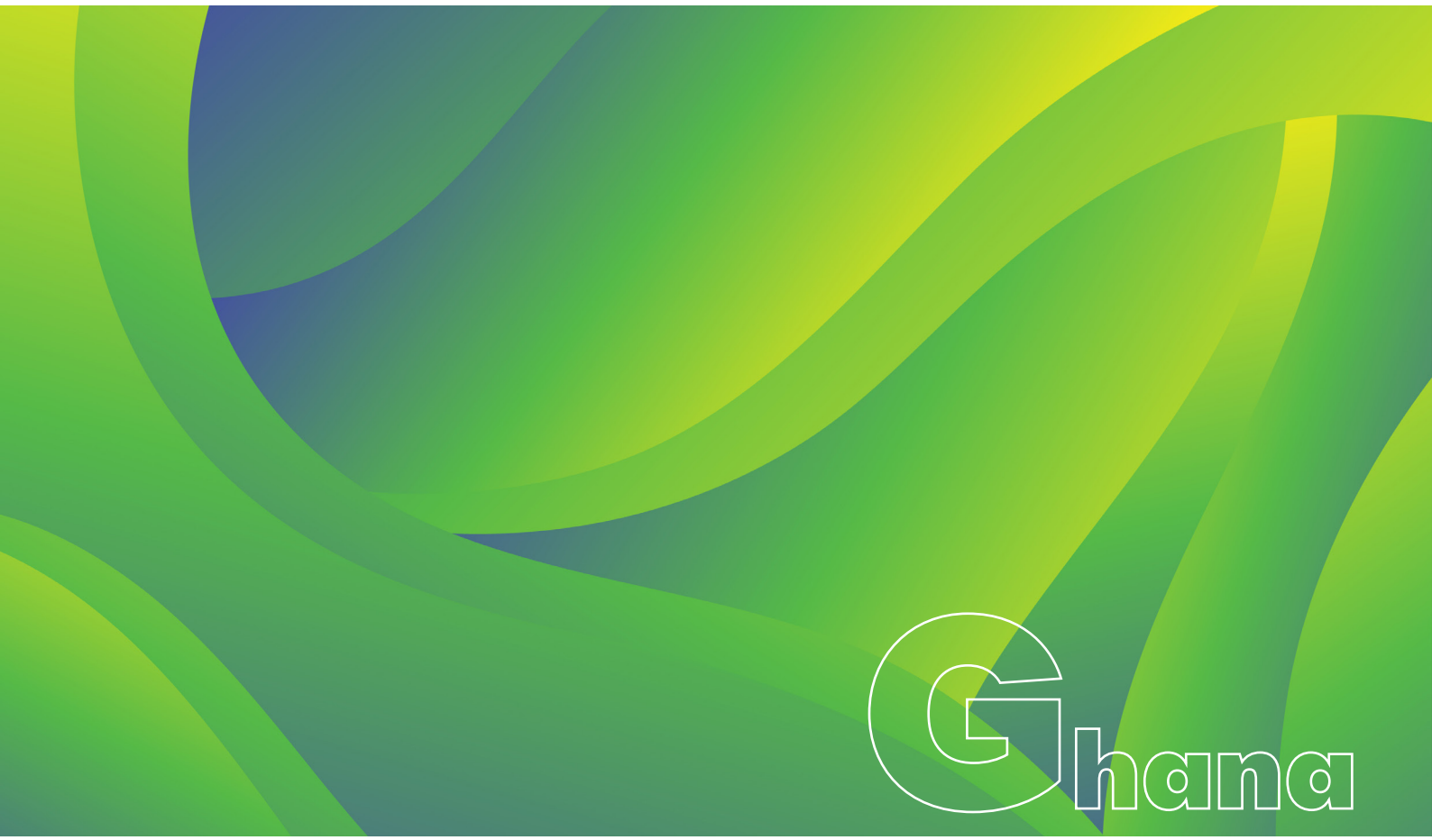
FEASIBILITY STUDY ON AFRICA COCOA EXCHANGE (AfCX)

Appendix II

VALUE CHAIN AND SECTORAL REGULATORY ANALYSIS
COUNTRY REPORTS
GHANA COUNTRY REPORT

AUGUST 2023
Prepared for
International Cocoa Organization (ICCO)
By
Darhei Noam Ltd



Notice and Acknowledgment

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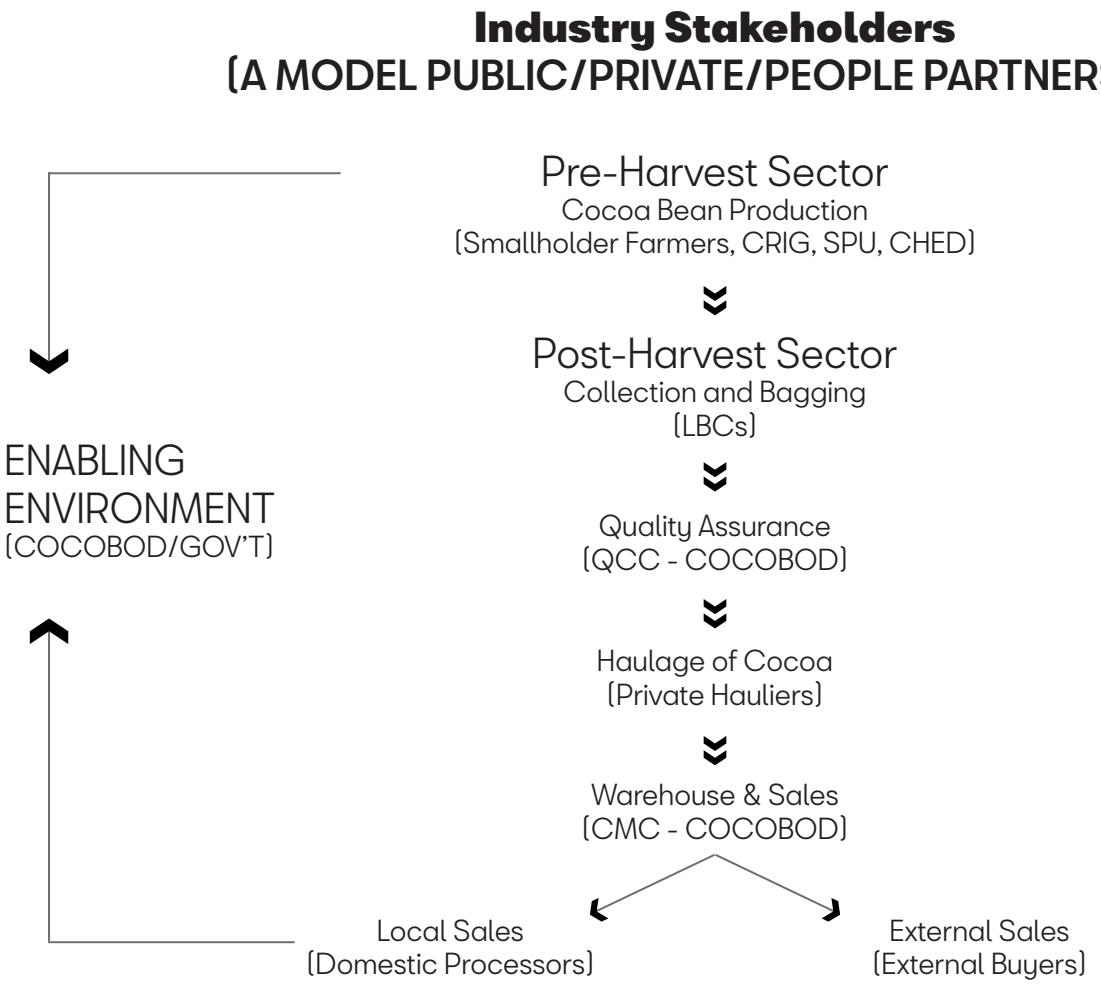
Acronyms

AgSAP	Agricultural Sector Adjustment Program
CIF	Cost, Freight and Insurance (Incoterms)
CHED	Cocoa Health and Extension Division
CMC	Cocoa Marketing Company
CMS	Cocoa Management System
Cocobod	Ghana Cocoa Board
CRIG	Cocoa Research Institute of Ghana
CRP	Cocoa Rehabilitation Project
CSDS	Cocoa Sector Development Strategy
CTOR	Cocoa Take Over Receipt
FCC	Federation of Cocoa Commerce
FOB	Free on Board (Incoterms)
GCX	Ghana Commodity Exchange
GDP	Gross Domestic Product
GHS	Ghana Cedi
GIRSAL	Ghana Incentive-based Risk Sharing for Agricultural Lending
GoG	Government of Ghana
GRR	Ghana Reference Rate
ICCO	International Cocoa Organization
LBC	Licensed Buying Company
NTE	Non-Traditional Exports
PC	Cocoa Purchasing Clerks
PPMC	Producer Price Management Committee
QCC	Quality Control Company
SPD	Seed Protection Division
SMHF	Smallholder Cocoa Farmer
WCF	World Cocoa Foundation
WAMCO	West African Mills Company Ltd

01 Value Chain Structure and Profile of the Actors

Chart 1: Value Chain Structure of Ghana's Cocoa Sector



Abbreviations: COCOBOD - Ghana Cocoa Board, CRIG - Cocoa Research Inst. of Ghana, SPD - Seed Production Division, QCC - Quality Control Company , LBC - Licensed Buying Company, CHED - Cocoa Health and Extension Division, CMC - Cocoa Marketing Company

The Cocoa Sector in Ghana is a Private-Public Partnership (PPP) system. The Public Sector has responsibility for Research and Development (R&D), health of cocoa tree and pod, quality assurance and marketing while the private sector participate in the planting, harvesting, fermentation, drying, purchases collection and collation, haulage, warehousing (partially) and processing. All these are carried out under a regulatory environment provided by COCOBOD. Chart 1 above shows the value chain structure in Ghana. The cocoa value chain, as per the stated system, is made up of several actors including input suppliers, farmers, collectors/cooperatives, Licensed Buying Companies (LBCs, and their clerks who engage in purchases at cocoa buying centres), Haulers, Cocoa Marketing Company (CMC) (the wholly-owned subsidiary of the COCOBOD with the sole responsibility to market and export cocoa beans to local and foreign buyers, respectively), local processors, local retailers, global marketers/manufacturers and international and local consumers.

Table 1: Institutional Cascading of the Ghanaian Value Chain (2020)

ACTIVITY	ACTORS	NUMBER	OUTPUT/FEED-STOCK	VOLUME (MT)
Manufacturing	Beverage/ Confectionery	5+		
	Artisanal Chocolatiers	1 5+	Chocolate	34
Export and in-country trade	Cocoa Marketing Company Ltd	1	Beans	720,096
			Cocoa cake	80
			Cocoa powder	3,036
			Cocoa butter	140
Intermediate processing	Foreign (16.81 %)	5	Beans	327,485
	Domestic (14.45 %)	6		
Collection, bulking aggregation and supply	LBCs	67	Beans	1,047,385
Cocoe bean production	Smallholder farmers	8000,000	Beans	1,047,385
	Farmgate population	4,800,000 +	Beans	
	Hectarage under cultivation	1,700,000 appx.	Beans	
	Yield/ha	500 kg	Beans	

Cocoa production in Ghana is **mostly undertaken by smallholders of about 800,000 farm families, with average cocoa farm size between 0.5ha to 3ha, and producing an average of about 500kg/ha per annum.** The Cocoa Management System (CMS) has so far mapped 1,239,196 farms, with total area of 1,380,566 hectares, and 761,753 farmers.

Distribution of cocoa purchases from the regions in the 21/22 season were:

REGION	METRIC TONS	% OF OUTPUT
Western South	181,398	26.55
Ashanti	146,956	21.51
Western North	101,824	14.90
Central	88,391	12.94
Eastern	83,452	12.21
Brong Ahafo	75,594	11.06
Volta	5,654	0.83
Total	**683,269**	**100.00**

The regulating institution for cocoa in Ghana, COCOBOD, has divided the various regions that produce cocoa into 7 "cocoa regions". These cocoa regions are further subdivided into 67 cocoa districts. There are depots in all the 67 cocoa districts with representation of the Licensed Buying Companies (LBCs) for primary evacuation of cocoa from the farms. Three terminal warehouses are located in Takoradi, Tema and Kaase (near Kumasi), where graded and sealed cocoa are evacuated to exports or for processing. Tema and Takoradi are the export terminal ports for cocoa. Kaase is an inland terminal port, serving mostly as a holding storage system for beans from the central districts prior to evacuation to the ports or to the processing factories. As of 2020, about 70.35% of the operating installed capacity for processing were in the Accra/Tema Metropolitan Area, 27.14% in Takoradi and 9.81% in Kumasi.

Approximately 70% cocoa beans produced annually are exported in raw form, with about 30% of the output, comprising of the small beans produced in the minor season, and a portion of the major season output, delivered for local processing into derivative products of paste, powder, butter and liquor, and for production of confectionaries, like chocolate. The export of raw beans and derivatives are mostly to Europe, North America and Asia. Cocoa production between 2018 to 2021 fluctuated between 683,270 tons and 1,047,386 tons, yielding export revenues:

	2018	2019	2020	2021
Cocoa Beans Production (MT (000))	811.75	770.69	1,047.39	683.27
Raw Cocoa Beans Exports (MT (000))	668.01	604.80	720.10	480.00
Raw Cocoa Beans Exports (US$ Bn)	2.18	2.29	2.34	2.85
Processed into Intermediaries (MT (000))	336.27	336.20	302.64	322.99

Processed Products Export Volumes were 245,589 MT, with FOB value of US$ 756.23 Mn, in 2020/21.

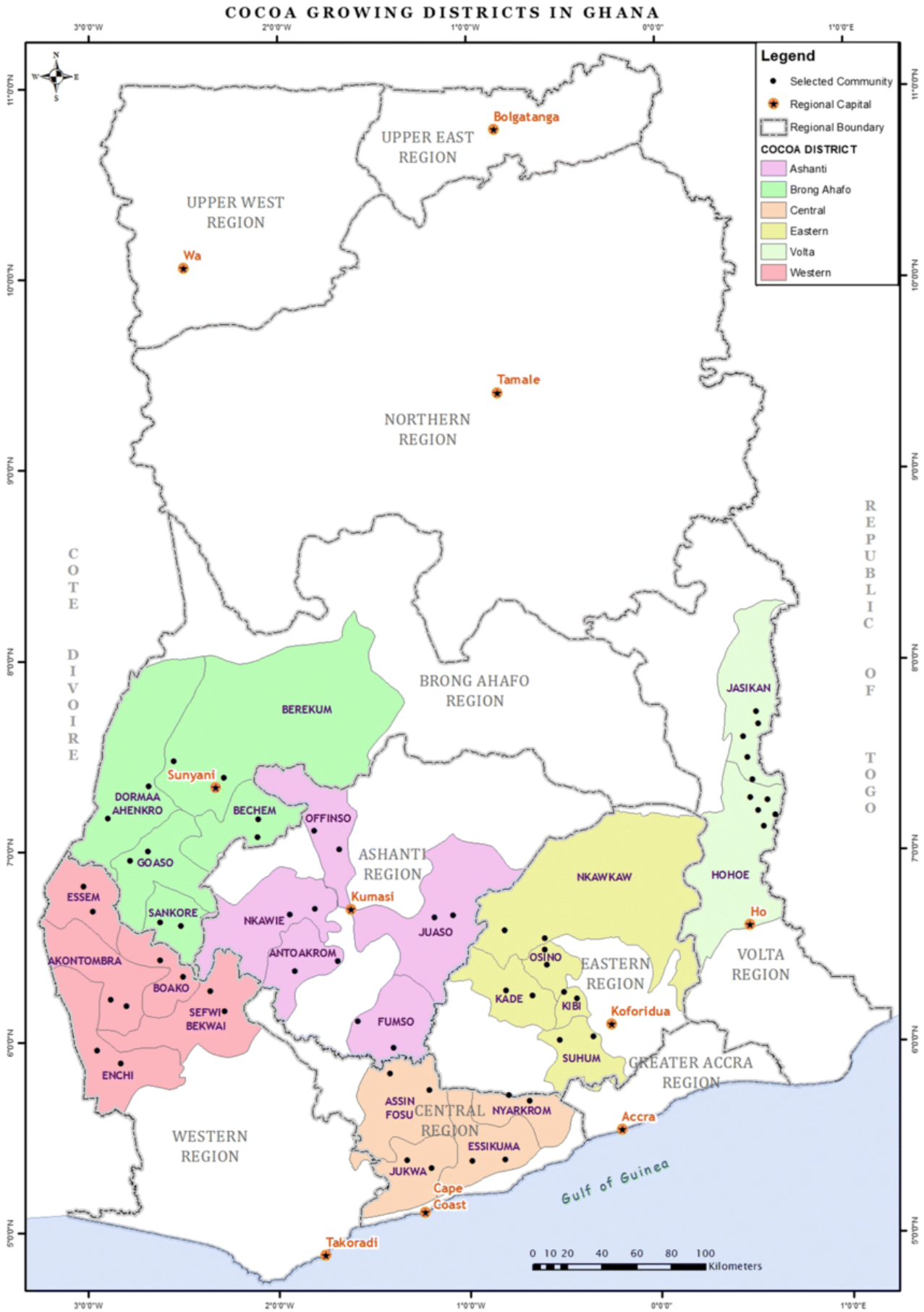
However, exports of raw beans appear to be stagnating, especially since 2010s with an increased focus on cocoa products, in recent years. In 2021, $2.8 billion was obtained from raw cocoa beans' exports (plus about $1 billion from cocoa products - domestic and exports -, or a third of Ghana's total non-traditional exports). Contribution to GDP dropped from 3% in 2006 to 1.4% in 2019, nevertheless, the sector is still a growth-driver, with expected 7% growth (CAGR) in 2019-2026 to US$16 billion; but quite small, compared to the annual US$190 billion global chocolate industry[1].

Cocoa sustainability programs are increasing on the rise under both corporate sustainability programs and Voluntary Sustainability Schemes (VSS) in Ghana. These are becoming significant, especially, under the EU sustainable cocoa initiative responding to growing EU consumers' expectations and strong political ambition of the EU to make supply chains more sustainable. Ghana exports about 55% of its cocoa beans and cocoa preparations, accounting for about 16% of total exports, to the EU. Aside from the demand pressures, the VSS provides incentives to producers, encouraging them to sign on the programs. Rainforest Alliance/UTZ, for example, introduced a policy that all cocoa buyers must pay certified farms a minimum sustainability differential of USD 70/tonne, that will have to reach individual cocoa producers in full, and in cash. This additional payment is expected to be used to reinvest in the farm, for family needs, or to cover production costs. The average premium that the first buyer paid to Ghanaian cocoa producers in 2020 was EUR 78/tonne[2]. Currently, there are about 45 sustainability programmes with the Cocobod. In 2020/21, 14 participating LBCs purchased certified cocoa amounting to 222,679 MT, or 32.59% of cocoa production of the season[3].

[1] Ghana's Brown Gold: The Political Economy of the Cocoa Sector, 2022
[2] Rainforest Alliance, 2020b
[3] Annex 5: - LBCs in Sustainable Programs and Type of Certification 2020/21

02 Domestic Flows

Map 1: Cocoa Producing Districts in Ghana



Cocoa production takes place in all the districts presented in Map 1 above, which represents cocoa districts as per the political boundaries in Ghana.

Supply of inputs: The 67 cocoa districts provide efficient accessibility of COCOBOD's operations (distribution of inputs and provision of trainings) for the farmers[4]. The supply of inputs is mostly in the hands of the private sector. In line with its strategy to raise productivity and output, the Government of Ghana (GoG), through COCOBOD, retains an active role through subsidized input distribution programs targeting cocoa farmers. The input needs of farmers are met by suppliers through marketing of agrochemicals (including fertilizers, pesticides, and insecticides) and farm equipment. The needed inputs such as fertilizers, insecticides and extension services are provided to farmers at either no cost or at a subsidised cost. These are done via the LBCs to cooperatives or farmer associations, and supplied by the approved distributors under the supervision of the CHED.

Cocoa Production

Cocoa production is by **smallholder farmers (SMHFs)** accounts for about 90 percent of the national output. Production takes place in the country's forest areas in six regions, namely, Ashanti, Brong Ahafo, Western, Eastern, Central, and Volta, as per Map 1. The crop year begins in October, with purchases of the main crop, while the smaller mid-crop (light or lean crop) cycle begins in July. Light crop beans are smaller in size than the main crop beans, but both are of the same quality and grown on the same trees[5]. The main crop accounts for 90 percent of total annual cocoa bean production in Ghana, and the light crop accounts for the remaining 10 percent.

As stated above, about **800,000 small scale farmers** in Ghana produce the crop on relatively small **farm size of between 0.5 to 3.0 hectares, with average yield of about 500 kg per hectare, annually.** The **primary role of the farmers** in the chain is to ensure availability of cocoa beans through a year-round production. About a quarter of production is on a share-cropping basis[6].

After harvesting of cocoa, the beans are fermented in plantain leaves under the tree shades and then sun-dried on bamboo flat surfaces, to help develop the unique flavour and other attributes that attract premium for Ghana cocoa beans on the world market.

Cocoa Harvesting period

Harvesting period commences around August, depending whether it is an early crop. For late crop, this starts from September/October. The peak of the season is December, by the end of which time about 70% of the crop would have been bought. The purchasing starts tailing off from February to end of April, or thereabouts for the main crop. Light crop harvesting starts from June and will continue till about August/September when the season is closed. The main crop is distinguished from light crop by the size of the beans. The light crop beans are smaller than the main crop beans. The industry segregates the beans to enable the LBCs to sell in accordance with the trade description and specification. The local processing companies are normally given the light crop beans at a discount from the world market prices.

Storage of the beans

After harvesting the produce, the farmers ferment cocoa for five (5) days, the cocoa is dried for seven (7) additional days. The farmers then collect jute sacks to sell the produce to the LBC that financed the purchase. Stocks are delivered to LBC's Purchasing Clerks by farmers for sale/payment after drying. There are about sixty-three (63) registered LBC's with cocoa purchasing agents in the cocoa districts in Ghana (Annex 1), however, only about forty-four (44) are active. Normally, upon purchasing the cocoa from farmers, it must be delivered to the up-country society storage facilities within 10 to 14 days for grading and sealing by the Quality Control Company (QCC), a subsidiary of the COCOBOD responsible for maintaining international quality storage standards/ country specific cocoa standards for delivery.

[4] Map 2: CHED Operational Didtricts
[5] (USDA, 2012; Goodman, 2017)
[6] (Hainmueller et al., 2011)

Primary Purchase & Delivery of Cocoa

Once all the necessary post-harvest treatments have been performed, the **beans are sold through either individual collectors or producer cooperatives to cocoa buying centres** established in major cocoa producing areas. Such centres are occupied by **Purchasing Clerks (PCs) of the LBCs**. The beans are purchased from the farmers at the **minimum price level set by a Producer Price Review Committee (PPRC)**, comprising of COCOBOD officials, farmers' representatives, government representatives and representatives of the LBCs. As a result of this, the profitability of the LBCs is not based on offered price differentials, but rather on the volumes of cocoa purchased and delivered. Under this condition, LBC's maximize their profits by minimizing "turnaround" times (i.e., the period from purchase of the beans at farm-gates to selling of them at the take-over centres)[7]. The various LBCs have District Managers, who manage the PCs. The PCs are given funds by the LBCs to purchase cocoa from farmers. The PCs then sort the beans and bag them. The beans are stored temporarily at the buying centres and evacuated to the district depots or society sheds. This first evacuation is called **primary evacuation**. The LBCs use their own vehicles or outsource tractors/ trucks to transport the cocoa from the villages/farm gates to the district depots.

Quality Control

After purchasing the cocoa, the LBCs invite the **Quality Control Company (QCC)** to inspect, grade and seal the cocoa bags at a fee pre-determined by the PPRC. The graded and sealed cocoa is then evacuated by the LBCs using Cocobod's approved private cocoa haulers to designated take-over points at Tema, Takoradi and an inland port at Kaase (outside of Kumasi). The rates offered for evacuation haulage are pre-determined by the PPRC. The LBCs are paid by the COCOBOD according to margins set by the PPRC at the beginning of each cocoa season[8]. This process is also referred to as **secondary evacuation**. To ease the congestion of trucks from the depots to the takeover centres, evacuation quotes are issued to the LBCs to regulate the specified numbers of truck that each LBC sends to any takeover centre each day.

Take-over and Sale of Cocoa

The **Cocoa Marketing Company (Ghana) Limited (CMC)**, a wholly-owned subsidiary of the Cocobod, receives the beans, whilst the QCC, once again inspects and grades the beans, rejecting substandard beans, if necessary. At this point, each bag is tagged with a station identification number. The bagged beans are then sent to the terminal warehouses and received by the CMC and rechecked for quality by QCC before final export. The flow of cocoa into the terminal warehouses are determined by capacity availability of space to avoid congestion of delivery trucks at the terminal warehouses. CMC's major responsibilities include procurement of graded and sealed cocoa beans from the LBCs at the take-over points, stocking of cocoa in terminal warehouses prior to shipment, securing optimal prices and maximizing foreign exchange revenues, managing sales and collecting receipts, and settling of any disputes via direct arbitration[9]. After the take-over, management of cocoa becomes the responsibility of the CMC until it is sold. The Company had the same responsibility for coffee and sheanut until 1991 when the internal and external marketing of the two commodities was privatized. The total capacity at the various take-over centres are:[10]

Location	Warehouse Capacity (MT)
Tema	225,200
Takoradi	233,000
Kumasi	67,000
Total	**555,200**

[7] Bangmarigu & Qineti, 2018
[8] ibid
[9] World Bank, 2011
[10] Details in Annex 2

Prior to shipment however, the QCC inspects and fumigates all shipping vessels and cocoa consignments. A greater share of purchased cocoa beans is exported in the raw form. The smaller sized (light crop) beans are sold to processing industries in the country at a discount[11]. **About 90% of all processed cocoa is exported while the remaining 10% is used in the production of confectionery products[12].** Exports of some of the domestically processed cocoa products to overseas destinations are also done by the CMC. The processed products that are not exported are sold to domestic consumers, and some of the processed products on the international market find their way back into the country. Such imports attract a tariff.

Delivery to the Warehouses

After purchase, the cocoa from the primary society level must be delivered to one of the three Take-over Centres (TOC) between 14 and 21 days from deposit.

From up-country depots, as graded and sealed, the LBCs liaise with the COCOBOD which directs where cocoa from specific locations are to be delivered. This is done on cost efficient basis to any of the three Take-over Centres: Tema, Takoradi and Kaase, near Kumasi.

Delivery to the Ports

The CMC, as the external sales subsidiary of COCOBOD, normally have sales book of forward contracts that adequately covers the purchase throughput of the LBCs.

Cocoa is not kept beyond six months in Take-Over Points/Centres due to high humidity which may affect the quality of the beans. The rate of delivery to the ports also depends on the shipment schedule of CMC, which in turn, depends on CMC's Sales Program. The typical shipment schedule as per contracts for delivery is as follows:

- October/December
- November/January
- December/February
- January/March
- February/April
- March/May
- April/June

This means contracts signed in October for spot delivery of cocoa beans in same month would actually be delivered between October and December. Similarly, contracts signed in November for spot delivery of cocoa beans in November would actually be delivered between November and January.

Quality Verification Process by Quality Control Company Ltd

Pre-sale examination by marketing clerks is first condition for payment of produce. Stocks are bulked prior to evacuation to warehouse and certified by the QCC before grading and sealing.

- Grading and sealing by QCC: 2 - 3 days
- Restocking and stock to preparation for secondary level evacuation: 2 - 3 days
- Arrival of cocoa at Take Over Point/Centre, weight and quality check by QCC: 2-3 days.

Process of Purchasing of Cocoa for CMC Take-Over from LBCs

- Buying, bulking, bagging and re-standardising weight, ready for grading
- Primary level evacuation 3 - 5 days depending on accessibility of location
- Grading and filing by Quality Control Company (QCC) 2 - 3 days
- Re-stacking and stock preparation for secondary level evacuation 2 - 3 days
- Secondary level evacuation 3 - 5 days
- Arrival of cocoa at Take-over Centre: weight and quality verification by (QCC) 2 - 3 days
- Cocoa taking-over by CMC after purity certificate, etc. has been issued by QCC 2 - 3 days
- CMC begin processing of documents for payment.

[11] Bangmarigu & Qineti, 2018
[12] Ashitey, 2012

Cocoa Processing

This down-steam industrial activity is undertaken by subsidiaries of major internationals like Cargill, Barry Callebaut, etc., and Ghanaian private companies and parastatal organizations. The Cocoa Processing Company Limited (CPC) used to be the only Ghanaian company that processed cocoa beans to chocolate and beverages, and was part of COCOBOD until it became autonomous, and is now floated on the Ghana Stock Exchange. Niche Cocoa has taken a leading market share in local processing into confectioneries for export. There is an increasing number of artisanal chocolate producers consuming part of the intermediary processed output into fine brands and actively seeking market shares.

Challenges Within the Cocoa Supply Chain

Various forms of challenges occur in the supply chain of the cocoa in Ghana[13]:

- Distribution challenges of farm inputs (fertilizers, pesticides, funds, etc.) from government-approved suppliers or Licensed Buying Companies to farmers;
- Improper sorting of the cocoa beans at the depots;
- poor handling, packaging and storage of the cocoa beans at farm level;
- poor transportation or evacuation of the cocoa beans from the farmers through to the terminal warehouses
- environmental challenges such as bush fires, flood, etc.
- the encroachment of illegal mining into cocoa farm lands, and polluting of land and rivers.

[13] Awuah-Gyawu, Brako and Adzimah, Research Journal of Value Chain Management, Volume 2, No. 1, 2015

03 Data Tables

Table 2: Production Data (Measured in tonnes of cocoa beans per crop year)

CROP YEAR/ REGION	ASHANTI	BRONG AHAFO	CENTRAL	EASTERN	WESTERN NORTH	WESTERN SOUTH	BRONG AHAFO	VOLTA	Total
2012 /13	137,378.56	88,034.06	71,540.19	75,911.69	243,075.50	215,030.81	88,034.06	4,495.38	**835,466.19**
2013/ 14	156,871.00	87,050.44	85,434.75	80,691.75	238,992.88	243,697.88	87,050.44	3,480.94	**896,219.63**
2014/ 15	136,134.00	81,896.50	70,690.00	68,415.25	192,978.06	187,490.06	81,896.50	2,650.19	**740,254.06**
2015/ 16	133,461.88	74,942.81	75,869.56	75,786.81	202,261.31	213,041.38	74,942.81	2,679.63	**778,043.38**
2016/ 17	173,207.75	101,248.69	95,592.31	96,816.94	241,286.88	254,936.94	101,248.69	6,421.19	**969,510.69**
2017/ 18	164,230.00	102,136.31	91,932.44	83,827.00	226,783.38	227,208.50	102,136.31	8,622.38	**904,740.00**
2018/ 19	171,366.25	86,899.81	88,659.63	93,820.94	151,298.94	213,083.56	86,899.81	6,617.38	**811,746.50**
2019 /20	167,235.00	89,215.75	85,968.63	89,642.38	130,787.38	202,447.31	89,215.75	5,398.00	**770,694.44**
2020 /21	220,238.06	108,591.75	135,925.50	128,936.94	162,145.88	284,331.63	108,591.75	7,215.19	**1,047,384.95**
2021/ 22	146,955.75	75,593.69	88,390.69	83,452.31	101,823.75	181,398.50	75,593.69	5,654.25	**683,268.94**

Source: RME Department of COCOBOD

Table 3: Export Data (Measured in tonnes of cocoa beans exported per year)

2018/19		2019/20		2020/21		2021/22	
Destination	**Tonnage**	**Destination**	**Tonnage**	**Destination**	**Tonnage**	**Destination**	**Tonnage**
HOLLAND	118,95	GHANA	126,360	GHANA	197,440	HOLLAND	136,464
MALAYSIA	98,325	HOLLAND	121,491	BELGIUM	99,100	MALAYSIA	57,400
GHANA	96,292	MALAYSIA	58,250	HOLLAND	85,007	USA	53,875
USA	70,425	BELGIUM	50,688	MALAYSIA	75,425	BELGIUM	45,470
JAPAN	38,625	USA	50,062	USA	44,500	JAPAN	31,025
SPAIN	37,750	JAPAN	39,224	LATVIA	35,00	GHANA	29,184
GERMANY	30,850	SPAIN	31,900	JAPAN	28,562	GERMANY	28,100
BELGUIM	29,960	GERMANY	23,600	SPAIN	26,575	FRANCE	20,250
EASTONIA	21,500	FRANCE	23,500	TURKEY	23,850	TURKEY	15,600
FRANCE	20,450	ESTONIA	21,325	FRANCE	17,500	CANADA	12,275
TURKEY	19,400	TURKEY	19,050	CANADA	16,500	ITALY	10,675
ITALY	17,675	UK	17,875	GERMANY	16,050	ESTONIA	10,300
INDONSIA	15,300	ITALY	15,950	INDONESIA	12,075	CHINA	685
UK	41,900	CANADA	8,525	ITALY	12,000	UK	5,950
CANADA	14,575	TUNISIA	6,000	UAE	10,012	INDONESIA	5,500
CHINA	9,450	INDONESIA	5,500	ESTONIA	8,450	TUNISIA	5,500
BRAZIL	5,000	SOUTH KOREA	4,100	INDIA	800	NEW ZEALAND	2,200
SOUTH KOREA	4,200	NEW ZEALAND	2,850	CHINA	5,900	UAE	1,750
NEW ZEALAND	2,150	CHINA	2,000	TUNISIA	3,000	SOUTH KOR	1,700
TUNISIA	2,000	VIETNAM	50	SOUTH KOREA	2,800	LATVIA	1,675
SRILANKA	125			NEW ZEALAND	2,250		
GEORGIA	100						
TOTAL	**668,010**		**604,803**		**720,096**		**479,993**

Source: RME Department of COCOBOD

Table 4: Local Processing Data (Metric tonnes of cocoa beans processed per year)

CROP YEAR	2017/18	2018/19	2019/20	2020/21	2021/22
CPC	25,039.41	28,486.17	13,957.49	13,373.39	11,920.13
BARRY CALLEBAUT	58,382.66	56,935.00	56,236.00	58,834.00	62,738.00
BD ASSOCIATES	30,724.49	32,535.24	29,087.51	21,256.68	17,026.35
NICHE	35,803.24	46,425.73	50,651.31	56,313.07	45,460.70
COCOA TOUTON	26,006.24	28,289.46	24,184.79	25,259.93	25,929.22
CARGILL	73,657.00	75,426.00	70,250.00	75,865.00	93,601.00
OLAM	38,407.00	34,733.00	28,454.00	42,124.00	41,142.00
PLOT	19,867.01	15,357.99	17,718.25	20,232.35	21,959.09
WAMCO	3,386.65	9,296.26	5,749.48	4,747.23	5,051.21
AFROTROPICS		8,715.00	6,352.00	4,983.00	5,145.63
Yearly Total	**311,273.70**	**336,199.84**	**302,640.83**	**322,988.65**	**329,973.33**

Source: RME Department of COCOBOD

04 Value Chain Actor Profiling

4.1 PRODUCERS

Sizing: The producers consist of about 800,000 smallholder farmers (SMHFs) farming on small acreages of land of between 0.5 to 3 hectares. These SMHFs represent about 90% of cocoa farmers and account for about 80% of cocoa production in Ghana. They mostly obtain about 1.62 bags per hectare output, as compared with a grade A farm's output of 4.86 to 6.48 bags per hectare. The total number of farms mapped up to date on the Cocobod's Cocoa Management System (CMS) is 1.24 million, with mapped farm size of 1.38 million hectares.

Business Model: The business model consists of cultivation and managing cocoa farms involving seedling planting, inter-cropping with staple crops that will provide necessary shades and extra income in the gestation period, weeding, introducing fertilizers, pruning, herbicide/fungicide spraying, harvesting, fermentation, drying, bagging and trading. The bagged cocoa is sold via collectors or the farmers' cooperatives to the LBCs' Purchasing Clerks at the ruling Producer Price. The Producer Price is determined by the PPMC, with stated objective of obtaining a minimum of 70% of the Net FOB Price paid to the farmers. The Net FOB is obtained by deducting direct farm services support costs: i) Disease and Pest Control, and ii) Jute Bags and Related costs from the Projected Gross FOB, which in turn, is obtained from projected average FOB for beans during the season (Cocobod RME), projected average foreign exchange rate for the season (provided by the Central Bank, BoG), and the forecasted cocoa production output for the season (Cocobod RME).

Table 5: Producer Price of Cocoa

CROP YEAR	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
PRODUCER PRICE **(GH¢)/MT**	7,600	7,600	8,240	10,560	10,560	12,800
AVERAGE FX **GHS:USD**	4.4	4.6	5.2	5.6	5.9	6.4

Source: RME Department of COCOBOD

Profit and Loss: A cocoa farm profitability analysis in a study published in 2015, on a case study in the Eastern Region, calculated a relative profit as 1.49, indicating that cocoa production in the study area was profitable. Farm size, farmer's age, farming experience and other costs, including labour costs, were identified as the significant factors affecting the output of cocoa production in the study area. The price of the cocoa is the most pressing problem the cocoa farmer faced[14].

The costs for establishment of a cocoa farm in 2018 are provided in Annex 2 A covering labour costs and Annex 2 B covering establishment costs

Analysis of cocoa farm profitability based on producer price and production costs in 2018 is herewith provided. With a farm size of 2.5 ha (6.18 acres), calculation of farm profit based on Total Cost of Production of an Existing Farm in 2018 (Annex 4):

[14] Awuah-Gyawu, Brako and Adzimah, Research Journal of Value Chain Management, Volume 2, No. 1, 2015

Table 6: Cocoa Farm Profitability Analysis (2018)

ITEM	ACRE	UNIT	TOTAL
Farm Size	6.18		
Yield (MT)/acre	0.20		
Ave. Output (MT)			1.25
Producer Price GHS/MT		7,600	
Labour Costs/acre	319.45		1,973
Depreciation/acre	89.45		552
Variable Costs/acre	395.79		2,444
Total Coasts/acre	804.69		4,969
Ave. Profit from Income			4,531
Ave. Profit			47.70%

Source: Author

Prevailing Production Practices: The average cocoa farmer is a male, above 50 years, cultivates other food crops such as plantain, yam and cassava but his main income is obtained from sale of cocoa beans[15]. Cocoa farmers in Ghana are usually confronted with unfavourable weather conditions attributed to climate change, diseases and pests, particularly the cocoa swollen shoot virus disease and black pod disease affect small holder farmers. Most of the SMHFs are either caretaker farmers or they inherit the farms from a bereaved kith or kin. A study conducted during 2013/14 season and published in 2015i, used an average cocoa farm size of 2.75 ha, with about 47.5% inherited and the rest under lease. About 66.37% of the farms were operated as sole proprietorship, and the rest as partnership, mostly comprising of share cropping. In terms of labour, the farmers work the farms themselves, with assistance from family members. Where it becomes necessary, outside labour is employed, paid with daily charge, feeding and residence (should the workers stay for more days in the locality) together with transportation costs to the farms. Labour costs comprised of 89.90% of variable costs, and 63.88% of total production costs. A study[16] revealed that the modal household size is between 6 to 10 members and the average household size is 9 members with more than 60 percent of the respondents having household size of at least 8 members. This implies that the respondents have a relatively large household sizes which they utilize as a source of family labour.

Extension service has not really gotten down to the SMHF. The siting of the extension officers at the district capitals, together with their inadequate numbers do not easily avail the services to the farmers. Most farmers learn the farm practices from what was traditionally handed down to them from parents and elders. Independent LBC initiatives, especially through the adoption of sustainability schemes, is what is bringing massive extension intervention in cocoa farmers' training into focus.

The introduction of a new department in Cocobod: Cocoa Health & Extension Division (CHED), cocoa farm maintenance in Ghana is beginning to take shape. Cocobod makes and shapes the policy for the welfare and sustainability of cocoa farms through CHED. Sustainability farming concepts concerning tree age, maintenance, health, pest, input distribution, farm equipment/technology, etc. are being pursued with major programs are underway. Cocoa harvest and post-harvest handling practices, however, has not changed much. Modern pod breaking, fermentation and drying techniques that are time and cost saving are yet to gain currency and practice here.

Most of the farmers often rely on the Cocobod's free inputs supplies (pesticides, fungicides and fertilizers).

[15] COCOBOD Survey, 2018
[16] Fadipe et al., 2012

Challenges Associated with SMHF Cocoa Production

Key social challenges comprises, the lack of good transportation systems, and such amenities, like schools, hospitals, communication facilities, security, justice systems, institutions for financial inclusion, recreational spaces, etc. Indeed, cocoa farms, especially smallholder farms, are mainly found in the periphery of the developed areas of the country, with the above social challenges found in almost all of the farm areas. Key challenges:

- Aged Cocoa Trees and the Aged workforce
- Unsatisfactory Land Tenure Policies in Ghana
- Pests and Diseases
- Access to Finance Constraints
- Aging Farmer Demographics

Organization

The smallholder farmers are mostly organized around producer cooperatives or the off-taker LBC's societies, operating largely under an elected society chief farmer for the purposes that the organization would provide security against malpractices of PCs, and ensure that the SMHFs in the society are duly considered in the provisions that the Cocobod and the LBCs make for the farmers' welfare. CHED is in the process of encouraging farmer cooperatives and organizations via community engagements in solving their own challenges efficiently and expeditiously.

It is estimated that there are over 800 producer groups or cooperatives. Societies, also vary a lot in sizes, and may be formed by one criteria or the other. Some are based on family or tribal basis, a clear road demarcation, etc. There is an umbrella organization called the Ghana Cocoa, Coffee and Sheanut Association (GCCSFA) that provides representation and advocacy for the sector industries. Most of the cocoa farmer groups belong to the GCCSFA. The association could be a strong and effective group and a vehicle for relevant policy decisions made and adopted by the cocoa farmers. However, there are hundreds of associations under the cocoa sector alone, that governance issues are quite a challenge. The GCCSFA has representatives on behalf of farmers that have a voice in the board room during discussions of the operations and activities in the cocoa industry.

Market Linkages/Traceability

The main market linkage is through the LBCs, nevertheless, market knowledge is not readily made available to the SMHFs. The emerging Cocoa Management System (CMS), designed to provide extensive Traceability system, a potential for massive boost in linking the producers to the end-users of their production.

Access to Finance

This group of farmers do not have enough capital or assets to use as collateral for loans, nor are they even known by the financial houses. The **SMHFs take pre-season loans from the LBCs' Purchasing Clerks (PCs) to whom they sell their cocoa, and often sell their cocoa wet or not-thoroughly-dry (NTD) at discounts to the PCs.** They also likely to take loans from shop owners/suppliers in the local communities. **The well-established cocoa cooperatives and farmer organizations are able to arrange financing for members from rural banks and credit associations.**

Most of the cocoa SMHFs have limited access to finance, so are dependent on the LBCs, other agents and family for loans. Most of the funds are to pay school fees and not for processing or investment in the farms. They prefer to buy inputs by cash because credit is viewed as a potential risk, which means that the farmers cannot undertake productivity enhancing investments[17]. Most of the farmers are unable to subscribe to the treated cocoa seedlings from the Cocobod, so they normally go to the local nursery operators often supplying faulty bean seeds.

[17] Ghana's Brown Gold: The Political Economy of the Cocoa Sector, 2022

Income

Income from cocoa production for the producers comes from the sales of cocoa to the PCs at the Producer Price set by the PPMC at the beginning of each cocoa season. The Producer Price is obtained by the PPMC's objective of attaining a minimum of 70% of the Net FOB of sales of cocoa for the farmers. The Net FOB is obtained by setting aside a portion of the projected revenues for delivering services to the farmers, e.g. costs for disease and pest control, supply of jute bags and related costs, etc. (i.e. direct costs). Most farmers also cultivate staple and other tree crop farms as additional income stream.

It has been estimated that about 67% of the incomes of smallholder cocoa farmers originate from cocoa production and sales in Ghana[18], with the balance from subsistence farming of staples, oil palm, citrus, etc. About 27% farmers live under the poverty line, income generated from cocoa farming is not enough to push farmers out of poverty. So they usually engage in ASGM or "galamsey" as survival strategy[19].

Social Issues/Challenges in the Cocoa Sector

1. Child labour
To address this issue, the Governments of Ghana and Cote d'Ivoire and the U.S Department of Labor (USDOL), as well as, the International Chocolate industry agreed to work together in September 2010 to support the implementation of the Harken-Engel Protocol (Declaration) to address the worst forms of child labour (WFCL) in cocoa growing areas of these countries.

2. Poor transportation systems in the cocoa landscape
COCOBOD makes annual budgetary allocation for the construction and rehabilitation of cocoa roads in the cocoa growing regions. Ministry of Roads and Transport provides technical support. Construction of these roads boosts economic activities in the cocoa growing communities and encourage the youth to stay in the rural areas.

3. Dilapidated social amenities
e.g. schools, hospitals etc. in the cocoa landscape.

4. Low financial inclusion on the part of cocoa farmers

Cote D'Ivoire-Ghana Cocoa Initiative[20]

The global cocoa market has evolved over the past half a century against the interests of the producers with increasing price volatility and real terminal market price decline, averaging 2% per year. Value addition has aggregated in favour of the market players at the downstream of the chain, while the producers continue to receive declining prices, with returned value of only about 5% of the end-product price. The poverty syndrome emerging from the structure of this system, has led to the exacerbation of social (child labour) and environmental (receding forest cover) problems, in turn, affecting sustainability of the industry.

Cote D'Ivoire and Ghana, together accounting for over 60% of global production, have under the "Abidjan Declaration" of 2018, defined a common sustainable cocoa strategy with objectives that include the correction of market failures, with intent to seek, among other objectives, increasing prices that recognize the social value of the product, ensuring decent return to the producer, and promote better social and environmental practices. The Declaration has culminated into the Côte d'Ivoire-Ghana Cocoa Initiative (CIGCI), a regional organization with an open door policy towards the other African cocoa producers.

The two outstanding achievements to date of the CIGCI have been the i) the Living Income Differential (LID), and ii) the monthly publication of the Origin Premiums. The first is an initiative on cocoa prices, started in June 2019, that led to an agreement with the cocoa producers and the chocolate industry to create a Living Income Differential (LID) to ensure decent revenue to local farmers. The LID amounts to about US$400/ton premium paid beyond the price of the cocoa futures markets. The Origin Premium, determined by the market, is paid for cocoa from a particular country arising out of the quality of the cocoa and reliability of performance. The CIGCI publishes the origin premiums on a monthly basis to guarantee transparency in the market system. The current (May, 2023) Premium for Ghana: £/TM 20 above the ICE EU Terminal Market.

[18] ibid
[19] ibid
[20] www.cighci.org

4.2 INTERMEDIARIES

License Buying Companies (LBCs), and hauliers provide intermediary services along the cocoa value chain.

Licensed Buying Companies

Sizing

The 1992 Agricultural Sector Adjustment Programme (AgSAP) introduced reforms in agricultural pricing and marketing to improve resource allocation, foster private initiative and develop greater efficiency through greater competition. It introduced competition into the internal marketing of cocoa by allowing Licensed Buying Companies (LBCs) to purchase cocoa in competition with the government parastatal Produce Buying Company Limited (PBC). The PBC used to be state run and was the sole agent of the COCOBOD for the purchase and delivery of cocoa beans to the Board for processing and for exports by the Cocoa Marketing Company (CMC) - the marketing arm of the COCOBOD. Policies under the AgSAP enabled other companies to acquire licenses from the COCOBOD to engage in the business of cocoa purchases and delivery, and to compete with the PBC Ltd. PBC Ltd was subsequently privatized and other companies were permitted on board the business of cocoa purchasing and delivery to the COCOBOD.

By the 2019/20 crop year, there were 55 companies approved as LBCs (Annex 1). This has increased to 63, as of date, but only about 44 are active operators.

Business Model

The LBCs purchase cocoa directly from farmers on behalf of COCOBOD and bag it for delivery to COCOBOD at designated take-over centres on commission basis. After drying, the beans are bagged and sold to the PCs at the farmers' sheds or at a buying station of the LBC's society sheds. At the cocoa buying centres, the beans undergo quality control tests by the LBC buying agents following which acceptable cocoa is purchased by the agents. LBC's purchase cocoa from the farmers at a minimum producer price set by a Producer Price Review Committee (PPRC). The LBC's then move the cocoa to the main COCOBOD depots/warehouses in the districts, where the cocoa is further weighed and tested for humidity levels by Quality Control Unit (QCU). After testing, acceptable cocoa is transported to the designated take-over centres further weighing and quality testing and received into warehouses where the LBC's will be issued with a cocoa takeover receipts (CTOR's) by the CMC. The CTORs are submitted to the Cocobod with nominal expected payment within 48 - 72 hours.

Profit & Loss

The LBCs' Buyer's Margin, also approved by the PPMC, hovers around 7.5% to 8% of the Net FOB. A typical LBC's expenditure and gross contribution to profit from the use of the Buyer's Margin is as follows:

Table 7: LBC's P & L Estimation from Buyer's Margin

Producer Price		***660***
Farm Size	6.18	
LBC's Margin (Income)	**7.74%**	**49.313**
Expenditure	**Rate**	**Effective Cost**
Direct Cost	**%**	
Purchasing Clerk Commission		
Other Handling Charges	2.21	1.09
Logistics	0.77	0.38
Primary Evacuation	7.6	3.75
Grading & Sealing at Port	6	0.03
Sundry Freight & Cartage	0.22	0.11
	34.24	**13.76**
Finance Cost		3.94504
Cocobod Seed Fund Interest	16	8.33
Loan & Overdraft Interest	19.3	9.52
Processing & Guarantee fees	4.13	2.04
Akuafo Cheque Commission	0	0.25
	39.43	**20.14**
Admin & General Expenses		
Staff Cost	10.75	5.3
Office Cost & Monitoring	8.29	4.09
Estate & Property	2	1
	21.04	**10.39**
GRAND TOTAL	**94.71**	**44.29**
CONTRIBUTION		**5.023**
TRADE MARGIN		**10.19%**

Source: Author's Based on 2020/21 Purchasing Price

Contribution to operating profits are therefore very dependent on the efficiency of the operations in terms of volumes purchased and sold (turnover), cost management and overall systems' efficiency.

Risk Considerations for LBCs[21]

- Poor Crop Yield which reduces supply
- Quality Control management processes (reject of beans)
- Congestion along the Supply Value Chain (increasing costs)
- High Interest Rates for working capital facilities
- Exchange Rate Volatility for External-sourced Financing
- Diversion of Produce/Smuggling

Key Success factors for LBCs[22]

- Good reputation with farmers
- Efficient management of costs
- Reliable agents and access to farmers
- Availability and access to good warehouse for storage
- Continuous monitoring of the Cocoa quality along the supply chain
- Access to cheap funding and/or a larger share of allocated seed fund
- Availability of haulage and logistics for swift transportation of produce

[21] Sector Industry Analysis, Cocoa Sector Report, GCB, Accra, 2022
[22] Sector Industry Analysis, Cocoa Sector Report, GCB, Accra, 2022

Access to Finance

a. Cocobod Seed Fund

Over the years, Seed Fund from Cocobod to the LBCs to finance purchases has been barely sufficient in any given year. The reason for this stems from the fact that the Seed Fund allocations are based on an assumed Seed Fund turnaround of 2.2 times, which is unrealistic due to operational bottle-necks such as delays at the take-over centres and processing for payments of cocoa take-over receipts (CTORs), which the LBCs do not have control over.

b. Financial Institutions Support

It is noteworthy that delays in the administration of Seed Fund causes the LBCs to support cocoa purchases with facilities from the commercial banks at high interest costs, which the Net FOB Buyer margins paid for their operations are unable to absorb. On average, the LBCs borrow around 25.83% of their financing requirements to support Cocobod Seed Fund at a weighted average interest rate ranging from 1-3% above the Ghana Reference Rate (GRR, currently at 26.45%). The borrowings are normally supported with fixed asset or liquid securities as collateral. Some of the banks provide inventory credit support for the seed crop purchases.

c. Timing of Loans from Banks by the LBCs

The LBCs normally source for extra funding for their purchases during the light crop season and also when the main crop season begins to tail off i.e. around February to April/May, as well as, during recall of Seed Fund by Cocobod which is usually sudden and most of the time without protocol.

Challenges Faced by Licensed Buying Companies (LBCs)

- Low Buyer Margins
  - Traders Margin[23]
  - Bankruptcy Rate[24]
- Excessive Market Power of COCOBOD (Regulatory powers for quality & monopoly marketing)
- Poor Financial Management (the lack of adequate working capital and over reliance on the Cocobod's seed funds)
- High Finance Cost (entry barriers for seed fund qualification, access to finance challenges, cost of borrowing expensive)
- Competing in Volumes Instead of Price (fixed pricing constraints, leading to competing tools of: investing directly in farmers, prompt payments, bonuses, gifts, rewards, (subsidized) inputs credit and training, etc)
- Poor Infrastructural Facilities (inadequate LBC storage facilities up-country, and at the terminal warehouses)
- Funds Cycle Time (long actual redemption time for CTORs, plus interest costs for funds recycling)

Hauliers

Cocobod's registered private transporting companies haul cocoa beans from the district depots to designated takeover centres for a fee. There is a regular capacity building in their handling of cocoa in transit, organised under Cocoa Hauliers Association of Ghana. The major transporters serving this sector are:

- Global Haulage
- Gelloq Haulage
- Antrak Ghana Ltd
- Vehrad Transport & Haulage Co. Ltd, and
- Global Cargo & Commodities Ltd

The price of haulage from each of the 67 cocoa districts to the take-over centres is also regulated by the PPRC. This price is influenced by the mileage and nature of the road network to cover the cost of haulage from the depots to takeover centres and to the port[25].

[23] Zeitlin (2006)
[24] Vigneri and Santos (2007)
[25] Sector Industry Analysis, Cocoa Sector Report, GCB, Accra, 2022

4.3 PROCESSORS / EXPORTERS

Processors

Historically, efforts at processing cocoa for export in Ghana can be traced to the 1960s when the West Africa Mills Company (WAMCO) was established through private initiatives. It was to process cocoa into cocoa paste, cocoa butter and other products[26]. Subsequently, the government established the Cocoa Processing Company (CPC), a subsidiary of COCOBOD, in 1965 to process cocoa into semi-finished and finished products. The CPC was privatised in the 1980s, as part of economic reforms.

Until 2009, processed cocoa exports averaged about 12 percent of total cocoa beans output. It however picked up in 2009, reaching about 18 percent and has since then ranged between 21 and 25 percent. Most of the value-added products are in the form of cocoa paste and cocoa butter[27]. Ghana's National Export Development Strategy envisages the export of at least 40 percent of its cocoa in processed form by 2024.

Sizing: As at April 2023, ten (10) active Cocoa Processing Companies operate in Ghana. The minimum installed capacity of a processing company is 12,000 tonnes and a maximum of 90,000 tonnes. Cocoa products such as liquor, butter cake, powder and chocolate are produced for domestic and international markets.

Business Model: There are several stages of processing cocoa, which results in either semi-finished or finished products. From the farms, harvested cocoa beans are dried and fermented in order to reduce the moisture content. The farmers, through licensed buying companies (LBCs), sell the dried cocoa beans to COCOBOD. The processing companies purchase the fermented dried cocoa beans as the main raw material, which undergoes cleaning, shelling, winnowing, and roasting. The roasted nibs are grinded and refined to produce liquor. The liquor is either processed (pressed) further for butter and cake or undergoes storage as semi-finished product, which is sold to the confectionary industry or is moulded into finished chocolate products for consumers. Cocoa cake is further milled into cocoa powder for the confectionary industry.

The processing companies, including Touton Ghana Limited, Niche Cocoa Industry Limited, Plot Enterprise, Archer Daniels Midland (now Olam), BD Associates Ghana Limited, Real Products Limited, Barry Callebaut, Cargill and CPC, add some form of secondary processing of cocoa into semi-finished products (butter, liquor, cake and powder). CPC and Niche also have tertiary processing into confectioneries and chocolates.

There are over 20 major and artisanal confectionary producers of chocolates and other cocoa confections, branded health drinks, etc., at the tail end of the value chain in Ghana. Some have managed to register their brands on the global markets: Niche, Cocoa Processing Company, etc.

Prevailing Production Practices: The total installed capacity for the processing companies (Annex 5: Processing Capacity- 2020) was about 483,200 metric tonnes, out of which 327,485 metric tonnes (68 percent) was utilised in 2020 (Annex 6: Processing Capacity Utilization- 2020). Table 2 provides details of processed cocoa products exported between 2018 to 2021, and Annex 7 details the performance of the processed cocoa products within the context of Non-Traditional Exports of Ghana (NTE).

Key processing companies in Ghana[28], and their production make-up are as follows:

- Cargill has one of the largest portion of the local sales since it started operations in 2008. The company has invested $100 million to build a state-of the-art cocoa processing facility in Ghana for the production of cocoa liquor, butter and powder. The factory is located in the port city of Tema.
- Wamco, a joint venture between German investors and the Ghanaian Government, was closed down in 2014 because of severe financial and management problems, leading to inability to procure beans processing, but has since been rehabilitated and producing at a profit. The factory is located in the port city of Takoradi. As of 2020, its installed processing capacity was 54,000 MT, but with its utilization at only 16.95%.
- Barry Callebaut only produces cocoa liquor and nibs at its Tema-based factory (which are intended for sale to other subsidiaries of the parent).

[26] Essegbey and Ofori-Gyamfi, 2012; Goodman, 2017
[27] Goodman, 2017
[28] Sector Industry Analysis, Cocoa Sector Report, GCB, Accra, 2022

- France's Cocoa Touton Processing Company (CTPC)-Touton's first cocoa processing plant, was opened in April 2015 in Ghana. Representing an investment of € 17 Mn, it employs 135 workers and has a capacity of 30,000 MT. The plant produces cocoa liquor for export. In addition, a tolling agreement with CPC offers an additional grinding capacity of 40,000 MT.
- Cocoa Processing Company (CPC), a subsidiary of COCOBOD has an installed capacity of 65,000 MT. CPC produces all cocoa products (liquor, cake, butter and powder and confectionaries).
- Plot Enterprise (Gh) Limited has put up a factory in Sekondi, the Western Region, with a capacity of 30,000 MT, producing cocoa liquor, butter, cake and powder.

Profit & Loss: The average yield of cocoa liquor from one tonne of processed cocoa beans is 80 percent. A tonne of cocoa liquor then results in 55% of cocoa butter (0.55 tonne) and 45% of cocoa cake (0.45 tonne). A tonne of milled cocoa cake produces 100 percent cocoa powder.

Most of the processing companies sell part of their output locally as semi -finished products to feed the local confectionaries. Average annual volumes in tonnes and values for specific products, locally traded:

Table 8: Average Annual Local Sales

Products	Tonnes	FOB Value (USD)
Natural cocoa butter	139.69	678,715.01
Cocoa liquor	0.58	3,001.99
Cocoa Cake	79.83	65,440.39
Cocoa powder	3,035.91	6,565,711.33
Chocolate	33.76	394,981.99
GRAND TOTAL	**3,289.76**	**7,707,850.71**

Source: RME Department of COCOBOD

Access to Finance: The foreign-owned processing companies normally supply their output to offshore affiliates or contract clients operating manufacturing of products for global distribution. The access to financing of these entities are arranged with lines of credits with international banks with subsidiaries or correspondents in Ghana. Funding with low cost exchange-linked facilities provides more competitiveness to these operations, as well as forex risk management. The Ghanaian-owned operations, depending on the efficiency of their operations and cash flows may be more dependent on the local currency facilities, which are comparatively expensive, with high barriers of access, etc., placing challenges on the competitiveness of the operations.

Income: It depends on the business model of the processing company. Most of the multinationals are processing to feed associate or affiliated offshore manufacturers and generating income based on contract arrangements. The locally-owned companies supply outputs to "high-end product" local processors (e.g. processing liquor into butter or cake), export through the CMC or enter into supply contracts to deliver intermediary products to foreign off-takers. Invariably, pricing of processed products is linked to ruling prices of the underlying beans, and the supply/demand of the product at the point of sale.

Challenges: There have been times of uncertainty about the availability of locally-produced cocoa beans, as the processing companies are often left with no choice but to either pay higher prices for cocoa (international prices) or leave their machinery idle[29]. In such times, some cocoa processing companies have had to import cocoa for processing, e.g. about 5,500 tonnes of light crop cocoa beans were imported from Cote d'Ivoire in 2015/2016 to meet the operations of processors, as available local light crop beans were inadequate[30]. Cocobod permits imports of cocoa from West Africa origins to make up of shortfalls under the Bean Sale Agreement (BSA) quantities.

In terms of employment, it is difficult to obtain precise estimates of employment generated by export processing of cocoa. However, Goodman[31] estimated that a little over 1,293 workers were directly employed by the major processing companies. On per-firm basis, the number of employees has been declining as a result of increased

[29] Goodman, 2017
[30] / [31] ibid

automation of processing activities as well as the high prices of cocoa beans[32]. One important policy measure to generate more employment in the processing of cocoa has been the selling of cocoa beans at discounted prices to local processers instead of the usual international price[33].

4.3.2 Exporters

- Cocoa Marketing Company (GH) Ltd. is the main exporter of cocoa in Ghana. All sales by CMC are made on Cost, Insurance and Freight (C.I.F) basis, without any commission, whatsoever. In special circumstances, however, the Company can make sales in such other terms as Cost and Insurance (C&I) and Free On Board (FOB) basis.

- Sales by CMC are effected on the basis of Cash Against Document via documentary collection. The company, however, reserves the right to insist on establishment of Letters of credit whenever it deems it necessary.

- The buyers of Ghana's cocoa include Local and international Processing Companies, confectionary/chocolate manufacturers and trade houses across the globe.

- The detailed process of trading of cocoa (spot and forward):
    - The sale process for export of cocoa (same for processed cocoa), i.e. the buyer calls the trading desk at CMC and says they want to buy x MT at y price. Then CMC calculates and makes the offer over the phone to the buyer. Apparently the offer remains open until 5pm the same day, as the buyer attempts to forward sell the cocoa beans to traders, grinders, stockists, etc., or with processed products to end-users.
    - Pricing: Ghana's cocoa is priced referenced to the (London Terminal Price + Ghana's Premium + Living Income Differential) at the applicable exchange rate. This process covers both spot and forward sales.
    - Buyers information, average contract volumes, shipment fixtures, terms of payment, etc., are confidential and the CMC does not share such information.
    - Export of certified products– the special cocoa from sustainability programs are labelled as 'special' and the stacks are built as such. CMC also has dedicated warehouses for organic cocoa beans.
        - Pricing methodology: Terminal Reference, Premium, LID for certified products.

4.4 INPUT DEALERS

Input dealers supply cocoa inputs such as pesticides, fungicides, fertilizers and other services to COCOBOD for the cocoa farmers. The inputs are necessary to improve yield and protect the crops from damage. Key providers of cocoa inputs include Dizengoff, Wienco and Chemico Limited. These companies also provide support services to the farmers. Some inputs are sometimes provided on credit as a loan to be paid after harvest or on a subsidized upfront charge or as a loan to be repaid on monthly instalments[34].

Other independent importers and distributors of pre –harvest agricultural input include:

- Calli Ghana Ltd, Bentronic Production Enterprise, Cropstar Company Ltd, Kumark Company Ltd,
- Golden Stock Enterprise, Wynca Sunshine Company and Cocoa Research Institute

All agrochemicals used on cocoa must be tested and approved for use by the Cocoa Research Institute of Ghana (CRIG). CRIG, working with the Input Supply Companies, has developed various formulations to suit the fertility status of the cocoa production regions.

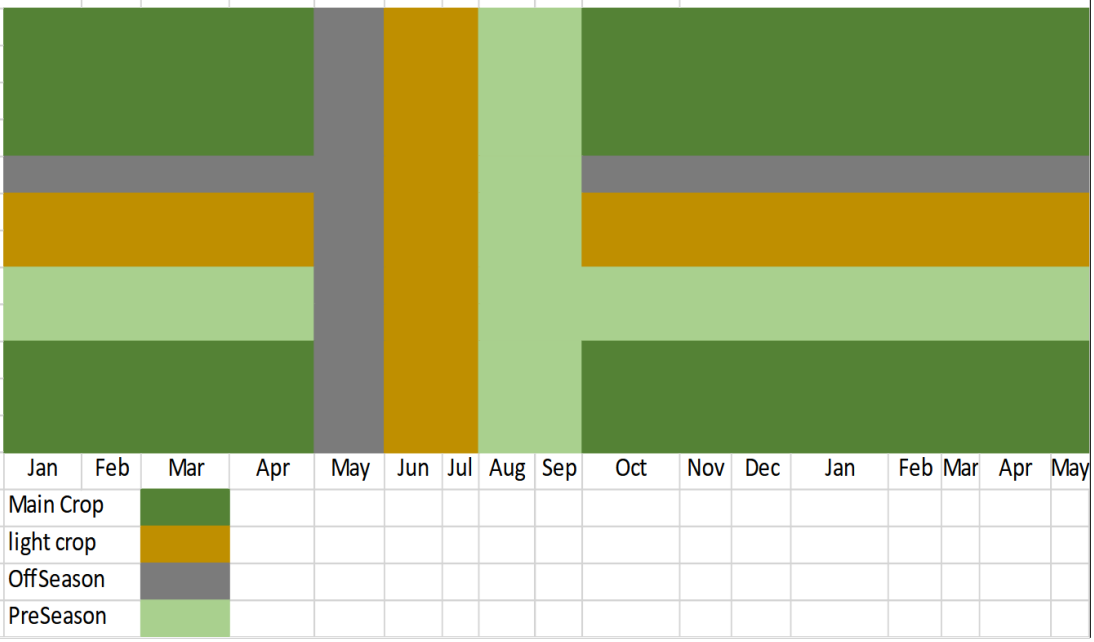
Inputs are distributed by the LBCs to the farmers at the community levels or via their farmer organizations or cooperatives. The process, however, is tightly monitored and supervised by CHED.

[32] / [33] ibid
[34] Sector Industry Analysis, Cocoa Sector Report, GCB, Accra, 2022

05 Cocoa Crop Cycle

Chart 2: Cocoa Crop Cycle

		ACTIVITIES
Drying/Trading	MainCrop	Jan
Weeding	MainCrop	Feb
Prunning	MainCrop	Mar
Fertilization	MainCrop	Apr
Pesticide Spraying	Off Season	May
Fungicide Spraying	Light Crop Seas	Jun
Harvesting	Light Crop Seas	Jul
#REF!	PreSeason Purc	Aug
WEED/Harvesting	Pre Season	Sep
Drying/Trading	Main Crop	Oct
Drying/Trading	Main Crop	Nov
Drying/Trading	Main Crop	Dec



Source: RME Department of COCOBOD

06 Quality and Storage

6.1 QUALITY

The various aspects of quality can be divided into two categories. First there are those that affect the acceptability of parcels of beans to the manufacturer. These include flavour, purity and grade, which embraces the items covered by grading standards and food regulations. The other category includes those physical characteristics which affect yield of edible material which manufacturers can obtain from a particular parcel.

The two categories of quality taken together will affect the value of a particular parcel in relation to other cocoas, but the actual price at a given time will be affected by the other commercial factors due to marketing

Ghana subscribes to the Model Ordinance with definitions and grade standards and a code of practice detailing methods of sampling. The model defines 'cocoa of merchantable quality' as follows:

a. Cocoa of merchantable quality must be fermented, thoroughly dry, free from smoky beans, free from abnormal or foreign odours and free from any evidence of adulteration
b. It must be reasonably free from living insects.
c. It must be reasonably uniform in size, reasonably free from broken beans, fragments and pieces of shell and be virtually free from foreign matter.

Quality Measurement

Done by some combination of methods that are targeted at the individual waste agents of the cocoa bean.

Cut Test

This involves cutting lengthwise 300 beans taken from a random sample of cocoa whose quality is to be assessed. Both halves of the beans are usually laid out on a board but at some other times only one half is examined. When the cut is complete, the number of defective beans is counted. This can be laborious but a device for cutting 50 beans with guillotine knife which is now available under the trade name MAGRA. The defects obtained here normally include:

i. Mouldy beans. A cocoa bean on the internal parts of which mould is visible to the naked eye.
ii. Slaty bean. A cocoa bean which shows a Slaty colour over half or more of the surface exposed by a cut made lengthwise through the center.
iii. Insect-damaged bean. A cocoa bean the internal parts of which are found to contain insects at any stage of development, or to show signs of damage caused thereby, which are visible to the naked eye.
iv. Germinated bean. A cocoa bean, the shell of which has been pierced, slit or broken by the growth of the seed germ.
v. Flat beans. A cocoa bean the cotyledons of which are too thin to be cut to give a surface of cotyledon.

Where a bean has more than one defect it is recorded in the most objectionable category, the defects described above being in descending order of gravity.

Germinated beans are considered a defect because the hole left by the emerging radicle provides an easy entrance for insects and for moulds. They are also considered to lack good chocolate flavour.

In addition to the definitions of defects listed above, certain other requirements of these standards are defined below:

vi. Thoroughly dry. Cocoa which has been evenly dried throughout. The moisture content must not exceed 7.5 percent as determined at first port of destination or subsequent points of delivery.

vii. Smoky beans. A cocoa bean which has a smoky smell or taste or which shows signs of contamination by smoke.
viii. Uniform in size. As a guide not more than 12 per cent of the bean should be outside the range (+-)1/3 average weight.

Quality Incentives

a. Leads to speedy grading & sealing and therefore increases the LBC's cycle time.
b. Farmers does not need to do a to-and-fro to the LBC or sell their cocoa at discounted prices or face an outright rejection of sale.
c. CMC may face arbitration charges if poor quality cocoa is shipped outside.

Parameters

Parameters for determination and measurement of cocoa quality include:

a. The determination of the value of the cocoa.
b. To determine the acceptability of the parcel of beans to the market.
c. The two reasons above include flavor, purity and grade, which embrace the items covered by grading standards and food regulation and hardness of cocoa butter. The other category includes those physical characteristics which affect the yield of edible material which the manufacture can obtain from a particular parcel.
d. Purity, pesticides-flavors, toxic residues, free fatty acids, bean weight, shell percentage.

Grading Systems

a. Cocoa is graded on the result of a cut test.
b. There are 3 levels of grades in the system.

Grades 1 and Grade 2 and Small beans.

Defects	GRADE 1	GRADE 2	SMALL BEANS	Substandard
Mouldy beans maximum by count	3%	4%		
Slaty beans, maximum by count	3%	8%		
Insect Damaged by count	3%	6%		
	1.100	101-120=A	121-130=B	131-150=u

Testing Methods and Equipment

TEST	EQUIPMENT
Cut test	Knife, sampling Horn, Moisture meter (Aqua boy), micro weighing scale and physical assessment
Laboratory Analysis	Scientific testing environment for (Physical & Chemical Assessment, Moisture content, pH of Cocoa beans, Fat content, Entomological Assessment, Essential Oil testing, Aflatoxin testing, microbiological analysis and Pesticide residue testing

Quality Practices

Farmers are trained on farm practices so as not to compromise on cocoa quality. Cocoa quality can be ensured by the farmer at the farm level through good post-harvest practices. The farmer can assess the different type of defects in cocoa using physical means.

• Infection by mould can be prevented during drying of the beans. The beans must always be thoroughly dried before bagging.

• In the case of insect bites, farmers are to ensure that storage rooms are free of insects (moths/mites) and fumigation of store rooms with recommended fumigants. To avoid Slaty beans, a good fermentation process is required.

Packaging

Cocoa in Ghana is bagged in food grade jute sacks. In transit, cocoa must always be covered by tarpaulins and not mixed with any other product because of the hygroscopic nature of cocoa.
If cocoa is to be shipped in containers, craft paper is required to drain sweating of the cocoa in transit while crossing the ocean.

Buyer Requirements

The following information is attached to the bill of laden during shipping of the cocoa to the buyer:

i. Certificate of origin and weight for traceability purposes
ii. Phytosanitary certificate
iii. Purity certificate
iv. Certificate from Ghana Standards Authority
v. Certificate for Ministry of Food and Agriculture
vi. Fumigation and fogging certificate
vii. Insurance certificate
viii. Parking list certificate
ix. Draft invoice

Generalized System of Preference (GSP) certificate is issued to cover semi-processed cocoa beans.

Traceability and Social Certification

There exists a generic traceability platform in the Ghanaian cocoa sector. The allocation of alpha-numeric characters to societies within districts, districts within regions and each region different from the other makes that clear. The unique markings are also termed drop marks that makes the differentiation and uniqueness of the origin or sources of cocoa within the country.

Since a decade or so, certification bodies such as Rain Forest Alliance, UTZ, FAIR TRADE and ORGANIC took giant steps to dominate the traceability landscape. Traceability operations are very private and more linked to individual LBCs working with an off-taker/processor.

CMC supports the LBCs in the chain of custody tracking by allocating specific warehouses for specific certified cocoa at the port which are only touched or loaded under specific instructions.

Overall Performance

This is obtained from comparing total bags purchased to total rejected cocoa, and also by comparing total delivered to total exported, and total exported to total arbitration values. Ghana has maintained its status as a premium quality producer of cocoa in the global market.

Issues of Quality of Ghana Cocoa Beans

- The high quality of Ghana's cocoa beans is the result of Cocobod's control systems that promote the use of adequate cultivation and post-harvest practices among farmers.
- Continued selling Ghana's cocoa in the forward market and receiving the price premium, requires its reputation as a high quality cocoa producer be maintained.
- Forward sales contracts enable discounted syndicated loans, to support prevailing price setting system of fixed producer price and value chain margins, providing seed funds to the LBCs, the preservation of the market structure[35] and sustainability of quality.
- The quality of Ghanaian cocoa is claimed to have declined, since the liberalization of the internal market: LBCs' competing to increase market share and profit margins, pressure farmers to sell not well fermented or well dried cocoa with the promise of re-drying thoroughly to meet the standards acceptable for export[36].

6.2 STORAGE

Farmers' Sheds

The farmer stores his ready-to sell or waiting-for-cash cocoa in jute bags supplied by Cocobod, then store them in facilities of a bamboo/swish wall and thatch roof. These are the main materials that go into building these storage facilities. At all points, cocoa is never left on the bare floor. They are always packed on gratings or wood planks, removed from the ground.

Society Sheds

They are only large versions of the village sheds in terms of materials employed in building them, made of sandcrete materials with roofing sheets. Before the liberalization of the internal marketing, society sheds were structured and could carry between 250 and 300 tonnes. These capacities were as such because the urgency to undertake primary or secondary evacuation of stocks was low. With the liberalization of the internal marketing, QCC limits the capacity of district storage to 100 tonnes, made of concrete. Wooden sheds are not allowed in the internal marketing of cocoa.

Vehicles/Transportation

This entails the movement of cocoa from one place to the other along the value chain, and how issues of quality are enforced or maintained in motion. Cocoa is moved from the fermentation phase into drying mode mainly by human portage in baskets, pans or in sacks. Where it is a lot, more hands are hired or small tractors are employed from fermentation to drying mats and even from mats to LBC Societies. Light trucks are employed when a sizeable quantity (less than 3 tons) is coming to the societies. It is the norm that every vehicle with cocoa on-board will carry a tarpaulin against dust, pilferage and rain. The vehicle must also show evidence of spare tyres, jacks and tools and equipment for maintenance to avoid breakdowns, and also prevent pilferages.

Depots

Depots are reception points of cocoa from the societies within the District's[37]. They are the Districts' loading points to the Take-Over-Centers, where the CMC takes over the cocoa. Before now the District depots are found at the railheads of the railways system, when they were the major carriers of cocoa into the ports. They also mainly located at nodal towns and are the major points of commerce and labour. Today, it is more of the cargo trucks which carry cocoa (around 300 bags at loading from society) to the depots, and articulator trucks that carry around 600 bags of cocoa each from the depots to the take-over or terminal warehouses at the ports. It is becoming common that grading and sealing by the QCC for all districts take place here.

[35] Laven, 2005
[36] ibid
[37] See CHED Map at the Districts, where Depots are located

CMC Terminal Warehouses[38]

These are the terminals for cocoa declared by the LBCs to have been purchased from farmers and have been graded and sealed by the QCC Ltd. The major ones are located at the ports of Tema and Takoradi, and the ones in Kaase, near Kumasi, and Awaso, near Sefwi Bekwai, are inland ports. The two main ports have the capacity to receive stocks by rail and by road. COCOBOD owns almost all the CMC warehouses which are made in sandcrete and metal roofing. Alongside these warehouses, there are also dedicated warehouses to hold discrepant cocoa detected from vehicles offloading cocoa at the ports. Cocoa off-loaded here are made to undergo reconditioning before being accepted or confiscated. Each LBC is made to be responsible for its discrepant warehouse.

Types of Storages

Largely sandcrete walls and iron sheet covering. Floors are concrete.

During Shipment

Cocoa is either stacked in jute sacks in the haul, bags stacked in containers with Kraft paper coating, cocoa pumped in the haul naked or pumped in the containers.

Ownership and Operations

Ownership of the warehouses is COCOBOD, via CMC, its subsidiary. These warehouses are managed, controlled and operated by CMC.

Additional Services Offered under Quality Management of Cocobod

- Shipping arrangements
- Cocoa quality management
- Vehicle logistics

Public warehousing/warehouse receipts

CTORs issued to LBC at the take-over centres, may serve as warehouse receipts which can be traded.

Overall storage balance

The above is realized when the cumulative volumes of the summation of tonnages of the identified warehouses are undertaken. CMC produces this outcome.

Challenges Impacting Storage and Transportation of Cocoa

- Ghana loses about 5% of its production annually, as a result of challenges associated with storage, handling and transportation of the cocoa which affects the quality of the produce[39].
- The small sizes and capacities of village sheds have negatively impacted on storage as this constantly leads to the storing cocoa outside the warehouse during the peak season.
- A damp environment facilitates moisture build up in the cocoa during such poor storage conditions and may cause the development of mouldy beans.
- GAIN[40] reports explained that challenges in storage facilities, solution may involve stakeholders approach to curb negative effect on the quality of Ghana's cocoa in the international markets.
- The common transportation problems include: inadequate trucks, availability and high cost of fuel, high cost of spare parts and servicing as a result of tear and wear, frequent breakdowns of trucks in transit and poor roads.

[38] Annex 2
[39] Osei, 2007
[40] GAIN, 2012

07 Finance

Prior to every cocoa main season, COCOBOD raises pre-export offshore syndication financing to facilitate the purchase of the commodity from farmers. This is in the form hypothecation of the forward sales' receivables via a consortium of banks, with mandated lead arrangers, for the syndication of annual trade finance facility of up to $2 billion, at about 100 plus or so basis points above LIBOR. This facility is used as a "Seed Fund" for the LBCs to purchase cocoa from the farmers or the cooperatives. The LBCs raise guarantees from the universal banks to cover the seed-fund allotment by the Cocobod, normally determined by the performance in the previous seasons.

Table 9: Receivable-backed Syndication Financing of Cocoa

CROP YEAR	2018/19	2019/20	2020/21	2021/22	2022/23
RECEIVABLE-BACKED SYNDICATION **(USD Mn)**	1,300	1,500	1,300	1,500	1,130

Source: Author's research

Cocoa Purchasing & Evacuation Cycle (LBCs)

After the signing of the syndicated financing from the international banks, the LBCs are allocated projected volume of deliveries to Cocoa Marketing Company (CMC), based on the previous season's performance and the expected output of the cocoa industry in the upcoming season. At the same period, the Producer Price for cocoa is announced by the COCOBOD. The 2022/23 producer price is GH¢12,800 per ton. This is determined by a committee set up by the government in October of every year before the start of the main cocoa purchasing season. The LBCs have to obtain letters of guarantee from their bankers to the COCOBOD covering the total amount of cocoa allocated to be delivered by the LBCs, divided by a standard turnover ratio of 2.2. Thereafter, the LBCs sign agreement with COCOBOD for the drawdown of the facility. The seed fund is given at a Bank of Ghana's policy rate plus or minus half to one percent per annum.

During the cocoa season, the LBCs upon purchasing the cocoa from the farmers/agents, transport the cocoa from the country-side to designated take-over centres, where the LBC is given a Cocoa-Take-Over Receipt (CTOR) stating the amount of cocoa handed over to the Cocoa Marketing Company (CMC) - a subsidiary of the Ghana Cocoa Board (COCOBOD). The CTOR is submitted, together with other invoices, to COCOBOD for payment. The nominal payment face period is 48 to 72 hours, but it can take weeks before payments are consummated.

During the tail-off period, around February, COCOBOD starts deducting portions of the facility from the CTORs for delivered cocoa for both its own facility and for third party lender(s), whose loans to the LBCs have been approved in advance by the COCOBOD, to retire the latter's facility and/or any outstanding loans approved by the COCOBOD.

When COCOBOD starts deducting the facility from the CTORs at the tail-end period, the LBCs normally have about 30% of the cocoa still in the up-country that needs to be purchased. Also out of the 70% of cocoa already bought, only about 50% of this would have been evacuated and delivered and paid for by COCOBOD by the start of the deductions. This creates cash flow problems for the LBCs who then fall upon the local banks for overdraft facilities to make up for the cash shortfall. The locally-owned LBCs rely on the universal banks for short-term working capital credit, but for the foreign-owned LBCs, the parent companies provide funds from arranged lines of credit to support additional purchases.

1. Main and Light Crop Periods

Cocoa purchasing operations are characterized by two seasons, namely:

a. Main crop season which spans the period September/October-April/May
b. Light crop season spans the period June to August.

Borrowings from the domestic market for the main crop intensifies after the Cocobod start deductions at the end of February/beginning March and intensifies through the light crop purchases.

When one season closes, reconciliation of purchases, stocks, volume of financial injections into cocoa purchases, as well as, payments for cocoa deliveries to the three take-over centres and payments arising therefrom, are undertaken before the commencement of the next season.

2. Financial Institutions' Intermediation

Five of the leading banks in Ghana were served with a questionnaire in identifying their financing products and assessing their interest and conditions of provision of services to the cocoa value chain. Only two responded and the results are attached as Annex 7.

3. Challenges with Financing Cocoa Supply Chain

- **Cocoa Price Volatility**

This price uncertainty and related costs are borne entirely by COCOBOD, as it transfers the challenge of freely floating international cocoa prices into the guaranteed price it provides to the farmer. In guaranteeing a fixed price, Cocobod effectively absorbs price risks within the season on behalf of the farmer, as the international market is subject to price volatility. Cocobod therefore has to carry a significant cash flow obligation to pay the farmer for their produce at harvest time while it receives revenues post-contract1. Obviously, in the absence of a hedging mechanism, the pricing of the Producer Price makes room for downside risk mitigation, by way of a stabilization fund, and its impact on the Net FoB.

- **Limited Availability of Credit Facilities**

The financial structure of Ghana has an overbearing public sector borrowing ratio to private sector lending, coupled with high barriers of accessibility, and requiring excessive collateralization in the form of fixed assets or liquid securities. This has had a very negative impact on the value chain: i) the farmer with virtually no collateral and therefore, hardly has any access to credit for investment and expansion, ii) intermediaries with requirements for quick turn-over of the commodity assets to increase overall profitability, but may face access problems due to the limited availability and barriers, to iii) processors that may need to hold inventory for a period, before processing to meet orders and would require flexible and structured financing.

- **High Cost of Credit**

With a Ghana Reference Rate of 26.45%, as the fundamental lending threshold, even with GIRSAL (Ghana Incentive-based Risk Sharing System for Agricultural Lending) guarantees to cut premiums to zero, it would still make local borrowings for processing to compete on global markets daunting, especially, as the cost of the underlying feedstock is linked to global prices.

- **Low Buyer's Margin**

Within a competitive context where the price of purchase is fixed, thus limiting the tools for success not on pricing, but on volumes, there is a lot of pressure to either bend the quality standard rules or push for market dominance, and this has a potential to lead to inefficient market concentration. The margin makes it even more difficult for the less capitalized LBCs to access credit and expand, as the costs are likely to eat up the margin.

[41] Awuah-Gyawu, Brako and Adzimah, Research Journal of Value Chain Management, Volume 2, No. 1, 2015

08 Prices and Terminal Markets

8.1 PRICE TRENDS – DIFFERENTIALS ACROSS LOCATIONS

Producer price of cocoa in Ghana is determined annually at the beginning of the crop year. The producer price does not differ from region to region or from district to district. It is a minimum price fixed by government through COCOBOD, (refer to Table 5) below which, it is illegal for cocoa beans to be traded in Ghana.

8.1.1 System

The farm-gate price or the producer price is determined by the Producer Price Review Committee (PPRC). The sector Minister is the Chairman of the Committee and the Deputy Chief Executive of Cocobod, in charge of Operations, acts as the secretary. Other stakeholders such as farmers, LBCs, Hauliers, Bank of Ghana, Institute of Statistical Social and Economic Research (ISSER) among others are part of the Committee. The net F.O.B sharing method is adopted.

8.1.2 Method

The Gross FoB Price obtained with:

i. projected FOB in US dollars provided by the Research Department of the Cocobod
ii. projected exchange rate of the Ghana Cedi to the US Dollar submitted by the Central Bank, and
iii. projected crop size for the incoming season, as per the forecast of the Cocobod

For the Net FoB, the projected direct costs for services to farmers in the form below, are deducted from the Gross FoB:

- Disease and Pest Control Costs
- Supply of Jute Bags and Related Costs
- Stabilization Fund

The Net FoB is shared by the Committee to cover, among others:

- Farmers' Producer Price
- Buyers' Margin
- Hauliers Costs
- CMC's Internal Marketing Costs
- Disinfestation, Grading & Sealing
- Crop Financing Costs
- Scale Inspection & Phytosanitary Services
- Export Duty (covering cocoa roads rehabilitation)
- Farmers' Housing Scheme, Pension Scheme, etc.
- Replanting/Rehabilitation Fund

8.2 PRODUCER PRICE DETERMINATION ISSUES[42]

The producer price is derived from the Net FoB of the projected cocoa revenues:

- current determination of producer price ensures that cocoa farmers:
  - significant share of net FOB price (more than 70%); and
  - a guaranteed income
- system underpins sustainable cocoa production by:
  - enabling Government to provide critical support services to farmers
- However, the best mechanism would be that which makes pricing more responsive to the point-of-sale market factors, e.g. FOB prices and the value of the local currency.

Challenges of the current Producer Pricing mechanism

- declining FOB price situations
- volatility of the local currency
- increasing cost of public goods/services provision
- slow responses to positive changes of prices on the international market

8.3 PRICES FROM EXPORT SALES

Forward contracts are obtained by selling of cocoa beans throughout the year using futures prices as quoted by Bloomberg on the major cocoa exchanges, i.e. ICE and LIFFE, based on the monthly shipping windows for the contracts.

8.3.1 Methodology

The detail process of trading of cocoa (spot and forward): Ghana's cocoa is priced by reference (London terminal + applicable Ghana's premium + Living income differential) at the applicable exchange rate. This process covers both spot and forward sales. Certified Sales contracts are priced: terminal reference + premium + LID for the certified products. There are about 45 sustainability programmes with the Cocobod.

8.3.2 Living Income Differential

In light of a large proportion of cocoa farmers living below the poverty line, with estimate that cocoa farmers receive on average only 5% of the final price of the product, Côte d'Ivoire and Ghana took an initiative on cocoa prices, in June 2019, that led to an agreement with the cocoa and chocolate industry to create a Living Income Differential (LID) to ensure decent revenue to local farmers. The LID amounts to about US$400/ton premium paid beyond the price of the cocoa futures markets.

[42] Ebenezer Tei Quartey, The Determination of Producer Price in Ghana's Cocoa Sector and the Provision of Service to Cocoa Farmers, Director- Research, Monitoring & Evaluation, Cocobod, UNCTAD, Geneva, Switzerland, March 2013

8.4 PRICE RISKS AND CHALLENGES

One major challenge associated with cocoa production and pricing in Ghana is the cocoa price volatility. This short-term challenge is borne entirely by COCOBOD, as it transfers the challenge of freely floating international cocoa prices into the guaranteed price it provides to the farmer. In guaranteeing a fixed price, Cocobod effectively absorbs price challenge within the season from the farmer, as the international market is subject to freely floating prices. Cocobod therefore has to carry a significant cash flow obligation to pay the farmers for their produce at the time of harvest while it only receives revenues post-shipment. When international prices rise, the margin between the price COCOBOD pays to the farmer and its international market sales price increases. This is reversed when international prices fall, as the margin between the price paid to the farmer and the sales price decreases[43].

Table 10: Export prices (local currency per MT)

MONTH/YEAR	2018	2019	2020	2021	2022
	GHS	GHS	GHS	GHS	GHS
JAN	9,884.46	11,026.52	13,616.84	15,478.04	15,183.77
FEB	9,532.55	11,909.86	13,166.54	15,567.35	15,812.01
MAR	9,378.91	12,284.77	13,340.40	15,284.56	17,044.78
APR	9,335.16	12,470.99	13,661.89	14,449.02	17,708.76
MAY	9,300.14	12,229.02	13,805.13	13,616.50	17,593.43
JUN	9,410.96	12,625.37	13,608.56	13,577.01	17,786.85
JUL	9,671.91	13,113.29	12,184.59	14,250.88	18,223.52
AUG	10,092.15	11,196.01	13,047.46	13,944.37	20,244.23
SEPT	10,408.80	13,217.17	35,629.42	14,019.72	21,436.05
OCT	10,184.91	13,064.96	16,200.36	13,960.20	27,627.17
NOV		12,979.05	15,688.67	16,342.42	
DEC	10,698.91	13,532.04	15,792.16	12,516.87	
AVE	9,808.99	12,470.75	15,811.84	14,417.25	18,866.06
AVE GHS/USD	4.6	5.2	5.6	5.9	6.4

Source: RME Department of COCOBOD

[43] Journal of Supply Chain Management Vol. 2 | No. 1 September | 2015

09 Sectoral Regulatory Analysis

9.1 POLICIES

The Cocoa Sector Development Strategy Document (CSDS II) is the main policy document that governs the cocoa sector. The CSDS I was implemented over a 10-year period that ended in the 2009/10 season. The strategy covered production, research, extension, internal and external marketing of cocoa, quality control, processing, infrastructure, finance, pricing and taxation.

CSDS II policy was finalized in 2019, after the review of CSDS I. The policy places greater emphasis on productivity enhancement, increasing producer price above 70% of Net FOB, abolition of the discount on light crops, develop storage infrastructure targeting 60% of production. This strategic document seeks to build on the upward trend in cocoa productivity achieved from the CSDS I. Productivity enhancement is targeted through the empowerment of smallholder cocoa farmers to adopt modern technologies. The policy is also aimed at positioning the cocoa industry strategically to operate efficiently and effectively in a sustainable manner within a modern business environment.

Current and Future Policy Priorities

- Referred under Cocoa Sector Development Strategy II
    - *Cocoa Monitor Scheme*
        - The overarching goal of the Ghana Cocoa Monitor is to build cooperation and multi-stakeholder consensus on policies, interventions, and actions for a sustainable cocoa value chain in Ghana.
            - Promote public-private partnership and dialogue to identify challenges and constraints in Ghana's cocoa sector and catalyze solutions.
            - Create an avenue for learning and sharing of knowledge, results, and best practices in the cocoa sector.
            - Develop more effective and efficient mechanisms to coordinate, align and implement interventions, initiatives, projects, and programs to prevent duplication of efforts and waste of limited resources to achieve a more sustainable cocoa sector of Ghana.
            - Keep track of all interventions by private organizations in the cocoa sector.
    - *Cocoa Management System*
        - Ghana's cocoa sector has been constrained by the lack of accurate and reliable data on farming households and farm profiles.
        - COCOBOD, in 2019, initiated the development of an integrated cocoa farmer and farm database (Cocoa Management System)
            - COCOBOD's Cocoa Management System is a data management and operational platform consisting of in-depth socio-economic data on all cocoa farms, farmers, and other value chain actors.
            - Designed to:
                - Enhance effective policy-making
                - Real-time delivery of interventions in the cocoa sector
                - Enhance effective policy-making
                - Avoid, reduce and minimize waste in the cocoa value chain, and
                - Promote sustainability in cocoa production in line with the Ghana Cocoa Sector Strategy II
                    .Identification of farms and farmers
                    .Database of entire value chain
                    .Digital processes of operations and interventions
                    .Data visibility and ease of access
                    .Port to Farm Traceability

Summary of Cocoa Sector Reforms[44]

1. The 1984/85 sector reforms

- Aim was to stop the decline in cocoa production
- It involved institutional and operational reorganization in several areas such as:

  i. reduction in heavy government taxation.
  ii. payment of better producer price to farmers as an incentive to increase production.

2. The 1987 Agricultural Services Rehabilitation Project

- Producer Price to move gradually from nearly 30% to 55% of long run world price by 1988/89
- COCOBOD to progressively shed all activities not directly related to purchasing, marketing, extension and research

3. The 1989 Cocoa Rehabilitation Project (CRP)

The main objective was:

i. to improve producer prices
ii. to reduce COCOBOD's operating costs
iii. to support earlier sector policy reforms
iv. to increase and stabilize cocoa production at around 300,000 tonnes
v. to maintain producer prices above 50% of FOB

4. The 1992 Agricultural Sector Adjustment Programme (AgSAP)

- Reform agricultural pricing and marketing to:

  i. improve resource allocation
  ii. foster private initiative
  iii. develop greater efficiency through greater competition

- Introduce competition into the internal marketing of cocoa
- allow Licensed Buying Companies (LBCs) to purchase cocoa in competition with the government parastatal Produce Buying Company Limited (PBC).

5. The 1999 Cocoa Sector Strategy

- Raise progressively the producer price of cocoa from 65% of the FOB price in 1999/2000 to 70% of the FOB by the 2004/5
- Reduce the export tax from about 25% of the FOB to 15% of the FOB price by 2004
- Maintain quality control responsibility as a public institution

Reforms and Policies Governing the Industry

The vital reforms in the policies governing the industry were the dissolution of the sole of Produce Buying Company (PBC) and establishing of cocoa purchasing to allow Licensed Buying Companies (LBCs) to enter the business in the 1992 crop season. LBCs ensure that farmers sell to them alone, as no other entities are authorized to buy from farmers. Net effect include prompt transactions, LBCs participating in social affairs of farmers and promoting welfare, providing incentives, subsidized inputs and credit facilities, etc. Loyalty is being built between the farmers and the buyers who provide incentives and cash as rewards. More benefits are given to farmers now than the period before the reforms.

There has also been reorganization of the Cocoa Services Division into units—the Cocoa Swollen Shoot Virus Disease Control Unit (CSSVDCU), the Seed Production Unit (SPU), the Quality Control Company (QCC), the Cocoa Research Institute of Ghana (CRIG) and the Cocoa Marketing Company (CMC).

The reforms have also involved instituting a national goal of processing 50% of cocoa beans before export, leading to increased processing of cocoa into products such as chocolates, cocoa butter, cocoa paste and other confectioneries as important nodes of the value chain.

[44] Ebenezer Tei Quartey, The Determination of Producer Price in Ghana's Cocoa Sector and the Provision of Service to Cocoa Farmers, Director- Research, Monitoring & Evaluation, Cocobod, UNCTAD, Geneva, Switzerland, March 2013

The Cocobod has made it possible to increase cooperation to harmonise the efforts of the Non - Governmental Organizations (NGOs), cooperatives and Licensed Buying Companies. Public and Private Partnerships through the Ghana Cocoa scheme are likely to improve sustainable cocoa production in Ghana and secure a productive cocoa supply in the future.

The board derives support and assistance from different organizations to meet its corporate objectives. These include:

- the 63 Licensed Buying Companies that works with the board currently
- World Cocoa Foundation (WCF) and Cocoa Livelihood Programme
- International Cocoa Organization (ICCO)
- Federation of Cocoa Commerce (FCC)
- Mondelez (Cadbury Cocoa Partnership) and
- Solidaridad West Africa - formally WAFF (UTZ certified).

Corporate social responsibilities are carried out to improve the lives of smallholder farmer families.

Sales Policy

The key sales objective of the COCOBOD is to sell to the external and local markets at a price that is best obtainable and to undertake marketing strategies which will maximise revenues to the country. Sales are made by the company to only registered firms which are confirmed by COCOBOD as buyers. Sales that fall under bilateral arrangements are not covered by this buyer registration policy. A firm wishing to be accepted by COCOBOD as buyer of cocoa beans and cocoa products, must apply directly to the Managing Director of the company. The firm must be able to provide an evidence to show how its operation can have effective and positive impact in the cocoa sector and in the international market. Furthermore, the firm must demonstrate its financial capacity to purchase a minimum of 2,500 tons per crop year (October to September), the names and addresses of their bankers must be provided for due diligence. Firms satisfying the above requirements are issued with buying licenses by the board. The licenses issued are renewable every crop year.

The CMC negotiates it sales based on World Cocoa Market prices, and at the best obtainable prices. Sales by the CMC are calculated on a net basis and all local bank charges are for the account of the Buyer. Negotiations are regulated by normal commercial considerations only, without any prejudice in favour of or against any individual firm or any company. Letters of credit are prepared for sales under trade and payment agreement. For a firm to be given a contract by the board, the quantity of cocoa beans to be purchased for shipment is 50 tonnes to all main ports. However, a larger tonnage can be insisted by the Company if that serves as an incentive and requirements to carriers.

Sales and exports are usually negotiated on a Cost Insurance and Freight (CIF) basis. Free on Board (FOB) and Cost and Insurance (C&I) bases are also implemented sometimes. Sales of cocoa beans are usually made for three monthly shipment periods, e.g., October-December; November-January, December-February, etc. Sales are made for cocoa products for two-monthly shipment periods, e.g., February-March, March-April, etc. The company makes sales on the basis of main UK ports in both cases. Exports of cocoa products to major ports in overseas are allowed, regards to the payment of the appropriate freight variance. The Company, however, have the authority to decline declared ports which are not easily accessible. Licensed firms with the confirmation of buying are expected to declare ports of destination at the time of negotiation or, at two clear calendar months with regards to the commencement of the contract shipment period. It is also acceptable for a buyer to make a change of destination but each request is dealt with on its own merit.

The CMC maintains at all times, its reputation and standard as the most reliable and efficient supplier of the best quality cocoa. The minimum quality standards set by COCOBOD exceeds the benchmark usually set in the international cocoa market for the trade in Good Fermented Cocoa.

Manufacturers of cocoa products prefer cocoa beans from Ghana since CMC has established a reputation of its cocoa beans as of the best quality for production. That is the reason why top brand chocolates and other cocoa made products are labelled with Ghana Cocoa for its symbol of quality and high-end brand positioning: “only the best associates itself with Ghana Cocoa“.

Cocoa farmers in Ghana handle post-harvest processes excellently, making the cocoa beans to be certified as superior quality. Unlike other countries where cocoa beans are dried by mechanical heating process, the

Ghanaian cocoa farmer uses the sun rays for drying as the beans are evenly spread out on a raised bamboo mats for diffusion. Regularly, the spread beans are turned with a flat portable material to allow every part of the beans to be exposed to the incident of sun rays. With this process, homogenous drying takes place and the beans appear with a perfect dry brown colour. It also diffuses with the best natural chocolate aroma as preferred. Before shipment, Ghana cocoa is subjected to a minimum of three stages of inspection by the QCC to ascertain its quality. This inspection gives assurance and confidence to the international market to buy Ghana Cocoa.

9.2 LAWS

The COCOBOD Law 1984, PNDC Law 81 is the main legal document backing the industry. The Ministry of Food and Agriculture (MoFA) is the government ministry that provides oversight over the Ghana's cocoa sector.

9.3 SUBSIDIARY INSTITUTIONS

Cocoa Research Institute of Ghana (CRIG)

i. CRIG undertakes agronomic research into problems relating to the production of cocoa and other related tree species, which produce fats similar to cocoa butter.
ii. CRIG provides scientific and technical advice on matters relating to the production of cocoa.
iii. CRIG disseminates research results to Seed Production Division (SPD) and Cocoa Health and Extension Division (CHED).

Seed Production Division (SPD)

SPD is responsible for the multiplication and distribution of improved cocoa planting material (seedlings and pods) through Cocoa Health and Extension Division (CHED) to farmers and other User Agencies.

Cocoa Health and Extension Division (CHED)

CHED has the mandate to execute the following:

i. Implement the findings of CRIG
ii. Responsible for the good health of the cocoa tree (control of disease and pests)
iii. Implement productivity enhancement programs
iv. Provide extension service to cocoa farmers

Quality Control Company (QCC)

QCC has the mandate to execute the following:

i. Implement the quality assurance protocols.
ii. Maintain premium quality Ghana's cocoa
iii. Disinfestation and fumigation of warehouses

Cocoa Marketing Company (CMC)

i. CMC takes over cocoa beans from the LBCs at designated Take-Over Centres for storage and onward sale to processors and off-takers.
ii. CMC is responsible for warehousing, marketing and sale of cocoa.

9.4 REGULATORY MANDATE AND FUNCTIONS

COCOBOD is the apex regulatory institution for the cocoa sector in Ghana

Regulatory Functions - Value Chain Actor Licensing

- **Licensed Buying Companies (LBCs)**

LBCs must apply to the Chief Executive to indicate intention to participate in the internal marketing. The Chief Executive details the requirement to participate in the internal marketing in response.

The LBC must submit the following:

i. Certificate of incorporation and certificate to commence business.
ii. Company regulation 8-12 and company code 2019 (Act192)
iii. Letters of comfort from bankers
iv. Tax clearance certificate
v. Business plan with feasibility report covering 5 years.
vi. Latest statement of account

- **Processors**

Processors must also apply to the Chief Executive for Beans Supply Agreement (BSA). The Chief Executive details the requirement for the Beans Supply Agreement (BSA) in response.

The company must submit the following:

i. Certificate of incorporation and certificate to commence business
ii. Company regulation 8-12 and company code 2019 (Act192)
iii. Letters of comfort from bankers
iv. Tax clearance certificate
v. Business plan with feasibility report covering 10 years
vi. Latest statement of account
vii. Off-takers of the products to be produced

9.5 HISTORICAL EVOLUTION

Historical Evolution of the Ghanaian Ecosystem[45]

The first and second period: from colonial policies to a more state-controlled economy.

This period is characterized by two shifts, firstly, a gradual shift from a market type of governance to (colonial) state governance, and secondly, from colonial control to independent state governance. Especially in the years prior to independence there is a clear alliance between private and public actors. After independence foreign buyers return to their core business and operate more on the side than being active players within Ghana. Foreign buyers were interested in control of price fluctuation. In 1937 international buyers introduced a 'cocoa buying agreement', as a first attempt. Later, the Ghanaian government established the Pan-Territorial Fixed Price Policy. On the one hand, this pricing system guaranteed farmers a reliable income and assured the government in obtaining revenue from cocoa (as the price is determined before the crop is harvested)[46]. But, on the other hand, this guaranteed price was substantial lower than the world market price. This low producer-price was the result of high taxes and marketing costs. The government compensated farmers by providing them with subsidies on inputs and services. Also the government undertook several attempts to channel rural credit to farmers.

[45] Ton, Hagelaar, Laven and Vellema, 2008
[46] Ministry of Finance, 1999, 82

Product-quality has always been an important attribute of Ghanaian cocoa. Initially, the organization of farmers in cooperative societies was regarded as a way to ensure good quality performance. When the cooperative movement collapsed, the Ghanaian government introduced a quality control system, ensuring the export of good quality cocoa, for which it received a premium on the world market. The strong emphasis on quality performance, both by public and private actors, has contributed to the still exceptional position of Ghana; the only cocoa beans still consistently separated by national origin for grinding purposes are those from Ghana[47].

Research and training have always been regarded as important ways of increasing volumes of cocoa production and dealing with pests and diseases. In the late 1970s, COCOBOD established a special division, bringing knowledge and new technologies to the farmers.

The third period:

Gradual reform Liberalization was enforced onto Ghana by international donor organizations, but Ghana managed to resist their pressure and chose for the gradual introduction of reforms. In this period Ghana's government remained the dominant coordinator of the supply chain, though reforms altered some of its functions. The objective of liberalization of internal marketing was to improve the operational and financial performance of Ghana's marketing system, in order to enable higher producer prices and stop Ghana's declining production trend[48]. The aim was to reduce the government tax and marketing margins on cocoa gradually. In 1998-99 the producer-price was set at 56 per cent of the net f.o.b. price ('free on board'), the margin reserved for marketing/ COCOBOD operations was set at 18.2 per cent and Government tax at 25.8 per cent. Within six years the producer-price had to increase up to 70 per cent and both its operational costs and taxes had to decrease, both to 15 per cent of the net FoB[49]. In this period, the system of price-stabilization continued to protect farmers from price-fluctuations in the world market. In this period also producer-bonuses were introduced.

With the introduction of reforms, COCOBOD allowed the entering of local buyers of cocoa, providing them with licenses to trade cocoa domestically. COCOBOD remained in control of the external marketing of cocoa. The quality control system of Ghana remained in place, contributing to the production of premium quality cocoa in Ghana.

Also the reforms contributed to a gradual increase in producer-price; however, this did not automatically result in an increase in remunerative farmer income, which also depends on the costs of cocoa production, productivity and on diversification of income. Prior to the reforms, inputs were generally free or heavily subsidized, but privatization of input distribution led to enormous price increases[50]. Haque suggests that in Ghana production costs have tripled between 1989 and 1995 - 1999. It is argued that the increases in production-costs have led to 'self-exploitation' among farmers. Farmers worked longer hours themselves, mobilized family members, and increased labour exchange groups[51]. For many farmers currently, productivity is low and cocoa production is not economically sustainable[52].

The fourth period: Shifts from within

In this recent period the dynamics of the partial liberalized system has become clearer. Besides public interventions, private actors and NGOs increased their activities in Ghana, sometimes in partnership. Still COCOBOD continues to intervene in the sector, using partly the same instruments as in the period between 1980 and the year 2000. In its interventions the state clearly prioritizes the production of good quality cocoa and high quantities of cocoa beans. LBCs are still not allowed to become involved in external marketing of cocoa. LBCs receive little incentives to invest in their network and to contribute to good quality performance. The monopoly on external marketing has also obstructed attempts of NGOs to open up alternative marketing channels (e.g. organic cocoa) next to conventional cocoa. International buyers, under pressure of media, NGOs and consumer organizations, have become involved in the development of national certification schemes, with a focus on labour practices and sustainable sourcing.

In terms of increasing producer-prices and reducing margins and taxes, reforms in Ghana turned out to be successful. Farmers receive around 70 per cent of the net f.o.b. Despite this increase in price, COCOBOD's share of the export value remained high. Reinvestments in the sector have been various, but there is a lack of clarity on the exact value of these investments and the extent to which they benefit farmers equally. The higher producer

[47] Gibbon and Ponte, 2005, 135-6
[48] Ministry of Finance, 1999; Fold, 2002
[49] Ministry of Finance, 1999, 90
[50] Haque, 2004; Ministry of Finance, 1999
[51] Blowfield, 2003
[52] Mehra and Weise, 2007

price did, as intended, contribute to a recovery of cocoa production. The recent increase in volume is mainly attributed to the product life-cycle of cocoa and state interventions aiming at increased productivity, rehabilitation of old cocoa farms and the planting of new varieties (hybrid trees). Smuggling also contributed to the increase in volume of cocoa beans. Surprisingly, productivity in Ghana did not increase. The expansion of output was accompanied by a large increase in number of person-days on the farm, that suggests that the cocoa boom therefore seems to have fueled investments in education and in employment opportunities in other sectors[53].

Although QCD remained responsible for the final quality checks, in this period some problems with quality performance occurred. It is likely that the introduction of competition among local buyers based on volume (instead of prices or quality) reduced the incentive for LBCs and their Purchasing Clerks (PCs), buying cocoa at the community level, to be very strict about quality control and it induced PCs to cheat farmers with wrongly adjusted scales used for weighing cocoa[54]. COCOBOD declared in 2005 all bags of cocoa with more than 25 per cent 'purple beans' as sub-standard, and paid local buyers only half of the producer-price. This constrained LBCs financial performance and seriously affected the livelihood of many farmers; not being able to sell (or store) their cocoa they loss their main source of income[55]. Despite these (temporary) problems, due to quality losses in neighbouring countries, Ghana continues to receive a premium for its cocoa beans. Farmers in general appreciate the liberalization of internal marketing, and claim that 'it saved them from a lot of hardship', as their payments are now made on time.

To stimulate cocoa production farmers have been receiving 'free spraying' on their farms. Also public and private pilots have started to provide farmers with fertilizer on credit. The cocoa output increase is a combined result of 'input intensification' in the Ashanti and Brong Ahafo Region, and 'extensive expansion' in the Western Region[56], 2006 The poor quality of public extension services has been reason for the private sector and for NGOs to initiate public-private-civil partnerships, supporting farmer-driven extension programmes. International manufacturers and processors, driven by risks of supplier failure, also started to invest increasingly in research (with a focus on pests and diseases and the development of new varieties) and became involved in community development and international certification schemes.

Surprisingly, the introduction of competition did not result in farmers negotiating with local buyers in selling their produce collectively or negotiating for extra services as a group (for example through contract farming). They prefer selling to someone from their social network, and lack the institutional arrangements to support their negotiating power; a major legacy of the former state-marketing system.

Additional to the facilitation of inputs and knowledge to the farmers, COCOBOD developed a unique institutional arrangement to support the access of producers to rising cocoa prices. COCOBOD reinvests part of its margin back in the cocoa sector, giving farmers incentives to remain involved in cocoa production and increase their volume of production. This bonus is an outcome of the yearly recalculation of margins and prices by COCOBOD. This bonus is distributed by the COCOBOD through the LBC's and its Purchasing Clerks. Access to this bonus is not without costs as some administrative regulations have to be fulfilled, less feasible in more remote areas. Furthermore, the bonus is not for all farmers, e.g. it excludes sharecroppers as eligible for the bonus.

9.6 SWOT ANALYSIS OF THE GHANA COCOA SECTOR

The industry's strengths, weaknesses, opportunities and threats that present various challenges and advantages towards the attainment of the industry's objectives are the major issues that can be identified under the SWOT analysed below:

Strengths

i. Strong forward and spot sales strategy that allows the Cocoa Marketing Company Limited to take advantage of positive developments on the world cocoa market to achieve the best prices which help COCOBOD to secure offshore loan at competitive rates.

[53] Teal, Zeitlin and Maamah, 2006
[54] Laven and Baud
[55] Laven, 2007b
[56] Teal, Zeitlin and Maamah

ii. Strict quality assurance which ensures the market's acceptance of higher premium on Ghana cocoa beans.
iii. Human resource capacity through continuous training that provides the required human capital for effective implementation of programs.
iv. COCOBOD's right to control purchase and sale of all cocoa produced in Ghana.
v. Efficient system to purchase, deliver and store cocoa for onward shipment or delivery to both local and foreign off-takers.
vi. Strong capacity in agronomic and socio-economic research.
vii. Dedicated and reliable cocoa farmers

Weaknesses

i. Poor human resource deployment
ii. Existence of malpractices in the internal marketing system
iii. Ineffective cocoa extension delivery service
iv. Low productivity in cocoa farming
v. Inadequate funding for research in the cocoa sector
vi. Excess payment of export duty
vii. Low capacity to process beyond the secondary level
viii. Low farmer adoption rate on Good Agronomic Practices
ix. Inadequate modern and improved infrastructure

Opportunities

Opportunities exist in the cocoa economy both internally and externally. They include to the following:
i. Potential improvement in the productivity of cocoa farms to increase output
ii. Expansion of demand in non-traditional emerging markets, such as Asia.
iii. Increasing growth in consumption of cocoa in local and sub-regional markets.

Threats

The cocoa sector faces considerable threats particularly from the following areas:
i. Incidence of diseases and pests.
ii. Decline in soil fertility.
iii. Low domestic per capita consumption
iv. Climate change
v. Volatility of world cocoa prices
vi. Political interference
vii. Ageing cocoa farmers
viii. Ageing cocoa tree stock
ix. Smuggling of cocoa and cocoa inputs.
x. Mining, particularly from the rising activity of small-scale and illegal ('galamsey') mining activities on the environment and health of beans
xi. Oil discovery and its "curse" impact
xii. Urbanisation impact on farming sustainability
xiii. Implication of productivity enhancing programmes of producing countries on price

ANNEX

ANNEX - 1

APPROVED LBCs FOR 2019/20 CROP YEAR

	NAME OF LBC	ADDRESS OF LBC	CONTACTS	TEL. NUMBER OF REPRESENTATIVE
1	OLAM GHANA LIMITED (OLAM)	P.O. Box CT 1847, Accra	0322222200	Abdul Kond/0241284810
2	PRODUCE BUYING COMPANY (PBC)	Private Mail Bag, Accra	0322745754	Mavis Koranteng/0242512333
3	AGROECOM GHANA LIMITED (AGL)	P.O. Box CT 2757, Accra	0277492197	Anita Hammond/0277492197
4	NYONKOPA COCOA BUYING CO. LTD (NCBL)	P.O. Box 7915, Kumasi	0244812644	Mr. Cyril DaPilma 0244315317
5	KUAPA KOKOO LIMITED (KKL)	P.O. Box 23044, Kumasi	0322023277 0322036051	Gyasi Dapaah & Ernest /0244104018, 0545241510,
6	FEDERATED COMMODITIES LIMITED (FCL)	P. O. Box PMB, Accra	03220404388	Kwadwo Nyarko/0249238671
7	**ELIHO GH. LIMITED (EGL)	P. O. Box 7369, Accra-North	0557702171	Sharlene Aniwa 020168111
8	FLUDOR GHANA LIMITED (FGL)	P.O. Box 558 Tema,Accra	0302774776	Eric Owusu/0501607260
9	COCOA MERCHANTS GHANA LTD. (CMGL)	P.O. Box 3083, Cantoments, Accra	0302769086	0555176835
10	ADWUMAPA BUYERS LIMITED (ABL)	P.O. Box 16239, Airport, Accra	03021812704	Tony 0208115398
11	UNICOM COMMODITIES GH. LIMITED	No. 8 Airport Residential Area, Accra	0240609626	Manu Daniel/0540109658
12	TRANSROYAL (GH) LIMITED (TGL)	P.O. Box CT 5184, Accra	0302771206 0322034117	0245481159
13	CARGILL KOKOO SOURCING LTD	2nd Floor World Trade Center, Accra	0244341545	Joyce Ayisi/0244341545
14	ROYAL COMMODITIES LIMITED (RCL)	P.O. Box CT 5184 Cantonments, Accra	0302771206	Diana Labbi/0241929292
15	ADINKANFO COMMODITIES LIMITED (ADINKANFO)	P.O. Box 4655 Mamprobi, Adabraka	0302010132	Koranteng 0247755896
16	**BEST LINK GLOBAL GH. (BLG)	P.O. Box CT 4889, Cantoments Accra	0501699990	Isaac Opoku/ 0555401564
17	SIKA ABA LIMITED (SABL)	P.O. Box 4028 Cantonments, Accra	0302303632	DORA BOATENG ' 0543006846
18	**AKUAFFO COMMODITIES	P.O. Box GP 3393, Accra	0207246808 0244337496	Eric Owusu 0244778790
19	TRADECO INTERNATIONAL CO. LTD (TIC)	P. O. Box 16298, Accra	0302779044	
20	**ATLAS COMMODITIES LIMITED (ATLAS)	8th Avenue Ridge, Accra	0244335964	Ato Boateng & Ekow/ 0244335964 & 0244174408
21	FIRST SKY COMMODITIES LIMITED (FSC)	PMB CO 90, Tema	0205038760	Nana Ama/0205038760
22	NTHC COMMODITIES LIMITED	P.O. Box KIA 9563, Airport-Accra	0302238492	Jude 0243242620
23	**HANS NEF COMPANY LIMITED (HNCL)	P.O.BOX SC 245,TEMA	0242606713	Prince 0242606713
24	YAYRA GLOVER COMPANY LIMITED (YGL)	P. O. Box GP 4112, Accra	0302920483	0242336701
25	M-GHAZALI GHANA LIMITED (MGGL)	P.O. Box 19493, Accra-North	0240404246	Koranteng
26	**NANANOM BUYERS COMPANY LIMITED (NANANOM)	P.O. Box 20, Ejisu-Kumasi	0501842329	
27	*ADN FIELDS (GH) LIMITED (ADN)	PLOT 17,KAASE, KUMASI	02015544l4	George Arthur

	NAME OF LBC	ADDRESS OF LBC	CONTACTS	TEL. NUMBER OF REPRESENTATIVE
28	*PRESTIGE COCOA MARKETING LTD.	P.O.BOX GP1850, ACCRA	0302544414	Ali Ababakar
29	FARMERS ALLAINCE COMPANY LIMITED (FAL)	P.O. Box MP 1117, Mamprobi-Accra	0302774143	Aboagyewaa/0542838257
30	KOKOO ABA BUYERS LIMITED (KABL)	Kumasi/Box Tema 588	0547770741 0302229527	Mr. ANNANE '0247761753
31	SASSH ALLIANCE COMPANY LIMITED (SASSH)	P.O. Box 655, Adabraka Accra	0302220703	Francis Gyamposu/0501489921
32	SUNSHINE COMMODITIES LIMITED	P. O. Box 3852, Kumasi	0322031924	0244792456
33	UNIVERSAL CO-OPERATIVE COMPANY LIMITED (UCCL)	KUMASI/BOX KS 11622	0244221834	
34	**TS AFRIQUE CO. LTD	P.O. Box CT 1529, Tema	0303970151 0244368848	0208140640
35	**ADEPA NO.1 COMMODITIES	P.O. Box WJ 103, Kumasi	0302904758	Owusu Boateng0558794495
36	**ADEHYEMBA COMPANY LIMITED (ACL)	P.O. Box 1934, Kumasi	0246517455	
37	CDH COMMODITIES LIMITED (CDH)	P.O. Box 14911, Accra	0302671050	Paapa/0240999246/0573043916
38	KUMANKUMA COMPANY LTD (KCL)	P.O. Box 17536, Kumasi	0322037565	VICTORIA A. DARKO '0576921200
39	FIVE STARS PRODUCE BUYING CO. LTD (FSPBC)	P.O Box 5413, Kumasi	0244222470	0549229116/0275549990
40	**ALL AFRICA MINERALS GH. (AAMG)	Alpha Citadel Building Plot 121 Off Motorway Lapaz , Accra	02418844466	
41	YEMON GHANA LIMITED (YEMON)	KUMASI/BOX KS 5760	0501334028 0279394041	HARRISON 0542178125
42	COUNTRYSIDE INVESTMENTS LIMITED (CIL)	P. O. Box RY 569, Kumasi	0260780986	Owusu Asiedu 0243114522
43	HYPERLINK COMMODITIES LTD (HCL)	ACCRA/BOX 11101		Owusu Asiedu 0243114522
44	NKWA DUA GHANA LIMITED (NDGL)	KUMASI/ BOX 115	020930001 0208238820	Mr. Ackah 0209230001
45	**EQUATOR COMMODITIES LIMITED (ECL)	P.O Box KIA 9084, Accra	0506886368	
46	DIO JEAN	P. O. Box KS 6416, Kumasi	0322063406	
47	SPLENDID BUSINESS SERVICES LTD (SBS)	KUMASI/BOX 391 BOHYEN	0501258410	
48	EVADOX COMPANY LIMITED(EVL)	BOX 335, NSAWAM	0342122093	EBENEZER YAMAH 0242303729
49	AKUOTECH COMPANY LTD (AKCL)	BOX 37 ASSIN FOSU	0506540356	
50	*JOEKWARBS COCOA MARKETING LTD. (JCML)	P.O.BOXAH 9506, KUMASI	0244670850	Prince Obeng
51	*KOKOO AHENFO TRADING LTD. (KATL)	P. O. Box GP 3393, Accra	0244337496 0547318215	
52	*CANARY JEKAEFS LTD. (CJL)	P. O. Box 1070 Teshie Nungua	0540828623	
53	*BIZHEIGHTS GHANA LTD.	P. O. Box KS 3474 Kumasi	0244771545 0208114768	
54	*BREDIYIE COMPANY LTD.	P. O. Box 90 Wassa Akrpong	0208191394	
55	*GOMMS BUYERS COMPANY LTD.	P. O. Box JA 10 Kumasi	0275407247 0201157128	

*** = LBCs in first year of operation**

**** = LBCs in second year of operation**

ANNEX - 2

COCOA TAKE-OVER WAREHOUSE SHEDS & LOCATIONS

SHED CAPACITY AT VARIOUS TAKE OVER CENTRES	
TEMA	
SHED	**WAREHOUSE CAPACITY**
ADWUMAPA	25,000
GLOBAL ANNEX	25,500
BLUE GALLERY	10,000
TARZAN MOTORWAY	28,500
GLOBAL PLUS	22,000
COCOBOD SHEDS	50,000
ARMAJARO SHED	45,000
OTHER PRODUCE	4,200
ADWUMAPA ANNEX	25,000
ARMAJARO ANNEX	15,000
TOTAL	**255,200**
TAKORADI	
SHED	**WAREHOUSE CAPACITY**
APOWA	108,000
KEJEBRIL	100,000
KATOEN NATIE	25,000
TOTAL	**233,000**
KUMASI	
SHED	**WAREHOUSE CAPACITY**
KAASE	36,000
ABUAKWA	18,000
ASOKWA	13,000
TOTAL	**67,000**

GRAND TOTAL	**555,200**

ANNEX - 3A

ESTABLISHMENT COSTS OF SMALLHOLDER COCOA FARM - LABOUR COSTS

ACTIVITY	AVERAGE LABOUR COST (GH) ACRE	PERCENTAGE SHARE OF COST
Land Clearing	103.85	9.92
Burning	65.01	6.21
Removal of Stamps/felling of trees	82.44	7.88
Lining and Pegging	74.67	7.14
Planting of Economic Tree	25.02	2.39
Planting of Plantain and Corns	107.80	10.30
Planting of Cocoa Trees	104.63	10.00
First Year Wedding	104.01	9.94
Fertilizer Application 1	53.83	5.14
Second Year Wedding	86.73	8.29
Third Year Wedding	95.69	9.14
Fertilizer Application 2	38.82	3.71
Chemicals Application	38.55	3.68
Transportation of Inputs to the farm	31.58	3.02
Other Activities	33.89	3.24
TOTAL	**1,046.52**	**100.00**

Source: Cocobod Field Survey, 2018

ANNEX - 3B

ESTABLISHMENT COSTS OF SMALLHOLDER COCOA FARM NON-LABOUR COSTS

ITEM	AVERAGE COST (GH)/ ACRE	PERCENTAGE SHARE OF COST
Cocoa seedlings	218.18	16.21
Weedicide	68.41	5.09
Pesticide	103.44	7.69
Cutlass	23.67	1.76
Inorganic fertilizer	538.49	40.04
Organic fertilizer	201.11	14.96
Plantain suckers	181.64	13.51
Shade trees	9.62	0.72
TOTAL	**1,344.56**	**100.00**

Source: Cocobod Field Survey, 2018

ANNEX - 4

TOTAL COST OF PRODUCTION FOR AN EXISTING FARM

ITEMS	(GH) ACRE	PERCENTAGE
LABOUR COST	319.45	39.70
DEPRECIATION OF FIXED CAPITAL	89.45	11.12
VARIABLE INPITS	395.79	49.19
TOTAL	**804.69**	**100**

Source: Cocobod Field Survey, 2018

ANNEX - 5

LBCS IN SUSTAINABLE PROGRAMS AND TYPE OF CERTIFICATION, 2020/21

	NAME OF LBC	COCOA TONNAGE PURCHASED (2021/22)	TYPE CERTIFICATION
1	Unicom	42,359.25	Traceable
2	Agro Ecom	39,888.88	Traceable
3	Ofi Limited	39,113.88	Rainforest Alliance
4	Kuapa Kokoo Limited	26,254.81	Rainforest Alliance
5	Eliho Ghana Limited	24,482.44	Traceable
6	Federated	16,521.38	Rainforest Alliance
7	Cocoa Merchant	10,553.81	Rainforest Alliance
8	Nyonkopa Cocoa Buying Company	10,405.56	Rainforest Alliance / Traceable
9	Fludor Ghana Ltd	8,658.81	Rainforest Alliance
10	Cargill Ghana Limited	2,546.94	Rainforest Alliance
11	Yayra Glover	1,041.50	Rainforest Alliance
12	Transroyal Ghana Limited	845.44	Rainforest Alliance / Fairtrade
13	Adom Cocoa Ltd	New Entrant (2022/23)	Fairtrade / Rainforest Alliance
14	Adikanfo Commodities		UTZ / Rainforest Alliance
15	Adwumapa Buyers Ltd		Rainforest Alliance
	TOTAL	**222,672.69**	

Source: REM, Cocobod

ANNEX - 6

LOCATION OF PROCESSING COMPANIES

COMPANIES	LOCATION
CPC	TEMA
BARRY CALLEBAUT	TEMA
BD ASSOCIATES (CHOCOMAC)	TEMA
NICHE	TEMA
COCOA TOUTON	TEMA
CARGILL	TEMA
OLAM	KUMASI
PLOT	TAKORADI
WAMCO	TAKORADI
AFROTROPICS	ACCRA

Source: REM, Cocobod

ANNEX - 7

INSTALLED CAPACITY OF PROCESSING COMPANIES (2020)

COMPANIES	INSTALLED CAPACITY
COCOA PROCESSING COMPANY	64,500
BARRY CALLEBUT	67,000
BD ASSOCIATES	32,000
NICHE	50,000
COCOA TOUTON	30,000
CARGILL	65,000
OLAM	43,000
PLOT	32,000
WAMCO	55,000
REAL PRODUCTS	30,000
AFROTROPICS	15,000
TOTAL	**483,500**

Source: REM, Cocobod

ANNEX - 8

DELIVERY OF COCOA BEANS TO PROCESSING COMPANIES

YEARS	DELIVERIES
2017/18	313,063
2018/19	312,176
2019/20	266,839
2020/21	431,795
2021/22	303,130

Source: REM, Cocobod

ANNEX - 9

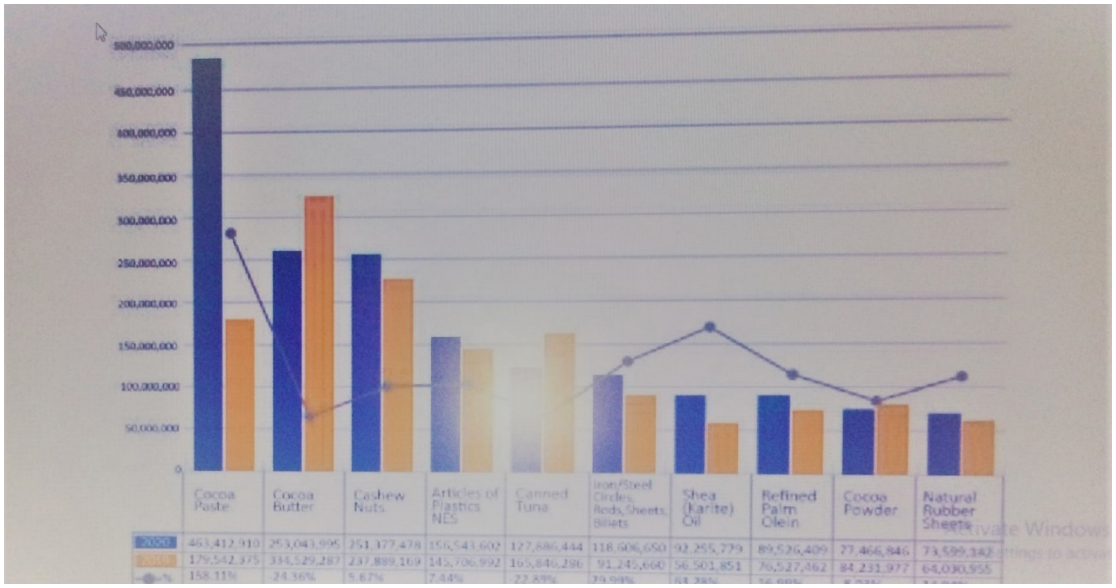
CAPACITY UTILIZATION OF PROCESSING COMPANIES (2020)

COMPANY	INSTALLED CAPACITY	% / TOT	UTILIZATION CAPACITY	% / TOT	% UTILIZAT	EXCESS CAPACITY
COCOA PROCESSING COMPANY	64,500	13.34%	28,486	8.70%	44.16%	36,014
BARRY CALLEBAUT	67,000	13.86%	56,935	17.39%	84.98%	10,065
BD ASSOCIATES	32,000	6.62%	32,535	9.93%	101.67%	535
NICHE	50,000	10.34%	46,426	14.18%	92.85%	3,574
COCOA TOUTON	30,000	6.20%	28,289	8.64%	94.30%	1,711
CARGILL	65,000	13.44%	75,426	23.03%	116.04%	10,426

Source: Author's Calculation

ANNEX - 10

TRADE PERFORMANCE OF PROCESSED COCOA WITHIN NTE



Source: Statista 2021, Representing: Yellow (2019), Blue (2020) in GHS

ANNEX - 11

EXPORTS OF PROCESSED COCOA – GHANA 2020/21

COMPANY	BUTTER (MT)	BUTTER (USD)	LIQUOR (MT)	LIQUOR (USD)	CAKE (MT)	CAKE (USD)	POWDER (MT)	POWDER (USD)	NIBs (MT)	NIBs (USD)	TOTAL (MT)	TOT. FOB VALUE
COCOA PROCESSING COMPANY	4,456	24,442,733	1,640	5,195,652	6,144	6,568,940	685	350,862			12,925	36,558,187
NICHE COCOA INDUSTRY LTD	10,800	67,483,024	13,980	46,553,416	12,036	13,755,334	55				36,871	127,791,774
BD ASSOCIATES GHANA LTD	1,968	9,466,400	15,203	40,840,932	3,517	4,221,756	761	1,042,405			21,449	55,571,493
CARGRILL GHANA LTD	26,238	148,515,321			709	1,261,541	29,877	60,101,910			56,824	209,878,772
OLAM COCOA			25,469	40,390,530							25,469	40,390,530
BARRY CAIIEBAUT	10,116	34,105,036	21,837	71,177,778	12,321	41,070,995			3,817	11,844,532	48,091	158,198,341
COCOA TUOTON PROCESSING			20,909	65,056,754							20,909	65,056,754
PLOT ENTERPRISEN GHANA LTD	2,905	16,062,825	7,080	24,060,852	3,620	4,881,216					13,605	45,004,893
WAMCO	320	1,666,400	3,620	10,657,160	2,220	708					6,160	12,324,268
AFROTROPICS					656	725,996	1,099	1,237,612	1,631	3,487,340	3,386	5,450,948
TOTAL	**58,561**	**309,353,826**	**109,738**	**311,933,007**	**41,224**	**73,193,781**	**62,732,790**	**62,732,790**	**5,448**	**15,311,872**	**62,947,761**	**772,525,276**

Source: RME, Cocobod (Correction: Total Powder: 32,477 MT, Total Exports: 247,448 MT)
Total FOB Value: USD 756,225,996

ANNEX - 12 A

RESPONSES OF INTERMEDIATION BY FINANCIAL INSTITUTIONS – STANBIC GH

STANBIC GH

Input Providers

Access to Finance:

- what kinds of financial services are offered by your organization?
  - input pre-financing/credit
  - Trade transactions
  - Overdrafts
  - Debt solutions

Intermediaries/Traders (LBCs)

Access to Finance:

- what kinds of financial services are offered by your organization?
  - Working Capital
  - Electronic Money transactions
  - Salary processing
  - Trade transactions
  - Cash Management
  - Card solutions
  - Insurance
- profile the typical credit that is provided
  - amount (range) > USD 10 Mn
  - purpose – Working Capital Facility
  - term – 1 year
  - interest rate – GRR + 1 to 3%
- what are the major bottlenecks LBCs face in access to finance
- Collateral/Security for the local LBCs
- High gearing ratios
- Cocobod delays in payment
- describe how their working capital is financed
  - pledge of fixed assets
  - inventory finance
  - receivables finance
  - trade finance
- for inventory and trade finance,
  - describe the type of custody arrangements used for the commodity collateral

LOCAL PROCESSORS AND EXPORTERS

Access to Finance:

- what kinds of financial services are requested?
  - input pre-financing/credit
  - Trade transactions
  - Overdrafts
  - Debt solutions
- profile the typical credit that is provided
  - amount (range) > USD 10 Mn
  - purpose – Working Capital Facility
  - term – 1 year
  - interest rate – GRR + 1 to 3%
- what are the major bottlenecks Processors and Exporters face in access to finance
- Collateral
- Low trade margins
- describe how their working capital is financed (e.g.)
  - pledge of fixed assets
  - inventory finance
  - trade finance
- for inventory and trade finance,
  - describe the type of custody arrangements used for the commodity collateral
  - n/a

ANNEX - 12 B

RESPONSES OF INTERMEDIATION BY FINANCIAL INSTITUTIONS – GCB GH

GCB Bank PLC has been a key player within the cocoa financing value chain focusing on the below products:

- 1. Working Capital Finance
- 2. Input Finance
- 3. Equipment Finance
- 4. Finance of Capital Investments

The Bank provides working Capital support in term of either an Overdraft, Short Term Loan or Seed Fund Guarantee to the Licenced Cocoa Buying Companies to support their cocoa purchasing activities. In term of scale, we are among the top financiers in the sector and have the capacity to do more subject to our credit appraisal processes.

We have also been supporting companies with Letters of Credit to facilitate the importation of inputs i.e. pesticides, fertilizers among others and also Term Loans to buy trucks or warehouses to facilitate the movement of the products from farm gates to the depots and storage of the produce all in a bid to grow the industry.

Currently, the Bank has the capacity of supporting each of these entities within the value chain with funding up to a maximum funding amount of GHC410.0m depending on structure (i.e. whether secured or unsecured).

A notable bottleneck with the above funding options as enumerated above is the provision of adequate security i.e. landed or cash to secure the facilities being contracted. This has resulted in slashing the limits so as to operate within the regulator guidelines set for Banks.

On the part of the entities there have been notable delays in receipt of payment from these off takers making the extension of credits unattractive within the value chain.

We hope this provides the needed information to enhance your study. Do not hesitate to contact the undersigned for any further clarity and or information required.

ANNEX - 12 C

RESPONSES OF INTERMEDIATION BY FINANCIAL INSTITUTIONS – SCB GH

(Standard Chartered Bank Ghana Ltd)

- Land development and tree renewal
  - SCB is not involved in this directly.

- Input finance (including value chain financing) –
  - We currently do not offer direct financing to farmers for inputs. However, we are able to support players along the value chain, i.e. fertilizer and other agriculture input supplies, etc.

- Equipment finance (including leasing and vendor financing)
  - SCB does not offer leasing solutions,

- Working capital finance (including inventory and supply chain financing) –
  - SCB currently supports clients in this area. The clients in this sector in our portfolio are mainly the LBCs.

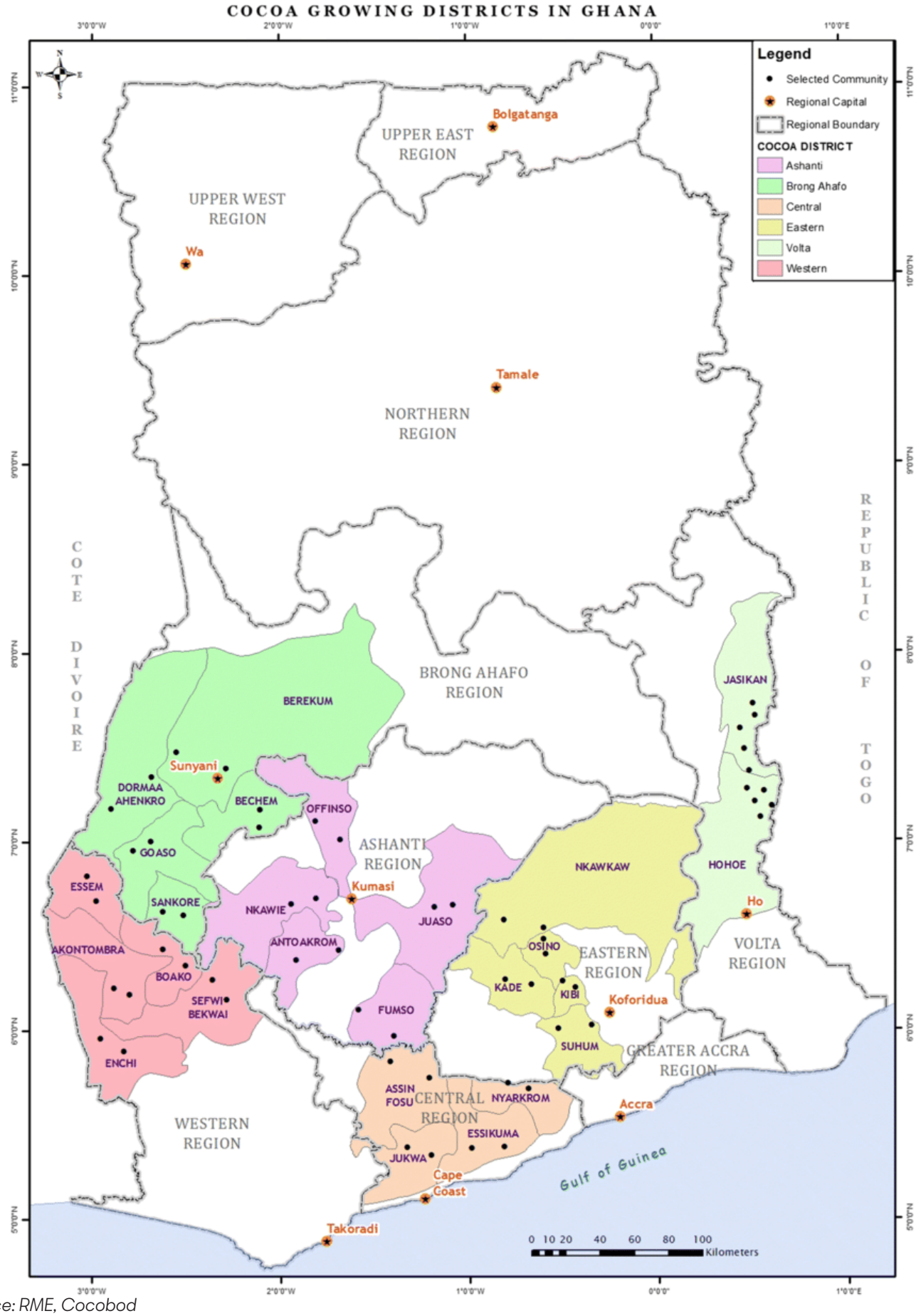
- Trade finance (including structured trade and commodity finance)
  - SCB is an arranger and facility agent in the annual syndicated pre-export financing for cocoa in Ghana

- Finance of capital investments (factory, storage, other infrastructure)
  - SCB has capability to support this

- Insurance and risk management (crop/weather, price, other)
  - Foreign currency financing is typically secured by cocoa sales contracts and therefore size restricted by availability of these.
  - We also currently offer working capital solutions for LBCs within the cocoa value chain. Limit sizes are subject to 10% of the bank's net worth, in line with the 'single obligor' regulations for unsecured facilities, as most of these clients are unable to provide the security required to enable them access limits of up to 25% of the bank's net worth, in line with the regulations.

ANNEX - 13 / MAP 1

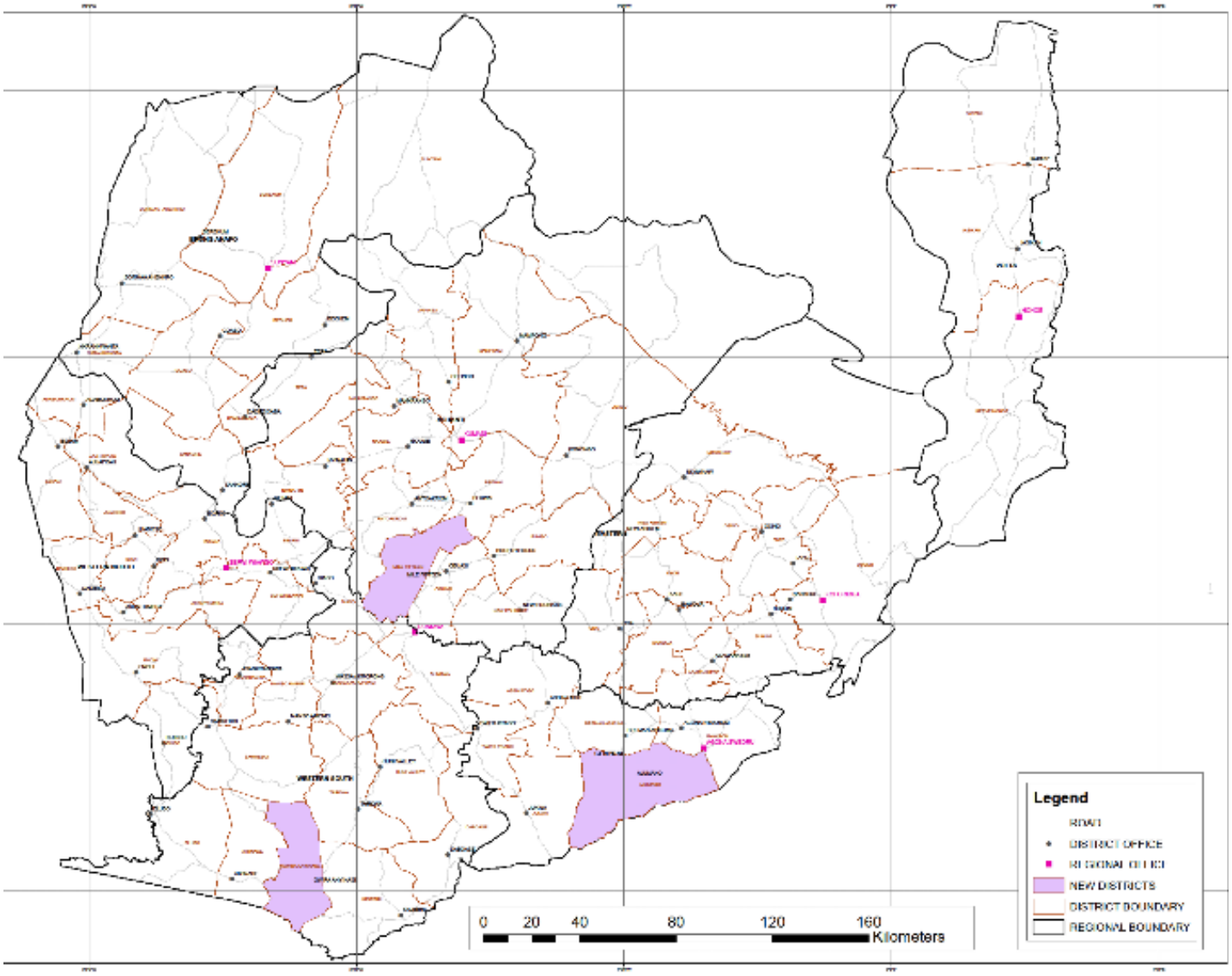
COCOA PRODUCING DISTRICTS IN GHANA



Source: RME, Cocobod

ANNEX - 14 / MAP 2

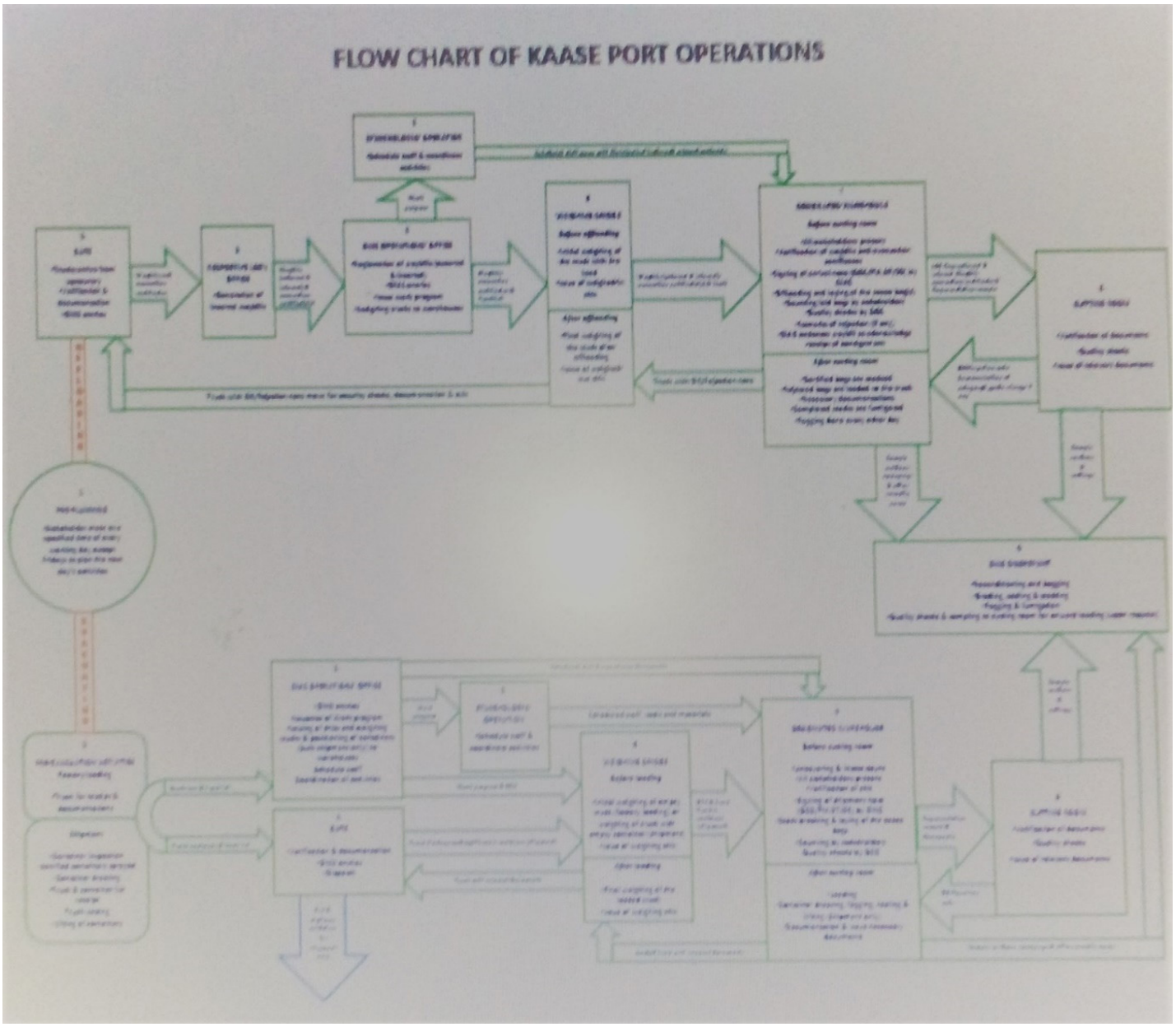
CHED OPERATIONAL DISTRICTS AND DEPOT CENTRES



Source: RME, Cocobod

ANNEX - 15 / CHART 2

KAASE INLAND PORT OPERATIONS FLOW CHART



Source: CMC, Cocobod

APPENDIX II

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