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## **Analysis of Ghana's cocoa value chain towards services and standards for stakeholders**

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**Abstract:** The cocoa sector in Ghana is of strategic importance to the socio-economic development of the nation. Cocoa has been described as the backbone of Ghana's economy. Finding appropriate solutions to the challenges facing the cocoa industry will assist the country to increase its performance and prevent farmers from smuggling cocoa to neighbouring nations. However, there is lack of standards to address the challenges with Ghana's cocoa value chain. Using survey, document reviews, structured interview and Porter's diamond model, we examined the cocoa value chain in Ghana. Our results can serve as services and standards for the cocoa value chain in Ghana and other similar countries.

**Keywords:** cocoa value chain; services and standards; smallholder farmers; Ghana.

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### **1 Introduction**

The cocoa sector in Ghana is of strategic importance to the socio-economic development of the nation. Ghana's cocoa has been described as the backbone of its economy (Osei, 2007). Lundstedt and Pärssinen (2009) say it succinctly in this way "*Cocoa is Ghana*,

*Ghana is Cocoa*". As a strategic commodity, some of the benefits of the cocoa industry to the economy include its employment capability (it employs an estimated one million jobs for Ghanaians with six million dependents), its significant contribution to the nation's Gross Domestic Product (GDP) and its role as the major source of Government's foreign exchange revenue, the greater portion of which is used for developmental projects.

Cocoa provides livelihoods for millions of people in over 50 countries in Africa, Latin America, the Caribbean and Asia. During crop years 1998/1999–2007/2008 global cocoa production increased from around 2.8 million tonnes to 3.7 million tonnes, with an average annual growth rate of 2.7%. Consumption showed similar patterns, growing from 2.9 million tonnes to 3.7 million tonnes with an average annual increase of 2.9% (Kaplinsky, 2004).

Between 1910 and 1977, Ghana was the leading producer of cocoa (Anthonio and Aikins, 2009) until 1978, when the Ivory Coast, Ghana's neighbour to the West, became the leading producer. There is anecdotal evidence that smuggling of Ghana's cocoa to Ivory Coast is one of the contributing factors to Ivory Coast's current position. Data obtained from the International Cocoa Organization (ICCO) reveals an interesting irony on Ghana's cocoa producer price. Within the years 2000–2007, Ghana's cocoa producer price has not only been above the world's average, but has also been higher than what Ivory Coast offers. Hence, one may ask the rationale behind the smuggling of cocoa to Ivory Coast. These evidences and questions suggest potential challenges with Ghana's Cocoa value chain especially for the farmers and the License Buying Companies (LBCs).

The challenges for farmers include the lack of incentives for them to reinvest into quality improvement and expansion of their farms and farmers continual reliance on the traditional, non-mechanised methods of farming. For the LBCs, the Government pre-determines the producer price and is solely in charge of exporting unlike in other nations such as Ivory Coast where the LBCs are involved in pricing decisions and exports. In addition, there is lack of access roads to the cocoa growing communities for evacuation.

Approximately 86% of the world cocoa production is grown by small landholder farmers and the remaining 14% by the modern large scale organisations. The percent of small landholder farmers in Ghana is even larger. Finding appropriate solutions to the challenges facing the cocoa industry will not only assist Ghana to regain its enviable position of being the number one producer of cocoa in the world, but will also lead to an improved cocoa value chain profitability which will trickle down to the smallholder farmers. However, there appears to be lack of standards to address the challenges with Ghana's cocoa value chain. The value chain analysis has been performed in various industries including the utility industry (Wei et al., 2006).

The goal of this study is to present and examine the challenges and opportunities of Ghana's cocoa value chain. The study also seeks to determine the competitive position of Ghana's cocoa relative to those of other major producing countries using the USAID (2006) seven indicators and the Porter's diamond model. Based on the key findings, we made a set of recommendations that can provide guidelines for services and standards in Cocoa Value Chain for Ghana and other similar countries.

The rest of the paper is structured as follows; Section 2 presents the literature review, followed by research methodology in Section 3. Section 4 presents the findings, analysis and discussion of the results, Section 5 presents the conclusions. Implications and proposed guidelines are given in Section 6 followed by limitations in Section 7.

## 2 Literature review

This section reviews the relevant literature on the value chain concept, global cocoa value chain, Ghana's cocoa value chain and the constraints and opportunities to the growth and expansion of the cocoa industry.

### 2.1 Value chain concept

The term "Value Chain" was popularised by Michael E. Porter in 1985 in his book *Competitive Advantage: Creating and Sustaining Superior Performance*. Value chain concept is developed as a tool for competitive analysis and strategy. Central to Porter's theory is the concept of margin. The term 'margin' is the value of the firm's products and services, as perceived by the firm's customers, less the cost. Firms create value by performing activities called value activities. Value chain analysis describes these activities (within and around) that the organisation performs and links them to the organisation's competitive position. It therefore evaluates what value each particular activity adds to the organisation's products or services (Gilbert, 2007).

Porter argues that the ability to perform these activities and to manage the linkages between the activities is a source of competitive advantage. Soosay et al. (2012) also emphasise that managing the various businesses within the chain will create competitive advantage as a result of lower costs and increasing the speed of delivery.

Crain and Abraham (2008) perceived value chain from two perspectives: "internal" and "external" value chains where the "internal" consists of procuring the items and servicing the product, whereas the "external" consists of processing the raw materials and distributing to the end user, with each stage representing an industry. Harvey et al. (1993) is of the view that the value chain model is a process which continuously adds value to each stage of the product transformation. Nars et al. (2012) argues that the value chain model as applied in a transformation process can be applied in service delivery process.

Unfortunately for Ghana Cocoa Value Chain (GCVC), there are some challenges within the chain which negatively impact on the small holder farmers, the main producers of the cocoa beans. The motivation of the researchers was not only to find appropriate solutions to mitigate these challenges, but also to propose a set of recommendations that can serve as standards for the GCVC.

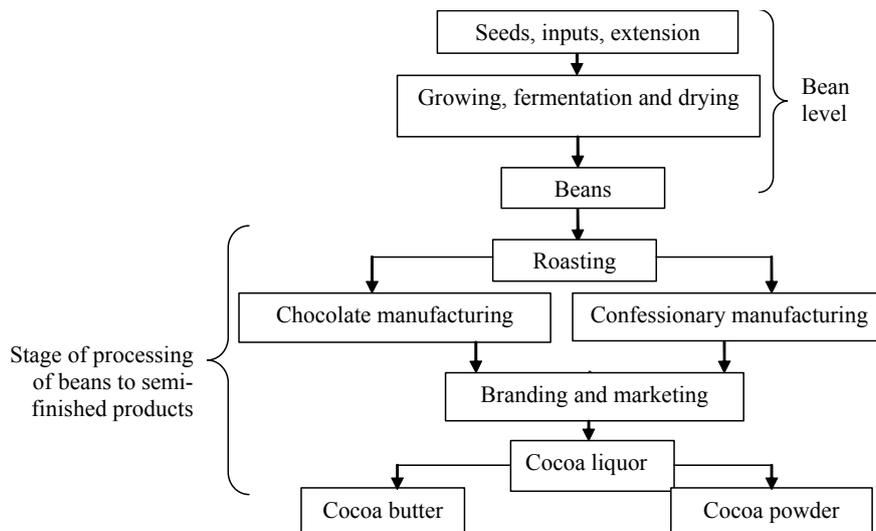
### 2.2 Global cocoa value chain

The term 'Global Value Chain' (GVC) is used to analyse a sequence of processes culminating into the production of the final product (Gilbert, 2007). Industrial products typically combine a number of different raw materials and other inputs. GVC analysis looks at the value contribution of each of these to the final product.

According to Kaplinsky (2004), farming and harvesting of cocoa pods, the extraction, fermentation and drying of cocoa beans necessarily occur on or very near the farm, and have few economies of scale. Most cocoa growing occurs on small or medium-sized farms. For example, in the Ivory Coast during the 1980s, there were around 600,000 small and medium sized farmers with farms of between five hectares and 20 hectares. Approximately 86% of the world cocoa production is grown by small landholder farmers and the remaining 14% by the modern large scale organisations. Average yields of cocoa vary from 400 kg/ha to 800 kg/ha across the globe (Darin, 2004).

After harvesting and preliminary processing, cocoa beans are roasted and ground into liquor, before being converted into cocoa butter or cocoa powder. The butter is utilised in chocolate manufacturing, whilst the powder is destined for the catering markets and for liquid drinks. Cocoa beans can be stored for around six months, and it is here that global trade often begins. But cocoa butter, powder and even chocolate can also be stored, so these activities can (and do) occur in both producing and consuming countries, with some of the resultant product traded across national boundaries. Figure 1 describes simple global cocoa value chain.

Figure 1 Simple global cocoa value chain



Source: Kaplinsky (2004)

### 2.3 Ghana's cocoa value chain

Prior to the partial liberalisation of the Ghanaian Cocoa industry, the market was completely monopolised by the Government which through the Cocoa Marketing Board (CMB) was the only authorised domestic buyer and exporter of cocoa. CMB carried out its activities through its subsidiaries, the Produce Buying Company (PBC) and the Cocoa Marketing Company (CMC). In addition, its subsidiary, the Quality Control Division (QCD) was also solely responsible for controlling the quality of cocoa. The first phase of the reforms was initiated in 1984/1985 and was focused on restructuring the CMB. The reforms led to CMB downsizing its staff from initial 100,000 to 6000 workforce. The many operational and institutional changes of the CMB led to the changing of the name to Ghana Cocoa Board (COCOBOD). During the initial phase, attempts were made to restructure production by providing farmers with seedlings to replace old trees, promoting transport and sales by constructing and upgrading roads and putting greater emphases on extension services and the use of fertilisers and pesticides in production (Anthonio and Aikins, 2009).

Cocoa processing, or grinding, entails the transformation of dried cocoa beans into a variety of processed products including cocoa paste or liquor, cake, powder and butter.

Processors have quality standards and expect COCOBOD, their suppliers to meet these standards. Ghana processes approximately 298,000 tonnes (about 40% of its cocoa bean production) domestically and exports the processed materials. The Government of Ghana is the sole exporter of cocoa. Ghana's cocoa value chain is quite unique from the GVC due to the distinct nature of her partial liberalisation programme.

The key stakeholders are farmers, LBCs and COCOBOD. In addition, various Government and business groups providing extensions and inputs to farmers as well as banks and credit facilitators are important actors on the market. The Cocoa Service Division (CSD) and Cocoa Research Institute of Ghana (CRIG), two wholly owned subsidiaries of (COCOBOD) are key providers of support to the country's cocoa farmers. CSD gives support directly through extension services and provision of planting material while CRIG, with an international reputation, is central to continuing progress through research and development in all aspects of on-farm production. The cocoa sector consists of a chain of economic activities related to production, transportation, quality control and marketing of cocoa. Farmer associations such as Kuapa Kokoo, a farmers' co-operation made up of over 20,000 members from nearly 1200 villages are getting better deals for its members. Their premium quality cocoa is known and marketed worldwide to chocolate companies due to the concept of traceability of cocoa from Ghana. Another vibrant association is Cocoa Abrabopa Association.

#### *2.4 Constraints and opportunities to the growth and expansion of cocoa industry*

According to Lundstedt and Pärssinen (2009), farmers are generally liquidity constrained and need credit in order to maintain or expand production. Ghana's cocoa yield has been on average 25% below the average yield level of the ten largest cocoa producing countries and approximately 40% below the average yield level of neighbouring Ivory Coast. Reasons put forward to explain Ghana's low yield levels are the relative old age of cocoa trees, the absence of widespread row planting and pests such as black pod and mistletoes. This is a resource constrained farming practice.

The long-term growth prospects in the cocoa sector are dependent on whether the increase in output represents the lifting of constraints on farmers' production possibilities or whether it simply restricts to a short-term response to the windfall gains of strong cocoa prices. Constraints on input use, ranging from regional differences in factor prices to capital market imperfections, appear to underlie the different outcomes observed (Teal et al., 2002). Teal et al. (2002) further stated that there is suggestive evidence to support the idea that land prices constrain extensive expansion and growth of cocoa farms in the Ashanti and Brong Ahafo regions. Gray (2000) found that aged tree stock and the incidence of pests and diseases are major constraint to Nigerian cocoa production. Shortage of rural labour is also a major constraint to expansion and the average age of the cocoa farmer is also high.

### **3 Methodology**

This research employed mixed methodology. Survey was used to collect data on the opportunity and challenges of the GCVC, structured questionnaire and document review

were used to develop detailed map of the GCVC and the Porter's Diamond model was used to determine the competitive position of Ghana's cocoa relative to other major producing countries. The research used the survey methodology. Five out of the 27 districts in the Ashanti region were randomly selected and five communities purposively chosen in each district. The study population comprised smallholder cocoa farmers in Ashanti region, including the purchasing clerks, district officers of LBCs, management of retail shops/super markets, management of cocoa processing companies in Ashanti region, the Quality Control manager of Ashanti region's COCOBOD, port managers of Quality Control Division and port officers of LBCs in Ghana and managers of CMC. The study employed the multistage sampling method. This study adopted both primary and secondary methods of collecting data. Questionnaire was the only instrument used to collect the primary data for which seven different questionnaires were administered to nine groups of respondents. We administered 413 questionnaires to all the seven different sample categories and we retrieved 400 responses representing about 96.8% response rate. Breakdown of the sample size and the expected response rate is shown in Table 1.

**Table 1** Details of sample category

<i>Sample Category</i>	<i>Expected returns</i>	<i>Actual returns</i>	<i>Percentage of expected returns to total Sample Size</i>	<i>Percentage of actual return to expected return</i>
Smallholder farmer	250	250	60.53	100.00
District officer of LBC	20	18	4.84	90.00
Purchasing clerk of LBC	100	96	24.21	96.00
Management of LBC	10	8	2.42	80.00
Port officers of LBC	20	18	4.84	90.00
Quality control officers at port	10	8	2.42	80.00
Management of cocoa processing company	3	2	0.74	66.67
Total	413	400	100	

Porter's diamond model in conjunction with the USAID (2006), seven characteristics that cocoa bean buyers look out for when buying from their suppliers were used to determine the competitive position of Ghana's cocoa relative to other major producing countries. Ranking was done by management of two cocoa processing companies and management of three selected LBCs who operate in at least all the countries under consideration. A scale of one to five (with 1 = weak and 5 = strong) was used to rank these countries. Secondary data related to the objectives of the research were sourced from the ICCO web site ([www.icco.org](http://www.icco.org); [info@icco.org](mailto:info@icco.org)).

## 4 Analyses and discussion of results

### 4.1 Detailed map and description of the Ghana's cocoa supply chain

The map of the detailed value chain for cocoa in Ghana is as shown in Figure 2. It is a snapshot of the GCVC. The map has been classified into two portions – activities within

and outside Ghana. Activities within Ghana mainly involve the handling of the raw beans. The actors within the chain are primarily individuals and institutions and they include the smallholder farmers, individual buyers, farmer associations, extension and input providers, LBCs, private haulers, Government of Ghana represented by the COCOBOD and its subsidiaries, research institutions, financial institutions, external brokers, global buyers, exporters, shipping entities, ICCO, domestic and international processors (semi-finished and finished products), warehousing and logistics companies, distributors and retailers and consumers. The flows within the chain can also be categorised as the flow of the raw product which in this case is cocoa beans, flow of finance and bonus/scholarships to farmers, flow of extension services and farming inputs to farmers, flow of processed cocoa beans into semi-finished and finished products and finally the flow of social services to the cocoa farmers. The supply chain starts with the small holder farmers. Smallholder farmers are generally aged and also have very high illiteracy rate. The farmers produce the raw beans through activities that include planting, harvesting and extracting of the beans from the cocoa pods. Ghana is a partially liberalised environment in that COCOBOD maintains control over several functions across both the domestic and international dimensions of the Ghanaian cocoa value chain; all extracted cocoa beans are finally sold to the CMC, LBCs or the Farmers Association. The LBCs purchase cocoa with what is called *Akuafo* (farmers) cheques. The cheque system was introduced by COCOBOD in the 1980s with the intention of encouraging farmers to save money, reduce the risk of fraud and avoid handling large amounts of money at the depots and villages. Smallholder farmers benefit in a number of ways with their relationship with the farmer associations. The cooperatives receive an additional premium which is invested in improvements to the farmers' living standards and farming productivity. A percentage of the price goes towards 'producer support and development', which the associations spend on farmer education, helping also to maintain the values and vision of the cooperation as it grows. Almost all these benefits cut across all the associations as they try to emulate each other.

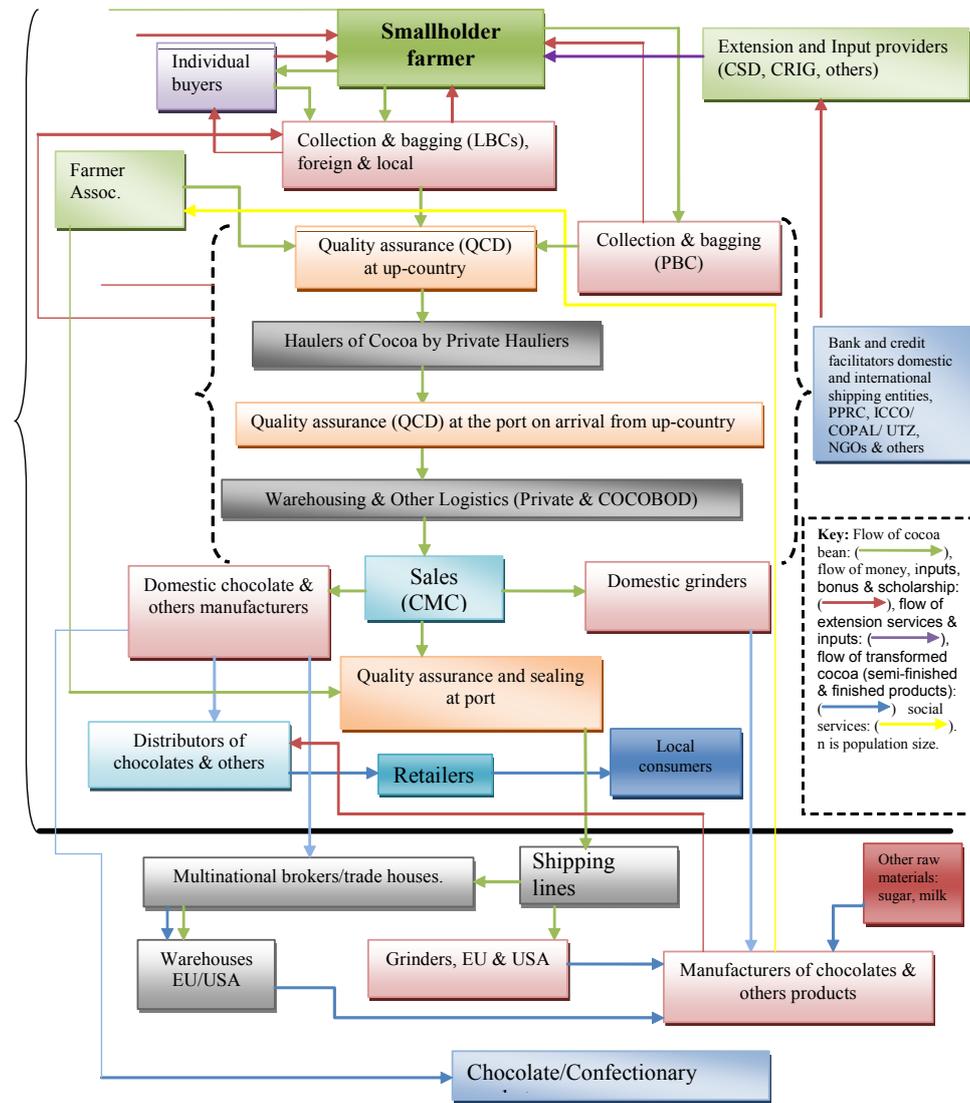
The map depicts certain individuals in the various cocoa growing areas who also purchase directly from the farmers, particularly at a time that the farmers are in dire need of cash to take care of urgent personal issues. These individuals take advantage of such circumstances and purchase the cocoa beans at a much lower price than what the Government gives to the farmers. With the exception of the PBC, which is an LBC subsidiary of COCOBOD, all other LBCs purchases are graded and sealed by the QCD of the COCOBOD at all the up-country depots. Sales to domestic users and international firms are executed by the CMC. Apart from the cocoa beans meant for domestic processing firms, beans meant for exports go through two phases of quality test on arrival at the port from the up-country and prior to shipment.

#### *4.2 Major constraints*

Table 2 presents the major constraints confronting some of the actors of the GVCC, precisely the Smallholder farmers, the purchasing clerks, the LBCs and the Port officials. The biggest threat confronting the farmers is the cocoa disease that affects the cocoa plantations. The second major threat is the lack of funds for farmers to carry out their farming operations. The price offered to the farmers through the LBCs is also seen as a great challenge, considering the fact that they have to virtually fund their farming

activities themselves with little inputs from the commercial banks, governmental representatives and the LBCs. The other threats confronting the farmers include bushfires and lack of access roads to the farming communities.

**Figure 2** Detailed Ghana's cocoa value chain map (see online version for colours)



The major constraints that confront the LBCs include Cost of capital (33.3%), followed by the quota barriers (25%) and then delayed payment from Government (16.7%). The last two constraints which have the same percentage of 12.5% are smuggling of the cocoa to the neighbouring countries and high transaction cost. Generally many studies and authors have confirmed the high cost of capital in Ghana, and as such any delay from the

part of Government in paying the LBCs what is due them, will compound the already aggravated situation. With the partially liberalised environment, COCOBOD requirement for LBCs with regards to the quota systems indicate that LBCs must achieve a volume of purchases exceeding 10,000 tonnes of cocoa for two consecutive years prior to issuance of an export licence which will enable them to export 30% of volume purchased. Inability to achieve this quota will eventually lead to the withdrawal of the LBC's license after several warnings. The quota requirement therefore leads to very vibrant competition among the LBCs as alluded by the purchasing clerks.

**Table 2** Major constraints of the Ghana's cocoa value chain

<i>Farmers</i>					
Major threats	Cocoa disease	Lack of funds	Low cocoa price	Bad weather	Others
	31.2%	26.8%	15.2%	13.2%	13.6
Source of funds	Personal/family sources	Bank loans	Pre-finance LBC's	Associations	Others
	64.8%	4.8%	14.4%	10.0%	6.0%
How inputs are gotten	Personal/family	Government representatives	LBC's	Associations	Others
	70%	16.4%	2.8%	6.4%	4.4%
<i>Purchasing clerks</i>					
Major constraints	Access to cocoa growing areas	Competition	Lack of logistics	Non-availability of Beans	
	54.2%	29.2%	5.2%	11.4%	
<i>LBCs</i>					
Major constraints	Cost of capital	Quota barriers	Delayed payments	Smuggling of cocoa	High transaction cost
	33.3%	25.0%	16.7%	12.5%	12.5%
<i>Port officials</i>					
	Rain/dew and moisture	Lack of trust among actors	Possible infestation in transit	Volume of work	
	37.7%	24.6%	37.7%		

### 4.3 Opportunities for growth and expansion of Ghana cocoa industry

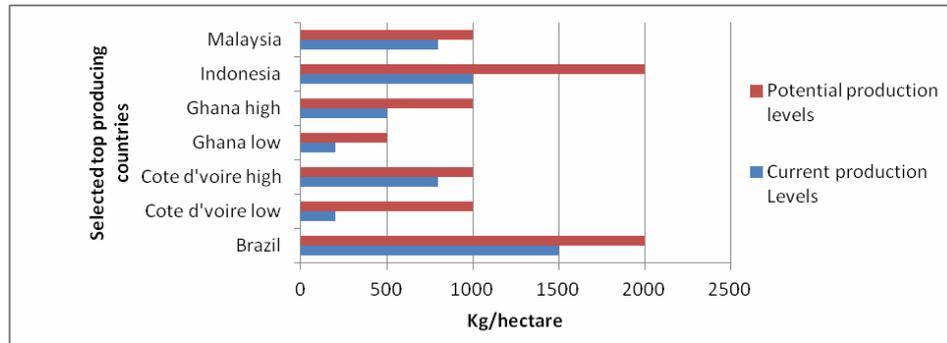
The opportunities for growth and expansion of Ghana Cocoa industry can be viewed from the various perspectives which include Availability of supply, price of cocoa, infrastructure and logistics, consistency of quality, legal/policy environment and flavour/fat content.

#### 4.3.1 Availability of supply

Regarding the availability of land for production, Ghana has almost exhausted the available land. The country however still has huge growth potential in the area of yield

per hectare. Ghana's current yield is about half of West Africa's yield potential. What it means is that Ghana can double current supply without adding a single piece of land if the land tenure system is well structured. Figure 3 shows the potential and current yield levels of selected major cocoa producers.

**Figure 3** Current and potential yield levels of selected major cocoa producers (see online version for colours)

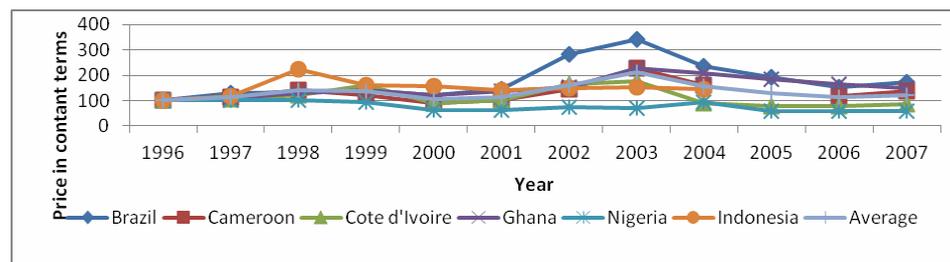


Source: TechnoServe, World Bank, ICCO – Market committee, McKinsey analysis cited by Bill and Melinda Gate Foundation (2008)

#### 4.3.2 Price of cocoa

Price per Metric Tonne (MT) of Ghana's cocoa is a strong indicator of cocoa value chain competitiveness. Real domestic producer prices increased slowly from 1995/1996 and peaked in 1997/1998 or 1998/1999 before falling to its lowest levels in 1999/2000 as shown in Figure 4. The lower price occurred in Nigeria and the highest occurred in Indonesia, in constant terms received by farmers at the end of the period. Ghana's price was above the world average.

**Figure 4** Producer price in constant terms (Index 1995/96 = 100) (see online version for colours)



Source: Data obtained from World Bank-ICCO (modified by the researchers, 2011)

#### 4.3.3 Infrastructure and logistics

Smallholder farmers complained among other things, the use of faulty weighing scale by purchasing clerks to cheat them and lack of access to Government subsidised inputs such

as fertiliser and other chemicals. Road infrastructure especially in the cocoa growing areas needs improvement to increase access to the cocoa beans. The quota system for daily shipment and long waiting at the port are all cost to the LBCs and to COCOBOD which is eventually passed on to the smallholder farmer.

#### *4.3.4 Consistency of quality*

In economic terms, a lot of efforts and resources go into maintaining the high quality of Ghana's cocoa. Trade-off may need to be examined to achieve the real benefits of high quality. Cost-benefit analysis of quality system mostly seems to point to the need for re-consideration of spending so much to improve quality. Maintaining quality is expensive in terms of the direct costs of the QCD of COCOBOD, which is at the centre of all these, and from the loss of revenue from beans rejected at the local level as sub-standard and waste. According to one multinational manufacturer, "even a lower quality cocoa bean can be used as long as its specifications are known and consistent. It is however not possible to adjust the manufacturing process to compensate for fluctuations in waste percentages" (USAID, 2006).

#### *4.3.5 Legal/policy environment*

In Ghana, the Government has more influence over the production chain though the systems have been partly liberalised. In a liberalised cocoa market, the price that farmers receive for their products is largely determined by the world market price. This indicates that farmers may receive higher, but more insecure earnings, due to on the one hand volatile world market prices and on the other hand country-specific production and economic conditions. A long-term negative consequence of trade liberalisation may thus be that farmers will not be protected in periods of low market prices, since it is, as mentioned, hard to adjust governmental policies according to volatile market prices.

#### *4.3.6 Flavour/fat content*

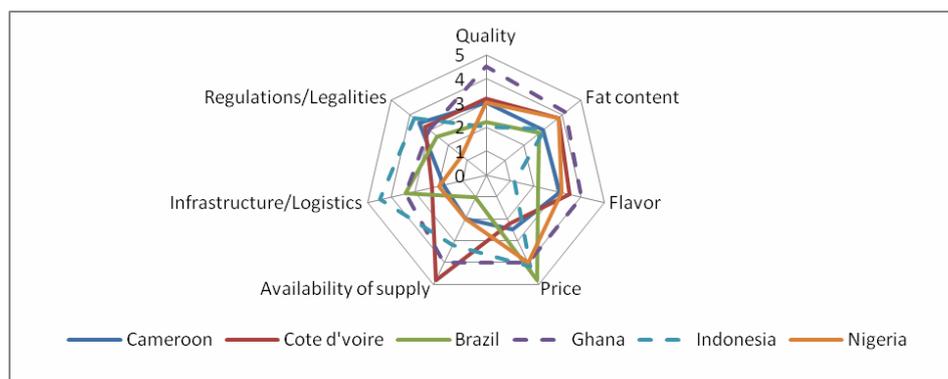
Percentage of fat content refers to the amount of fat or cocoa butter that can be extracted from the beans during processing. A high fat content is preferable of which Ghana is ranked high. Flavour can be accentuated with proper fermentation but is primarily a genetic trait of the cocoa bean itself. Furthermore, Ghana is ranked high in flavour and fat content. This makes the demand for flavour beans relatively inelastic and is not significantly affected by changes in price. Stronger flavour beans are required for higher quality food and pharmaceutical cocoa products.

#### *4.3.7 Competitive position of Ghana relative to other major producing countries*

The competitive position of Ghana relative to other major producing countries was examined using the Porter's Diamond model and the USAID seven key indicators. Figure 5 shows the Competitive position of Ghana relative to other major producing countries. Ghana's biggest competitive advantages include its superior quality cocoa bean which serves as overall global benchmark for many exporting countries. The country is also seen to have high production capacity (availability of supply). However in

terms of yield per hectare and legal/regulatory structure, Ghana scored low. As the largest producer of fat-flavour beans, Ghana currently occupies a strong position with few competitors in this segment of the global market.

**Figure 5** Competitive position of Ghana relative to other major producing countries



Source: Authors' own construct (2011)

## 5 Conclusions

The study aimed at presenting the detailed map of GCVC, examining the major constraints and opportunities to growth and expansion of GCVC and determining the relative competitive position of Ghana's cocoa. The detailed map of Ghana's cocoa value chain is well defined and it includes activities within and outside Ghana. Activities within Ghana mainly involve the handling of the raw beans. The actors within the chain are primarily individuals and institutions and they include among others the smallholder farmers, individual buyers, farmer associations, extension and input providers, LBCs, private haulers and Government of Ghana represented by its agencies. The map also identified certain individuals in the various cocoa growing areas who purchase directly from the farmers, particularly at a time that the farmers are in dire need of cash to take care of urgent personal issues. These individuals take advantage of such circumstances and purchase the cocoa beans at a much lower price than what the Government gives to the farmers.

Smallholder farmers complained among other things, the use of faulty weighing scale by purchasing clerks to cheat them and lack of access to Government subsidised inputs such as fertiliser and other chemicals. Both farmers and LBCs complained of lack of access roads to cocoa growing communities. The quota system for daily shipment and long waiting at the port are all cost to the LBCs and to COCOBOD which is eventually passed on to the smallholder farmer. Delay in releases of funds due them from CMC is another source of constrain. Delays at the port according to the LBCs are a great source of cost to them. Quotas also constrain the LBCs in their quest to avoid inventory cost by keeping huge volumes of stock at the up-country side. Cost-benefit analysis of quality

system mostly seems to point to the need for re-consideration of spending so much to keep Ghana's cocoa quality. Maintaining quality is expensive in terms of the direct costs to the QCD of COCOBOD.

In determining the competitive positioning of Ghana's cocoa relative to other major producing countries, it was revealed that Ghana's biggest competitive advantages include its superior quality cocoa bean which serves as overall global benchmark for many exporting countries. The country is also seen to have high production capacity (availability of supply). However in terms of yield per hectare and legal/regulatory structure, Ghana scored low. As the largest producer of fat-flavour beans, Ghana currently occupies a strong position with few competitors in this segment of the global market.

## **6 Implications and proposed guidelines for services and standards**

Based on the results, we discuss the implications and propose some guidelines that can serve as services and standards. The services and standards are organised around key stakeholders, specifically the Government, farmers and LBCs.

### *6.1 Implications*

#### *6.1.1 The map of Ghana's cocoa value chain*

From the findings, farmers could either sell to LBCs or Farmer Associations. The identified individuals who could be farmers themselves or business men and women also impact the lives of the farmer in either way. These individuals can only sell to the LBCs in the country since non-licensed companies are not permitted to sell to the CMC. They however can also look elsewhere for higher returns and this could lead to smuggling of cocoa out of the country. It is also generally perceived by the community that some of these individuals are agents of the purchasing clerks of the LBCs who because of the conflict of interest situation use these individuals as a cover up to buy on their behalf. The three tier quality assurance of Ghana cocoa is vividly captured and not only has it prolonged the chain, but it is also seen as a source of cost in the value chain.

#### *6.1.2 Constraints and opportunities to expand Ghana's cocoa value chain*

The following key constraints and opportunities were identified under the study.

Smallholder farmers are generally aged and also has very high illiteracy rate. The average age of the smallholder farmers is approximately 52 years and about 48% of the farmers interviewed have no formal education. These characteristics of the farmers threaten the sustainability of the sector and also limit their ability to apply new technologies to enhance production. Another major threat to growth and expansion result from the inability of the Government to compensate farmers adequately for the production of superior quality beans. There is lack of motivation for the farmers to reinvest into quality in line with the country's strategy, considering the fact that they have to fund their farming activities themselves with little inputs from the commercial banks, governmental representatives and the LBCs.

Another constraint that confronts the GCVC is the low production yield which can be attributed to various reasons including infestation of pests and diseases, age and variety

of existing tree stock, limited use of fertiliser and lack of knowledge of husbandry techniques, such as pruning and bush fire. Lack of access to credit by smallholder farmers to purchase fertilisers contributes to the limited use of fertiliser, and generally the lack of access to credit is due to the smallholder farmers' inability to produce acceptable collateral to the financial institutions.

Another interesting revelation is the relatively high price of cocoa as shown in Figure 4. Between 2000 and 2007, Ghana's cocoa producer price has not only been above the world's average but has also been more than what is offered by Ivory Coast, and hence one would be asked the rationale behind the smuggling to Ivory Coast and other neighbouring countries. This behaviour of the farmers could be analysed using the finance discipline concept of 'Time Value of Money'. It has already been established that the farmers fund a lot of their farming activities using their own funds or borrowed funds from family and friends and thus when their harvested bags of cocoa are ready for sale, they cannot waste any more time in selling them out. They have to meet so many personal and family needs including paying their children's school fees, getting them clothing, payment of utility bills, meeting their social responsibilities, paying their debts and of course reinvesting part of the earnings back into their farms. All these responsibilities exert a lot of pressures on the farmers and normally cause them to sell their products to the individual business men and women. They in turn either sell their products to the LBCs or find a way to smuggle them outside the shores of Ghana. Even though the farmers' behaviour contributes to their perpetual poverty cycle, under the circumstances it looks like the reasonable action to take particularly since access roads to most of these cocoa growing communities are yet to be constructed or in bad shape.

The two major opportunities that the industry can take advantage of is the flavour/fat content and the potential to increase the value addition of Ghana's cocoa. Ghana has a huge potential to maintain dominance in the market segment for high fat content and good flavour bean. The generic nature of these properties not only makes the cocoa attract premium price, but it also results in having an inelastic demand.

## *6.2 Proposed guidelines for services and standards*

The following are guidelines that can serve as services and standards for the stakeholders in Ghana cocoa's value chain. These guidelines are grouped as related to Government, farmers and LBCs.

### *6.2.1 Government*

The Government of Ghana can adopt a number of strategies to help mitigate the prevailing challenges with the cocoa value chain. These include:

- 1 The detailed map of GCVC will enable Government to know and understand the respective roles of all the stakeholders involved in the chain. This can also serve as a tool for Government's policy making and financial budgeting.
- 2 There is a need for access to commercial mechanisms to transfer and adopt the needed skills, know-how and information to improve cocoa productivity. Government needs to increase access to Government social interventions of free mass spraying exercise and subsidised fertilisers coupled with increasing education on the importance of good husbandry practices to productivities.

- 3 Government should give serious attention and priority to the construction of roads to the cocoa growing areas in order to make evacuation accessible. This will reduce the prolonged operational period from purchase to getting the beans to the weighing centres.
- 4 There is the need for more youth to be attracted to the cocoa growing areas to replace the aged farmers for sustainability of the sector. Land tenure system in the cocoa growing areas should be looked into to make it possible for the youth who are willing to farm. Government can roll out attractive package for those youth by way of providing them with the needed investment capital for planting until after tree maturity to start payments. To also help minimise the illiteracy rate, Government should intensify and give real meaning to the established Cocoa Scholarship to cocoa farmers' children. There is a general perception that the scholarships are diverted to the children of the rich and the elite in society.
- 5 The Government should increase the FOB paid to farmers to serve as an incentive for re-investment and expansion of the cocoa farms. There should also be availability and access to credit for smallholder farmers to purchase farm inputs such as chemicals and fertilisers. Smallholder farmers can achieve this on their own through farmer associations as they can leverage on their numbers.
- 6 Ghana has huge potential to grow and expand in terms of adding local content to the value chain. Conscious effort must be made by Government of Ghana to add value to the cocoa bean rather than exporting the raw bean. In this area, it is necessary to benchmark other producing nations such as Brazil. Processing companies must be encouraged to site in the country and the existing ones must be assisted to produce at full capacity.
- 7 Cash and check payments are challenges to the cocoa farmers because of risk of losing the money and potential overspending of bulk payment in cash. The central bank recently supervised the implementation of Ezwich, which can address this problem (Quansah et al., 2010). The Ezwich system implemented could be used for cocoa farmers to receive payments on a card anywhere in Ghana instead of the check payments.
- 8 There is the need to ensure that bags of cocoa beans produced in Ghana are UTZ Certified. UTZ Certified is worldwide certification programme that sets standards for responsible production and sourcing of agricultural commodities (UTZ Certified, 2009).

#### 6.2.2 *Farmers*

- 1 Smallholders farmers should be encouraged to bring large volumes of cocoa beans for direct sale to LBCs through or by forming farmer association. Access for such associations to sell directly to CMC or even export will bring more direct benefits to the smallholder farmers thereby increasing their ability to reinvest for expansion and growth. This will also minimise the cocoa smuggling to the neighbouring countries.
- 2 The smallholder farmers through the farmers' association should organise more of the non formal educational programmes as a medium term solution to the illiteracy problem.

### 6.2.3 LBCs

- 1 The LBCs should put in very strict controls to ensure that Ghana's cocoa are not smuggled to the neighbouring countries through their agents. The scales used by the purchasing clerks to weigh the cocoa up-country should constantly be checked to ensure that farmers are not cheated.
- 2 The LBCs should develop a strong supplier relationship management with cocoa farmers' association to ensure they obtain the volumes required to satisfy the CMCs.

## 7 Limitations

Many key informants were still very hesitant in bringing forth the needed information. The private sector, especially the large multinational companies were unwilling to respond or make available the needed information. But these constraints did not, in any way affect the outcome of the study. Additional limitation is that only Ashanti region was studied. Future research should include other regions.

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