocolate Cimarron factory, to increase local production of cocoa, and more chocolate processing plants will follow in the states of Barinas, Monagas, and Sucre. In 2011 cultivation of cocoa was the area which received the most financing by the Fund for Socialist Agrarian Development (Fondas) and the Agricultural Bank of Venezuela (BAV), for Bs94 million in credits out of a total of Bs234 million [130]. This shows the importance of cocoa for the country.

Barriers and opportunities

In 2010, the government appointed cocoa beans as a strategic crop and declared it a national product[131]. It also invested about $10 million in research on Venezuelan cocoa and training of cocoa farmers. This generated a new wave of farming, especially organic farming has expanded rapidly[132]. However, bureaucracy and regulations of the government are making it hard for cocoa companies to expand[133].

[130] Source: http://venezuelanalysis.com/news/9861
[131] Michelutti (2012) - Small-scale farmers under socialist governments: Venezuela and the ALBA People's Trade Agreement
[132] Source: http://news.bbc.co.uk/2/hi/business/5235804.stm
[133] Source: http://bigstory.ap.org/article/venezuela-chocolate-king-thrives-despite-controls

Venezuela – Information Table[134]

Venezuela	
Varieties FFC	Trinitario and Criollo e.g. ○ Porcelana ○ Guasare ○ Choroni ○ Ocumare (61 + 67 varieties) ○ Carenero Superior ○ Rio Caribe
Per variety: yield	±400 kg/ha 18.000 t/y for total cocoa production
Market structure	
• Producers	46.165 ha for total cocoa production
• Processors	Bean to bar for example Chocolate Hacienda San Jose bars Cocoa Oderi (government cocoa processing plant) Empressa Campesina de Chuao Campesina
• Manufacturers	Domori Bonnat Michel Cluizel Nestle El rey Amedei El Cimarron (chocolate company government) Willies cacao Cacao Barry Valrhona Felchlin
• Market organization	Aprocao (Nestle – El rey) Venezuelan Cocoa Socialist Corporation
• Traders / exporters	*(See manufacturers)* Incausa
Regulatory environment	Bureaucracy but improving – National Cocoa Plan
Barriers and opportunities	The turbulent political situation could be of disadvantage for the cocoa industry
Systems of quality assurance	x

Table 15 Information table for Venezuela

[134] See Annex 2 for the complete overview of the fine flavour cocoa sector of Venezuela

Potential fine flavour cocoa

Looking at Table 16, it can be concluded that Venezuela has a 'medium' fine flavour cocoa potential, with the information that was found during this research. Venezuelan cocoa has average yields, and good varieties for fine flavour cocoa. There are some farmer organizations and some local processing, all in an enabling environment, looking at the premium price, the chocolate manufacturers and the declaration of being a national product. The government is involved, and is also investing in its cocoa sector, even though the political situation is not stable and has its effect on trade.

Structure	Variables	Negative	Neutral	Positive	N.I
Variety	Age of trees				?
	Resistance of pods				?
	Variety in use			+	
	Yield		±		
Market structure	Level of farmer organization		±		
	Local processing		±		
	Enabling environment		±		
	Market integration (suppliers - buyers)				?
	Export in volumes	-			
Regulatory environment	Tax				?
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge		±		
	Projects quality/quantity			+	
	Mixing bulk cocoa				?
Quality assurance	Quality control				?
	Quality status				?
Total (17)		1 (-)	6 (±)	2 (+)	8(?)

Table 16 Score of variables defining the potential of Venezuela

Conclusion for Venezuela

According to the ICCO, Venezuela has an export of 95% fine flavour cocoa, producing Criollo beans and Trinitario's (Carenero Superior and the Rio Caribe). It has a good reputation, with numerous manufacturers using cocoa for specialty chocolate, e.g. Domori, Amedei and El Rey. A premium price is paid for this high quality cocoa, and numerous chocolate manufacturers use Venezuelan cocoa, which can be seen as a **strength** of Venezuela. Since 2010, cocoa is declared a national product which implies incentives for the government to invest in the cocoa sector. However, the Venezuelan potential for fine flavour can be defined as 'medium' because of factors implying Venezuelan **weaknesses**: there seems to be an average enabling environment, looking at poverty rate of farmers, lack of investments in previous years etc. The unstable political environment can also disadvantage the cocoa sector. But, the government is currently investing in its cocoa sector, looking also at niche markets like organic cocoa and using cocoa as a national strategic product, providing **opportunities** for the cocoa industry.

Asia

17% of the world's bulk cocoa production comes from Asia, mostly from Indonesia, the 3th largest world producer. Other producing countries are Malaysia, Papua New Guinea, Vietnam, and the Philippines[135]. The 'Cocoa Association of Asia' engages in the production of cocoa, focussing on sustainable crop management, fair prices and boosting the cocoa development. [136]

In this section, we will look at Java in Indonesia and Papua New Guinea, for the production of specialty cocoa. It has to be said that it was a challenge finding specific information about the fine flavour industry in Java. Therefore, information about the cocoa industry in Indonesia is also given.

[135] Cadbury – cocoa and chocolate
[136] Source: http://cocoa-association-asia.org/chairmsg.php

Papua New Guinea (PNG)

General cocoa situation

Cocoa was first introduced into Papua New Guinea (PNG) from Samoa by the Germans at the beginning of the 20th century. It was a Trinitario variety that originated from Trinidad and Venezuela reaching Samoa via Java, Ceylon (Sri Lanka) and Cameroon. The Upper Amazonian (Forastero) variety was introduced in the 1960s by the Department of Agriculture, Stock and Fisheries (DASF)[137].

Cocoa is now one of the main cash crops in Papua New Guinea with 39.400 tons of cocoa produced in 2011[138]. The cocoa production in PNG has a low average yield with 300 kg/ha, even though some of the planting material has a potential yield of 2.500 kg/ha[139], and is produced by 70.000 small scale farmers[140].

Fine flavour cocoa

PNG cocoa contribution, though insignificant in volume (2% of the world's cocoa production) represents up to 9% of the world's fine flavour cocoa. According to the ICCO fine flavour panel, 90% of the cocoa production of PNG can be classified as fine flavour cocoa. In contrast to Indonesia, where under-fermented beans are sold for processing as bulk cocoa, PNG cocoa is fermented and dried locally[141].

Despite the 'fine favour' status of PNG cocoa, the price received by growers is generally determined by the standard of the fermented dried bean and the world price. The price of a grower's beans are determined by sampling to be either 'good fermented beans', 'fair fermented beans' or 'reject beans'. Hence, fermentation and drying play a significant role in the return growers receive for their produce[142].

Market organization

Cocoa was grown on large estates until the 1950s, when smallholders began planting cocoa in small plots. Smallholder production increased from around 31% in 1970 to 93% (as a percentage of total production)[143]. The majority of the farmers copied the plantation system, either by being employed as labourers, or through extension organized by various settlement schemes[144]. But plantations operated under more intensive input conditions with different labour sources, while smallholders rely on family labour, applying minimal chemical inputs and tend to reduce spending on inputs when cocoa price falls. Therefore, control of diseases, previously based on high-input cultural practices, fungicides and disease

[137] Source : http://www.pngembassy.org/agriculture.html
[138] Source: http://faostat3.fao.org/home/index.html#DOWNLOAD
[139] Round Table Conference paper (2007) - Towards a sustainable cocoa economy in PNG: Enhancing cocoa production through adoption of Integrated Pest and Disease Management (IPDM) with farmers participation
[140] Source: http://www.postpng.com.pg/philatelic_files/stamp_issue_files/cocoa_2011.html
[141] Source: http://pustaka.blog.mb.ipb.ac.id/files/2010/07/indonesias-strategic-agricultural-commodities-in-meeting-the-WTO-agreement.pdf#page=179
[142] Diczbalis (2004) - Cocoa fermentation and drying and genotype quality assessment in Papua New Guinea
[143] Aipi et al. (2012) - Supply Response of Cocoa in Papua New Guinea
[144] Efron et al. - Breeding Strategies to Improve Cocoa Production in Papua New Guinea

resistant clones, has diminished. However, new estates are rapidly replanting with high yielding and more disease resistant hybrids[145].

PNG's largest cocoa grower, trader and exporter is the Agmark company, growing cocoa on their own plantations and buying from smallholders in the country. It trades and exports 70% of PNG's cocoa, providing high end quality cocoa[146]. However, it is not mentioned if they are involved in the fine flavour niche market.

Governance and regulatory environment

Smallholder cocoa farmers have formed associations or co-operative societies, through which they have access to help from the government via the PNG Cocoa Board. Most of the cocoa producing provinces have well established network of cocoa cooperative societies, through which the Cocoa Board regional office implement its extension services. The Cocoa Board was established in 1974, and is responsible for research and extension services, coordinating and regulating the processing, marketing and export of cocoa and related products in PNG. As the central state agency it has overarching responsibility to oversee the approach of the cocoa industry to promote a sustainable development in the cocoa industry in Papua New Guinea[147]. The Cocoa and Coconut Institute[148] (CCI) is made up of representatives from both the Cocoa Board and the Coconut Industry Corporation and is owner of the national collection of cocoa varieties, and has as objective to conserve and maintain (and improve) cocoa genetic diversity.[149]

The government's key social responsibilities like providing good roads and bridges, facilitating the markets for produces, providing frequent technical expertise, providing direct financial assistance, subsidizing the costs of inputs, providing reliable electricity and transportation are mostly absent according to cocoa farmers. Apart from some help given by organization's like the Cocoa Board, CCI and some businesses, direct government help has not been forthcoming. This has provoked the farmers to produce on a 'hand-to-mouth' basis, where there is no incentive for sustaining the industry in the long run[150].

Barriers and opportunities

The relative low yields in PNG have been attributed to many factors, including labour shortages, low levels of maintenance (e.g. pruning, shade control and weeding), lack of appropriate agronomic knowledge, lack of transport and a poor infrastructural set up and land shortages. Also, high losses are caused by diseases (estimated at 40%), particularly due to black pod and canker, vascular-streak dieback (VSD) and pink disease are common[151]. Moreover, most of the production comes from land that has been cropped for 15

[145] Source: http://www.pngembassy.org/agriculture.html
[146] Source: http://www.agmark.com.pg/9cocoa.html
[147] Round Table Conference paper (2007) - Towards a sustainable cocoa economy in PNG: Enhancing cocoa production through adoption of Integrated Pest and Disease Management (IPDM) with farmers participation
[148] Source: https://sites.google.com/a/cgxchange.org/cocoanet/cocoa-genebanks/papua-new-guinea---cci
[149] Quirke et al. (2007) - Papua New Guinea coffee and cocoa policy linkages
[150] Aipi et al. (2012) - Supply Response of Cocoa in Papua New Guinea
[151] Daniel et al. (2011) - Enhancing Papua New Guinea smallholder cocoa production through greater adoption of disease control practices

years or more with little or no fertiliser inputs, reducing the soil fertility[152]. Furthermore, limited access to financial resources, lack of easy access to marketing, lack of institutional capacity for development and market has affected cocoa production.

Nevertheless, PNG receives prices above world averages for its cocoa and manufacturers have a strong interest in fostering improvement of the PNG industry: improvement of cocoa quality and ensuring that smallholder production is sustainable are key focuses of their research and development programs[153]. The smallholder price is on average 70% of the export price. The processing and trading margins are thin, with operators relying on volumes to cover costs[154].

One promising aspect of cocoa production is the expansion to new areas and the identification of potential cocoa growing regions in the country like Karamui in Simbu province and other provinces unaffected by the pod borer disease. Currently major exporting companies have collaborated with the Cocoa Board, CCI and grower associations to educate farmers on farm management skills to manage the disease. Also, a major program for replanting high-yield and more disease-resistant hybrids with a capacity to yield up to 2 t/ha is under way on cocoa estates. A number of quality control and enhancement initiatives are being developed, variously aimed at for example enhancing fermentation and drier inspection, strengthening licensing and registration procedures and establishing a fermentation and production database[155].

Another promising aspect of cocoa production is setting up a chocolate market in PNG. CCI has done research in trying to produce chocolate, to lessen the external economic shocks because of the trade weighted income levels. They concluded that with more funding and marketing a reputable company could be engaged to operate a full flexed chocolate manufacturing operation in the country, mitigating any chances of exposure to external shocks[156]. Therefore, the development of bean to bar initiatives for fine flavour cocoa could be an opportunity in PNG.

[152] Nelson et al. (2010) - Nutrient status of cocoa in Papua New Guinea: results from a survey
[153] Source: http://pustaka.blog.mb.ipb.ac.id/files/2010/07/indonesias-strategic-agricultural-commodities-in-meeting-the-WTO-agreement.pdf#page=179 (2004)
[154] Quirke et al. (2007) - Papua New Guinea coffee and cocoa policy linkages
[155] Source: http://agritrade.cta.int/Agriculture/Commodities/Cocoa/Executive-Brief-Update-2012-Cocoa-sector
[156] Aipi et al. (2012) - Supply Response of Cocoa in Papua New Guinea

Papua New Guinea - Information Table[157]

Papua New Guinea	
Varieties FFC	Trinitario (90% FFC of total) 9% of FFC world production
Per variety: yield	39.400 tons per year About 300 Kg/ha
Market structure	
• Producers	Around 70.000 Smallholders Agmark company
• Processors	Mostly farmers themselves ferment and dry the beans (85%)
• Manufacturers	Rausch Olam
• Market organization	Cocoa Board CCI
• Traders / exporters	Agmark company
Regulatory environment	PNG Cocoa Board
Barriers and opportunities	Barriers: weak governance of the chain, lack inputs and knowledge Opportunities: incentives for promoting sustainable and high quality/quantity cocoa
Systems of quality assurance	Pricing according to quality fermenting

Table 17 Information table for Papua New Guinea

[157] See Annex 2 for the complete overview of the fine flavour cocoa sector of Papua New Guinea

Potential fine flavour cocoa

Looking at the variables in Table 18 to determine the potential, PNG scores mostly average. Papua New Guinea has mostly the right variety, but it has low yields and aging trees. There is weak governance, and lack of financing and access to markets. However, the governance is trying to approach this issues. Furthermore, the level of local processing is high and it has a reasonable enabling environment, with the Cocoa and Coconut Institute and the Cocoa Board engaging in the production and development of (fine flavour) cocoa, and starting up numerous projects to develop new locations for and new aspects of the cocoa market (i.e. bean to bar projects). Therefore, the potential is defined as 'high'.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees	-			
	Resistance of pods	-			
	Variety in use			+	
	Yield	-			
Market structure	Level of farmer organization			+	
	Local processing			+	
	Enabling environment		±		
	Market integration (suppliers - buyers)		±		
	Export in volumes		±		
Regulatory environment	Tax		±		
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge	-			
	Projects quality/quantity			+	
	Mixing bulk cocoa				?
Quality assurance	Quality control				?
	Quality status		±		
Total (17)		4 (-)	6 (±)	4 (+)	3 (?)

Table 18 Score of variables defining the potential of Papua New Guinea

Conclusion for Papua New Guinea

Papua New Guinea has a high potential for fine flavour cocoa. As seen in Table 18, its **weaknesses** are diseases spreading, aging trees and weak governance. However, a **strength** is the high level of (local) processing, which is determining the pricing, making it a good incentive for farmers to have good post-harvest practices. Another strength is the already existing market of 90% fine flavour cocoa export, the only Asian country with an extensive FFC market. **Opportunities** for the fine flavour cocoa industry could be setting up a quality control system and more involvement of the government. Also, the manufacturing of chocolate in PNG itself can be a good development, for example 'bean to bar' fine flavour cocoa projects. But **threats** are also apparent, since more and more hybrids being introduced with higher yields and disease resistance, and mixing the varieties should be avoided.

Indonesia – Java

General Cocoa situation

Indonesia is the third biggest cocoa producer after Ivory Coast and Ghana, with about 712.200 metric tons of cocoa beans produced in 2011, producing 15% of total world cocoa bean production. Cocoa is cultivated on more than 1.5 million hectares, generating over $1.2 billion in exports annually. Smallholder farmers work mostly on plots ranging from 0.5 to 1.5 hectares. Currently, cocoa yields in Indonesia range from 400 (Java) to 800 kg/hectare (Sulawesi), with the potential to increase yields to 1-2 MT/hectare[158]. Indonesia's biggest competitive advantages include low cost, high production capacity, efficient infrastructure and open trading/marketing system.[159] Also, the government policies have encouraged expansion of production, especially from hybrid trees. Yields are the highest among major cocoa producing countries[160].

Fine flavour cocoa

The fine flavour cocoa production in Indonesia makes up about 1% of the total cocoa market, with a production of approximately 3.000 tons per year. It is mainly produced in Java, with a very small part also located in Bali. "Java cocoa" is a fine flavour cocoa product which was originally selected from crosses between "Java Criollo" trees and an unknown parent at Djati Roenggo (Java) in 1912. An interesting finding of Susilo et al. (2011) was the similarity between fine flavour and bulk cocoa in Java, despite their large difference in markets. The two groups shared a similar parental background, but are segregated in bean colour and flavour[161].

In Java the cocoa is mainly produced by a government estate, namely PT Perkebunan Nusantara XII, with a total area of 5.000 hectare. The entire cocoa area in Java is 78.652 hectare [162]. Clones of fine flavour in that estate are DR 1, DR 2, DR 38, DRC 16, ICCRI 01, and ICCRI 02. All production is exported to Europe and gets a premium price[163], according to the Cocoa Board.

Market organization

For bulk cocoa[164], the key cocoa grinders are PT General Food Industries, a unit of Singapore-based Petra Foods Limited, PT Bumi Tangerang, PT Effem Indonesia, Mars and PT Davomas Abadi Tbk. Big companies such as Cargill, ADM, Mars and Barry Callebaut, are also involved in the Indonesian bulk cocoa sector[165].

The Ceres Group is the only fully integrated cocoa manufacturer and product exporter in Indonesia. The Ceres manufacturing plant is located in Java but recently expanded their processing operations

[158] Source: http://www.veco-ngo.org/sites/www.veco-ngo.org/files/blog/bijlage/indonesia-cocoa-case.pdf
[159] Usaid (2006) - Indonesian cocoa bean, value chain case study
[160] Source: http://www.fao.org/docrep/006/y5143e/y5143e0x.htm
[161] Susilo et al. (2011) – Assessing genetic diversity in Java fine flavour cocoa; germplasm by using simple sequence repeat markers
[162] Susilo et al. (2011) – Assessing genetic diversity in Java fine flavour cocoa; germplasm by using simple sequence repeat markers
[163] Personal communication with mr. Soetanto, Chairman of the Indonesian Cocoa Board – June 2013
[164] Panlibuton et al. (2004) Value chain assessment of Indonesian cocoa
[165] Claes – presentation on cocoa in indonesia

internationally, with a new 50.000 MT capacity facility in Malaysia. Ceres produces a variety of higher quality chocolate products for export[166].

ASKINDO stands for the Association of Indonesian Cocoa sector, most members are local traders and exporters[167]. It provides linkages in the sector and a variety of technical and advocacy support. Another association, APIKCI (Indonesian Cocoa and Chocolate Industry), was recently established to represent cocoa processors and manufacturers. The Indonesian Cocoa Farmers Association (APKAI), is an association specially organized for cocoa farmers. AIKI, the Indonesian Cocoa Industry Association, is an association representing the entire cocoa industry.

Governance and regulatory environment

Since its liberalisation in the 1970s, the government has made minimum intervention and has left the cocoa sector to the market mechanisms, including price setting. The current market structure provides little incentive for quality improvement, therefore cocoa trading is based on quantity. It also gives ways to market domination by international cartels, who control 80% of the cocoa sector[168]. However, the government is more and more focussing on the cocoa sector and especially its sustainable improvement: the *national policy & strategy toward a sustainable cocoa development* focusses on: increasing productivity and quality of cocoa beans, improving the processing of cocoa beans (grinders), implementing farmer – trader – industry partnerships and providing inputs and training for smallholders. It may also lead to a law enforcement for the Standard National Indonesian (SNI) certification for quality cocoa beans[169].

In 2006, the Indonesian Cocoa Commission was established, as an advisory body to the government, which was later replaced by the Indonesian Cocoa Board[170], comprising the major cocoa sector associations and related government departments, to provide input to policy makers. This followed among other things in the 'Gernas' program to revitalize the cocoa production in Indonesia, the 'Cocoa Sustainable Platform', the 'National Cocoa Movement' and the 'Success Alliance project'[171]. Indonesia also signed the Abidjan Cocoa Declaration in 2012, which aims to for a sustainable cocoa economy[172].

In 2010, the Indonesian governance introduced a (5-15%) tax on the export of cocoa beans. The implementation of cocoa beans export tax has shifted the export composition from cocoa beans to cocoa products. In the future, Indonesia will increase its cocoa product export rather than cocoa beans by

[166] Usaid (2004) - Indonesian cocoa bean, value chain case study
[167] Usaid (2006) - Indonesian cocoa bean, value chain case study
[168] The Business Watch Indonesia – the Indonesian cocoa sector
[169] Soure: http://www.thesuccessalliance.org/2006SUCCESSAlliance-Damardjati.pdf
[170] Claes – presentation on cocoa in indonesia
[171] Source: http://www.cspindonesia.org/index.php?option=com_k2&view=item&layout=item&id=27&Itemid=202&lang=en
[172] Source: http://www.icco.org/about-us/icco-news/219-indonesia-signs-the-abidjan-cocoa-declaration-in-bali.html

expanding on this growing market[173]. This could be seen as an incentive for more bean to bar project, using fine flavour cocoa.

Barriers and opportunities

There is an Indonesian national quality standard for exports of cocoa beans, developed by the National Standards Board of Indonesia (SNI), but it is currently only voluntary. If exporters or buyers require certification of their beans then the inspection is performed by one of two companies: Sucofindo or PanAsia, that issue certificates to exporters ensuring that the beans meet the Indonesian quality standard. However, the legitimacy of these inspection certificates is still questioned by some international buyers[174].

The Indonesian cocoa production is threatened by inconsistent and poor quality production: widespread pest infestation (cocoa pod borer) is a primary cause of poor cocoa bean quality. Also, Indonesia has been struggling to increase production because its ageing cocoa trees, most of them planted in the 1980s[175]. Other Problems in the (bulk) cocoa sector are caused by a lack of access to finance and markets, limiting farmers that sell directly to processors or exporters, with low bargaining power, making them dependent of the traders[176]. Therefore, the government has set up *a national policy & strategy toward a sustainable cocoa development plan* (see government).

There are few incentives for farmers to maintain their cocoa bean quality because the purchasing price by local traders is almost neglecting the bean quality: fermenting the beans, as one effort to increase bean price, is not appreciated by traders with appropriate price. As a result, farmers do not handle the beans in proper post-harvest practice or sell the beans in wet condition[177]. Therefore, the government has imposed an export tax on raw cocoa beans in 2010, amounting between 5% and 15% depending on world price fluctuations (see governance). This new export tax is an incentive for establishing more domestic fermenting industries as well as a signal for processing firms to increase their performance as there have been reports that some cocoa bean processing firms are not operating at full capacity[178].

[173] Rifin et al. (2010) The Effect of Export Tax on Indonesia's Cocoa Export Competitiveness
[174] Panlibuton et al. (2004) Value chain assessment of Indonesian cocoa
[175] Source: http://www.reuters.com/article/2012/10/15/us-indonesia-cocoa-factbox-idUSBRE89E1DL20121015
[176] Claes – presentation on cocoa in Indonesia
[177] Source: http://repository.ipb.ac.id/bitstream/handle/123456789/41666/Determination%20of%20Cocoa%20Bean%20Quality%20with%20Image%20Processing.pdf?sequence=1
[178] Source: http://www.indonesia-investments.com/business/commodities/cocoa/item241

Java - information in table[179]

Java	
Varieties FFC	*Clones of fine flavour are DR 1, DR 2, DR 38, DRC 16, ICCRI 01, and ICCRI 02*
Per variety: yield	DR 1: 1.50 (ton/ha) DR 2: 2.16 (ton/ha) DR 38: 1.50 (ton/ha) DRC 16: 1.54 (ton/ha) ICCRI 01: 2.5 (ton/ha) ICCRI 02: 2.37 (ton/ha) (Trinitario; "Java criollo")
Market structure	
• Producers	PT Perkebunan Nusantara XII, a government estate in East Java (producing e.g. cocoa)
• Processors	Only 12 processing companies in Indonesia (Ceres) Mostly raw beans are exported (10% of bulk processed)
• Manufacturers	Only Ceres in Java Felchlin Switzerland
• Market organization	ASKINDO national cocoa organization APIKCI association Indonesian Cocoa Commission Indonesian Cocoa and Coffee Research Institute (ICCRI) The Indonesian Cocoa Farmers Association (Sulawesi)
• Traders / exporters	Ceres, Cargill, Sulawesi cocoa, Cornextra Majora (with Callebaut) (mostly bulk cocoa)
Regulatory environment	Export tax on cocoa beans that are not processed to stimulate processing of cocoa beans (therefore getting a better price) Low government involvement however is improving trough sustainability projects
Barriers and opportunities	Diseases, lack of access to market/finance/inputs, low productivity Sustainability programs for the cocoa sector
Systems of quality assurance	Quality control on voluntary basis for bulk cocoa

Table 19 Information table for Java

[179] See Annex 2 for the complete overview of the fine flavour cooca sector of java

Potential fine flavour cocoa

If we look at the variables used to assess the potential of fine flavour cocoa (see table), we can conclude that Java has 'medium' potential. It has the right variety, with an average yield, a reasonable level of farmer organization and enabling environment. However, there is little local processing and only a small market integration for farmers and traders. The export in volumes is also small and there is a risk of mixing with bulk cocoa.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees	-			
	Resistance of pods	-			
	Variety in use (Java)			+	
	Yield		±		
Market structure	Level of farmer organization		±		
	Local processing	-			
	Enabling environment		±		
	Market integration (suppliers - buyers)	-			
	Export in volumes	-			
Regulatory environment	Tax				?
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge	-			
	Projects quality/quantity		±		
	Mixing bulk cocoa	-			
Quality assurance	Quality control		±		
	Quality status		±		
Total (17)		7 (-)	7 (±)	1 (+)	2 (?)

Table 20 Score of variables defining the potential of Java

Conclusion for Java

Java's **strength** is their 'Java Criollo' fine flavour cocoa production (1% market share of Indonesia), but it only comes from one estate (PT Perkebunan Nusantara XII) which is regulated completely by the government. A **weakness** is the fact that it does not seem to have incentives to increase its fine flavour quality or quantity, even though it has the right variety. Also the government has no special focus on the fine flavour cocoa industry. For bulk cocoa however, improvement programs are being set up to increase the quality and increase the share of cocoa products (compared to cocoa beans). For example, a tax is now in place for cocoa beans to increase post – harvest practises and cocoa processing. **Opportunities** for the fine flavour cocoa industry could be the coming law on quality control and the focus on sustainability, of which fine flavour cocoa has many characteristics.

Africa

West - Africa is the main cocoa production area in the world, with Ivory Coast, Ghana, Cameroon and Nigeria producing together more than two- third of the world bulk cocoa production[180]. Ivory coast is the biggest producer, with a production of 1.350.320 MT in 2011, followed by Ghana with 860.000 MT in 2011. Nigeria and Cameroon each produce around 250.000 MT per year[181]. Other producing countries in Africa are Togo, Benin and Sierra Leone in West Africa and Uganda, Tanzania, Madagascar and Congo in East – Africa, but they have a much smaller share.

Even though West – Africa is producing 70% of the total cocoa production, it is only processing 18% of their cocoa production, and is therefore the largest exporter of raw cocoa beans (80% of world total). Cargill, ADM, Barry Callebaut, Armajaro and Olam are the major purchasing companies of the West – African production. Ghana is slightly different from the other West – African producing countries: the entire cocoa sector is controlled by Cocobod, responsible for the marketing of cocoa and licensing local buying companies to purchase the cocoa beans[182]. This results in local companies buying 85% of Ghana's cocoa last season, in contrast to Ivory Coast, where local purchases made up just 20% of the total production in 2011.

West – Africa is mainly producing bulk cocoa from the Forastero variety (mostly Amelonado). There are some initiatives to producing fine flavour cocoa in West – Africa, like the 'Ghana Fine Flavour Cocoa Project[183]. Madagascar is producing 100% fine flavour cocoa, and some fine flavour cocoa initiatives are found in Congo, like Original Beans[184], and Tanzania[185]. Cameroon is also trying to boost their quality of cocoa, by using their Trinitario variety for the production of fine flavour cocoa (s*ee Cameroon).*

In this section, Cameroon, Togo and Uganda[186] will be discussed. However, no information about fine flavour cocoa production in Togo and Uganda was found during this research. It is therefore assumed, that these two countries are not producing fine flavour cocoa, and a market sketch is given for their bulk cocoa.

[180] Bastide et al. - Atlas on regional integration in West Africa
[181] George (2012) – structure and competition in West African's cocoa trade
[182] For more information : http://www.cocobod.gh/index.php
[183] Source: http://sustainablefood.org/index.php?option=com_content&view=article&id=133:fine-flavor-cocoa-ghana&catid=25
[184] Source: http://originalbeans.com/chocolate/cru-virunga-congo/
[185] Source: http://www.meattradenewsdaily.co.uk/news/311209/tanzania___cocoa__farming.aspx
[186] Chosen by the client Inforum

Cameroon

General cocoa situation

Cocoa was first introduced in Cameroon in 1886 and is now one of their main cash crops[187], accounting for 14% of the country's total export income and 15% for processed cocoa products (2009)[188]. Cameroon is the 5th producing cocoa country with 272.000 tons in 2011 (FAO), producing 5% of the world market. Cameroonian cocoa beans are produced from the Trinitario variety and their cocoa powder has a distinct and sought-after red colour. However, these beans are classified as bulk cocoa beans due to poor growing- and post-harvest methods[189].

The average cocoa yields in Cameroon were about 390 kg/ha in 2011[190]. However, its potential is much higher. A national objective for Cameroon is to increase production of quality cocoa to 600.000 tons by the year 2015[191]. Cameroon also signed the Abidjan Cocoa Declaration in 2012, which aims to for a sustainable cocoa economy[192].

Fine flavour cocoa

In West - Cameroon the Trinitario variety is grown and in East Cameroon the Trinitario variety is mixed with Amelonado (Forastero). The use of Trinitario cocoa accounts for the distinct physical characteristics (higher fat content, red coloured powder) of Cameroonian compared with other West African producers[193]. The Cameroon government is actively trying to improve the general quality of cocoa, and is therefore also focusing on the characteristics of the Trinitario variety, which could be used for fine flavour cocoa production. A report from *Cirad*[194] concluded that 20% of the samples in their study where eligible fine flavour cocoa varieties. Since they are still being produced together with bulk cocoa, the first step the government is taking is to identify the fine flavour cocoa farms. The government is also setting up a database on fine flavour producers in Cameroon, is trying to improve contact and trade between chocolate manufacturers and fine cocoa producers and is setting up a network of the fine flavour producers for grouped exportation. After the identification of the fine flavour variety, good post-harvest techniques can be used to produce a higher quality of cocoa (fine flavour). Additionally, a marketing strategy is needed to commercialize the production of fine flavour cocoa[195].

[187] Drum commodities (2012) – An introduction to the Cameroonian cocoa industry
[188] Royal Tropical Institute, AgroEco/Louis Bolk Institute and Tradin (2010) - Organic cocoa production in Cameroon and Togo
[189] Drum commodities (2012) – An introduction to the Cameroonian cocoa industry
[190] Source: http:// http://faostat.fao.org/
[191] Copal (2012) – Cocoa information newsletter
[192] Source: http://www.icco.org/about-us/icco-news/219-indonesia-signs-the-abidjan-cocoa-declaration-in-bali.html
[193] Source: http://www.iita.org/web/stcp/country-activities/cameroon
[194] Presentation Pierre Etoa – www.cocoaconnect.com
[195] Presentation Pierre Etoa – www.cocoaconnect.com

At the moment, one cocoa farmer organization already identified as actual fine cocoa producer and six cocoa farmers already identified as potential fine cocoa producers[196]. One French chocolate manufacturer, LeCriollo, bought 2 tons of cocoa in 2009 through the National Confederation of Cocoa Producers, paying a quality premium price and prepared chocolate from it [197]. So Cameroon already has the potential for fine flavour cocoa production and is ready to set up a program in order to be able to export high quality cocoa. Joined efforts of research, extension and trading bodies are expected to allow the proportion of fine flavour cocoa produced in Cameroon to reach 5% within the next five years[198].

Market organization (bulk)

Within Cameroon there are only two companies providing crushing facilities, SIC Cocoa and Chococam. SIC Cocoa is 50% state controlled and 50% owned by Barry Callebaut, one of the world's largest chocolate processing companies[199]. Chococam is specialized in the manufacture of chocolate-based products and various sweets from cocoa mass and has a domestic market share of 55%.[200] It was first owned by Barry Callebaut, but was sold to Tiger Brands South Africa in 2008[201].

However, Barry Callebaut is still active in Cameroon and has launched the first Cameroon origin cocoa powder on the market in 2013. Its presence in Cameroon enables Barry Callebaut to source beans directly from the local cocoa farming communities and to directly process them in the country. The origin cocoa powder reflects the typical characteristics of the cocoa variety and the specific soil and climate conditions of Cameroon, leading to its unique flavour and possibilities especially for bakery applications[202].

Firms operating within the cocoa industry in Cameroon are Telcar Cocoa Limited, Cameroon Marketing Commodities (CAMACO), Ets Ndongo Essomba, Achanyi and Sons and the Cocoa Development Company (SODECOA). These companies operate as agents of the importing Callebaut, WMDS and Cargill[203]. Currently, there is just a single company processing cocoa mass and derivatives in Cameroon and it is a subsidiary of Barry Callebaut. However, Noha Nyamedjo Company, a Cameroonian cocoa trader, is building a high-tech processing plant in Douala that will transform raw cocoa beans into higher-value goods including cocoa butter, powder and liquor. It will be the first local manufacturer or processor of cocoa in Cameroon[204].

[196] No more information available, so Cameroon is still seen as a bulk producer
[197] Source: http://www.artisan-comtois.com/index_minisite.php?Id=873&page=1
[198] Dr Ir Yankam Njonou Rabelais (2013) - Forum National sur la Qualite du cacao camerounais
[199] Royal tropical institute, AgroEco/Louis Bolk Institute and Tradin (2010) - Organic cocoa production in Cameroon and Togo
[200] Source: http://www.iso.org/iso/home/standards/benefitsofstandards/benefits-detail.htm?emid=27
[201] Source: http://www.barry-callebaut.com/print/51?group=,year=,lang=de,keyword=NULL,page=42,release=4460,read=en
[202] Copal (2012) – Cocoa information newsletter February
[203] Drum commodities (2012) – An introduction to the Cameroonian cocoa industry
[204] Source: http://nohanyamedjo.com/index.php?option=com_content&view=article&id=48&Itemid=54

Governance and regulatory environment

The complete liberalization of cocoa marketing in 1995 increased the price received by the producer and also the variability of this price, but the quality of Cameroonian cocoa declined. Generally speaking, as a result of market imperfections, the results of the liberalization policy have not been as good as expected[205]. Therefore, the Cameroonian government created two new structures in 2004: the 'Société de Dévéloppement du Cacao' (SODECAO) and the 'Office National du Cacao et du Café' (ONCC) to help revitalized and restore order in the sector. In 2006, the Cocoa and Coffee Development Fund (FODECC) was created to promote the financing of projects for the commercialization of cocoa and coffee[206]. Other important government organisations are the National Cocoa and Coffee Board (NCCB) and the Cocoa and Coffee Interprofessional Board (CCIB)[207].

Barriers and opportunities

Cocoa in Cameroon suffers heavy attacks of black pod and insects (especially mirids) and the uncontrolled use of fungicides and insecticides is a matter of great concern to the government.[208] Also, in April 2013, the production of 2.000 tons was rejected in Europe because of strict laws on quality of the European Union[209]. The poor quality comes from the poor post-harvest techniques used, and especially by the method of drying the cocoa: cocoa farmers in Cameroon generally dry their cocoa beans on tarred roads or smoke produced in traditional ovens. European buyers had previously warned Cameroon's cocoa farmers that such practises could have a negative effects on the health of consumers. The reaction of the government of Cameroon was to a.o. set up a program for the rehabilitation of ovens [210].

Quality remains an important issue affecting the export price of Cameroonian cocoa. The diminishing cocoa quality during the last 20 years was caused a.o. by absence of financial incitation for good quality cocoa, mixture of different quality cocoa batches before exportation and no proper post-harvest practices applied by cocoa farmers. The question has risen whether Cameroons sole focus should simply be to increase the quantity of cocoa produced or instead aim to improve to quality of the beans it currently produces.

Cocoa production is estimated to increase by 13.6% to 269.000 tonnes in 2015-2016 and over the long term, Cameroon's cocoa industry is expected to benefit from better crop management techniques, as well as increased private and public sector investment[211]. But to improve the cocoa quality there is need for quality control, a regulation and marketing system, geographical indications, specific niche sectors in quality (a.o.t. fine flavour cocoa and organic cocoa) and generic and labels promotion, according to the 'National Cocoa Forum of Cameroon'. This forum consist of stakeholders in the cocoa supply chain and is

[205] Kamdem et al. (2010) - What determines the price received by cocoa farmers in Cameroon?
[206] Source: http://nohanyamedjo.com/index.php?option=com_content&view=article&id=53&Itemid=60
[207] Royal tropical institute, AgroEco/Louis Bolk Institute and Tradin (2010) - Organic cocoa production in Cameroon and Togo
[208] Source: http://www.icco.org/component/content/article/46-sps/89-cameroon.html
[209] Source: http://www.dw.de/new-european-union-import-laws-hurt-african-cocoa-exports/a-16842178
[210] Source: http://allafrica.com/stories/201305271087.html
[211] Drum commodities (2012) – An introduction to the Cameroonian cocoa industry

established to find solutions for main challenges in the Cameroon cocoa sector, looking at a.o.t. sustainability, quality and strategic management[212].

Cameroon is also one of the countries that signed the Abidjan Declaration on Sustainable Cocoa in 2012 where they declared to be committed to transforming cocoa farms into businesses, promote knowledge and better post-harvest techniques, reinstate a quality control system and develop and implement marketing strategies. Cameroon is therefore involved in the 'Sustainable Tree Crops Program ' (STCP) and the 'Cocoa livelihoods Program' (CLP), to improve the conditions of small scale farmers[213]. One of the farmers cooperatives that benefit from these programs is the SOCOPLAUCCOM farmer cooperative[214].

[212] Presentation Pierre Etoa – www.cocoaconnect.com
[213] Source: http://www.prnewswire.com/news-releases/world-cocoa-foundation-launches-cocoa-livelihoods-program-in-cameroon-92746869.html
[214] Source: http://blog.worldcocoafoundation.org/2010/05/cameroon_farmer_organizations.php

Cameroon - Information Table[215]

Cameroon (bulk cocoa)	
Varieties FFC[216]	Trinitario, but still only used for bulk cocoa (poor post-harvest methods) Amelonado for bulk cocoa
Per variety: yield	272.000 T/Y (2011) 390 kg/ha (high potential)
Market structure	
• Producers	Small scale farmers Socoplauccom farmer cooperative
• Processors	SIC Cocoa Chococam (Noha Nyamedjo Company)
• Manufacturers	Barry Callebaut Telcar Cocoa Limited CAMACO Olam Cam Ets Ndongo Essomba Achanyi and Sons WMDS Cargill (Lecriollo)
• Market organization	CCIB Cocoa board Sodecoa ONCC NCBB
• Traders / exporters	Cargill Barry Callebaut Noha Nyamedjo
Regulatory environment	After liberalisation weak governance – now actively involved (i.e. tax)
Barriers and opportunities	Barriers: low quality, diseases, low organisation level, no inputs Opportunities: markets are growing, government involvement, national cocoa forum, FODECC fund - National Cocoa Forum of Cameroon – STCP - CLP
Systems of quality assurance	Weak quality control but is being developed

Table 21 Information table for Cameroon – bulk cocoa

[215] See Annex 2 for the complete overview of the fine flavour cooca sector of Cameroon
[216] For Cameroon, the (bulk) cocoa sector is sketched, since the fine flavour cocoa market is still being developed

Potential fine flavour cocoa

In this research the potential for Cameroon as high. Even though the scoring of variables (looking at Table 22) shows a different picture. However, there are many projects, incentives and plans to develop the quality of the cocoa industry, which influence the potential in a positive way. For example, the national forum on the quality of cocoa in Cameroon is focussing on research and projects to increase the Cameroon cocoa quality. The government is set on increasing the quality of bulk cocoa, of entering the niche market of fine flavour cocoa, and is actively promoting these goals. Therefore, the potential is seen as 'high'.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees	-			
	Resistance of pods		±		
	Variety in use			+	
	Yield		±		
Market structure	Level of farmer organization	-			
	Local processing	-			
	Enabling environment			+	
	Market integration (suppliers - buyers)				?
	Export in volumes	-			
Regulatory environment	Tax		±		
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge	-			
	Projects quality/quantity			+	
	Mixing bulk cocoa	-			
Quality assurance	Quality control	-			
	Quality status	-			
Total (17)		8 (-)	4 (±)	3 (+)	2 (?)

Table 22 Score of variables defining the potential of Cameroon

Conclusion for Cameroon

The potential of the fine flavour market in Cameroon is 'high': the government is trying actively to improve the cocoa quality and to start a fine flavour market, creating numerous **opportunities** for the cocoa sector. They hope that Cameroon will be accepted by the ICCO panel as fine flavour cocoa producing country in the coming years. They have set up the 'Cocoa Development Plan' and the 'National Cocoa Forum' to contribute to the quality, traceability and certification aspects of cocoa. The **strength** of Cameroon is its Trinitario variety, which is currently used for bulk cocoa, but can be used for setting up the fine flavour cocoa market with good post-harvest practices.

Cameroon is not only looking for development of the fine flavour niche market; organic cocoa certification is also a niche market the government is exploring. However, developing these niche markets is an ambitious plan which needs a great amount of effort (and time) to pay off, forming Cameroons **weaknesses**: farmers find it hard to respond to the changing characteristics of products and quality requirements due to a number of constraints a.o. the high poverty of cocoa farmers, lack of organization of actors in general, low farm yields because of their age etc. But the government is actively trying to resolve these issues, focussing on the cocoa quality as main opportunity. Therefore, the potential of Cameroon can be seen as 'high'.

Togo

General cocoa situation

Cocoa is one of the main crops in Togo: it provides a direct livelihood to some 11.000 households, with additional benefits to a chain of collectors, transporters, traders and various exporters. After a significant replanting program with hybrids during the 1970s, yields improved from 150-200 kg/ha[217] to about 770 kg/ha in 2011[218]. However, Togo is in general a very small market player in the world cocoa market, contributing to 10% of cocoa production (2011) with 100.000 MT[219], and only bulk cocoa.

Fine flavour cocoa

Togo has no fine flavour cocoa market at the moment. However, because the cocoa is grown with little or no use of agrochemicals (only a quarter of West African cocoa is grown with agrochemicals), there is an opportunity for organic cocoa production in the region. In Togo, producing organic cocoa could help to strengthen chain coordination, improve quality and increase yields, in addition to bringing in better prices for farmers by asking a premium for an organic product[220]. Projects have already started, for example the trader Gebana is trying to build the first Togolese organic and fair trade cocoa project together with its local partners[221]. Another example is the Progreso Foundation for smallholder farmers which has set up, together with Agro Eco – Louis Bulk Institute, a program to stimulate and develop organic cocoa in Togo[222]. And Kaoka, a French chocolate company (see also Dominican republic), set up an organic cocoa scheme that guaranteed a minimum price for high quality cocoa. However, due to the variety of cocoa produced in Togo and the problems they are already facing with diseases and pests, there are no fine flavour incentives, as far as this research has found.

Market organization

One third of the farmers in Togo is organized in a farmer/producer group association. These groups are in their turn organized in unions, which are member of FUPROCAT, the 'Federation of Unions of Cocoa and Coffee Producers' in Togo. Producers that are member of a farmer association, sell their products to their associations. However, these associations vary in strength and face problems with funding, disloyal members and poor management.

The rest of the farmers (two third) sell to private buyers. These private (small) buyers are often located in a village, and work for larger buying companies. Examples are OLAM, Akanava, Oisis and Indiana Boys. Registered exporters are Banamba, el Nasr, Yentoumi, Olam, Sopat and Sonepro.

[217] Source: http://www.icco.org/component/content/article/46-sps/93-togo.html
[218] Source: http://faostat3.fao.org/home/index.html#DOWNLOAD
[219] Fao database
[220] Royal tropical institute, AgroEco/Louis Bolk Institute and Tradin (2010) - Organic cocoa production in Cameroon and Togo
[221] Source: http://www.gebana.com/en/company/producers/gebana-togo/
[222] Source: http://www.turingfoundation.org/ctry_togo.html#lcr10

JLB Expertises is a company that performs quality controls and monitoring of loading operations of cocoa in a.o.t. Togo. The samples are prepared, and checked according to the Federation of Cocoa Commerce standards[223].

Governance and regulatory environment

In Togo, the industry is very much government regulated, with an obligation to buy/export through a farmers cooperation.

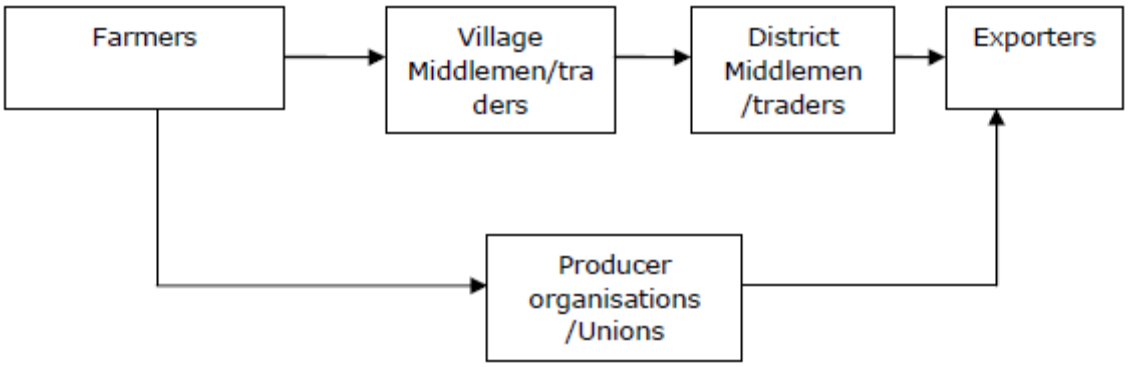

Figure 1 The value chain of cocoa in Togo

Actors in the supply chain are:

- ACDR: Association de Conseils et d'Appuis pour le Developpement Rural
- APAF: Association pour la Promotion de l'agro foresterie
- ITRA/CRAF: La Recherche Agronomique

Barriers and opportunities

Incentives are lacking for farmers to invest more in the cocoa farms resulting in decline in production, with ageing tree stock, decrease of soil fertility and the resurgence of pest problems such as Black Pod, Swollen Shoot and mirids[224]. The cocoa monoculture, locations of farms, poor soils, lack of management and weak harvest practices also contribute to these problems.

In August 2008, the Togolese Ministry shared its vision on a national strategy to revive the coffee and cocoa chains in Togo by strengthening the institutional support to the sector, get higher levels of productivity, better quality of the produce, safeguarding the environment and support research activities. Togo also signed the Abidjan Cocoa Declaration in 2012, which aims for a sustainable cocoa economy[225].

[223] Source: http://www.jlbexpertises.com/en/africa/
[224] Source: http://www.icco.org/component/content/article/46-sps/93-togo.html
[225] Source: http://www.icco.org/about-us/icco-news/219-indonesia-signs-the-abidjan-cocoa-declaration-in-bali.html

Togo - information table[226]

Togo (bulk cocoa)	
Varieties FFC[227]	Forastero
Per variety: yield	100.000 t/y ±770 kg/ha
Market structure	
• Producers	±11.000 households, 1/3 member of farmer association
• Processors	Kaoka (organic)
• Manufacturers	Big companies (abroad)
• Market organization	Fuprocat Acdr Apaf Itra/Craf
• Traders / exporters	Akanava Oisis Indiana Boys Banamba el Nasr Yentoumi, Sopat Sonepro Olam
Regulatory environment	Lack of governance, but has incentives to invest in the cocoa sector
Barriers and opportunities	Diseases, aging trees, decreasing soil,
Systems of quality assurance	Some

Table 23 Information table for Togo

[226] See Annex 2 for the complete overview of the cooca sector of Togo
[227] For Togo, the (bulk) cocoa sector is sketched, since there seems to be no fine flavour cocoa market

Potential fine flavour cocoa

The potential of fine flavour cocoa in Togo is low. The environment is not enabling for fine flavour cocoa production: the variety of cocoa is Forastero, which is not used for fine flavour cocoa. Also, the cocoa industry struggles with diseases and pests; since fine flavour cocoa varieties are even more prone to diseases, it has a low potential for success.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees	-			
	Resistance of pods	-			
	Variety in use	-			
	Yield			+	
Market structure	Level of farmer organization		±		
	Local processing				?
	Enabling environment		±		
	Market integration (suppliers - buyers)		±		
	Export in volumes	-			
Regulatory environment	Tax				?
	Export regulations				?
	Governance		±		
Barriers/opportunities	Inputs and knowledge	-			
	Projects quality/quantity	-			
	Mixing bulk cocoa		±		
Quality assurance	Quality control		±		
	Quality status	-			
Total (17)		7 (-)	6 (±)	1 (+)	3 (?)

Table 24 Score of variables defining the potential of Togo

Conclusion for Togo

The potential for the development of fine flavour cocoa production in Togo is low. A **weakness** is the lack of an enabling environment (*see potential)* and there seem to be no projects or incentives regarding fine flavour cocoa. However, the potential for organic cocoa seems to be high for Togo, since most of the cocoa is already produced 'organic by default', which can be seen as a **strength** and can create **opportunities** for organic certification.

Uganda

General cocoa situation

Cocoa cultivation was introduced in Uganda nearly a 100 years ago, but production has fluctuated through the years as the government has mostly concentrated on promoting coffee production. Cocoa output peaked in the 1960s, but government neglect, a lack of finance and price fluctuations hindered the sector in the 1970s and 1980s. In recent years, however, officials have been encouraging more farmers to start cocoa production[228]. Cocoa is now one of Uganda's major commodity exports and a significant source of foreign exchange, although its production is still low compared to other African countries that produce the crop. Uganda has an estimated 52.000 hectares of land under cocoa cultivation, with 140.000 small scale farmers, producing almost 16.000 MT (2011), with an average yield of 300 kg/ha. Uganda plans to plant an additional 35.000 hectares with cocoa in the next five years to raise production to 50.000 tons by 2015-2016[229]. A notable feature of Uganda is the lack of serious pests and diseases[230].

Fine flavour cocoa

According to Philip Betts from Esco Uganda, Uganda does not produce 'fine flavour cocoa':" Madagascar cocoa is referred to as 'fine flavour' but East African cocoa in general is not because of the lack of right mix varieties to qualify for the term fine flavour[231]. From information through research on the internet the same conclusion can be drawn. However, just like Togo, there is some development in the organic niche market[232]. Big players like Esco Uganda and Barry Callebaut have already set up organic cocoa farming programs, improving both sustainable agricultural practices and producing higher volumes for a higher price[233].

Market organization

In most of the cocoa districts of Uganda, two types of cocoa fields are dominant: mature cocoa trees, most having been planted between 1965 and 1975 and young cocoa trees, mostly planted after 1995, often associated with coffee, banana and food crops. Farmers process the cocoa themselves, before selling to dealers[234], who buy at negotiable prices determined by market forces. The dealers sell to private exporters who export the dry cocoa beans to either France, Germany or the United Kingdom, which are major

[228] Source: http://www.reuters.com/article/2012/09/03/ozabs-ugandas-2011-2012-cocoa-output-see-idAFJOE88205620120903
[229] Source: http://www.bloomberg.com/news/2010-09-27/ugandan-cocoa-output-may-rise-13-next-season-as-new-trees-start-producing.html
[230] Global Research on Cocoa – issue 9 – june 2006
[231] Personal communication with Philip Betts – Esco Uganda in June 2013
[232] Source: http://www.ambafrance-ug.org/spip.php?page=mobile_art&art=482
[233] Barry Callebaut. Organic cocoa farming, expanding opportunities for cocoa farmers
[234] Spe Salvi Fondazione (Universita) – Cocoa production project in Uganda

markets for Uganda's cocoa[235]. Cocoa export has no taxes, duties or levies[236]. Some of the major cocoa dealers include Esco Uganda Ltd, Olam (U) Ltd, Ugacof (U), ICAM and Bakwanye[237].

The 'Uganda Cocoa Association' is a coordinating association of smaller associations of cocoa producers, most of which are not registered (no legal existence) and are "relics" of previous cooperatives created in the '70s and '80s to help with crop marketing[238].

Governance and regulatory environment

The new policies made in 1990 were aimed at removing production, processing, rehabilitation, storage, research and marketing constraints that were impeding development of the cocoa industry in Uganda. These new polices are still being implemented by the private sector and the 'Cocoa Development Project' (CDP), privatizing all issues concerning cocoa processing, marketing, storage and export. CDP is a project set up to develop the cocoa industry by distributing seeds and new plants to farmers[239]. The CDP took on promotional and monitoring roles, ensuring inspection of all cocoa consignments destined for international markets, rehabilitation of cocoa plantations, research, and quality maintenance[240].

Barriers and opportunities

In 2001, the government started a massive campaign to diversify the export sector. More than one million cocoa seedlings were planted whose dividends are now paying off. Cocoa dealers remain positive about the long-term market prospects for Ugandan cocoa as production improves. But the absence of commercial large-scale producers is worrisome[241]. In an interview with the *Daily Monitor (2012)* Mr. Suresh Lyer, head of Olam operations in Uganda said: "There was an Italian Company called ICAM which buys Uganda's cocoa and processes it in Italy. It expressed interest in adding value to Uganda's cocoa to chocolate but is still challenged by the low volumes of cocoa being produced"[242]. However, it is improving: Augustine Chaiga, the export manager of Esco Uganda Ltd, said to *African Agriculture Blog* " We used to get 400 tonnes from farmers but now we get 4.000 tonnes. We have also increased our capacity to buy and have set up a factory in the area to dry the beans to international standards".

Investment in Developing Export Agriculture (IDEA), is working in partnership with the National Agricultural Research Organisation (NARO), to distribute disease-resistant, high-yielding hybrid varieties. The varieties have resistance to verticillium pod rot and stem canker diseases, can survive prolonged drought, and have two or three times the yield of traditional cocoa varieties. IDEA and NARO are also training over 2.700 farmers in Uganda to restore their cocoa plantations using modern farming methods.

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[235] Usaid - A baseline survey on cocoa production in selected districts of Uganda
[236] Petithuguenin (2000) - The situation of cocoa production in Uganda
[237] Source: http://www.africanagriculturebloq.com/2007/03/uganda-cocoa-production-and-exports-up.html
[238] Petithuguenin (2000) - The situation of cocoa production in Uganda
[239] Spe Salvi Fondazione (Universita) – Cocoa production project in Uganda
[240] Usaid - A baseline survey on cocoa production in selected districts of Uganda
[241] Source: http://www.africanagriculturebloq.com/2007/03/uganda-cocoa-production-and-exports-up.html
[242] Source: http://www.monitor.co.ug/Business/Prosper/Low-cocoa-production-pushes-away-processors-/-/688616/1635502/-/64a33l/-/index.html

A cocoa fermentation project has also been launched in Mukuno district in central Uganda, to train farmers in proper post-harvest handling of cocoa beans[243].

KITUUZA Research Centre in Uganda has identified two high-yielding cocoa varieties, whose seedlings the Cocoa Development Programme is distributing to growers for free. In another programme aimed at boosting cocoa production, some 5.000 Ugandan farmers have been trained in better husbandry practices under a programme funded by the US Agency for International Development (USAID). This has so far raised cocoa production in the country by 50% over the past two years. Five years ago, the Ugandan government in collaboration with the Cocoa Development Organisation embarked on a campaign to boast production. In this, strategy a total of 35 million seedlings were supposed to be planted in a spread of seven years[244]. Moreover, the Uganda Cocoa Association (UCA) has introduced a cocoa code of practice for farmers and exporters to ensure that only quality beans get to the world market. The code offers guidelines to help farmers differentiate between mould and salty beans and advice on ways to ferment and dry the beans so as to produce better yields[245].

Cocoa production projects in Uganda are[246]:

- Establishment of a new company ICAM Chocolate Uganda Ltd.
- Construction of a centre for collection and industrial processing of high quality fresh cocoa through modern methods of processing.
- Organization of an efficient collection system of fresh cocoa by the individual producers with a guarantee of purchase at the best price in loco
- Support to farmers through the training on modern agricultural techniques that enable the enhancement of crops and this improve the profitability of plantations

[243] Source: http://www.new-ag.info/01-4/newsbr.html
[244] Source: http://www.monitor.co.ug/Business/-/688322/1384150/-/5010p0/-/index.html
[245] Source: http://www.accessmylibrary.com/coms2/summary_0286-23467709_ITM
[246] Spe Salvi Fondazione (Universita) – Cocoa production project in Uganda

Uganda - Information table[247]

Uganda (bulk cocoa)	
Varieties FFC[248]	Forastero variety
Per variety: yield	±16.000 t/y ±300 kg/ha
Market structure	
• Producers	±140.000 small scale farmers
• Processors	Farmers process cocoa (ferment and drying)
• Manufacturers	Esco Uganda Callebaut Olam Icam
• Market organization	Uganda Cocoa Association Cocoa Development Organization
• Traders / exporters	Esco Olam Ugacof ICAM Bakwanye
Regulatory environment	'Cocoa Development Project' (CDP)
Barriers and opportunities	Is exploring niche markets, like the organic production Campaign to diversify the export market
Systems of quality assurance	x

Table 25 Information table for Uganda

[247] See Annex 2 for the complete overview of the fine flavour cooca sector of Uganda
[248] For Uganda, the (bulk) cocoa sector is sketched, since there seems to be no fine flavour cocoa market

Potential fine flavour cocoa

The potential for fine flavour cocoa in Uganda is low. Only the Forastero variety is used for the production of cocoa, which has a low yield and no inputs. The level of farmer organizations is low, most farmers are not legally registered. However, the government is investing in the cocoa sector, and is also looking at niche markets, for example the organic market. But there seem to be no incentives or projects relating to fine flavour cocoa.

Structure	Variables	Negative	Neutral	Positive	N.I.
Variety	Age of trees		±		
	Resistance of pods	-			
	Variety in use	-			
	Yield	-			
Market structure	Level of farmer organization	-			
	Local processing			+	
	Enabling environment	-			
	Market integration (suppliers - buyers)		±		
	Export in volumes		±		
Regulatory environment	Tax		±		
	Export regulations		±		
	Governance		±		
Barriers/opportunities	Inputs and knowledge	-			
	Projects quality/quantity	-			
	Mixing bulk cocoa				?
Quality assurance	Quality control				?
	Quality status				?
Total (17)		6 (-)	6 (±)	2 (+)	3 (?)

Table 26 Score of variables defining the potential of Uganda

Conclusion for Uganda

Uganda has a very low potential for the development of specialty cocoa since the fine flavour cocoa varieties are missing and there seem to be no incentives of getting involved in this niche production. A **strength** of the bulk cocoa sector is the lack of serious diseases, which could be very favourable for the fine flavour variety, since it is more prone to diseases. But for now, the Uganda cocoa sector is struggling with low yields and low quality of cocoa, forming **weaknesses** in the industry. However, the cocoa sector is being stimulated by initiatives from the public and private sector, and is orientating in other niche markets, like organic production, creating **opportunities**.

Conclusion

This research was conducted for two reasons: to get an overview of the fine flavour cocoa (FFC) market for 11 countries, and to define the potential of fine flavour cocoa for these 11 countries. Countries in Latin – America, Asia and Africa were studied. This conclusion will discuss the information found during this research, comparing the three regions (only using the information given for the 11 countries) and analysing the potential.

Latin – America

As was expected, since it is the origin of FFC, Latin - America has the most developed FFC market and the highest potential. It has a high level of development of Criollo and Trinitario cocoa varieties and all countries already have a (well-developed) FFC market. Because of the history in Latin – America regarding cocoa, local knowledge is used for the production of specialty cocoa and even chocolate, with numerous bean to bar projects and a strong development of the FFC market. In Peru and Venezuela cocoa is even declared as national heritage/product. Most countries have a relatively high level of farmer organization, and numerous organizations (public and private) that focus on (FF)cocoa. Especially Peru, Ecuador and Colombia have national associations for the cocoa production. Venezuela, Ecuador, Peru and Colombia also get a premium price for specialty cocoa. The Dominican Republic is mostly focussed on the organic market, but opportunities exists to link this to the fine flavour cocoa market.

Peru, Ecuador, Colombia and the Dominican Republic have scored a high potential, according to the variables and information found during this research. See Table 27 for a short summary for each country.

Country	Score potential	ICCO recommendation	Fine flavour cocoa status
Ecuador	+	75%	Ecuador has the Nacional or Arriba, numerous bean to bar projects and is the biggest exporter of FFC (65% world). A threat is the mixing with the CCN-51 clone; the governance has a focus on FFC, numerous associations, and quality control
Peru	+	90%	Peru has many varieties which have a high yield and are disease resistant; it has a good quality control and various bean to bar initiatives; numerous opportunities to improve quality and increase quantity of FFC production. However, confusion exists about the definition of Criollo (variety – local)
Colombia	+	100%	Colombia has a strong FFC market, and is busy promoting it; it has numerous incentives for the development of the sector; threats are mixing of cocoa beans
Dominican Republic	±	40%	Is mostly focussing on organic cocoa, but this can be associated with FFC production, since Criollo and Trinitario varieties are used
Mexico	±	100%	Has only recently entered the FFC market; past decade decline of quality but is now making a comeback and is rewarded by the ICCO with a 100% export recommendation.
Venezuela	±	95%	Has a FFC market with numerous varieties, cocoa as national product, premium pricing and investments in the cocoa sector

Table 27 Short summary of Latin - American potential

Latin-America can be considered to be a preferred region for a company that wants to get involved in the fine flavour market. It is easier to invest in a region where a fine flavour market already exists, so that one can build on existing relations. However, the risk of saturation of the fine flavour cocoa market should be considered when getting involved in the fine flavour cocoa market.

Asia

Cocoa producing countries in Asia are Indonesia, the 3th largest exporter of cocoa, Malaysia, Vietnam, PNG and the Philippines. These are mostly bulk cocoa exporters. In this research, Java and Papua New Guinea were studied. Both regions have a FFC market, but have a very different approach.

PNG has a high fine flavour potential: it has a FFC market, which is responsible for 9% of the world fine flavour market. A strength of PNG is the fact that the beans are processed (fermented and dried) locally (in contrast to other Asian countries), which gives the farmers a higher price, as well as a kind of quality control for the FFC sector.

Up until now, the PNG government has not been involved in the cocoa sector, which resulted in a weak enabling environment, such as weak market structure, lack of transport, lack of financial assistance etc. Recently however, the government has made investments in the cocoa sector. It does not seem to have a special focus on FFC, but since FFC makes up 90% of their cocoa market (according to the ICCO), it can be assumed that investments in the special FFC chain are also made. PNG also has a Cocoa Board and a National Cocoa and Coconut Institute, both involved in the development of cocoa in Papua New Guinea: Two initiatives that influence the potential are the search for new cocoa areas, and research on the possibility of making chocolate in PNG.

Java is the only region (except for a very small part in Bali) in Indonesia that produces FFC; it represents 1% of the Indonesian market. It is regulated by the government, which has an estate plantation producing all the FFC. It is not clear if this estate is also processing the cocoa itself, but since the bulk cocoa industry has low levels of processing locally, it can be assumed that FFC is also not locally processed. The Indonesian Cocoa Farmers Association (APKAI), is an association specially organized for cocoa farmers and the Indonesian Cocoa Industry Association (AIKI) is an association representing the entire cocoa industry. However, they do not seem to be much involved in the FFC industry.

Country	Score potential	ICCO recommendation	Fine flavour cocoa status
Papua New Guinea	+	90%	Has a FFC market, 9% of the world market; no government focus on fine flavour cocoa but some initiatives for the cocoa sector as a whole
Java	±	1%	Has a fine flavour cocoa market, however government based and problem with diseases (1% of total Indonesia); no incentives to increase quality/quantity of FFC market

Table 28 Short summary of the Asian potential

Africa

Africa, especially West – Africa, is known for its bulk cocoa production, producing more than 2/3 of the cocoa market. However, some FFC initiatives can be found, for example in Cameroon. Cameroon is currently using their Trinitario variety (a FFC variety) for bulk production, because of their weak post-harvest practices that do not serve the quality. However, it wants to increase their quality of cocoa, and is therefore focusing on the FFC niche market. The government is identifying farms where only the Trinitario variety is produced, and has set up a program to develop their FFC from there on. It is still only in its beginning phase, but the potential is there especially because the right variety is present and the strong urge of the government to get involved in this market.

For companies that want to invest in the fine flavour cocoa sector**,** Cameroon can be an interesting option, with numerous developments and the strong urge to improve the quality of the cocoa. However, the fine flavour market in Cameroon (and other countries in the region) is not well-developed yet. Grasping the potential of a country like Cameroon will take more time, and likely more investments.

Togo and Uganda, however, both produce bulk cocoa, and do not seem to have any incentives towards the FFC market, as far as this research can tell. However, since they are producing organic cocoa by default, they are exploring the organic (certification) niche market.

Country	Score potential	ICCO recommendation	Fine flavour cocoa status
Cameroon	+	x	Has no fine flavour market, but is now working on developing the fine flavour cocoa production and is trying to increase quality for bulk
Togo	-	x	Has no fine flavour market; organic niche market
Uganda	-	x	Has no fine flavour market; organic niche market

Table 29 Short summary of African potential

Reflections and recommendations

General

Looking at the overall picture that can be drawn from the information found during this research, it can be concluded that the fine flavour cocoa (FFC) is an old crop (Criollo was the first discovered cocoa bean) being reintroduced in the last decade and is now again strongly developing, mostly in Latin – America, however with a different business model and value chain than the conventional bulk cocoa market.

The business model is different from conventional cocoa in numerous ways, and the price and yield are critical factors. For FFC prices are generally higher (premium awards) but yields are generally lower. The potential FFC production will depend on the incentives that farmers have to invest in this specialty cocoa. Also, history and national pride can play a role for farmers (and the government) to invest in this sector.

The value chain is also different from conventional cocoa: it is generally shorter since fine flavour chocolate is mostly made by either specialized chocolatiers (mostly in Europe) or through bean to bar projects, using local knowledge and skills in the producing country itself. Comparing the mentioned regions (Latin-America, Asia and Africa), the chain seems to be relatively similar: farmers process the beans themselves, and sell them to either traders or a market that is focussed on specialty cocoa, therefore they receive a premium price. Having a well-developed value chain in place is key for the potential of developing a market for fine flavour cocoa. The potential for fine flavour cocoa increases if the following institutions are in place: farmer organizations, local processing industries and sector associations. Also involvement and commitment of the government towards development of the fine flavour sector turns out to be quite essential. (e.g. a national strategy). In Latin – American the focus is put almost automatically on FFC. This makes Latin America a first region for exploring the potential for fine flavour.

Taste and quality are also key for fine flavour cocoa. In the FFC value chain manufacturers select the cocoa based on quality and especially taste. Currently, fine flavour is organized through many short chains producing and trading small quantities of high quality cocoa and finally chocolate. This way of organization implies that there is no general quality control system. It is up to each country, or even each actor in the value chain, to select a standard of quality. Only the ICCO sets an international standard, however this is not used in the general market.

Fine flavour countries

During the research, it became apparent that there are numerous other countries that have a high fine flavour potential. For example, Grenada, Jamaica, Saint Lucia, Bolivia, Costa Rica and Dominica are exclusive exporters of fine flavour cocoa. However, their productions have a relatively small market share. In Africa, Congo and Tanzania start to develop a fine flavour cocoa market. Also Ghana, the 2nd world producer of bulk cocoa, is more and more interested in fine flavour cocoa and several small-scale initiatives are taken in this regard (e.g. by AgroEco/LBI and Armajaro). Malaysia and Vietnam are also experimenting with (some) fine flavour cocoa production. Therefore, in further research, these countries could also be discussed.

Other niche markets

Fine flavour cocoa is linked to other niche markets like single origin and organic cocoa. The focus of this research has not been on these other niche markets. However, it was found that organic cocoa is often linked to fine flavour producing countries, with the most prominent example being the Dominican Republic. In looking at the potential of fine flavour in a country, the existence of organic market and could be a good indicator and starting point.

Pricing and quality

Since this research was carried out as a quick market scan, pricing was not included. This is however, a very important part of the fine flavour cocoa market, especially since it distinguishes itself with its higher quality and higher pricing from the conventional bulk market. Pricing is a very complex matter, linked to both quality and market operation. For example, some fine flavour cocoa is not sold on the fine flavour cocoa market because of e.g. market saturation dumping, no other options for farmers, low post harvest quality etc. It is recommended to carry out further research on the subject of pricing and quality (control) of fine flavour cocoa.

Fine flavour Chocolate

Although this study focused on fine flavour cocoa, numerous examples of **fine flavour chocolate** have been mentioned. It seems as though the biggest market demand for this comes from Western (European, American) chocolate makers, using fine flavour cocoa beans from especially South – America. Local manufacturing of fine flavour chocolate is not a common approach, with the exception of some bean to bar chocolate manufacturers, and could be of influence on the quality of cocoa and chocolate (which less high standards used for the local market) in the country. However, origin, quality and flavour characteristics could create opportunities for the fine flavour chocolate niche market leading to investments and even to competition with the conventional bulk market.

Sustainability

Sustainability can also be linked to fine flavour cocoa, especially when compared to the bulk cocoa market. Characteristics of sustainability are a.o. no (or little) use of chemical inputs, long term relations between supplier – buyer (for example bean to bar), traceability in the value chain etc. The linkage between fine flavour and sustainable cocoa will be studied more extensively in a follow up by KIT through looking in-depth at a number of case studies.

Final reflections

Reflecting on the assignment, it has been challenging to get a full picture of the fine flavour market structure for each country. Considering the time available, this study should be regarded as a quick market scan for 11 countries. A more in-depth market study will be necessary to give a more detailed recommendation on fine flavour cocoa investments for a particular country.

In general, it can be concluded that investing in Latin – America is the quickest and safest option, where one can build on an already existing market structure. However, the risk of saturation of the fine flavour cocoa market should be considered when getting involved in the fine flavour cocoa market. West- Africa is an interesting region for companies that are looking for long term commitment and a more entrepreneurial approach. Especially companies already sourcing in this region can look for new opportunities. For Asia, it is not possible to draw conclusions based on only two countries. PNG however was an interesting case study, and it is likely that the FFC market will continue to grow since they are expanding to new areas and are doing research on the potential of manufacturing chocolate. On the other hand, PNG could have a lack of knowledge and government focus because it has no national cocoa culture, as Latin American countries have. But there is no problem with saturation of the market, as there could be in Latin – America.

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Annex 1: draft outline fine flavour cocoa research

Draft outline fine flavour cocoa market study **Information collected per country** (see list below)	
Varieties FFC	- List of known varieties cultivated
Per variety: yield	- Per cultivated variety: total yield
Market structure	
• Producers	- Number, Types and approx. percentage of production: o independent small/ medium farmers, o commercial plantations, - Producer organizations / federations of organizations?
• Processors	- Number
• Manufacturers	- Number and types of manufacturers within the country of: o final FFC / single origin cocoa products o intermediate FFC / single origin products + types of intermediate products
• Market organization	- Description of distribution market
• Traders / exporters	- Number
Regulatory environment	- *Export regulations and *export taxes and duties for: o Cocoa beans o Other processed cocoa products
Barriers and opportunities	- Description of main barriers and opportunities for FFC development within the country - Which initiatives / projects exist promoting FFC? (incl. names + descriptions)
Systems of quality assurance	- Which systems of quality assurance are used in the field of FFC and single origin?

Annex 2: categorization of all variables defining potential for all countries

Variables	Peru	Ecuador	Colombia	Dominican Republic	Venezuela	Mexico	PNG	Java	Cameroon [249]	Togo[250]	Uganda [251]
Development FFC	Good	Good	Good	Good	Good	Good	Good	Good	Starting up	None	None
ICCO 2010	90%	75%	95%	40%	95%	100%	90%	1%	X	X	X
Yield in tons per year (mostly FAO - 2011)	56.500 t/y (bulk + FFC)	152.236 t/y FFC	44.241 t/y (bulk + FFC)	54.279 t/y (bulk +FFC)	18.000 tons t/y (bulk + FFC)	21.388 t/y	39.400 t/y (bulk + FFC)	3000 t/y FFC	272.000 t/y bulk	100.000 t/y bulk	15.723 t/y bulk
Yield kg per ha (mostly FAO - 2011)	±670 kg/ha	±560 kg/ha	±450 kg/ha	±350 kg/ha	±400 kg/ha	±350 kg/ha	±300 kg/ha (high potential)	± 400 kg/ha (high potential)	±400 kg/ha (high potential)	±800 kg/ha	±300 kg/ha
Variety tree	Forastero (nacional + CCN-51), Trinitario and Criollo (confusion about marketing term):	Cocoa Nacional/ Arriba CCN-51 Forastero	Trinitario, Criollo ICS 1, 6, 39, 40, 60, 95 EET 8 TSH 565,792,812 CCN 51 UF 613	Criollo: Hispaniola and Sanchez	Chuao (region) Porcelana Guasare Choroni Ocumare Carenero Rio Caribe	Calabacillo (Trinitario) + Pico del Lagarto (Criollo)	Trinitario × Amazonian hybrids	Clones: DR1/2/38, ICCRI 1-2 "Java – Cocoa" Trinitario and Criollo used	Trinitario variety used for bulk cocoa (bad quality)	Forastero	Forastero – new varieties
Input package (financing, training, fertilizer etc.)	x	x	x	Low	Low	Low	Low levels of input + inefficiency smallholders	Low levels of input	Uncontrolled use of fungicides	Low	Low

[249] Bulk cocoa
[250] Bulk cocoa
[251] Bulk cocoa

									+ insecticide		
Pest/disease resistant (management)	High resistance pests and diseases	Disease prone	Disease prone	Few diseases	x	Fungus, muniliasis withc broom and black spot	Cocoa Pod Borer, Ppr and Vsd - Low management (smoke taint beans)	Cocoa pod borer, Vascular streak dieback and Root-rot disease	Black pod and insects (especially mirids	Swollen-shoot, Black pod and *Myrids*	No disease s/pests
Age tree	x	Aging	Old	x	x	25% old (above 40)	Old (but being replaced)	Old (1980)	Older (but being replaced)	Old	Contrast: very old and very young
Conditions as soil, shade, climate etc.	Good	Good	Good	Good	Good	Good	Good, but decrease soil fertility	Good, but poor soil maintenance	Good	Good but decrease soil fertility	Good
Are harvested (FAO - 2011)	84.000 ha for total cocoa production	399.467 ha for total cocoa production	99.205 ha for total cocoa production	153.219 ha for total cocoa production	46.165 ha for total cocoa production	60.708 ha for total cocoa production	130.000 ha for total cocoa production	78.652 ha for total cocoa production in Java	697.000 ha for total cocoa production	130.000 ha for total cocoa production	52.000 ha for total cocoa production
Quality	South - America						Asia		Africa		
Control system	x	Yes – and is being renewed	x	x	x	x	x	SNI – voluntary and poor	No – is being developed	Some	Poor
Post-harvest	Developing + per association	Yes	x	Poor (80s) but improving	Yes	x	Important – fermentation for all small holders	Poor (bulk)	Very poor	Reasonable	Poor

Market structure	South - America						Asia		Africa		
Producers	At least 15.000 (APPCOCOA)	> 100.000 small scale farmers (and ±100 intermediates)	At least 25.000	Small scale farmers	x	Small scale farmer	70.000 in 2011 Agmark company	Ceres Group chocolate + estate PT Perkebunan Nusantara XII	Small scale farmers	11.000 small scale farmers	140.000 Small scale farmers
Access to market	x	x	Better for FFC producers	x	x	x	Limited (poor transport)	Dependent	x	x	x
Access to financing	x	x	x	x	x	x	Limited	Restricted access to finance	x	x	x
Farmer organization/association	Cooperatives Appcocoa (20 partner organizations)	ANECACAO ACEPROCACAO APROCA Association of Ecuadorian Chocolatiers	Asopagro SDM	CONACADO Nazario Rizek Comercial Roig	Chuao Campesina (amedei) Aprocao alliance	Xoconusco UNPC Huimanguillo Grains Sunuapa Creoles	x	Apkai Aiki	x	1/3 of farmers organized (bulk)	x
Institutes, industry, organizations and research	ENACO Acopagro	PRO ECUADOR	Fedecacao Asoppitaya	CNC	Asamblea Central Asamblea Capital Asamblea Los Llanos Asamblea Occidente Asembla Oriente	x	Papua New Guinea Cocoa Coconut Institute CCI	Apkai Askindo Apikci ICCRI	CCIB	ACDR, APAF and ITRA/CRAF Fuprocat	Uganda Cocoa Association CDO

					Venezuelan Cocoa Socialist Corporation						
Premium price	Yes	Yes	Yes	x	Yes $25/kg for Chuao	No/sometimes	Decline (introduction clones – hard to differ for smallholders) Premium price	For FFC - yes	No – very low price because of low quality	No	No
Regulatory environment	South - America						Asia		Africa		
Government involvement	Yes and developing (niche markets)	Yes – AGROCALIDAD and Finacao	Yes	Yes – CNC	75% of cocoa goes to state – Weak governance (lot of legalism) – problems political situation	Very low level of involvement	Places priority on fostering improvement and expansion of the cocoa industry	Low but improving through initiatives and projects CCRI/CCI	Liberalised 90ies, lack of governance since	National cocoa strategy - high regulatory environment	Yes more focus on cocoa sector
Export regulations	9% FFC market	65% of FFC world market	x	x	x	x	x	x	x	x	x
Tax, interest and duties (export)	x	'cocoa law' is being developed	Tax free	Taxing	X	Protecting local market through tax	x	High interest rates/ yes export tax (bulk cocoa)	x	x	x

Developing (quantity/quality)	Yes	Yes	Yes	X	X	x	Yes	x	Yes	Yes	Yes
Projects	RNCCP + organic	Yes (Finacao + national plan)	Development plan	Organic niche market	Yes	x	Fair trade and organic niche market development	Yes	Yes, to develop niche markets a.o.t. FFC	X (no)	Yes, niche markets