GHANA COCOA SECTOR AT CROSSROADS: TO TRANSFORM OR NOT TO TRANSFORM. A CLUSTER ANALYSIS

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**Ghana Country Profile**

Located at 800 N and 200 W of the Equator, Ghana is bordered by the Gulf of Guinea to the South, Togo to the East, Cote d’Ivoire to the West, and Burkina Faso to the North. See Exhibit 1a.

United Nation’s Statistics 2016 Year Book estimates that Ghana has population of 28 million and land area of 238,537 square kilometres resulting in a population density of 123.2 persons per square kilometre. Urban population constitute about 54% of the population and urban population growth rate is estimated at 3.4% whilst the overall population growth rate is estimated at 2.4% per annum.

Ghana is endowed with abundant natural wealth, including vast agricultural, mineral and human resources. Ghana has over 13.6 million hectares of arable land suitable for crops or livestock, and a potential annual production of 655,000 metric tons of fisheries products. Crude oil recently replaced gold and cocoa as the country's primary export, with diamonds, aluminum and bauxite accounting for a large part of the country's exports.

Ghana has a presidential system and practices multiparty democracy since the 4th Republic in 1992. The key arms of government are the executive arm led by the President, the judiciary led by the Chief Justice of the Supreme Court, and parliamentary led by the Speaker of Parliament.

There are five political parties in Ghana with National Democratic Party (NDC), and National Patriotic Party (NPP) as the major parties alternating the governance of Ghana since returning to democratic rule in 1992.

Ghana is the first country in sub-Saharan Africa to gain independence on 6th March 1957 from the British. Kwame Nkrumah led the struggle for independence through the Convention People’s Party (CPP). His government was overthrown in February 1966.

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Ghana’s Macroeconomic Performance

Ghana’s economy in terms of Gross Domestic Product (GDP) grew from US$6.42 billion in 1992 when the country returned to multi-party democracy to US$41 billion in 2016. Thus, over past two decades Ghana’s GDP has grown over 6 times posting cumulative average growth rate (CAGR) of 8.03% per annum. This economic growth rate exceeded those of Sub-Saharan Africa and world’s average. Gross National Income (GNI) per capita which measures the standard of living also grew from US$440 per capita in 1992 to US$1480 per capita in 2016. This represents a CAGR 5.13% over the same period. A significant component of this growth in prosperity can be attributed to the oil and gas industry. Ghana discovered oil and gas in commercial quantities in 2007. This discovery ushered in a new industry and its related services. Real export growth rate dropped from 30.1% in 2011 to 2% in 2016. This reflect (i) plateaued oil production and export and; (ii) drop in world commodity price of cocoa, and gold in recent times. Export as a percentage of GDP dropped from 44.1% in 2011 to 33.9% in 2016 but averaged 41% over the period. Investment as a percentage of GDP also displayed a declining trend as it dropped from 27.5% in 2011 to 14.9% in 2016. This drop reflects the overall decline of investment in the oil and gas sector. Savings as a percentage of GDP declined from 18.5% in 2011 to 9.3% in 2016. These trends suggest a weakening productivity of Ghana’s economy and global competitiveness. Budget deficit as a percentage of revenue was 5.2% in 2016. This figure represents a significant decline from a high of 11.6% in 2013 over 2012-2016 period. Ghana applied to the International Monetary Fund (IMF) in 2014 when the situation of fiscal deficit went out of control. As part of the IMF program, Ghana started a program of fiscal consolidation which led to the decline in budget deficit in 2016.

Over the past 5 years, Foreign Direct Investment (FDI) flows into Ghana has averaged about US$3.2 billion per annum. According Standard & Poor’s research, a significant component of the FDI flows went to the oil and gas sector. Given the drop in crude oil prices, S&P is of the
view that this rate of FDI flows may slow. FDI as a percentage of GDP averaged 7.3% over the past 5 years. But the trend shows declining picture. FDI as percentage of GDP dropped from 7.9% in 2012 to 6% in 2016. Current account deficit as a percentage of GDP declined from 11.7% in 2012 to 6.6% in 2016. This decline was largely due to decline in the importation of capital goods to support the natural resource sectors such as oil, gas, and mining. Although trade balance as a percentage of GDP shows an improving position, Ghana’s performance worse than the Sub-Sahara Africa average. Foreign debt as a percentage of GDP increased from 20.2% in 2012 to 45.5% in 2016. Ghana has persistently been relying on foreign debt to finance its budget expenditure. Total debt as percentage of GDP has also been rising and reached 76.3% in 2016. Ghana’s foreign exchange reserves declined from US$4.97 billion in 2012 to US$2.67 billion which represented 2 months of import cover. This decline was due mainly to increasing interest payments in foreign currency and declining tax revenues resulting from weak performance of corporate Ghana which stemmed from electricity supply to the economy.

Ghana’s monetary policy effectiveness showed weak performance between 2012 and 2016. Inflation increased from 9.2% in 2012 to 15.4% in 2016 down from an all high of 17.7% in 2015. According to the IMF, this weak performance is mainly attributed to the inflation related to energy and food or crop prices as Ghana experienced weather shocks in 2014/2015 season. Reserve money growth remained strong in the first half of 2016 at 30 percent, boosted by inflows of foreign capital. However, this did not feed into growth in broad money (including foreign currency deposits), as banks instead substantially increased their purchases of Bank of Ghana (BoG) bills, leading to an increase in the net sterilization stock. Growth in credit to the private sector also declined sharply in the first half of 2016, from 33 percent a year earlier to 9 percent, and banks’ average lending rate increased from 28 percent to 33 percent, signaling a

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2 IMF, Ghana Country Report, October 2016, Page 8
tightening in credit conditions\(^3\). The exchange rate has fluctuated around GHc 3.8-3.9 against the USD between September 2015 and August 2016\(^4\). BoG successfully implemented the first stage of a plan to strengthen and deepen the foreign exchange market, which involved the elimination of the surrender requirement for gold and cocoa export proceeds and the strengthening of rules on repatriation of export proceeds\(^5\).

Overall, Ghana’s macroeconomic environment puts Ghana’s exporters at competitiveness disadvantage at the global level especially the cocoa cluster players. Key macroeconomic indicators such as inflation, exchange rate stability, and access to credit or finance which are key to Ghana’s private sector global competitiveness are serving as constraints. These indicators which also reflect lapses in fiscal policy effectiveness contributed to low performance and productivity of the cocoa cluster.

Ghana’s share of global export market over the past 5 years shows an average of 0.38% of the total global exports. Ghana’s exports have mainly been unprocessed and semi-processed. Unprocessed products are gold, cocoa beans and crude petroleum oil. Ghana’s share of global export of services is negligible. With this small share of global export, Ghana exports are dominated by crude petroleum oil, cocoa, and gold respectively. With the exception cocoa exports where some processing is done to transform cocoa beans into cocoa butter, cocoa cake, cocoa powder and cocoa liquor for export, other commodities such as gold, bauxite, and manganese are exported in the raw form without any processing. It interesting to note that Ghana export bauxite and import alumina for its aluminium smelter refinery at Volta Aluminium (Valco), Ghana exports crude oil and import refined petroleum products although Ghana has refinery plant in Ghana.

\(^3\) IMF, Ghana Country Report, October 2016, Page 8.
These pictures reflect the structural transformation that Ghana needs to undergo. The economy is still resource endowment driven. Innovation and application of technology is still nascent and this reflects the level of science, technology, engineering, mathematics education, research and application.

According to the Global Innovation Index Report 2016, Ghana was ranked 102 globally and 10th in Sub-Saharan Africa. This performance is a decline in Ghana’s competitiveness in innovation over the years. In 2013, Ghana ranked 94th globally. National Accreditation Board (NAB) websites indicates that Ghana has 10 public universities, 72 private tertiary institutions, 10 polytechnics, 1 regional tertiary institution and 6 professional institutions. In addition to these educational institutions, Ghana has 13 research institutions headed by the Centre for Scientific and Industrial Research (CSIR) that supposed to be undertaking research in Ghana. The National Science, Technology and Innovation (STI) Policy (2010) is the key policy
document that drives research and innovation in Ghana. In his report about higher education, research, and innovation in Ghana, Professor Gaski Alabi, indicated that UNCTAD Review of the National Science and Technology Policy (2011), concluded that, the capacity of the STI system overall is limited in comparison to those of middle-income countries such as India or South Africa, and the system overall is not performing to a standard that will enable the country to achieve its aspiration of becoming a truly middle-income economy. The report notes that Ghana’s policies and institutions for science, technology and innovation have not been modernized, nor have they been aligned to economic growth and human development goals. The report indicated that a key feature of Ghana’s institutional landscape is the weak links and poor positive feedback between and among institutions, including the higher education and research institutes and the private sector. More importantly, there are no incentives to work together and few mechanisms to encourage communication and collaboration.

Additionally, the UNCTAD STI policy review (2011) notes that the institutions of education and training are not producing enough graduates with the required skills to spur technological innovation for economic growth. This is a major barrier to sustainable improvement of the country’s technological performance and to growing a national system of innovation sustainably. Consequently, the need for a systematic and concerted approach to integrate the STI Policy into Ghana’s national development strategy is crucial. Such a process should lay particular emphasis on cascading of the national strategic goals into actions that will improve business and the quality of life for all Ghanaians in a sustained manner. Success should be

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6 Governance of higher education, research and innovation in Ghana, Kenya, and Uganda: Jowi, Obamba, Sehoole, Alabi, Page 48
7 Governance of higher education, research and innovation in Ghana, Alabi, Page 48
8 Governance of higher education, research and innovation in Ghana, Alabi, Page 48
9 Governance of higher education, research and innovation in Ghana, Alabi, Page 48
10 Governance of higher education, research and innovation in Ghana, Alabi, Page 48
11 Governance of higher education, research and innovation in Ghana, Alabi, Page 48
reflected in better healthcare for the people, innovations to make Ghana’s businesses more productive and competitive, the modernization of farming and agribusiness, and an improved ability to address the challenges of climate change. The key issues facing innovation and research in Ghana weak priorities given by governments in the past, weak collaboration among the higher educational institutes and the research institution and the industry on the other hand. Private and public funding into research and innovation is very low in Ghana and private sector participation in research is also very weak. The website of CSIR indicates that Government of Ghana through the Ministry of Environment Science and Technology has announced that will government will set up a business development unit at CSIR and also increase budget for research from the current low 0.25% to 2.5% of GDP. Though this is a boost to innovation, science, and technology, this initiative should be designed to make it more sustainable by involving private sector participation especially in translating innovative ideas into commercial ventures.

Global Competitiveness Report 2016/2017 ranks Ghana’s demand conditions 72th. This is not surprising because Ghana’s share of world exports from 2013-2015 has averaged 0.40% according to the Institute of Competitiveness Strategy (ISC) website. Ghana’s population size as a percentage of the world population in 2015 was 0.37%. Ghana’s GDP as share of the world’s GDP was estimated at 0.04% in 2014. These key indicators depict that generally Ghana’s demand condition is weak and the readiness of Ghana’s growth to prosperity will to large extent depend on how Ghana begin to improve in these key areas.

Endowments, including natural resources, geographical location, population, and land area,

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12 Governance of higher education, research and innovation in Ghana, Kenya, and Uganda: Jowi, Obamba, Sehoole, Alabi, Page 48
14 www.theglobaleconomy.com/Ghana
15 www.theglobaleconomy.com/Ghana
create a foundation for prosperity, but true prosperity arises from productivity in the use of endowments\textsuperscript{16}. This statement has particular relevance for Ghana in terms of factor productivity that affects cluster developments which intend affects the overall global competitiveness of Ghana. Ghana is well endowed with substantial mineral resources, the major ones being gold, diamonds, manganese and bauxite. Gold is the predominant mineral produced in the country accounting for over 90\% of all mineral revenues annually over the past two decades\textsuperscript{17}.

The Food and Agricultural Organization estimates that Ghana’s total forest in 2015 was 41.03\% of the total land area. Arable land was estimated to be 20.66\% by the World Bank in 2013\textsuperscript{18}. The country has an area of 239,000 square kilometers (23.9 million ha) and can be divided into six main agro-ecological zones (coastal savanna, rain forest, deciduous forest, transition, Guinea savanna and Sudan savanna). The annual rainfall ranges from a low of 800 millimeters in the coastal savanna to a high of 2200 millimeters in the rain forest\textsuperscript{19}. With these natural resource abundance, World Bank Governance Indicators for 2015 which measures effectiveness of governance gives score of negative 0.26 meaning that the administrative infrastructure which is expected to ensure adequate productivity of these resource endowment is at the moment weak. Technology deployment and transfer in the application of these natural resource endowment needs improvements. Collaboration in terms of research between universities and industry needs improvements. Access to finance is a major obstacle in national business environment. Although Ghana has a sound banking system, there is high interest rate environment inhibiting access to finance. Current banking lending rate averages 38.3\%\textsuperscript{20}.

\begin{thebibliography}{9}
\bibitem{16} Michael Porter, Microeconomics of Competitiveness (MOC), Spring 2017
\bibitem{17} Ghana Minerals and Mines Policy, 2014
\bibitem{18} www.theglobaleconomy.com/Ghana
\bibitem{20} http://www.tradingeconomics.com/ghana/bank-lending-rate
\end{thebibliography}
The contribution of agriculture to Ghana’s GDP has decreased over the five year to 2015. According to World Bank indicators, it decreased from 31% to 21% of GDP. The sector employment contribution to overall total employment however remain very high at 44.7% of the total labor employed in Ghana. This reflects to low productivity. The sector contributes only about 21% of GDP but uses 45% of the total available labor force. Value addition in 2015 for the sector was estimated to be 7% of total agricultural produce according World Bank indicators. Agriculture value added per worker in constant US$ in 2015 was US$1530 higher than the GDP per capita but low compared to world average of US$15750. Ghana ranked 115 out of 155 countries in agriculture productivity. This low productivity is essentially due to the state of commercialization of the agriculture sector. With estimated 157,000 sq.km, the share of land that is arable is estimated to be 69% and this puts Ghana at 25 out of 194 country ranking in terms of percentage of agriculture land. The rate of fertilizer use is estimated to be 35.82 kg per hectare. This is very low compared to the world average of 240.63 kg per hectare of arable land. Ghana ranked 117 out of 159 countries in terms of fertilizer application in farming\(^1\). Given the low productivity levels in commercial agriculture in Ghana, it is estimated that Ghana’s share of global agricultural exports is 0.2%\(^2\).

**THE COCOA CLUSTER: EMERGENCE AND DEVELOPMENT**

The cocoa cluster is without a doubt the most important cluster in Ghana’s economy today. Key cocoa products in the cluster are cocoa beans, cocoa cake, cocoa butter, cocoa liquor, and cocoa powder. The cluster employs about 800,000 of households representing about 2 million people directly and indirectly. The cluster contributes 3.9% to Ghana GDP and about 23% to exports and foreign earning for Ghana. The cluster covers seven (7) of the ten (10) provinces

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\(^{1}\) [www.theglobaleconomy.com/Ghana](http://www.theglobaleconomy.com/Ghana)

in Ghana. The emergence and development of the cluster can be categorized into four distinct phases: introduction and exponential growth (1888–1937); stagnation followed by a brief but rapid growth following the country’s independence (1938–64); near collapse (1965–82); and recovery and expansion, starting with the introduction of the Economic Recovery Program (ERP) (1983 to present)\(^\text{23}\).

**Introduction & Exponential Growth:** Ghana Cocoa Board (COCOBOD) website indicates that spread of cocoa throughout Ghana began with Tetteh Quarshie who brought the seeds from Fernando Pov now Equitorial Guinea in 1879. Cocoa production in the southern region of Ghana in the mid-19th century by commercial farmers from the Eastern region districts of Akuapem and Krobo, who had moved west toward the adjacent district of Akyem to purchase mostly unoccupied forest land from the local chiefs for cocoa cultivation\(^\text{24}\). The conditions that encouraged these farmers to migrate and buy land for cocoa are well documented: a fall in the world price of palm oil after 1885, which pushed farmers to search for alternative export crops; a boom in rubber exports in 1890, which provided the capital for the purchase of new land; increasing population pressure in the Akuapem area, which encouraged commercial farmers to go further afield in search of alternative export agriculture opportunities; and the establishment of European produce buying companies on the coast of West Africa that were prepared to trade the new crop\(^\text{25}\). The growing population of cocoa farmers reinvested its profits in cocoa production in the western end of Ghana’s Forest Zone, rapidly shifting the production frontier into the Ashanti and Brong Ahafo regions, and consolidating Ghana as the leading world producer between 1910 and 1914. Facilitated by the rapid expansion of the road and rail network which began in 1920 and the organization of cocoa marketing by Ghanaian

\(^{23}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 202
\(^{24}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 202
\(^{25}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 202
middlemen, cocoa earnings accounted for 84 percent of the country’s total exports by 1927. By the mid-1930s, production reached 300,000 tons\textsuperscript{26}.

**Stagnation and Growth Post-independence (1938-1964):** During this period, the two world wars reduced the demand for cocoa. Weak infrastructure such as bad roads led to the slowdown of cocoa production in Ghana. Outbreaks of pests and diseases (swollen shoot virus in particular) reduced production in the Eastern region in the early 1940s, pushing cocoa cultivation further into the western Brong Ahafo frontier\textsuperscript{27}. Production picked up again during the second half of the 1940s but was now concentrated in the Western region. In 1947, the colonial government established the Cocoa Marketing Board (CMB) and gave it a monopoly over the purchase of beans\textsuperscript{28}. In 1961 a cooperative society was given the monopoly right to purchase cocoa replacing the network of private agents, brokers, traders, and middlemen who until then had controlled internal marketing\textsuperscript{29}. From 1957 to 1964 exports grew steadily, and production reached an unprecedented level of 430,000 tons despite the significant decline in world prices between 1960 and 1962\textsuperscript{30}.

**Near Collapse (1965-1982):** External and internal events such as a drop in the world cocoa prices and bad monetary expansion policy led to the devaluation of the cedi, the local currency. Meanwhile aging trees and continued cocoa pod disease made cocoa business a bad investment for local farmers. The farmers turned to food production instead of continuing cocoa production. These events led to drop in production lowest in Ghana’s history of 159,000 tons in 1982.

\textsuperscript{26} Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 202
\textsuperscript{27} Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 203
\textsuperscript{28} Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 203
\textsuperscript{29} Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 203
\textsuperscript{30} Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 203
**Recovery Expansion (1983-Date):** The turnaround in cocoa cluster began with the implementation of the ERP in 1983, which included a special program to revive the sector (the Cocoa Rehabilitation Project)\(^{31}\). Policy changes included increasing the farm gate prices paid to Ghanaian farmers relative to those paid in neighboring countries, thus minimizing the incentive to smuggle, and devaluing the cedi, thus reducing the level of implicit taxation of farmers\(^{32}\). As part of the Cocoa Rehabilitation Project, farmers were also compensated for removing trees infected with swollen shoot virus and planting new ones. This effort led to substantial rehabilitation, with a large number of farms planting higher-yielding cocoa tree varieties developed by the CRIG. Production rebounded to 400,000 tons by 1995/96 and productivity increased from 210 to 404 kilograms per hectare. Another important reform took place in 1992, when Cocobod (as CMB was renamed in 1984) shifted responsibility for domestic cocoa procurement to six privately licensed companies (commonly known as licensed buying companies or LBCs) and reduced its staff by 90 percent between 1992 and 1995 \(^{33}\). Growth in cocoa production became more pronounced starting in 2001, possibly driven by a combination of record-high world prices, increased share being passed onto farmers, and a set of interventions rolled out by the COCOBOD to improve farming practices: mass spraying programs and high-tech subsidy packages to promote the adoption of higher and more frequent applications of fertilizer\(^{34}\).

\(^{31}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 204
\(^{32}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 204
\(^{33}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 205
\(^{34}\) Cocoa in Ghana: Shaping the success of an economy, Shashi Kolavalli and Marcella Vigneri, Page 205
THE MAP OF GHANA’S COCOA CLUSTER TODAY

Figure 2. Ghana Cluster Map

The cocoa cluster as can be seen from the cluster map is the classic public-private partnership arrangement. It can be seen that public dominates the cluster. The entire supply chain is made up of input suppliers, farmers, collectors/cooperatives, Licensed Buying Companies (LBCs), Haulers, Cocoa Marketing Company (CMC) (the wholly-owned subsidiary of the COCOBOD with the sole responsibility to market and export Ghana cocoa beans to local and foreign buyers), local processors, local retailers, global marketers/manufacturers and international and local consumers. Activities on the domestic side in the entire chain are supervised by the Ghana Cocoa Board (COCOBOD) each step of the way. The input needs of farmers are met by suppliers through marketing of agrochemical (including fertilizers, pesticides, and insecticides) and farm equipment. The primary role of farmers in the chain is to ensure availability of cocoa beans through a year-round production. Cocoa production in the country is dominated by smallholder farmers who cultivate on smallholdings with an average size of two to three

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hectares. After harvesting of cocoa, the beans are dried and fermented to help develop the unique flavor and other attributes that attract premium for Ghana cocoa beans on the world market\textsuperscript{36}.

Once all the necessary post-harvest treatments have been performed, the beans are sold through either individual collectors or producer cooperatives to cocoa buying centers established in major cocoa producing areas. Such centers are occupied by purchasing clerks of the Licensed Buying Companies. The beans are purchased from the farmers at minimum price set by a Producer Price Review Committee (PPRC) which comprises COCOBOD officials, a farmer’s representative, government representatives and representatives of the Licensed Buying Companies (LBCs). By this, the revenues of the LBCs are not based on prices differentials, but rather on volumes of cocoa marketed. Under this condition, LBC’s maximize their profits by minimizing “turnaround” times (thus, the period from purchase of the beans at farm gate to the selling of them at the takeover centers)\textsuperscript{37}.

After purchasing the cocoa, the LBCs invite the Quality Control Division to grade and seal the cocoa at a fee determined by the PPRC. The graded and sealed cocoa is then evacuated by the LBCs using private cocoa haulers to designated take over points at Tema, Takoradi and an inland port at Kaase (in Kumasi). The rates offered for evacuation are determined by the PPRC, and so are the LBCs paid by the COCOBOD according to margins set by the PPRC. On reaching the take-over points, the graded and sealed cocoa is taken over by officials of the Cocoa Marketing Company. The Cocoa Marketing Company (Ghana) Limited (CMC) is a wholly-owned subsidiary of the Ghana Cocoa Board and has the sole responsibility for the sale and export of Ghana cocoa beans. It major responsibilities include procurement of graded and

\textsuperscript{36} Boansi, MPRA Paper No.48345 Page 11
\textsuperscript{37} Boansi, MPRA Paper No.48345 Page 11
sealed cocoa beans from the LBCs at the take-over points, stocking of cocoa prior to shipment, securing optimal prices and maximizing foreign exchange revenues, managing sales and collecting receipts, and settling of any disputes via direct arbitration (World Bank, 2011).38

After the takeover, management of cocoa becomes the responsibility of the CMC until it is shipped overseas. Prior to shipment however, the Quality Control Division inspects and fumigates all shipping vessels and cocoa consignments. A greater share of purchased cocoa beans is exported in the raw form with some however been processed. The smaller sized (light crop) beans are sold to processing industries in the country at a discount. Light crop beans are smaller in volume than the main crop variety exported in the raw form, although the quality of the bean is the same. About 90% of all processed cocoa is exported whiles the remaining 10% is used in the production of confectionery products (Ashitey, 2012).39 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 of 20%.40

Global Demand and Supply (Export & Import) Dynamics

World leading market for the production of cocoa production are concentrated in Africa with Cote d’Ivoire and Ghana as the two world leading producers of cocoa beans. Global production of cocoa increased from 3.6 million tons in the year 2012 to 4.06 million tons in the year 2016. Production by Cote d’Ivoire of cocoa beans accounted for 44.8% of global production between the years 2012 and 2016, Ghana 21.7%, Indonesia 9.35%, Ecuador 6.23%, Cameroon 5.9%, Nigeria 5.87%, Brazil 5.14%, and Papua New Guinea 1.00%. However, global cocoa grinding

38 Boansi, MPRA Paper No.48345 Page 11
39 Boansi, MPRA Paper No.48345 Page 11
40 Boansi, MPRA Paper No.48345 Page 11.
production paints a different picture. Production increased by 0.5% between 2013 and 2016. Netherlands accounted for 18.14% of the global grinding, closely followed by Cote d'Ivoire 17.76%, Germany 14.40%, United States 14.54% Indonesia 11.23%, Ghana 7.79%, Brazil 8.06%, and Malaysia 8.08%. McKinsey estimates that the world demand for cocoa and chocolate is growing at 4% per annum and if is this demand trend continues, there is real supply question that needs to be answered whether supply nations would be able to meet demand in the future.

Figure 3a: Pattern of cocoa bean production  Figure 3b Evolution of global cocoa grinding

![Bar chart of world cocoa production](image)

Source: Statista 2017

World leading market for the consumption of chocolate and demand for cocoa production are concentrated in Europe and the United States. global imports of cocoa increased from 3242 (“000”) tonnes in the year 2007 to 3589 (“000” tonnes) in the year 2011. Import of cocoa by Europe accounted for 58.2% of global imports between the years 2007 and 2011, America 26.6%, Asia and Oceania 13.5% and Africa 1.6%. Most of the imports however were into the European Union and the United States. Germany accounted for 13.1% of global imports between the years 2007 and 2011, Belgium 6.6%, France 5.8%, Russian Federation 5.5%, the
United Kingdom 5.4%, Italy 4.1% and the United States 19.9% (ICCO, 2012). McKenzie estimates that the world demand for cocoa and chocolate is growing at 4% per annum and that is this demand trend continues.

**Figure 3. Global Import of Cocoa**

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<td></td>
<td>(thousand tonnes)</td>
<td>Share</td>
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<tr>
<td>World Total</td>
<td>3242</td>
<td>3163</td>
<td>3169</td>
<td>3182</td>
<td>3589</td>
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<tr>
<td>Total Europe</td>
<td>1908</td>
<td>1896</td>
<td>1869</td>
<td>1761</td>
<td>2085</td>
<td>1904</td>
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<tr>
<td>Total America</td>
<td>822</td>
<td>781</td>
<td>861</td>
<td>914</td>
<td>967</td>
<td>869</td>
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<tr>
<td>Total Asia and Oceania</td>
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<td>432</td>
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<td>452</td>
<td>478</td>
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<tr>
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<tr>
<td>Germany</td>
<td>433.92</td>
<td>424.92</td>
<td>417.08</td>
<td>401.54</td>
<td>457.78</td>
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<td>197.62</td>
<td>224.13</td>
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<td>172.83</td>
<td>167.82</td>
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<td>168.65</td>
<td>167.82</td>
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<td>190.80</td>
<td>178.85</td>
<td>168.29</td>
<td>145.88</td>
<td>175.51</td>
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<td>Italy</td>
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<td>141.33</td>
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<td>142.78</td>
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<td>United States</td>
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<td>565.06</td>
<td>662.41</td>
<td>703.99</td>
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Source: Boansi, MPRA Paper No.48345

**Value Addition in Global Cocoa Production**

Though world cocoa exports have increased in recent years, most of the exports are in the raw form. The world leading exporter of cocoa, namely Côte d’Ivoire processes between 24% and 35% of its cocoa exports, Ghana 6% and 15%, Indonesia 23% and 34%, Nigeria 6% and 14%, and Cameroon 10% and 27%. None of the major exporters processed more than 40% of its cocoa exports between the years 2003 and 2009. In contrast to this however, almost all cocoa exports from minor exporters like Thailand, India, Brazil, Mexico and Guatemala (the last two being North American countries) are in the processed form, with approximately 90% of exports from Costa Rica also being in the processed state.

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Value added products as a percentage of world cocoa production by country

<table>
<thead>
<tr>
<th>Countries</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Brazil</td>
<td>99%</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>India</td>
<td>99%</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
<td>90%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>96%</td>
<td>91%</td>
<td>93%</td>
<td>92%</td>
<td>83%</td>
<td>89%</td>
<td>89%</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>24%</td>
<td>23%</td>
<td>26%</td>
<td>28%</td>
<td>31%</td>
<td>35%</td>
<td>28%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>34%</td>
<td>33%</td>
<td>30%</td>
<td>27%</td>
<td>33%</td>
<td>33%</td>
<td>23%</td>
</tr>
<tr>
<td>Ghana</td>
<td>14%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>15%</td>
<td>6%</td>
<td>15%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>6%</td>
<td>9%</td>
<td>9%</td>
<td>14%</td>
<td>14%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Cameroon</td>
<td>27%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>19%</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>Mexico</td>
<td>97%</td>
<td>100%</td>
<td>99%</td>
<td>98%</td>
<td>97%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Guatemala</td>
<td>98%</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: ICCO (2012)

It is very clear that Ghana’s main play in the world export of cocoa is really at the cocoa beans level. Ghana and Nigeria are at the bottom of value addition sub-sector in terms of value of semi-processed exports as a percentage of total world export value of cocoa value chain. A current picture of the situation is no different. See table and graphs below.

Data sources: ICCO, Cocobod Research

Cote d’Ivoire has consistently outperformed Ghana both in cocoa beans and valued added products exports. As can be seen, the evolution of cocoa beans and exports for Cote d’Ivoire depicts increasing share of world exports and growing competitiveness whiles Ghana and
Nigeria show stagnant or slightly declining share of world exports of both raw cocoa beans and semi-processed cocoa products.

Assessing Ghana’s Cocoa Cluster Competitiveness Using Porter’s Diamond Model

Following on from the review of Ghana cocoa’s cluster performance in the preceding paragraphs, it very clear that the cluster is has been underperforming compared to key cocoa producing countries such as Cote d’Ivoire, Malaysia, and Brazil mainly in terms of productivity of cocoa beans production and cocoa processing. In the next paragraph, I will draw on the Porter’s diamond model, to assess the key areas impacting on the overall competitiveness of the cocoa cluster in Ghana.

Assessment of Factor conditions Impact on Cluster Performance: Cocoa growing areas
have almost exhausted the available land for cultivation. However, Ghana’s current yield is about half of its potential. That means that Ghana can double its production of cocoa beans without adding single piece of land. Long-term strategy for Ghana would be how to cultivate or expand the available land for cocoa production, that is, to remove the land as constraint on future competitiveness.

Factors contributing to the low yield and productivity include limited use of fertilizer, limited use of improved cocoa seed varieties due to costs and lack of access, and lack of knowledge of husbandry techniques, such as pruning and shading. Smallholders farmers are generally old aged and have high illiteracy rate. The average age of smallholder farmers is approximately 52 years and about 48% of the farmers have no formal education. These characteristics of labor in the cluster poses serious constrain of the cluster’s productivity and performance because labor has limited capacity to innovate and apply new production technologies to improve

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Demand Conditions affecting Competitiveness of the Cluster: There are two main sources of demand for Ghana’s cocoa beans. Local demand is driven by government policy of processing some of the cocoa beans to add value before exporting. This demand is constrained by processing capacity of the local processing companies. Currently total processing capacity of local grinders is estimated to be 450,000MT out of which current processing levels are about 190,000MT. The main crop is usually meant for export market where demand is driven mainly by global demand of global chocolate manufacturers. Ghana exports over 85-90% of total cocoa production in the forms of raw beans. This situation is driven mainly by intense global competition for Ghana’s premium quality cocoa beans. Demand conditions both local and global are very favourable. There is intense global competition for Ghana premium cocoa beans. Of the eleven (11) local cocoa processors, four (4) are global or multinationals such as Barry Callebut, Archer Daniels (ADM), Touton, and Cargil. The remaining grinders are joint ventures between local entrepreneurs and global partners. The presence of multinationals underscore the intense competition for Ghana’s cocoa beans globally. A negative of this situation is that most chocolate manufacturers blend Ghana premium cocoa with the cocoa beans from other countries to make final chocolate and sometimes market them as chocolate made with Ghana cocoa. This issue makes grinding sub-sector in Ghana lag behind other countries who don’t produce premium cocoa because there is no need to complex blending techniques which requires high level expertise.

Context for firm Strategy and Rivalry: Most of the cocoa processing companies benefit from Freezones policy which exempts grinders from corporate tax for a period of 10 years of production. Ghana is an open economy so there are no capital controls. At the moment corporate Ghana benefits from presence of China-Europe International Business School
(CEIBS) in the training of top notch management executives for the cluster. The business environment is very conducive for investor protection except that Ghana Revenue Authority is very hard on foreign companies that try to undertake transfer pricing by booking losses in Ghana by depressing final selling price of processed cocoa beans in a bid to avoid taxes. Local grinders compete intensely for cocoa beans rather than on innovation or product differentiation. At the planting and harvesting levels, the context is very different. There is usually intense competition for inputs such as fertilizers and chemicals. However, there is limited competition to increase production or yield among the farmers. This is mainly due to the cocoa producer prices offered to farmers by Cocobod. The producer prices have negatively affected the level of competition among farmers to increase yield and sometimes encouraged cocoa smuggling to neighbouring countries for better prices. This situation is exacerbated by weak macroenvironment which leads to frequent local currency depreciation against the US$. Given the high level of illiteracy farmers are usually susceptible to shortchanging in terms of weighing of cocoa beans by purchasing clerks of the Licensed Buying Companies (LBCs). This discourages competition to increase production. Competition within the cocoa value chain is highest at the LBCs level. LBCs compete vigorously for purchase of the cocoa beans from the farmers. Some global players such as Amajaro and OLAM International have acquired licenses to buy and export cocoa from the cocoa farms.

**Related and Supporting Industries:** There are key institutions of collaborations (IFCs) that supports the cluster both at the global and level. The International Cocoa Organization (ICCO) based in London which comprises cocoa producer and consuming countries brings international players together mainly to act to decide on how to structure the global cocoa market for the mutual benefit of all players\(^48\). The Alliance of Cocoa Producing Countries

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(COPAL) which produces about 75% of the world’s cocoa is also one of the key actors in the cocoa cluster. The Alliance’s main contribution is in the facilitation of exchange of scientific and technical information concerning the production of cocoa in the respective countries. At the local level, the cluster Ghana Cocoa, Coffee and Shea Nut Farmers Association (GCCSFA) to which many cocoa farmers belong. However, the challenge for cocoa farmers as it is for most other farmers is that there are several farmer associations which sometimes lead to turf attitudes among them. The cocoa farmers association is still a strong lobby group and could be a means of getting important policy decisions made and adopted by the farmers, in the same way that they could cause a change in government policies once it is found not to be favourable to farmers.

One of the important programmes going on in the cocoa cluster is the formation of public-private partnerships (PPPs) in cocoa extension to boost cocoa production. Specifically, there is the Cadbury Cocoa Partnership which links the COCOBOD and Cadbury International to implement extension services in selected cocoa-producing communities to improve cocoa production. The Cadbury Cocoa Partnership, a £45 million ($73 million) commitment, supports sustainable cocoa farming and seeks to improve the lives and incomes of the farmers who supply Cadbury with cocoa beans. In Ghana about $4.6 million had been spent on the Partnership as of February 2010.

At the heart of the success of Ghana’s cocoa cluster is CRIG. CRIG is manned by 35 professional staff, 175 technical staff and some other supporting staff making it one of the

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largest research institutes in Ghana\textsuperscript{53}. Although CRIG is generally known for researching and developing improved varieties of cocoa for farmers and more productive agronomic practices, it also conducts research into cocoa products. Some of the innovations coming from CRIG include the production of cocoa butter soap, cocoa jam, cocoa vinegar, brandy, body pomade and other cosmetics\textsuperscript{54}. Some of these products have actually been adopted by some entrepreneurs for commercial production. For example, Kasapreko Co. Ltd., one of the leading local companies producing alcoholic drinks, is making good business bottling cocoa brandy for the local and export market\textsuperscript{55}. Innovation and research and development are still further away from been fully unleashed to make the cluster very productive. The linkages between industry and research centres within the cluster is weak.

\textit{Conclusions From Analysis}

The analysis above indicates that cocoa cluster faces three key issues, (i) how to increase production of raw cocoa beans given the low yields, (ii) how to increase production at semi-processing level, and (iii) enter the competition at the finished products, chocolate, related products Cocoa Processing Company (CPC) the only company that produces chocolate in Ghana has been shut because of liquidity and insolvency issues.

Deciding to increase cocoa beans production is straightforward. Ghana has high competitive advantage because of strong global reputation for premium cocoa beans. However, this advantage is also a distraction for Ghana. Ghana has not devised a focused strategy to improve the competitivness of the grinding sub-sector. In terms of semi-processed cocoa products,

Ghana is at the bottom of global competition. Cote d’Ivoire shares the top position with Netherlands. Ghana has to make a decision whether it will focus on producing raw premium cocoa beans or trade the premium brand and move into the semi-processing and finished products and whether it makes sense for the country. Key recommendations sheds insight on this conundrum.

**Key Issues Identified and Recommendation**

<table>
<thead>
<tr>
<th>KEY ISSUES</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor Condition Issues</strong></td>
<td></td>
</tr>
<tr>
<td>Land Availability &amp; Low levels of Yields</td>
<td>A key long-term strategy is for Ghana to rethink how to expand arable land for cocoa cultivation. Land tenure and community ownership should be pursued to expand the 3-5 hectares per farm. A national policy on fertilizer penetration objective should be set and pursued to push cocoa farmers in the adoption of adequate extension practices to increase productivity. Government should incentivize farmers through revenue sharing to apply fertilizer to cocoa farming.</td>
</tr>
<tr>
<td>Access to Finance to buy inputs</td>
<td>GoG should devise plan to create more sector partnerships between farmers and international companies who purchase cocoa beans to make funding at the farmers’ level available so that cocoa farmers can overcome funding as a constraint. An example would be the Cadbury International Partnership Program.</td>
</tr>
<tr>
<td>Transfer and Application of Technology</td>
<td>GoG should design collaborative mechanisms where adoption and application of new technology becomes a key performance indicator for CRIG and work with LBCs to reward growth in the adoption and application of new technologies to improve productivity.</td>
</tr>
<tr>
<td>Demand Conditions</td>
<td></td>
</tr>
<tr>
<td>Demand for Main Crop</td>
<td>GoG should consider a strategy of working with local research institutions such as CSIR, CRIG, and biochemistry department of local universities to</td>
</tr>
<tr>
<td>International demand for Ghana’s premium cocoa which is the main</td>
<td></td>
</tr>
</tbody>
</table>


crop also serve as main constraint on the development of the local processing capacity. COCOBOD supplies the local processors only the light crop which are considered the rejects by international benchmarks. collaborate with multinational chocolate companies such as Krafts, Nestle to work out partnerships to relocate complex mixing plants in Ghana instead of importing to process.

## Context for Firm Strategy & Rivalry

### Volatility in World Cocoa Prices
Changes in world cocoa prices affect the demand for cocoa and hence supply incentives of cocoa farmers. This situation creates varying producer prices within the West African cocoa producing countries and hence encourages smuggling and negatively affect farmers’ motivation.

Ghana needs to raise this issue at Economic Community of West African States (ECOWAS) level to seek to harmonize pricing stabilization mechanism to avoid cocoa smuggling which distorts member countries’ market structures and does not support cluster development and growth.

### Disparities in Weighing Scale
Farmers who feel shortchanged usually have low incentive to compete with other farmers to increase production. Farmers need security that their efforts will be rewarded especially given that these farmers invest significant personal funds in cocoa farming.

GoG should investigate into creating platform to encourage transparency during harvesting and purchasing of cocoa beans. This will remove doubt about being rewarded for hard work.

## Related & Supporting Industries

### Weak Collaboration & Monitoring
The cocoa cluster suffers from weak collaboration among key players such as input suppliers mainly private sector players, farmers, research institutions, processors. There is no platform for collaboration to increase competitiveness of the cluster.

GoG should seriously consider setting up Cocoa Competitiveness Institute with power to investigate issues affecting productivity and designing implementation strategies and action plan. This institute should be independent of COCOBOD which has become the sector’s regulator, export manager, and fund manager. The competitiveness institute management and board should include private sector players and international experts.
Commercialization of Innovation: Research institutions such as CRIG and CSIR are currently underfunded and have weak link with the cluster in general. Government should create commercial incentives to support continuing research into the cluster. Cluster participants should fund CRIG and CSIR to continue to undertake research and these research institutions should be measured on the number and quality of research output and innovations.
Exhibit 2a S&P Select Economic Indicators

Exhibit 2b EIU Economic Graphs

Source: standard & poor research 2017
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