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MASTER’S THESIS

**ANALYSIS OF COCOA BEANS TRADE BETWEEN
TURKEY AND GHANA THROUGH THE MARITIME
ROUTE**

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İZMİR - 2015

DECLARATION

I hereby declare that this master's thesis titled as “**Analysis of Cocoa Beans Trade Between Turkey and Ghana Through The Maritime Route**” has been written by me without applying the help that can be contrary to academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

/ / 2015

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ABSTRACT
Master's Thesis
Analysis of Cocoa Beans Trade Between Turkey and Ghana Through The
Maritime Route
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The aim of this thesis is to analyse the cocoa beans trade between Turkey and Ghana through the maritime route. Despite that cocoa bean remains the top traded commodity between both countries; its full potential is not being realized due to some logistical constraints. This report addresses the above issue in maritime context by examining the value chain of cocoa beans export and import and also exploring the transportation logistics involved in the trade.

This research is done applying the qualitative method of doing research with data collected from interviews and questionnaires from relevant institutions. The research is a double phase approach looking at the flow of the cocoa beans commodity trade from the source (Ghana) to destination (Turkey). In Ghana, cocoa production and marketing are supervised by the government through its main agency, Ghana Cocoa Board. The Ghana Cocoa Board has a monopoly on cocoa marketing and export through its subsidiary, the Cocoa Marketing Company. The major importer of Ghana's cocoa beans into Turkey is Altinmarka through commodity trading houses such as Facta International B.V. and Touton S.A.

Content analysis was applied to breakdown information from literature review. Microsoft Office Excel was used to display findings through Graphs and tables in data analysis. Results show that all shipments to Turkey are containerized. Export from Turkey to Ghana is mainly in 20ft units while export to Turkey from Ghana is mainly in 40ft unit. During peak seasons the shipping

lines strategy is to reposition more 40ft empty containers in order to meet demand. However, this strategy is costly and holds up huge capital.

It is recommended that shipping lines use a combination of own-account vehicles to serve areas where the private transport companies are unwilling to go and transport contracts with large transporters supplemented with hire of trucks at the spot market during the highest peaks.

Keywords: Cocoa Beans, Cocobod, Cocoa Marketing Company, Value Chain, Logistics, Commodity House, Container, Reposition.

ÖZET
Yüksek Lisans Tezi
Türkiye - Gana Arası Deniz Yolu ile Kakao Çekirdeği Ticaret Analizi
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Bu tezin amacı, deniz yolu ile Gana ve Türkiye arasında yapılan kakao çekirdeği ticaretini analiz etmektir. Kakao çekirdeği iki ülke arasındaki en yüksek ticaret potansiyeline sahip olan emtia olmasına rağmen; bazı lojistik kısıtlamalar nedeniyle gerçek hacmine ulaşamamıştır. Bu rapor kakao çekirdeği ihracat ve ithalat tedarik zincirini incelemek amacıyla yazılmıştır.

Bu araştırma, ilgili kurumlar ile yapılan görüşmeler ve anketlerden toplanan veriler ışığında araştırma yapmanın niteliksel yöntemi uygulanarak yapılmıştır. Araştırma kakao çekirdeği emtia ticaret akışını, kaynağı Gana'dan hedefi Türkiye'ye kadar inceleyen iki aşamalı bir yaklaşımdır. Gana'da, kakao üretim ve pazarlaması hükümet tarafından ana acentesi olan, Gana Kakao Kurulu aracılığıyla denetlenir. Gana Kakao Kurulu, iştiraki olan Kakao Pazarlama Şirketi aracılığıyla kakao pazarlaması ve ihracatı üzerinde bir tekele sahiptir. Gana'dan Türkiye'ye ihraç edilen kakao çekirdeğinin en büyük ithalatçısı traderler Facta International BV ve TOUTON SA vasıtasıyla ALTINMARKA'dır.

Bu tez yazılırken kaynak tarama ve bilgiyi ayrıştırmak için CONTENT METODU uygulandı. Veri analizi ile elde edilen bulguları ve tabloları Grafik yoluyla görüntülemek için Microsoft Office ve Excel programları kullanıldı. Sonuçlar, Türkiye'ye yapılan tüm sevkiyatların konteynerize olduğunu göstermektedir. Türkiye'den Gana'ya ihracatlar genellikle 20'lik konteynerlerle yapılırken, Gana'dan Türkiye'ye ihracatta 40'lik konteynerler kullanılmaktadır. Yoğun dönemlerde konteyner hatlarının talebi karşılamak için stratejisi, 40ft boş

konteynerleri yeniden konumlandırmaktır. Ancak, bu strateji pahalıdır ve büyük sermayeye ihtiyaç duyulur.

Konteyner hatları, özel taşıma şirketlerinin hizmet vermek istemediği destinasyonlarda kendi araçlarıyla son taşımayı organize etmeleri, yoğun dönemlerde ise ihtiyacı karşılayabilmek için özel taşıma şirketlerinden araç kiralamaları tavsiye edilir.

Anahtar Kelimeler: Kakao Çekirdeği, Cocobod, Kakao Pazarlama Şirketi, Tedarik Zinciri, Lojistik, Emtia Brokeri, Konteyner, Yeniden Konumlandırmak.

ANALYSIS OF COCOA BEANS TRADE BETWEEN TURKEY AND GHANA THROUGH THE MARITIME ROUTE

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ABBREVIATIONS

ADM	Archer Daniels Midland
CIF	Cost Insurance and Freight
CMAA	Cocoa Merchants' Association of America
CMC	Cocoa Marketing Company
CRIG	Cocoa Research Institute of Ghana
CSSVDCU	Cocoa Swollen Shoot Virus Disease Control Units
EU	European Union
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistics
FCC	Federation of Cocoa Commerce
FOB	Free On Board
GAIN	Global Agricultural Information Network
GDP	Gross Domestic Product
GHC	Ghana Cedi
GOG	Government of Ghana
GPHA	Ghana Ports and Harbours Authority
ICCO	International Cocoa Organization
ICE	Intercontinental Exchange
LBC	Licensed Buying Companies
LIFFE	London International Financial Futures and Options Exchange
MAFAP	Monitoring and Analysing Food and Agricultural Policies
PNDCL	Provisional National Defence Council Law
QCB	Quality Control Board
QCD	Quality Control Division
SPU	Seed Production Unit
TEU	Twenty-foot Equivalent Unit
UK	United Kingdom
US	United States
USD	United States Dollars
WCF	World Cocoa Foundation

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INTRODUCTION

Ghana is the third trade partner of Turkey in the Sub-Sahara African Countries after South Africa and Nigeria. Over the last decade, trade relations between Turkey and Ghana have been on a tremendous increase. However, it is not surprising to know that cocoa bean is the top traded commodity between both countries. Turkish goods imports from Ghana totalled 303 million \$ in 2012. The top import categories for 2012 were: Coffee, tea, cocoa, and spices amounted to \$164.6 million (Turkey's Ministry of Economy Report, 2013: 2).

Ghana is internationally renowned for its cocoa bean cultivation and export globally. Cocoa bean export is an indispensable contributor to Ghana's economy and the nation at large. Ghana is the second largest producer of cocoa beans after Cote d'Ivoire. During the 2010/2011 cocoa season, Ghana produced 1,025,000 tonnes of cocoa beans (International Cocoa Organization, ICCO, 2012: 29). The net export of cocoa by Ghana in 2010/2011 was 902,760 tonnes. Cocoa beans are traded on New York Stock Exchange (NYSE) and London Stock Exchange. Ghana's export earnings from cocoa beans increased from US\$819 million in 2005 to US\$1.42 billion in 2009 (Sutton and Kpentey, 2012: 14).

On the other hand, cocoa beans products are household commodities in Turkey. Cocoa beans are the raw-materials for chocolates and many confectionary products such as beverages, candies and drinks in Turkey. A recent investigation reveals that the net import of cocoa beans by Turkey from around the globe in 2010/2011 was 85,180 tonnes (ICCO, 2012: 36). This means that Turkey continues to be a significant market for Ghana's cocoa beans. From the above perspective, it can firmly be concluded that both Turkey and Ghana have strong mutual interest in this area.

The cocoa industry in Ghana is entirely regulated by the Government of Ghana (GOG), which has monopoly over the purchase and export of cocoa beans. The GOG established the Ghana Cocoa Board (COCOBOD) which is mandated to monitor and control the operations of the cocoa industry in Ghana. The GOG also fixes the local buying price of cocoa beans and the purchasing season.

Cocoa serves as an important crop around the world: a cash crop for growing countries and a key import for processing and consuming countries. Cocoa travels along a global supply chain crossing countries and continents. Internationally, cocoa

bean trade is seaborne. Maritime transport is the mainstay of international trade and a key engine driving globalization. The enduring tenet of maritime transportation is its ability at moving large quantities of cargo over long distances. In the light of the above, Turkey and Ghana are not enjoying the full effect of their trade potential, and this is due mainly to some logistical constraints. As concerns procedures, it would be a sub-optimisation to refrain from efforts in this area. This report addresses the above issue in maritime context.

CHAPTER ONE

COCOA BEANS SUPPLY CHAIN

1.1. COCOA SUPPLY CHAIN IN GHANA

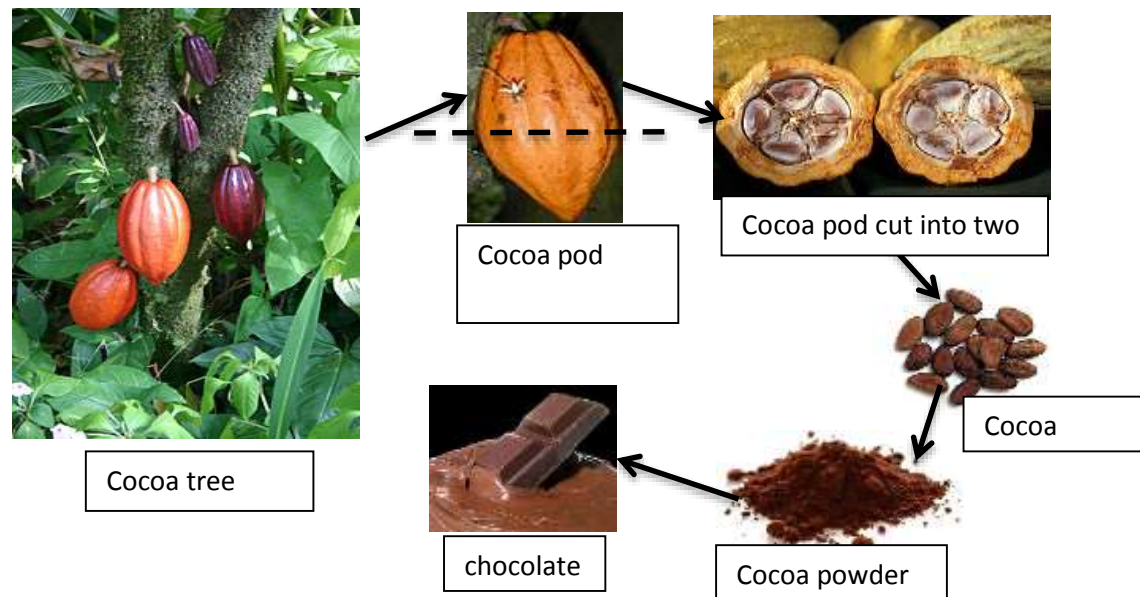
1.1.1. Introduction to Cocoa Bean Extraction Cycle

Cocoa bean is the most important export crop; cocoa beans export covered 8.2 per cent of the country's Gross Domestic Product (GDP) and 30 per cent of total export earnings in 2010. Cocoa bean is an commodity for Ghana's foreign exchange earnings (around 25 per cent in 2010), and subject to regular policy interventions by the Government, including export tax, licensing arrangements and input subsidies (Asante-Poku and Angelucci, 2013: 3).

Ghana's cocoa industry comprises three segments: production, processing and marketing. Between production and processing there are activities such as drying, collection and bagging, quality control, haulage and warehousing (Sutton and Kpentey, 2012: 11). The cocoa value chain consists of many actors both at the local and international level. Key actors at the local level include farmers, COCOBOD, Produce Buying Company, haulers, warehousing and logistic service providers, domestic chocolate manufacturers, domestic grinders, distributors, retailers and local consumers (Asante-Poku and Angelucci, 2013: 12).

Cocoa tree is a tropical plant cultivated for its beans, from which cocoa powder and butter are extracted (Kokou and Lionelle, 2014: 4).

Figure 1: Cocoa Bean Extraction Cycle

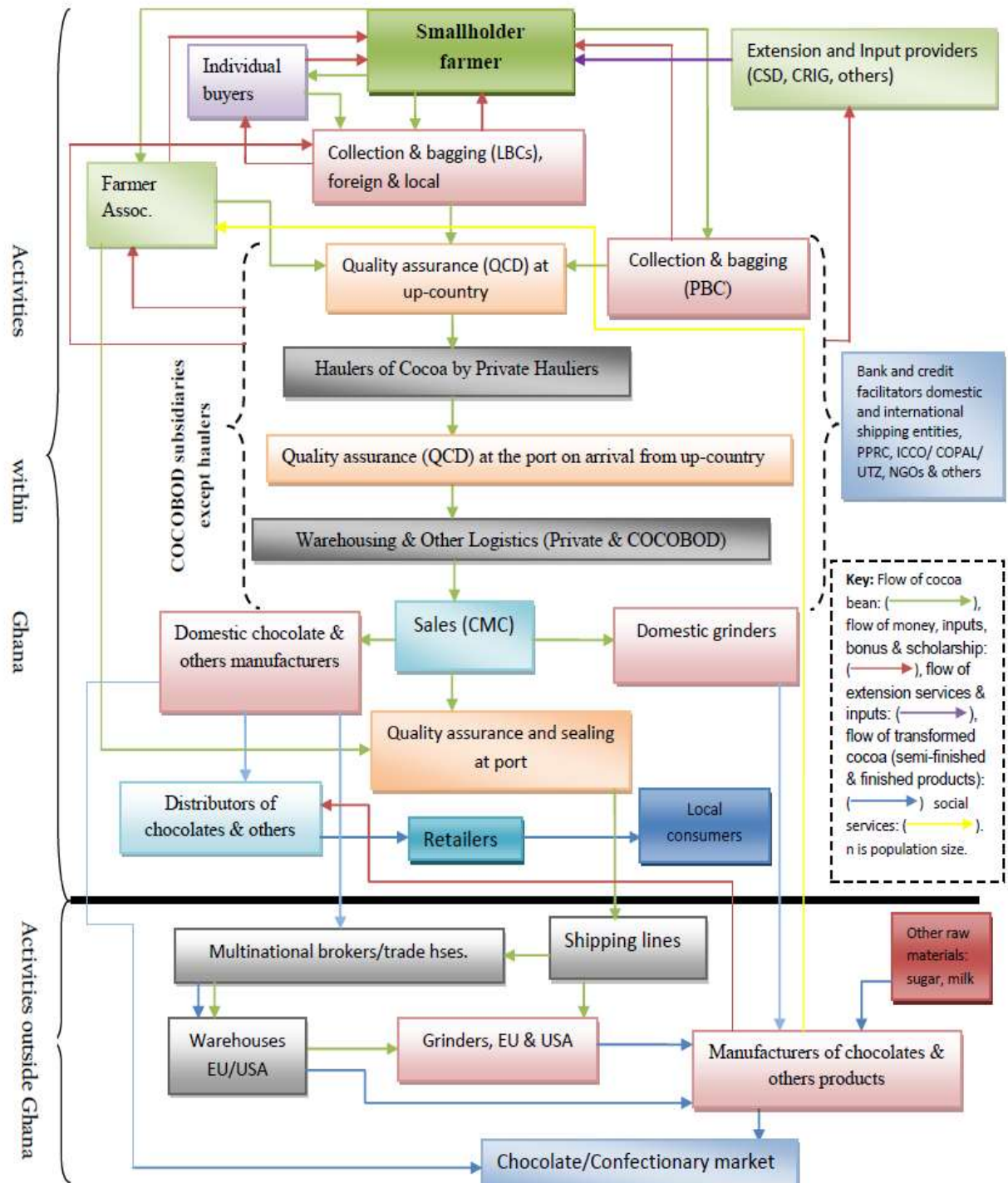


Source: Kokou and Lionelle, 2014: 5

1.1.2. Structure of Cocoa Value Chain in Ghana

The figure below illustrates a detail of the process from cocoa production in Ghana to cocoa consumption. The cocoa flows from producers to consumers.

Figure 2: Ghana Cocoa Value Chain



Source: Mohammed et al., 2011: 4 2011

Quality Control Board (QCB)

Quality of cocoa beans from up-country is ensured by the quality control division of COCOBOD (Mohammed et al., 2011: 3). As part of their responsibility the Quality Control Division undertakes fumigation and disinfection of beans to ensure that only insect free cocoa beans are exported; rodent control is also carried out in all cocoa storage premises to prevent damage to the beans in storage; and inspection, grading and sealing of cocoa for the international and local markets (Ashitey, 2012: 5).

The quality control guaranteed by the government is carried out by the Quality Control Division (QCD) which undertakes grading and sealing of cocoa into export sacks (Asante-Poku and Angelucci, 2013: 7). The high quality of Ghana cocoa beans has been diligently maintained over the years, through the effective quality control practices and monitoring at the time of purchase by the Quality Control Division (QCD) of COCOBOD (Ashitey, 2012: 5).

COCOBOD

In Ghana, cocoa production and marketing are supervised by the government through its main agency, COCOBOD which comprises the head office, located in Accra and divisions sited in other parts of the country (Abrampah, 2009: 10). The cocoa sector in Ghana is partially liberalized. Cocobod has a monopoly on cocoa marketing and export through its subsidiary, the Cocoa Marketing Company (CMC) (Laven and Boomsma, 2012: 11). The Head Office directly regulates and controls cocoa research, production, quality and extension services as well as the internal and external marketing of cocoa. It enacts policies and regulations to guide all activities of the industry, both pre-harvest and post-harvest (Abrampah, 2009: 10).

Cocoa is Ghana's main export crop which generates about 30 per cent in export revenue. As such the GOG has monopoly over the purchase and export of cocoa beans. The Ghana Cocoa Board (COCOBOD) is the GOG institution that has been mandated to monitor and regulate the operations of the cocoa industry in Ghana. As part of its mandate the COCOBOD controls the export and internal marketing of cocoa beans,

oversees agricultural research, hybridization of seeds, sale of seed to the farmers, quality control, and extension services to the farmers (Ashitey, 2012: 2).

1.1.2.3. Licensed Buying Companies (LBCs)

COCOBOD is the major shareholder of Ghana's largest LBC, the Produce Buying Company (PBC). The majority of the LBCs are Ghanaian private companies (Laven and Boomsma, 2012: 11). A total of 25 private, public and foreign firms are authorized by the government as Licensed Buying Companies to purchase cocoa beans from farmers on behalf of the Cocoa Marketing Company (CMC), which was established to develop and facilitate the production, processing and marketing of Ghana's cocoa (Sutton and Kpentey, 2012: 11).

There is strong competition among the buyers, who compete by offering farmers prompt cash payment and support services including subsidized fertilizer and credit (Sutton and Kpentey, 2012: 12). The 2011/12 cocoa season marked nineteen (19) years of participation by private companies (LBCs) in the internal marketing of cocoa. Thirty-two (32) out of thirty-five (35) registered LBCs purchased cocoa during the year under review (Cocobod, 2012: 3). Under such partial liberalization all LBCs pay the same minimum set price to cocoa producers (Ashitey, 2012: 3).

The Licensed Buying Companies have buying points at the 2,700 cocoa buying stations in the cocoa growing areas (Sutton and Kpentey, 2012: 12). Farmers send their produce to the buying societies or centres typically on foot, as road networks are not well-established. All LBCs are thus obliged to sell their cocoa beans at a fixed price to the COCOBOD which in turn exports the beans or sells to domestic processors (Ashitey, 2012: 3).

Cocoa beans destined to the export market are taken by the farmers to the many different collection points located in cocoa producing areas, mainly Western and Ashanti regions. The cocoa beans are then transported to the border/port of exit, Tema/Accra and exported mostly to EU countries. Given the absence of a wholesale market in the cocoa value chain, this was not contemplated in the analysis (Asante-Poku and Angelucci, 2013: 21). The lists of LBCs in good standing during the 2011/12 crop year were as follows:

- | | |
|--|---------------------------------------|
| 1. Produce Buying Company (PBC) | 20. Evadox Company Ltd. (EVL) |
| 2. Farmers Star Limited (FSL) | 21. Alhaji Sulemana Ind. Ltd. (ASIL) |
| 3. Federated Commodities Limited (FCL) | 22. Aboafo Buyers Limited (ABCL) |
| 4. Fredako Cocoa Co. Ltd. (FCCL) | 23. Duapa Buyers Company Ltd (DBCL) |
| 5. Kuapa Kokoo Limited (KKL) | 24. CDH Commodities Ltd. (CDH) |
| 6. Splendid Business Services (SBS) | 25. Yayra Glover Limited (YGL) |
| 7. Adwumapa Buyers Limited (ABL) | 26. Marpie Enterprise Limited (MEL) |
| 8. Abafuaba Limited (ABFL) | 27. Abapa Golden Limited (ABGL) |
| 9. Transroyal (Gh) Limited (TGL) | 28. Universal Co-operative Ltd (UCCL) |
| 10. Ghana Co-op Mktg. Assoc. (GCMA) | 29. Blossom Exports Limited (BEL) |
| 11. Cocoa Merchants (Gh) Ltd. (CMGL) | 30. Akuotec Company Limited (AKL) |
| 12. Chartwell Ventures Ltd. (CVL) | 31. Sika Aba Buyers (SABL) |
| 13. Olam (Gh) Limited (OLAM) | 32. Fortune Tree Company Ltd. (FTCL) |
| 14. Royal Commodities Limited (RCL) | 33. Dio Jean Company (DJC) |
| 15. Diaby Company Ltd. (DCL) | 34. Kumankoma Company Ltd (KCL) |
| 16. Allied Commodities Ltd. (ACL) | 35. Sompa Kokoo Ltd. (SKL) |
| 17. Akuafo Adamfo Mkting Ltd. (AAMC) | |
| 18. Farmers Alliance Limited (FAL) | |
| 19. Armajaro (Gh) Limited (AGL) | |

Source: Cocobod, 2012: 3

1.1.2.4. Cocoa Marketing Companies (CMC)

The smallholder farmers produce for the Cocoa Marketing Company (CMC) through the Licensed Buying Companies (LBCs) (Mohammed et al., 2011: 3). The cocoa is purchased by CMC through the Licensed Buying Companies (LBCs) and placed into large piles in airy warehouses close to the port from which vessels are loaded after fumigation (Asante-Poku and Angelucci, 2013: 8). Ghana exports most of the cocoa it produces in advance of the harvest season via forward contracts; this also allows COCOBOD to set yearly producer prices in advance of the harvest season

(Kolavalli and Vigneri, 2011: 5). Therefore, the Cocoa Marketing Company Limited is currently the only cocoa exporter in Ghana (Asante-Poku and Angelucci, 2013: 7).

In Ghana, as opposed to other cocoa producing countries in the Western and Central Africa regions, cocoa marketing costs are relatively high at 15 per cent, and the costs and margins of profit of the COCOBOD and its subsidiaries account for around 5 per cent of the price of cocoa (Traoré, 2009: 24). In Ghana, margins paid by the government to traders is said to be among the lowest in the sub region due to the large exporter margins and taxes the industry has to pay to the government. The cocoa value chain in Ghana can be more costly due to the increased attention paid to quality. As such, the handling cost is increased due to the intensive quality assessment (Asante-Poku and Angelucci, 2013: 13).

On average, about 70% of the cocoa beans produced in Ghana are sold on the international commodity market (Sutton and Kpentey, 2012: 14). Ghana exported 526,761 MT of cocoa beans in 2009/10 up from 485,785 MT in 2008/09. The busiest shipping season runs from November to April. Cocoa bean exports account for about 40 per cent of the country's foreign exchange earnings and provide the second largest source of export dollars (Ashitey, 2012: 13).

However, according to the Bank of Ghana, export receipts of cocoa beans and products for the first quarter of 2011 amounted to \$859.4 million accounting for about 61 per cent of total export earnings as compared with \$682.5 million for 2010 which was 48.8 per cent (Ashitey, 2012: 6). The main importing countries of Ghana cocoa beans are the USA, Canada, the EU (Holland, UK, Germany, Belgium, France, Spain), Asia (Japan, Thailand, China, India etc.), Brazil and South Africa (Ashitey, 2012: 6).

1.1.2.5. The Cocoa Research Institute of Ghana (CRIG)

Ghana has also established itself as a centre of excellence in the research and cultivation of cocoa. The Cocoa Research Institute of Ghana (CRIG) undertakes agronomic research related to the production of cocoa, such as, development of high yielding cocoa hybrids, disease and pest control. Additionally, CRIG research includes other uses of cocoa and its by-products in making liquor, oil, soaps and creams (Ashitey, 2012: 3).

The Cocoa Research Institute of Ghana (CRIG) is the research division of the Board. Primarily, it researches problems related to the production, processing, and utilization of cocoa. The scientific research findings of CRIG are passed on to the Seed Production and Cocoa Swollen Shoot Virus Disease Control Units (SPU and CSSVDCU) to implement for the benefit of cocoa farmers (Abrampah, 2009: 11).

1.1.3. Detail Description of main features of cocoa value chain in Ghana

1.1.3.1. After Harvesting

The purchasing clerks after buying the cocoa bag it at the acceptable weight and prepare it for grading and sealing. The Ghana COCOBOD and other private parties also offer warehousing and storage facilities, which they offer to purchasing clerks and farmers. The cocoa is then transported to one of the three take-over points or inland ports (Takoradi, Tema, and Kumasi). Typically, higher quality cocoa beans are exported while lower grade cocoa beans are sold to local processors and confectionary manufacturers who in turn sell manufactured products to retailers (Asante-Poku and Angelucci, 2013: 14).

Processing at origin however has certain disadvantages such as transport costs to end-users, shipment of cocoa liquor and butter in solid form in contrast to shipment by processors in consumer countries in liquid and heated form, tariff escalation, and competition from industrialized-country processors, who ship on a just- in-time basis, in contrast to producers nations who have less control over the delivery date (Kolavalli and Vigneri, 2011: 5).

At the international level, shipping lines may either sell cocoa beans and cocoa products to multi-national traders/brokers or to grinders. Warehouses and grinders also sell the cocoa beans to international manufacturers for the production of confectionaries, cosmetics and alcohol (Asante-Poku and Angelucci, 2013: 15).

Internationally, there are three companies – Cargill, ADM, and Barry Callebaut – grinding 40 per cent of the world's cocoa, although Singapore-based company, Olam, has joined the top four cocoa grinders (Traoré, 2009: 27). The Netherlands is the world's leading cocoa grinder and largest exporter of cocoa paste (24 per cent of

the total), cocoa powder (28 per cent) and cocoa butter (30 per cent). Relative a new comer, Olam, based in Singapore, is now one of the top four cocoa grinders (Asante-Poku and Angelucci, 2013: 15).

There are several predictions that cocoa will continue to remain crucial to Ghana's economy. In addition to the overall increase in consumer appeal for cocoa due to its reported scientific benefits, global market prices for cocoa will remain high (Food and Agriculture Organization Statistics, 2014: 15).

The government also continues to support productivity enhancements in the cocoa sector, as evidenced by an increase in producer prices, partial liberalization of internal marketing, putting in place of a price stabilization system, government-backed spraying programs, fertilizer credits, and improvements in extension systems, and the privatization of input distribution (Laven & Boomsma, 2012: 4).

In total, around 6.3 million Ghanaians depend on cocoa for their living, representing around 30 per cent of the population. In 2008, it was estimated that cocoa producing households had a mean per capita daily income from cocoa of US\$0.42 out of a total income of US\$ 0.63.2 In Ghana, farm sizes typically average less than ten acres in the Ashanti and Eastern regions, and 10 to 20 acres on the average in the Western North and Western South regions. Such detailed statistics are not available for Côte d'Ivoire; however, it is known that there are no large cocoa fields there. It is said that farmers in Ivory Coast own between 1.75 and 5 hectares (Wegner, 2012: 4).

Cocoa is grown in six regions: the Ashanti, Western, Central, Volta, Brong Ahafo and Eastern regions. Six large companies are involved in processing raw cocoa beans into semi-finished and finished products. Located in the Western, Ashanti and Greater Accra regions, they have a combined processing capacity of 200,000 MT per annum (Sutton and Kpentey, 2012: 11) Similar to other cocoa producing countries worldwide, over 90 per cent of Ghana's cocoa is grown on small farms (Wegner, 2012: 3).

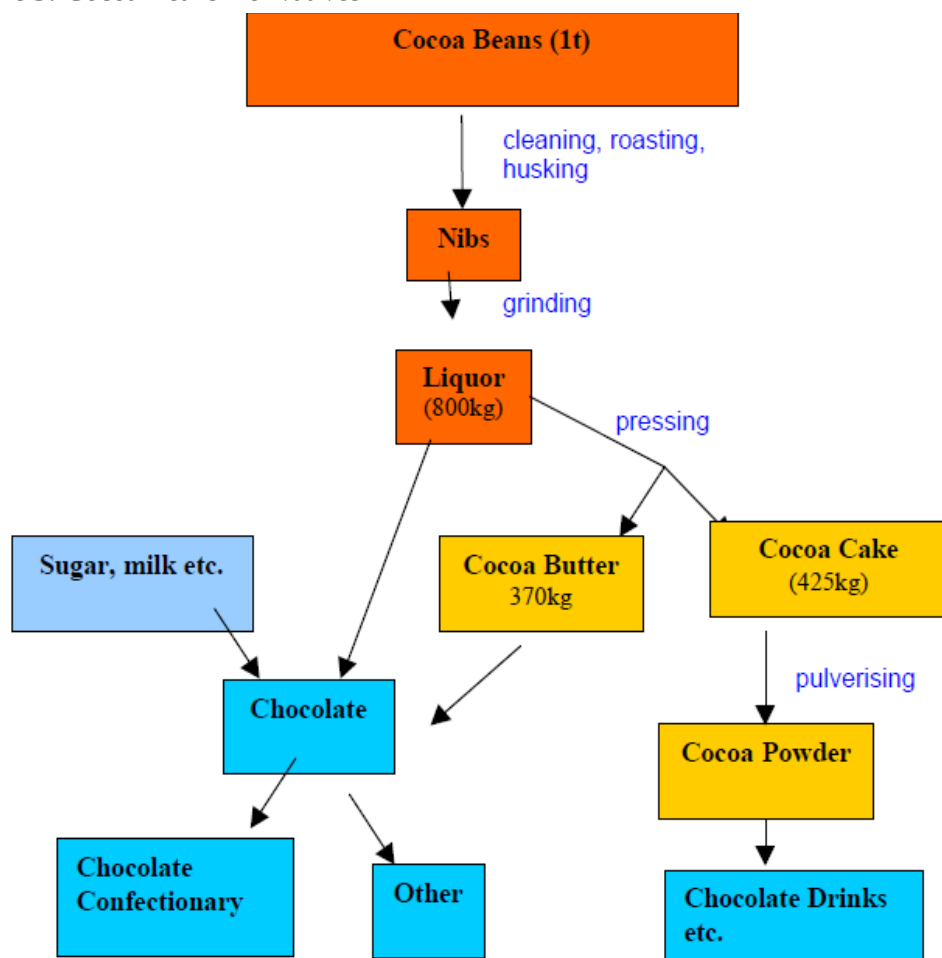
Once the cocoa fruit is harvested, the beans are manually removed and then allowed to undergo fermentation before drying in the sun to reduce moisture content. After drying, they are sorted, checked for quality, bagged and transported to warehouses for delivery to local processing facilities or for export (Sutton and

Kpentey, 2012: 11). Upstream evacuation of cocoa (from farmers to Cocobod warehouses) is privatized, but still coordinated by Cocobod.

1.1.3.2. Processing

After they have been harvested cocoa beans undergo various stages of processing before they become chocolate, other confectionery or various drinks. These are summarised in the diagram below.

Figure 3: Cocoa Beans Derivatives



Source: Anti-Slavery International, 2004: 17

1.2 STANDARD GUIDELINES FOR SHIPMENT OF COCOA BEANS IN CONTAINERS

In the course of shipment, cocoa beans have a tendency to condense and to absorb moisture. They can also be easily infested while on route. These problems can be curbed when certain measures are observed. By following the guidelines as set out below, the likelihood of damage in transit is greatly reduced.

1.2.1. Preparation of Beans Before the Container is Stuffed

Cocoa beans moisture contents should not exceed 7.0%. They should be reasonably free of foreign matter and be packed in new jute, sisal, burlap or spun-weave polypropylene bags of a weave tight enough to withstand handling and sampling by trier (CMAA, 2012: 3).

1.2.2. Choice of Container

The Shipping Line shall make available to the Shipper, at the location and within the time scale agreed with the Shipper to meet the shipping schedule, a sufficient number of containers to load the agreed quantity of cocoa (FCC, 2010: 5).

Such containers must be in good repair, structurally sound with no holes, broom clean and free of moist and stained areas, foreign odors and insect and rodent infestations; it should be ventilated, when accessible. If these efforts (ventilation) are not successful, it is essential that Kraft dunnage or a food grade moisture absorbent device, such as dry sacks or silica gel lining and covering be used. Moreover, the containers should be sealed with an “expansion seal,” (CMAA, 2012: 4).

1.2.3. Preparation and Stuffing of the Container

The inside of the container should be lined with Kraft paper or similar absorbent material. The deck should be covered with Kraft dunnage or wooden pallets. If pallets are used, they must meet the following requirements:

- They should be clean of all rodent or other filth and of previous cargo.
- They should not have been used to carry chemicals or other materials giving off strong odors, such as rubber, fertilizers, etc.
- They should not be insect infested.
- They should be dry (i.e., not green wood).

(CMAA, 2012: 4)

The bags should be securely piled against the container's bulkheads to prevent shifting in transit, and the top layer should be covered with a sheet of Kraft paper. Great care should be taken that no cargo touches any metal parts of the container.

Bags of cocoa should not be in direct contact with exposed steelwork of container walls/doors and if possible, ample space should be allowed between the rear of the stow of bags and the container doors (FCC, 2010: 7).

20 foot standard dimension containers should be loaded with not more than 18 metric tons gross product weight, including dunnage. 40 foot containers should not exceed 26.25 metric tons gross product weight, including dunnage. If there is live infestation present, the container should be fumigated with preferably Phostoxin before being loaded on board the vessel. Stuffed containers should not have to wait for more than one day or so for the arrival of and loading on board the vessel. If container is carried below deck, there should be sufficient air flow in the hold to maintain ventilation (CMAA, 2012: 5).

Ensure that 2 ply corrugated cardboard/Kraft paper is fixed on the container sides right up to the door with a layer placed on top of the bags,[and optionally] a layer on the floor (FCC, 2010: 6).

Twines must be used to tie the Kraft paper firmly to the walls. Use of adhesive is not recommended. 2 ply corrugated cardboard and/or Kraft paper should not be allowed to cover any vent holes, if any, of the containers. 2 ply corrugated cardboard and/or Kraft paper should not be used for bulk in container shipments as this becomes moist during the voyage and then breaks up so hampering the discharging of the container (FCC, 2010: 6).

A minimum of 12 x 2 kg desiccant bags must be hooked inside a 20' container. They must not be in contact with the cocoa bags. For long transit time shipments (e.g. West Africa to Asia) it is recommended that a minimum of 20 x 2 kg desiccant bags

be placed per 20' container. Desiccant bags should not be used for bulk in container shipments (FCC, 2010: 7).

The Shipping Line will supply sufficient good quality 2 ply corrugated cardboard and/or Kraft Paper and 2 kilo desiccant bags to prepare a sufficient number of containers to fulfil the load contract quantity in accordance with Section 3.3 below. Stuffed containers should be stowed on board below the waterline and away from boilers and other heat sources. When stuffed containers are held at the container terminal or quay they shall be stacked away from direct sunlight. Container doors must be checked to ensure that they are watertight and can be closed effectively and firmly before acceptance of the container (FCC, 2010: 6).

1.2.4. Discharge and Stripping of Container

Containers must be stripped without delay after arrival, as the danger of excessive condensation is greatest after the container has been discharged and is waiting on the pier to be moved and stripped (CMAA, 2012: 5). The recommended target for unstuffing of containers is 7 days from being made available by the Shipping Line (FCC, 2010: 9).

1.2.4.1. Transit Time at Pier

Containers stuffed with cocoa beans should not be allowed to stand exposed to sunlight for long periods of time at either loading or discharge port (CMAA, 2012: 5). It is vital that the Shipper book the shortest possible voyage time and take all possible measures in conjunction with the Shipping Lines to ensure that stuffed containers are not left for undue length of time either at the port of loading, port of transshipment or port of discharge (FCC, 2010: 4).

CHAPTER TWO

THE WORLD COCOA MARKET

2.1. SUPPLY OF COCOA BEANS (PRODUCTION)

2.1.1. World Production of Cocoa Beans

West and Central Africa accounts for nearly 70% of the world cocoa supply 90% of which is grown on nearly 2 million small family farms, the majority with land holdings of 2 hectares or less. Côte d'Ivoire alone provides one-third of global supply. Many cocoa farmers and workers are among the 2.1 billion people living on \$2 a day (Wegner, 2012: 4).

Figure 4: Global Cocoa Production



Source: Pipitone, 2012: 28

Table 1: Top cocoa beans producing countries

	Production (tonnes)	Production (tonnes)	Percentage change	Production (tonnes)	Percentage change
COUNTRIES	2010	2011		2012	
Cote d'Ivoire	1301347	1559441	20%	1650000	6%
Indonesia	844626	712200	-16%	936300	31%
Ghana	632037.38	700020	11%	879348	26%
Nigeria	399200	391000	-2%	383000	-2%
Cameroon	264077	239000	-9%	256000	7%
Brazil	235389	248524	6%	253211	2%
Ecuador	132100	224163	70%	133322.99	-41%
Mexico	61000	83000	36%	83000	0%
Dominican Republic	58334	54279	-7%	72225	33%
Peru	46613	56500	21%	57933	3%
Colombia	39534	44241	12%	49508.64	12%
Papua New Guinea	39400	47600	21%	38700	-19%
Togo	101500	142500	40%	34500	-76%
Venezuela (Bolivarian Republic)	18000	20000	11%	20000	0%
Sierra Leone	19700	18000	-9%	18000	0%
Uganda	15000	18000	20%	16000	-11%
India	12900	14400	12%	13000	-10%
Liberia	6700	11700	75%	12000	3%
Guatemala	10713	10927	2%	11500	5%
Guinea	15160	12000	-21%	10000	-17%

Source: faostat, 2014: <http://faostat3.fao.org/faostat-gateway/go/to/home/E> (6/03/2014)

Table 2: Production of Cocoa Beans

	2010/11		Estimates 2011/12		Forecasts 2012/13	
Africa	3224	74.8%	2919	71.5%	2876	72.2%
Cameroon	229		207		225	
Côte d'Ivoire	1511		1488		1480	
Ghana	1025		879		850	
Nigeria	240		235		230	
Others	220		113		91	
America	561	13.0%	642	15.7%	595	14.9%
Brazil	200		220		185	
Ecuador	161		190		185	
Others	201		232		225	
Asia & Oceania	526	12.2%	520	12.7%	515	12.9%
Indonesia	440		450		430	
Papua New Guinea	48		39		45	
Others	39		32		40	
World total	4312	100.0%	4082	100.0%	3986	100.0%

Source: faostat, 2014: <http://faostat3.fao.org/faostat-gateway/go/to/home/E> (6/03/2014)

The 2010/2011 cocoa season experienced an estimated record surplus of 343,000 tonnes following a notable deficit of 132,000 tonnes the year before. Global production is estimated to have increased substantially, by nearly 19%, compared with the previous season, to over 4.3 million tonnes, while demand for beans increased to a record level as well, to over 3.9 million tonnes (ICCO, 2012: 9). Change in production has not been linear, however, and has fluctuated in various patterns among the different regions. Africa has been and is projected to remain the principal cocoa producer with 73% market share last year (World Cocoa Foundation, 2012: 2).

As illustrated in Table 2 above, production increased by 43,000 tonnes in the Americas to 559,000 tonnes (representing 13% of world output) but declined by 109,000 tonnes in the Asia and Oceania region, to 524,000 tonnes (or 12% of global production) (ICCO, 2012: 2).

Numerous cocoa market experts and analysts provide reports based on historical, current, and projected levels. Cocoa bean production is closely monitored as trade balances, pricing, and futures contracts depend largely on supply side factors

(World Cocoa Foundation, 2012: 2). On the production side, the record global output of 4.3 million tonnes is attributed mainly to a bumper harvest in Africa which rose by nearly 740,000 tonnes to 3.2 million tonnes with the main contributors being Côte d'Ivoire and Ghana, the world's two largest cocoa producing countries. Africa has not failed to reinforce its status as the premier cocoa producing region, accounting for nearly 75% of world output but contrasting with the regional trends of other cocoa growing regions (ICCO, 2012: 2).

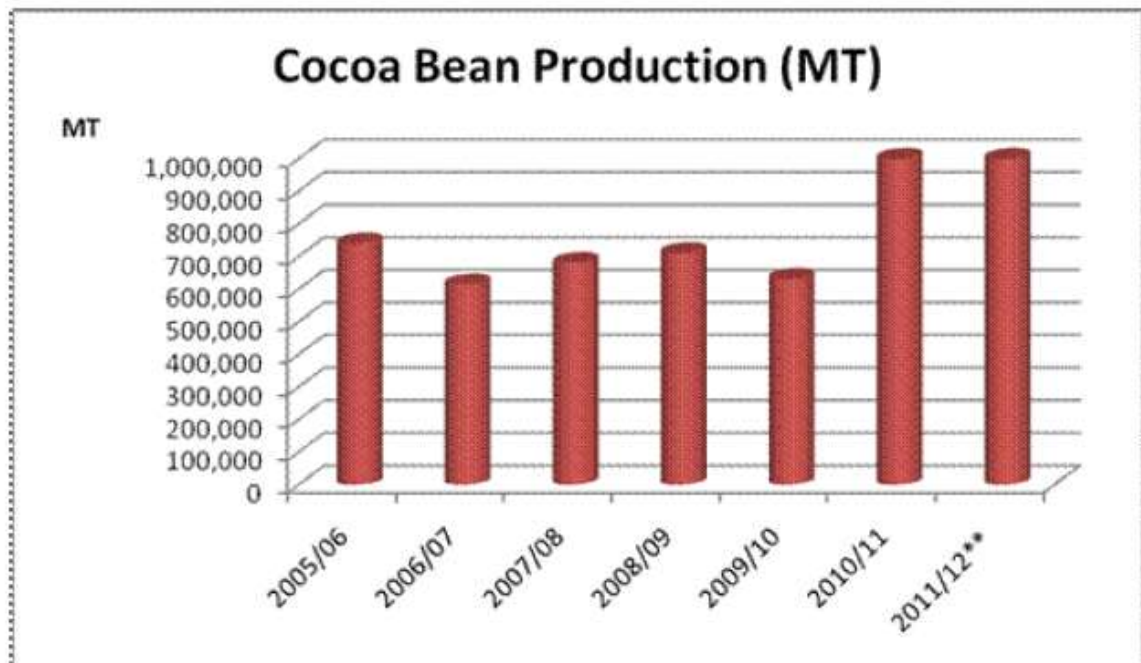
Cocoa production is highly sensitive to changes in weather conditions. During the 2010/2011 season, the weather has been excellent for crop development and harvesting in Africa thereby producing the largest output on record. Thanks to ideal weather conditions, production held up very well despite the political crisis in Côte d'Ivoire whilst in Ghana, the conducive weather conditions were supported by the continuous introduction of improved farming techniques. However, the La Niña weather related pattern caused wetter than normal conditions in Indonesia, where heavy rains impacted negatively on cocoa production (ICCO, 2012: 2). Dry weather patterns across West Africa early in the 2011/12 season caused forecasts of production shortfalls. However, increased rains through March 2012 have changed these projections. Production for the 2011/12 season is expected to approximately match demand (World Cocoa Foundation, 2012: 2).

2.1.1.1. Ghana's production

Cocoa production takes place in six out of the ten regions of Ghana with the Western region having the highest production value (accounting for over 50 per cent of total production) followed by the Ashanti region (accounting for about 16 per cent of total production) and the Eastern and Brong Ahafo regions which together account for about 19 per cent of total production (COCOBOD, 2012: 4).

In Ghana, cocoa production as such typically takes place in the rain forest, deciduous forest and transitional zones (Asante-Poku and Angelucci, 2013).

Figure 5: Cocoa Bean Production 2005/2012 (MT)



Source: Ghana Cocoa Board, 2012: 5

Cocoa cultivation in Ghana is also predominantly rain fed and the best conditions for cocoa farming are those in which there is favourable rainfall during the night followed by sunny days as these results in healthy looking trees with fully filled pods (Ashitey, 2012: 4). The main cropping season in the country is October-February/March while there is also a smaller/light mid-crop cycle, which occurs from around April/May to mid-September (Ashitey, 2012: 4).

Ghana's cocoa yield has been on average 25 per cent less than the average yield level of the ten largest cocoa producing nations and nearly 40 per cent below the average yield level of neighbouring Côte d'Ivoire (Mohammed et al, 2011: 2). Reasons for the Ghana's low yields include the relatively old age of Ghana's cocoa trees, pests and diseases such as black pod and mistletoes, and low investments into cocoa farming as well as the absence of widespread row planting (Mohammed et al, 2011: 3).

The improved cocoa bean yield obtained in 2010/2011 season is due to the concerted effort of the GOG support to the cocoa sector, farmers, major stakeholders and favourable weather conditions over several years, according to GOG sources. These efforts include 1) pest and disease control that have reduced the incidence of pests and diseases especially black pod, swollen shoot disease and capsid insect attack; 2) fertilizer application; 3) adherence to improved agronomic practice; 4) higher cocoa bean prices paid to farmers, an incentive for high production; 5) rehabilitation and replanting of old farms; 6) the development of hybrid cocoa seedlings with higher yields and; 7) road rehabilitation works in cocoa growing areas that have eased movement of high volumes of the dry beans to the ports in good time for shipment (Ashitey, 2012: 4).

Cocoa harvesting is labour intensive and requires that farmers carefully cut the pods from the tree so as to prevent damaging the entire tree (FAO, 2014: 6). Pods also have to be cut open carefully to avoid damaging the beans. After the pulp and seeds have been removed, they are put together to ferment in a process called sweating, which is important for the development of the bitter taste of the beans (Asante-Poku and Angelucci, 2013: 6). The fermented pulp is left to trickle away leaving the seeds; in Ghana however, the Cocoa research institute has started distilling the liquefied pulp into alcohol. The fermented seeds are then dried, typically on raised bamboo mats, to reduce the moisture content to about 7.5 per cent of its original moisture content (FAO, 2014: 6). The International Cocoa Standards require cocoa of tradable quality to be fermented, thoroughly dried, free from smoky beans, abnormal or foreign odour and free from any evidence of adulteration (Ashitey, 2012: 5).

The beans must be fairly free from living insects, broken beans, and fragments; pieces must also be seasonably uniform in size. In the world cocoa market, cocoa beans are most valued for their flavour (Ashitey, 2012: 5). Ghana cocoa beans, which are richer in Theobromine and Flavonoids, which render the beans their unique, mild and rounded flavour has become the world's standard against which all cocoa is measured (Asante-Poku and Angelucci, 2013: 6).

Ghana's semi-processed products such as cocoa liquor, cocoa butter and cocoa cake are competitively priced on the world market. However, the industry is not competitive in the market for finished products, and the biggest challenge is to move

into exporting finished products to the international market (Sutton and Kpentey, 2012: 14).

Besides cocoa beans, Ghana exports cocoa products including chocolate and cocoa product sweets, cocoa powder, cocoa butter, cocoa liquor, cocoa cake and cocoa waste. On average, cocoa liquor accounts for 23% of total export volume. The main export destinations for cocoa liquor are the EU and the US. Cocoa cake and cocoa butter are the main processed products, accounting for 22% and 18%, respectively, of exported processed products. 90% of the cocoa butter is exported to the Netherlands, the UK, France and the US, while 75% of cocoa cake is exported to Spain, the US and Germany (Sutton and Kpentey, 2012: 14).

Cocoa powder is exported mainly to Africa (Togo), the EU and the Americas. Cocoa waste is exported mainly to the Netherlands, China, Spain and Canada, while the main markets for chocolate products are Morocco, Ivory Coast, Nigeria and the UK (Sutton and Kpentey, 2012: 14).

The cocoa and chocolate supply chain is dominated by eight companies: three grinders (Cargill, Barry Callebaut and ADM) and five chocolate and confectionery companies (Mars Incorporated, Nestlé, Hershey, Kraft Foods, and Ferrero). The three grinders together control 40 per cent of global cocoa processing, but they feel the hot breath of two growing players on the market (Petra Foods and Blommer). The five chocolate and confectionery companies together control 57.4 per cent of the chocolate market. Over the past ten years, a clear trend can be observed of large and small market players individually and together taking steps towards a more sustainable cocoa economy (Wegner, 2012: 7).

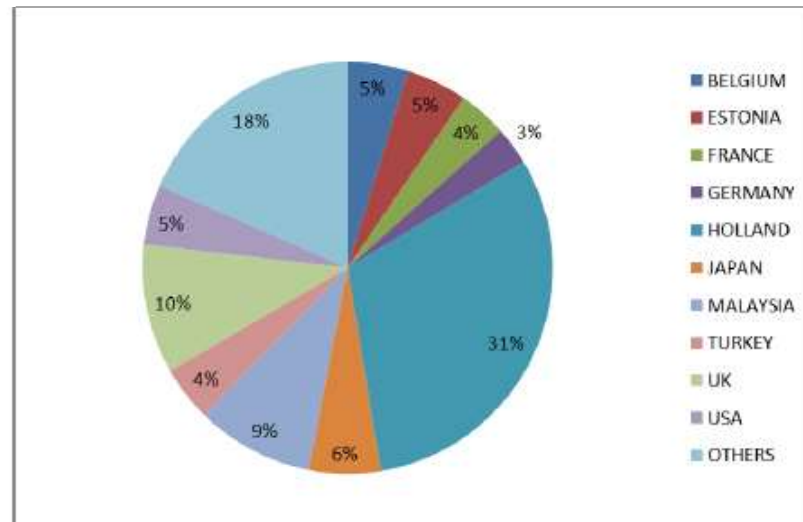
2.1.1.2. Main Cocoa Trade Partners of Ghana

Ghana is clearly a cocoa exporting country with a very low level of imports which are concentrated on semi-processed and processed products. In addition, the increasing FOB prices also result in increasing prices to factories (Asante-Poku and Angelucci, 2013: 11).

The main countries that imported cocoa from Ghana for the period 2005 -2011 are Holland, the UK, Malaysia, Japan, Estonia, the US and Belgium although the top

recent importers (2010/2011) are Holland, the UK, the US, Belgium and Malaysia (Asante-Poku and Angelucci, 2013: 13).

Figure 6: Main Cocoa Trade Partners of Ghana by Volume (tonne) in 2005/06 – 2010/11



Source: Asante-Poku A., Angelucci F., 2013: 12

2.1.2.3. Local Consumption/Utilization

National consumption of cocoa by-products is negligible if we consider that only a small quantity of the light crop is sold by COCOBOD to local processing companies (Asante-Poku and Angelucci, 2013: 7). The bulk of the cocoa bean output in Ghana is exported either as dry bean or processed form. The COCOBOD usually sells the smaller size light crop cocoa beans to processing industries in the country at a discount. Light crop beans are smaller in volume than the main crop variety, although quality of the bean is the same (Ashitey, 2012: 5).

There are four major cocoa processing companies in Ghana that process the cocoa beans into primary products, such as, liquor, butter, powder and cake (Ashitey, 2012: 6). About 90% of all processed cocoa is exported whilst the remaining ten per cent is used in the production of confectionery products. Locally there are about ten (10) companies that produce cocoa confectionery products, such as, chocolate, cocoa

beverages, cocoa powder and other chocolate candies, ice cream, and chocolate drinks (Asante-Poku and Angelucci, 2013: 9).

In 2009/10 cocoa beans supplied to local processing industries was 65,275 MT down from 99,559 MT in 2008/09 due to the scarcity of the light crop cocoa beans. The total installed processing capacity of cocoa in Ghana has increased from 85,000MT to approximately 220,000 MT in 2005-2010 (Ashitey, 2012: 6). This increase was in anticipation of increase in the light crop beans and its consequent supply of the beans to the processing companies. The current shortage in supplying cocoa beans from the light crop by COCOBOD has the entire cocoa processing industry in Ghana operating below capacity which is a major concern of the processing companies (Ashitey, 2012: 6).

2.2. DEMAND OF COCOA BEANS (GRINDINGS)

2.2.1. World Demand of Cocoa Beans

Once cocoa beans have been harvested, fermented, dried, and transported, cocoa processing is the next key step in preparation for commercial consumption. In general, grindings from cocoa beans serve as the key focus for market analysts for an overall view of anticipated demand relative to supply (World Cocoa Foundation, 2012: 3). The strong increase in processing recorded in the previous season due to re-stocking and recovering demand continued, albeit at a slower rate, during the 2010/2011 season (ICCO, 2012: 2). While processors of cocoa beans are located throughout the world, the highest percentage is based in Europe, followed by Asia & Oceania, the Americas, and then Africa (World Cocoa Foundation, 2012: 3).

The ICCO Secretariat estimates that global cocoa grindings increased by 5% in the 2010/2011 season, to 3.923 million tonnes, the highest grindings figure on record (the last highest level of 3.775 million tonnes being recorded in 2007/2008 prior to the start of the world economic crisis) (ICCO, 2012: 2). Over the last decade, consumer markets in Europe, the United States and especially in Asia have grown substantially (at over 3% per annum). While the developed markets account for over 60% of demand, this proportion is falling as growth rates are low owing to near saturation.

Stronger growth is being experienced in the emerging markets as incomes rise (Wegner, 2012: 5).

Cocoa processing activity increased in most regions: the largest increase of over 12% occurred in Asia and Oceania (up by 87,000 tonnes to 795,000 tonnes) followed by nearly 6% to 1.612 million tonnes in Europe and by 5.5%, to 860,000 tonnes in the Americas. However, grindings declined by 4%, to 657,000 tonnes in Africa, mainly due to the political disruptions that occurred during the first quarter of the year in Côte d'Ivoire when processing plants were not working at full capacity and grindings fell below trend. (ICCO, 2012: 2).

Demand in Asia has increased by 12 per cent from 2003 to 2008, compared to 4 per cent in Western Europe. Big grinders and chocolate companies are under a huge pressure to guarantee future supply. It is a fight for the source. Cocoa demand is estimated to have peaked at 3.8 million tonnes in 2010/11 and in 2012 it is expected that global chocolate consumption will have increased by 15 per cent compared to 2006. An additional 100-120k tons of cocoa will be needed each year to meet 2020 global demand (Wegner, 2012: 5).

Figure 7: Global Grindings 2011/2012 (Demand)



Source: ICCO, 2012: 5

The overall increase in world grindings is likely to be attributed to changing global consumption patterns in emerging countries. There are millions of new consumers in these markets including Asia where demand is focused on powder-based products. Traditionally, the higher value product butter was the driver behind grindings growth but, in recent years, powder demand has outpaced butter demand. In emerging markets, there is a taste for lighter treats, i.e. milder products based on cocoa powder, as palates are less used to chocolate. Also, the hot climate and lack of refrigeration in a market like India make it harder to stock butter-based products (ICCO, 2012: 3).

In terms of cocoa beans, market analysts provide on-going tracking of grindings to compare and analyse against production estimates. Providing a breakdown of grindings per region for a three year time frame, ICCO shows a relatively constant market share for the Americas (~22%) and Africa (~17%) while Europe (~39%) has slightly declined and Asia & Oceania (~22%) have increased. Origin grindings have slightly increased to 41% out of total grindings over the time frame (World Cocoa Foundation, 2012: 3).

After four years of supply deficit out of the past five years, the supply-demand balance reveals a market surplus in 2010/11. Global production is estimated to have increased by 15 per cent in the 2010/11 season, compared with the previous season, averaging about 4.2 million tonnes.⁵ The ICCO Secretariat's first forecasts for the current 2011/2012 cocoa year envisage that cocoa bean production will decline to 3.961 million tonnes (Wegner, 2012: 5).

Table 3: Top cocoa beans importing countries for 2009, 2010, and 2011

COUNTRIES	Import Quantity (tonnes)	Import Quantity (tonnes)	Percentage change	Import Quantity (tonnes)	Percentage change
	2009	2010	2009 / 2010	2011	2010 / 2011
Netherlands	731814	686057	-6%	784316	14%
United States of America	442375	402061	-9%	463883	15%
Germany	348437	341273	-2%	446888	31%
Malaysia	290015	319441	10%	327084	2%
Belgium	157422	160235	2%	201471	26%
France	163352	137065	-16%	145493	6%
Italy	73274	81902	12%	91870	12%
United Kingdom	150913	89364	-41%	91358	2%
Spain	87631	91954	5%	86522	-6%
Singapore	80575	93445	16%	84630	-9%
Turkey	58610	68217	16%	77659	14%
Canada	54877	50660	-8%	73684	45%
Russian Federation	51748	54350	5%	61320	13%
Japan	50625	44530	-12%	52169	17%
Switzerland	39905	41973	5%	42129	0%
China	21046	29775	41%	38952	31%
China ex.int	21046	29775	41%	38952	31%
China, mainland	21044	29774	41%	38948	31%
Brazil	74119	47609	-36%	32516	-32%
India	9262	6756	-27%	20211	199%
Thailand	19162	21074	10%	19387	-8%
Indonesia	27230	24831	-9%	19100	-23%

Source: faostat, 2014: <http://faostat3.fao.org/faostat-gateway/go/to/home/E> (6/03/ 2014)

Table 4: Data on Cocoa Import by Turkey

Year	Quantity (tonnes)	value (1000usd)	unit value (usd/tonne)
2003	60,418	148,020	2,450
2004	69,221	153,049	2,211
2005	66,443	121,805	1,833
2006	55,169	98,628	1,788
2007	67,650	140,908	2,083
2008	59,264	158,294	2,671
2009	58,610	171,672	2,929
2010	68,217	230,977	3,386
2011	77,659	275,472	3,547

Source: faostat, 2014: <http://faostat3.fao.org/faostat-gateway/go/to/home/E> (6/03/ 2014)

2.3. COCOA PRICES

2.3.1. Global Prices

Cocoa trades on two world exchanges: London (LIFFE - Pound) and New York (ICE - USD). ICE traded 5.2 million metric tonnes of coffee futures in 2011 and 5.5 million metric tonnes in 2010 (World Cocoa Foundation, 2012: 1). The buying price of cocoa beans locally and the purchasing season are determined by the GOG (Ashitey, 2012: 2).

Ghana's cocoa beans are of high quality and attract a premium price on the world market. This reflects low levels of debris and bean defects, and an appropriate level of moisture in the beans (Sutton and Kpentey, 2012: 12). Cocobod pays farmers >70% of net Free on Board (FoB) price (in 2012, the rate is fixed at 76% of net FoB price, or GHc 205 per bag). This producer-price is annually fixed, so that farmers know in advance of the harvest season what they will get, irrespective of the yield or world market price fluctuations (Laven and Boomsma, 2012: 11).

The GOG fixes the producer price upwards by making adjustments to the price of cocoa each time there is an improvement in the world market price. The farm gate producer price of cocoa beans per metric ton in 2010/11 is GHC 3,200 (\$2,133) up from GHC2,400 (\$1600) in 2009/10 (about 70% of fob). This price incentive has encouraged cocoa producers to increase production and to manage their farms as a business enterprise with the requisite gains (Ashitey, 2012: 5).

In the aftermath of the presidential elections in Côte d'Ivoire, substantial production surplus and developments in the global economic environment significantly influenced price movements during the 2010/2011 cocoa year (ICCO, 2012: 10). From mid-January through to March, an export ban on Ivorian cocoa exports heightened tensions over cocoa supplies. Consequently, cocoa futures rallied and attained a 32-year high in New York at US\$3,674 per tonne and a nine-month high in London at £2,334 per tonne (ICCO, 2012: 4).

Trading at low prices continued into September and by the end of the 2010/2011 crop year, cocoa prices hit a two year low at £1,724 per tonne in London and US\$2,642 per tonne in New York. The low prices posted during this period were mainly due to pressure from a large global surplus for the 2010/2011 cocoa season combined with an improved outlook for the 2011/2012 main crop in West Africa (World Cocoa Foundation, 2012: 5).

Cocoa prices are affected by various factors including stock/grind ratios, expectations for future production/demand, global food prices, and consolidation/fragmentation in cocoa trade and processing industries. Over the past five years, the price of cocoa overall has increased, but it has been prone to volatility from 2008 through 2011, spiking to a 30-year high of \$3,625/tonne in January 2010 and dropping back to \$2,200/tonne in December 2011 (World Cocoa Foundation, 2012: 5).

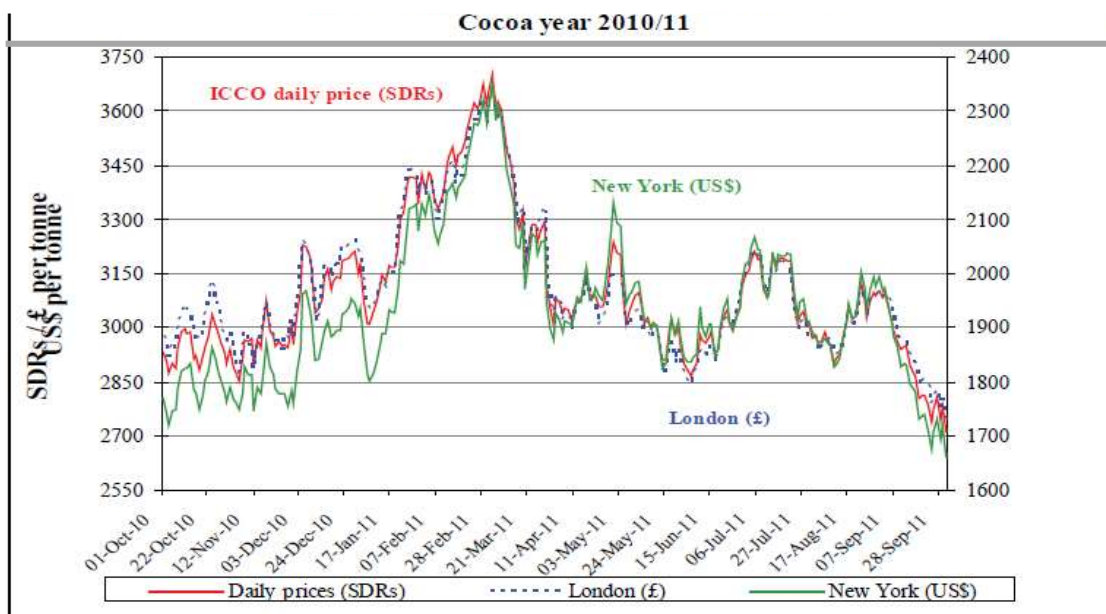
Price increases may be attributed to, among other factors, delayed transport of cocoa to ports, limited producer selling, lower stockpiles, extreme weather conditions such as intense rainy or dry periods, and/or political instability in producing countries. Price decreases may be attributed to, among other factors, favourable weather conditions, subsidized distribution of fertilizers and insecticides to farmers, expectations of a large crop or higher stockpiles, and/or decreased demand

expectations among processors (World Cocoa Foundation, 2012: 5). Price movement is also highly influenced by hedge fund managers and speculators with long and short positions in cocoa. This activity serves as a driving force behind short-term volatility. Speculative buying (long position) results in a price increase and selling (short position) results in a price decrease. Arbitrage between the two currency markets is an additional consideration. A weaker pound relative to the dollar puts downward pressure on cocoa as the attractiveness of supplies traded in New York decreases (World Cocoa Foundation, 2012: 5).

The fall in commodity prices from June of 2008 reflects, among other factors, lower input costs, falling oil prices, and deepening recessionary concerns of decreased consumer consumption among industrialized and developing countries. In addition, there has been significant pressure on prices as investment funds settle cash positions to bolster liquidity in light of global tightening of credit. The 2009 spike in cocoa prices has been attributed to growing fears of a weaker Ivorian crop for 09/10 season combined with recovering demand on the consumer side. The most recent price spike reflects significant political turmoil in Côte d'Ivoire during the first half of 2011, as sanctions on the country's cocoa exports decreased supply levels (World Cocoa Foundation, 2012: 6).

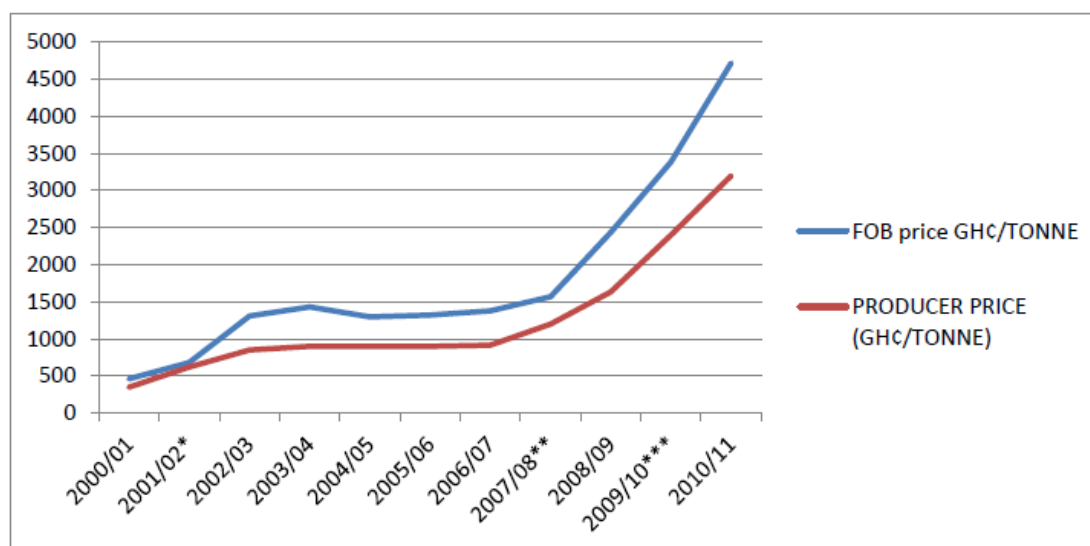
Due to a "bumper crop" in the 2010-2011 season, supply outpaced demand towards the beginning of the 2011-2012 season, causing prices to drop between October and December 2011. Prices began to rebound in January and early February 2012, as a lack of rain led to forecasts of a supply shortage later in the season (World Cocoa Foundation, 2012: 6).

Figure 8: Cocoa Beans Prices on the London and New York Futures Markets



Source: ICCO, 2012: 14

Figure 9: Producer Prices fixed by the Cocobod versus FOB prices (GHC/tonne)



Source: ICCO, 2012: 17

2.3.2. Local prices in Ghana

The producer price is set by the Producer Price Committee which is composed of representatives from the COCOBOD, the government, cocoa buyers, the national cocoa farmers 'association, haulers and transporters (Asante-Poku and Angelucci, 2013: 22).

Table 5: Ghana cocoa beans export prices (GHC/tonne)

	2005	2006	2007	2008	2009	2010
Cocoa bean FOB export price (GHC/tonne)	1,319	1,380	1,569	2,438	3,384	4,719
Cocoa bean FOB export price (USD/tonne)	1,450	1,500	1,670	2,300	2,400	3,300

Source: Asante-Poku A., Angelucci F., 2013: 22

Data on prices provided by the COCOBOD are defined as “FOB cocoa bean export prices”. By definition the FOB price includes any taxation or subsidies in place in the country of origin except insurance. However, export taxation is still in place and oscillating between 10 and 25 per cent of the FOB price (Asante-Poku and Angelucci, 2013: 21).

2.4. COST OF SELLING

2.4.1. Market Access Costs

Table 8 below shows the significant divide between domestic transport costs for cocoa in Ghana as opposed to transport costs for shipping the cocoa beans from the Ghanaian border to destination markets In Europe (Asante-Poku and Angelucci, 2013: 23).

2.4.2. From Farm Gate to Point of Competition

Data on access costs for cocoa beans from the farm gate to the border was provided by the Ghana COCOBOD.

Table 6: Observed access costs used for the calculations of prices incentives and disincentives for cocoa in Ghana

	Transportation and other costs (including handling)	Margins	Total observed access costs
2005	228	107	334
2006	182	116	298
2007	158	128	286
2008	453	190	643
2009	367	250	617
2010	997	311	1307

Source: ICCO, 2012: 12

2.5. POLICY DECISIONS AND MEASURES

2.5.1. Liberalization of the Internal Cocoa Marketing Structure

Starting from the mid-1980s, COCOBOD halted its control over domestic purchases through the Produce Buying Company and designated this function to private licensed companies (Kolavalli and Vigneri, 2011: 12).

2.5.2. Productivity Increasing Investments

In 2002/2003 growing season, COCOBOD introduced the “Cocoa High-Tech” programme. In the programme, fertilizers were supplied to farmers on credit so as to encourage farmers apply a minimum of two fertilizer bags per acre of land cultivated (Asante-Poku and Angelucci, 2013: 17).

To control capsid and black pod disease spread, the Cocoa National Disease and Pest Control Committee was formed in 2001 to develop disease control strategies. Upon the recommendation of the committee, the COCOBOD sprays all cocoa fields free of charge for producers (Asante-Poku and Angelucci, 2013: 18). The GOG has a liberalization policy in which sales and distribution of cocoa inputs have been privatized. This is to encourage private sector companies to enter the input distribution and compete with the Farmers Cocoa Inputs Company (GOG) that is operating (Ashitey, 2012: 3).

COCOBOD also provides infrastructure to farmers by constructing feeder roads, which connect to major roads for the transport of produce to transit points and to ensure pricing uniformity among farmers (reduction in transportation costs) (Asante-Poku and Angelucci, 2013: 18).

Specific strategies being presently applied in cocoa sub-sector include: promotion of research on the commercialization of substandard cocoa and cocoa wastes to enhance value addition; improvement in internal and external marketing strategies of cocoa through competition and equal access to COCOBOD's storage and crop financing facilities; rehabilitation of roads in cocoa-growing areas to facilitate the evacuation of the crop; and maintaining the quality control responsibility within the public institution (Asante-Poku and Angelucci, 2013: 18).

2.5.3. Trade Policy

Cocoa exports attract the following duties and taxes:

- **Export tax** for cocoa is presently set at approximately 25 per cent (Kolavalli and Vigneri, 2011: 7).
- **Import duty:** to protect the domestic market, Ghana applies a duty of 20 per cent on cocoa imports (Asante-Poku and Angelucci, 2013: 19).

The COCOBOD operates under the Ministry of Finance. However, the internal purchasing of cocoa beans from producers is carried out by private sector companies who have been registered and given license by the COCOBOD (Ashitey, 2012: 2). The GOG has been pre-financing cocoa purchases with syndicated loans. The COCOBOD secured a \$1.5 billion trade-finance agreement with a consortium of 12 foreign banks to finance the purchase of cocoa beans from growers in the 2010/11 season up from \$1.2 billion agreement signed last year (Ashitey, 2012: 3).

2.6. CROP QUALITY

Ghana cocoa beans have long been known for their quality and depth of flavour. According to the International Cocoa Organization (ICO) Ghana cocoa is richer in Theobromine and Flavonoids which have given the beans the unique, mild and rounded flavour. As such the quality of Ghana cocoa beans have become the world's standard against which all cocoa is measured (Ashitey, 2012: 5). Over 90 per cent of the cocoa produced in Ghana is of grade 1 quality (Kolavalli and Vigneri, 2011: 5). Buyers of cocoa pay a premium ranging \$50-\$100 because of the high quality of the beans. Quality control of cocoa beans is very rigorous (Ashitey, 2012: 5).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION TO METHODOLOGY

3.1.1. Organization of research

This chapter discusses the methods used in the data collection and data analysis processes. It includes an explanation of the procedure employed, the area of study, the sources of data, types of data collected, techniques and procedures used in data collection and data analysis. Reliability and validity, and triangulation are examined. Finally, the challenges on the field and how they were overcome are discussed.

The study is organized into five chapters: the first chapter is introduction which covers background to the study and the objectives of the study. The second chapter looks at review of related literature. In this chapter, areas of interest will include: major importers and exporters, main shipping lines involved in the cocoa beans carriage, actors and agencies, ports used, the type of packaging preferred and why that packaging, process of trade (Steps of import and export), and custom procedures. The study in the third chapter which covers the chosen methods and procedures adopted in collecting, analysing and the presentation of the research paper. Data analysis and discussion is presented in the fourth chapter. The final chapter consists of recommendations and conclusions resulting from the findings of the study.

3.1.2. Research Design

The overarching research question is to analyse the maritime trade of cocoa beans between Turkey and Ghana, particularly trying to understand the flow of this traffic and identifying logistical bottlenecks in order to propose solutions and facilitate trade. Out of this, subsidiary research questions were derived. In the process of fulfilling the aim of the research, this study will collect relevant literature regarding this topic. This paper will also be looking to answer the questions as to;

- a. What is the value chain of cocoa beans export and import between Ghana and Turkey?
- b. What is the transportation logistics involved in the trade?
- c. What are patterns of cocoa beans trade between the two countries and what factors are responsible for such changes?

This research is done applying the qualitative method of doing research with data collected from interviews and questionnaires from COCOBOD, ARKASLINE, and Ghana Ports and Harbours Authority (GPHA). The research method is a qualitative one because it aims to gather an in-depth understanding of the value chain of cocoa beans export and import between Ghana and Turkey, investigate the policies, regulations and restrictions related to cocoa beans import and export between both countries, and explore the transportation logistics involved in the trade. Investigative methods of asking questions such as why and how were often utilized instead of what, where, and when. Smaller but focused samples were used other than large samples. The aim is to gain a closer insight into the subject by exploring issues, understanding phenomena and asking questions.

I have chosen the relevant institutions pertaining to my field of study and used structured interview which requires adherence to a systematic procedure and therefore was able to address these limitations. By doing that, different methods complemented each other and enhanced the data collection. Semi-structured interview gave the interviewees opportunity to fully express themselves during the face-to-face interviews. The flexibility of the approach allowed the respondents to be more relaxed during the interviews which offered me the opportunity to probe for further emphasis of their responses.

The above research questions and contemporary nature of my research influenced my decision for the qualitative method because I thought interviews would be the appropriate instruments to elicit the needed responses. Another reason for deciding on the qualitative approach for the study was that it provided maximum opportunity for complete and accurate communication with the respondents and guided my desire to get to know what they think. In the literature, the main difference between the use of quantitative and qualitative data collection approaches is the

accuracy of quantitative approach and its ability to capture complex issues, especially in numerical order.

The study incorporated some aspects of quantitative technique by highlighting data in frequencies and percentages using EXCEL as stated earlier. Qualitative and quantitative models should not be portrayed as two distinct epistemologies that cannot be fused together by a researcher.

3.1.3. Area of Study

An attempt is made to answer this question by using “export versus import sides of cocoa beans trade between the two countries”. Basically, the trade involves major parties such as the shippers, consignees, shipping lines, customs, and government agencies. The research is a double phase approach looking at the flow of the cocoa beans commodity trade from the source (Ghana) to destination (Turkey).

3.1.4. Research Objectives

1. To examine the value chain of cocoa beans export and import between Ghana and Turkey
2. To explore the transportation logistics involved in the trade
3. To investigate the dynamics of the trade and factors that affect the flow of the product between the subject countries
4. To investigate the shipping lines strategies during the peak seasons of cocoa beans shipment.
5. To inquire the delivery terms: CIF, FOB for maritime transport of cocoa beans between the two countries
6. To make recommendations on how to facilitate future maritime cocoa beans trade between the two countries

3.1.4.1. Research Questions

Taking into consideration the context of the problem statement of the research and objectives above, this research will purport to answer the following research questions;

1. What are the key issues affecting international cocoa beans seaborne trade?
2. What are the cocoa beans seaborne transport- related regulatory and legal frameworks?
3. What are the impacts of freight transport activity on the quality of cocoa beans along the supply chain?
4. How can cocoa bean quality be maintained throughout the supply chain?
5. What are the preferred freight types?
6. What are the bilateral agreements necessary to facilitate cocoa beans trade between Turkey and Ghana in the maritime context?
7. What are the impacts of institutional arrangements on cocoa beans trade from both sides of the trade?
8. How does the transit time affect the trade?
9. How delays encountered in ports where loading and unloading takes place affect the trade?
10. Do exporters and importers prefer containerized or bulk shipments?
11. How does the seasonal nature of cocoa beans cultivation affect the trade?
12. How does shipping lines adjust their capacity of business according to the cocoa beans seasons?
13. What are the major shipping lines involved in the transport of the cocoa beans?
14. Who are the major exporters and importers in the trade?
15. Why do Turkish cocoa beans exporters prefer Ghana's cocoa beans?
16. What are the effects of export and import tariffs on cocoa beans between both countries?
17. What are the responsibilities of the shippers
18. What are the responsibilities of the shipping lines

3.1.5. Scope and limitation of the research

The scope of the study will be limited to cocoa beans as a merchandise of trade. Specific attention is given to only maritime route. Cocoa bean is traded worldwide, but this study will focus on cocoa bean trade between Ghana and Turkey.

3.1.6. Justification of the research

Ghana is the second largest producer of cocoa beans in the world, second to Ivory Coast. Cocoa beans export is the major source of revenue to Ghana. International cocoa trade is transported via the maritime routes. Cocoa beans forms one of the highest traded commodities from Ghana to Turkey.

Being aware of the contribution of the cocoa sector to poverty alleviation, recognizing the importance of cocoa and the cocoa trade for the Ghanaian economy, recognizing the key contribution of the cocoa trade to export earnings and to the formulation of social and economic development programmes, recognizing the importance of the cocoa sector to the livelihoods of millions of people, particularly in developing countries where small-scale farmers rely on cocoa production as a direct source of income, and recognizing that close attention on cocoa matters and in the cocoa value chain may contribute to the sustainable development of the world cocoa economy will justify the significance of this research.

Moreover, there are no proficient researchers and policy makers in this crucial sector. It is anticipated that the findings and recommendations of the study will serve as a guide for managers, policy makers, regulators and practitioners in the cocoa beans import and export industry. Turkey and Ghana's ties could only improve with the required groundwork and the deployment of informed policy makers to effectively manage the systems and influence strategic decisions and policies.

3.2. RESEARCH METHODOLOGY

3.2.1. Methodology

This research is carried out by applying mainly qualitative method of research and is centred on collected interview data from selected institutions from both sides of the trade and supplemented with observational notes collected during an internship with Arkas Shipping Company. Statistical tools such as Microsoft excel is used in the analyses.

Besides the secondary data, primary data source were used by preparing questionnaires and interview guides. The primary source focused on Cocoa Marketing Company and Ghana Cocoa Board and other stakeholders. After gathering these data through the medium of questionnaires and interviews a thorough analysis was conducted on it. The completed questionnaires and interview results were analysed based on the responses received. In some cases the field results were compared with the literature where appropriate. Thus the analysis was mainly descriptive in nature and in some cases tabulations were used. Following from the findings, conclusions and recommendations were made.

3.2.1.1. On the Export Side

COCOBOD has details on volumes of exports, major ports of the trade, major shippers and other statistical data more relevant to this study. In addition, COCOBOD has figures on revenues from exports of cocoa hence making that institution a better source of data with regards to the production and exports side of this study. The mission of the Board is to encourage and facilitate the production, processing and marketing of good quality cocoa, coffee and sheanut in all forms in the most efficient and cost effective manner, and maintain the best mutual industrial relation with its objectives. The Ghana Cocoa Board (Cocobod) is a Ghanaian government-controlled institution that fixes the buying price for cocoa in Ghana.

The Ghana Ports and Harbours Authority (GPHA) is the statutory public organization mandated to build, operate, maintain and regulate seaports in Ghana. The

Authority owns and operates two ports in Tema and Takoradi. GPHA is a Statutory Corporation established under the Provisional National Defence Council Law (PNDCL 160) of 1986 to build, plan, develop, manage, maintain, operate and control ports in Ghana. GPHA was selected to provide logistical detail and procedures, and other relevant information necessary to complete this study.

3.2.1.2. On the Import Side

On the import side, there are two major players, namely importers and shipping companies in Turkey. The major importer of Ghana cocoa beans into Turkey is Altinmarka through commodity trading houses such as Facta International B.V. and Touton S.A.

In order to attain the full picture of the study, it was deemed necessary to also look at the other side of the trade. That is, from the import shipment. The institution chosen for this segment of the study is Arkas Line. This is because Arkas Line has in recent times established itself as a giant player among the shipping lines serving Turkey and West Africa leg. Arkas Line was incorporated in order to offer the first container shipping line in Turkey under the Turkish flag. Arkas Line offers regular Liner services between ports in Turkey and the West Africa including Ghana with a fleet of 5 container vessels, three of which have Turkish flags and are owned by Arkas.

3.3. DATA COLLECTION

3.3.1. Data Collection Procedure

Data was collected from interviews from COCOBOD, ARKASLINE, and GPHA. Data of a qualitative and quantitative nature in its secondary and primary form were collected. Staffs in management positions from the selected institutions have provided the information needed for this study. Data can be classified into two categories namely: Export Data and Import Data.

3.3.1.1. Export Data

Most data on the entire structure of the Ghanaian cocoa industry was provided by the Research, Monitoring and Evaluation Department of COCOBOD. The Deputy Director of this department provided both primary and secondary information of a qualitative and quantitative nature. A research specialist was assigned to respond to the written questionnaire that provided the data needed for this study.

Secondary data from COCOBOD included: How cocoa shipment is carried out (Containerized / bulk), the proportion of containerized to bulk shipment between 2002 and 2012, the major importers (in Turkey) of cocoa beans from Ghana, and the cocoa beans seaborne transport- related regulatory and legal frameworks. Primary quantitative data which mainly supports and gives reasons for the study included the annual production, annual local consumption, quarterly export (to Turkey) and annual stock statistics of cocoa beans from 2002 to 2012, the quarterly volumes of import by these major importers from 2002 to 2012, the quarterly volumes of export to Turkey through Tema and Takoradi port. The list of the questions can be found in the appendix.

GPHA was interviewed purposely to obtain the following relevant primary data: the cocoa bean custom export procedure carried out, the necessary custom documentations for cocoa beans export, the average lead-time from arrival of cocoa beans at the port of loading, to the departure of vessel (yearly statistics from 2002 to 2012), and the storage and loading terminals or locations, special (dedicated) terminals with special facilities.

3.3.1.2. Import data

ArkasLine was selected for detailed data on trends (equipment imbalances) and strategies during cocoa peak seasons, transit times and transshipment points, preferred shipment term and freight terms, among others. The Trade Department was provided with a list of questions which enabled him to provide the data needed for this study. The list of the questions can be found in the appendix to this paper.

3.3.2. The Data Collection Process

The data-collection process began in August 2013 with the review of literature which lasted until November 2013. The literature enhanced the construction of appropriate questions for the field work. It also helped to develop the analytical frameworks for the study as noted earlier. A trip was made to Ghana to collect the data. The visit was made in November 2013 and lasted until January 2014. The following data collection activities were carried in Ghana and Turkey.

1. Interviews (semi-structured and structured)
2. Questionnaire
3. Field study
4. Documentary analysis- reviewing reports, studies, publications like books, journals, and other relevant documents on the study.

Interview is perhaps the most commonly used method in qualitative study. Interviews are important when much information is to be collected in a relatively short time and where the interviewee's perspective is vital in providing answers to research question(s). I had a relatively short time for the field work (i.e. about three months) to collect data in Ghana. Interviews also have the advantage of targeting or focusing on case study topics and being astute in giving perceived causal inferences and explanations. The structured and semi-structured interviews were used in this study as noted above.

Questionnaires were sent to appropriate respondents after the interview and helped them to understand the topic as well as giving me the opportunity to get the best out of them by responding with right answers. In addition, the interview served as a guide against deviations.

3.3.2.1. Phase 1 of the Data Collection Process

The first phase of the data collection took place in Ghana. It began with preliminary visit to the Headquarters of COCOBOD in Accra on 4th November 2013,

two days after I arrived in Ghana. I relied on personal relationship with some officials at COCOBOD to immediately arrange interview appointments. Nonetheless, I had to send an official request letter to the Deputy Director of the Research and Development, stating the questions to be discussed and also attached a letter from my University stating that I was carrying out the research purely for academic purpose. I did the same with GHPA. The questionnaires were sent to respondents personally. Yet, there was the need for patience because of cancellations and re-fixing of appointments and follow- ups which became necessary.

The first interview in Ghana was with the Deputy Director of Research and Development of COCOBOD. I decided to interview him first so that I could have more insight into COCOBOD's operations in Ghana which served as a guide and assisted me during my interviews with the other respondents. The interview also helped me to develop some of the questions for the questionnaire. He also arranged for me to interview some other COCOBOD officials as well. The interview with him was significant and beneficial. It centred on the annual production, annual local consumption, quarterly export (to Turkey) and annual stock statistics of cocoa beans from 2002 to 2012, the quarterly volumes of import by these major importers from 2002 to 2012. After the interview he gave me supporting documents and relevant secondary materials.

3.3.2.2. Phase 2 of the Data Collection Process

The second phase of the data collection took place in Turkey by using interviews and semi-structured instrument. I travelled back to Turkey to complete the second half of the study in January 2014. Similarly, I relied on my personal relationship with some officials at ARKASLINE to immediately arrange interviews and administer questionnaires. The questionnaire focused on trends (equipment imbalances) and strategies during cocoa peak seasons, transit times and transshipment points, preferred shipment term and freight terms, among others.

3.3.3. Data Collection Problems

The data needed from COCOBOD on cocoa production for export, was quite bulky. Hence the Deputy Director of the Research, Monitoring and Evaluation department needed some time to gather the data. Unfortunately also, when the lists of questions were provided to the appropriate staff, he was on Christmas break. As a result it took over a month to receive data from them. Once data was received, there was the realization that more data was needed to be collected from other institutions such as GHPA. This other institution also needed about two weeks to gather their data hence prolonging the progress of this study.

3.3.4. Data Analysis Procedure

The annual production, quarterly export (to Turkey) and annual stock statistics of cocoa beans from 2002 to 2012 were provided by COCOBOD. However with regards to average monthly export volume to Turkey, growth and decline year by year, statistical comparison with other trading country, Microsoft Office Excel was used to compute for such analysis. Graphs and tables which assisted in the data analysis were used to visually display the findings.

Content analysis was applied to breakdown information from literature review. Based on the different relationships analysis made, the results of the data was interpreted and used to draw conclusions and make recommendations.

3.3.5. Limitations of the Study

There were some limiting factors in this study. Some limitations include:

1. Bias of some institutions. The concerned institution presented their information in a manner which will give the impression that everything in their sector works efficiently
2. Unwillingness of respondents to give actual data on volumes, and their major customers.

Despite these limitations, data collected was sufficient to perform a comprehensive analysis.

3.3.6. Reliability and Validity

The data collecting methods used and the subsequent analysis have multiple sources of evidence, and a chain of evidence linking the questions asked, data collected and conclusion drawn. To address the reliability and validity concerns, several operational steps were meticulously adopted in this study during the semi-structured interviews, the administration of questionnaires or structured interviews. For instance, rigorous and realistic steps were taken in designing, administering questionnaires, and analysing. These steps are well stipulated and discussed in the previous sections of the chapter.

In designing the study, analysing results and assessing the quality of the study, validity and reliability were two key factors. Validity refers to whether “you are observing, identifying, or ‘measuring’ what you say you are”. It thus refers to whether an indicator designed “to measure a concept really measures the concept” For example, a question like: what are the monthly volumes of export and import between Turkey and Ghana, which I asked was intended to know the trade imbalance between the two countries, how cocoa beans trade helps to close the gap and the strategies shipping lines use during peak seasons of the trade.

Though reliability and validity are necessary criteria in quantitative research they can be applied in qualitative research if one can methodologically follow their required discipline and convention as was done in this study. Triangulation was also used to guarantee reliability and validity because by combining the structured and semi-structured interviews, documentary analysis and observations, it ensured the achievement of trustworthiness and confidence in the findings of the study.

3.3.6.1. Triangulation

Triangulation is “a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study” (Creswell & Miller, 2000: 126). In effect, triangulation is the use of more sources of data which enables the researcher to double check on the findings. In respect of this, semi-structured, and documentary materials were used to complement the structured interviews and to enhance the data collected to create confidence in the findings of the study. It is argued that triangulation also encourages creative data collection.

CHAPTER FOUR

FINDINGS AND ANALYSIS

4.1. TO EXPLORE THE MAIN FACTORS THAT INFLUENCE TRADE FLOW OF COCOA BEANS BETWEEN GHANA AND TURKEY

Table 7: Ghana's cocoa production, gross export and exports to Turkey

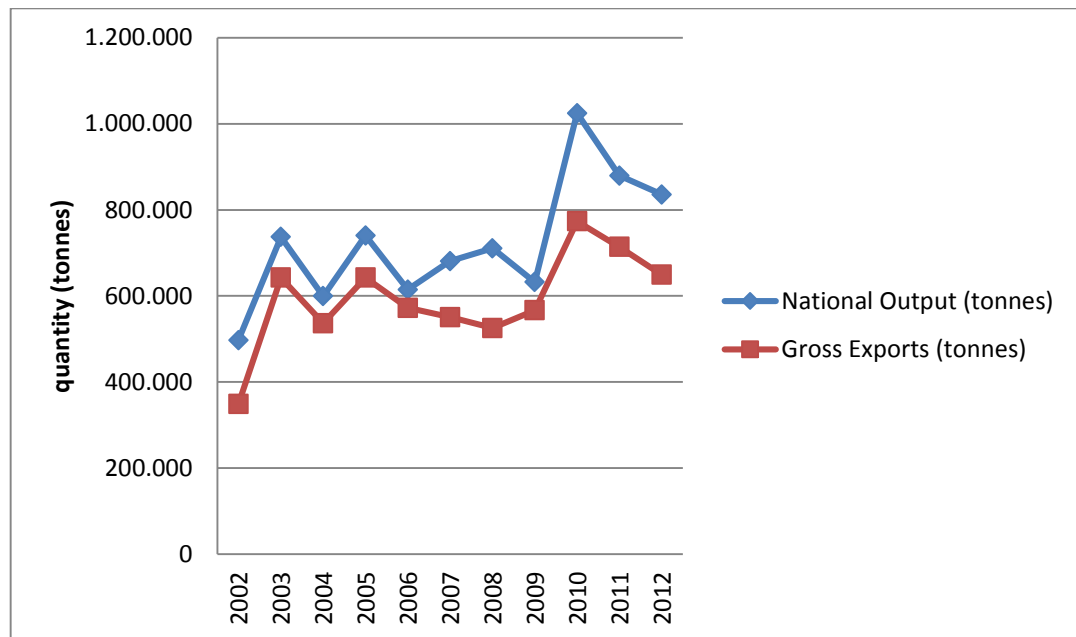
	National Output (tonnes)	Gross Exports (tonnes)	Exports to Turkey(tonnes)	% EXPORT TO TURKEY
2002/03	496,846	348,651	39,500	11%
2003/04	736,975	642,330	37,500	6%
2004/05	599,318	536,440	33,500	6%
2005/06	740,458	642,508	34,975	5%
2006/07	614,532	572,265	6,500	1%
2007/08	680,781	550,627	29,175	5%
2008/09	710,642	525,284	21,000	4%
2009/10	632,037	566,762	32,000	6%
2010/11	1,024,554	773,389	33,350	4%
2011/12	879,348	713,849	49,550	7%
2012/13	835,466	649,123	21,750	3%

Source: COCOBOD, 2013

On the production side, the record output of 1.02 million tonnes in 2010/2011 is attributed mainly to favourable weather conditions and increased investment in the cocoa sector by the Ghana Government. During the same year, a record of 0.7 million was exported globally. This is due to political turmoil in Côte d'Ivoire (Ghana's main competitor) which made it uncompetitive to export.

Change in national output has not been linear, however, and has fluctuated in various patterns between different years. Cocoa beans production increased in most years: the largest increase of over 95% in 2010/2011 (up from 632,037 tonnes to 1,024,554 tonnes).

Figure 10: Ghana's total cocoa beans production and gross export between 2002 and 2012



Source: Created by Author

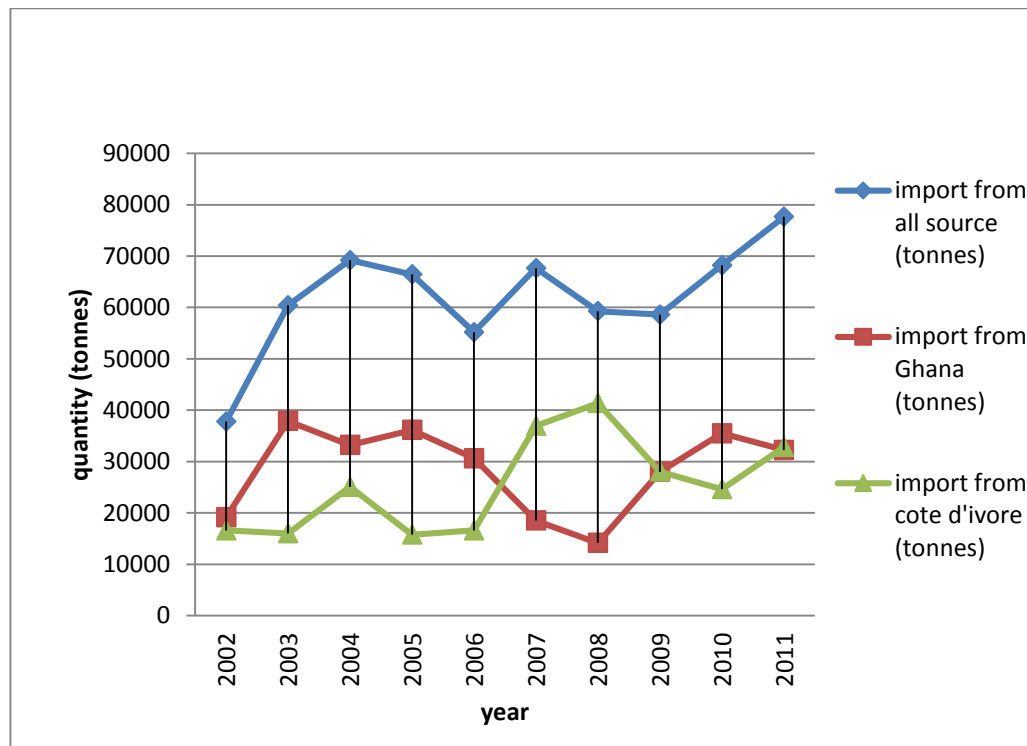
Table 8: Turkey's Import of Cocoa from across the Globe Vs. From Ghana

Year	all source (tonnes)	Ghana (tonnes)	cote d'ivoire (tonnes)	% of import from Ghana
2002	37746	19,113	16,602	
2003	60,418	37,888	16,000	63%
2004	69,221	33,212	25,080	48%
2005	66,443	36,126	15,742	54%
2006	55,169	30,625	16,585	56%
2007	67,650	18,482	36,947	27%
2008	59,264	14,126	41,369	24%
2009	58,610	27,994	28,037	48%
2010	68,217	35,475	24,614	52%
2011	77,659	32,250	32,839	42%

Source: COCOBOD, 2013

As illustrated in Table 10, export to Turkey increased from 33,350 tonnes in the 2010 to 49,550 tonnes in 2011 (representing 64% of import volume only from Ghana). There was a decline in import from Ghana during 2006. In general, total import to Turkey experienced the least volume in 2006. However, the rate of decrease in import from Ghana is far higher than total import decrease.

Figure 11: Turkey's Import of Cocoa from Across the Globe Vs. From Ghana



Source: Created by Author

Over the last decade, consumer markets in Turkey have grown insubstantially (at over 3% per annum). While import from Ghana account for approximately 52% of total import, this proportion in recent times is rising as bilateral relation is improving and more investment is the trade sector. Stronger growth is being experienced in the cocoa beans markets as incomes rise.

Total demand in Turkey has increased by 29 per cent from 2002 to 2011, compared to 24 per cent increase from Ghana. There are millions of new consumers in these markets.

4.2. TO INQUIRE THE DELIVERY TERMS: CIF / FOB FOR MARITIME TRANSPORT OF COCOA BEANS BETWEEN TURKEY AND GHANA

In Ghana, as opposed to other cocoa producing countries in the Western and Central Africa regions, cocoa marketing costs are relatively high at 15 per cent, and the costs and margins of profit of the COCOBOD and its subsidiaries account for around 5 per cent of the price of cocoa. In Ghana, margins paid by the government to traders is said to be among the lowest in the sub region due to the large exporter margins and taxes the industry has to pay to the government. The cocoa value chain in Ghana can be more costly due to the increased attention paid to quality. As such, the handling cost is increased due to the intensive quality assessment.

Table 9: Producer Prices – Annual

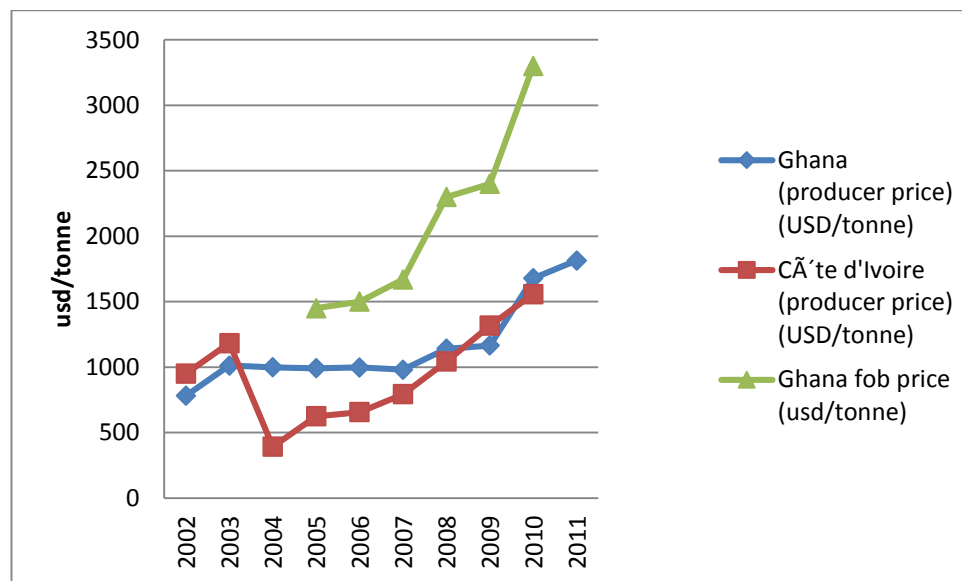
	Cote d'Ivoire	Indonesia	Ghana	Cameroon
	(USD/tonne)	(USD/tonne)	(USD/tonne)	(USD/tonne)
2011			1815	
2010		2080	1678	2345
2009	1317	1598	1166	1893
2008	1043	1457	1141	1733
2007	794	1153	981	1337
2006	657	970	998	1123
2005	625	930	992	1132
2004	392	1089	1000	1064
2003	1184	1113	1013	916

Source: COCOD, 2013

CIF is most preferred to FOB mainly because of the following; it boosts Ghana's Balance of payments on the international market. It gives the Shipping department of CMC/COCOBOD control over shipments arrangements because the

department handles the nomination of vessels. It creates employment opportunities for Ghanaians since the services of local seafarers and insurance brokers are required. The taxes charged on the transactions also increases Government's revenue. FOB is used when developing new markets.

Figure 12: Cocoa beans prices Ghana FOB prices vs. producer price



Source: Created by Author

4.3. TO EXAMINE THE SUPPLY CHAIN OF COCOA BEANS EXPORT AND IMPORT BETWEEN GHANA AND TURKEY (MAIN PORTS, MARITIME ROUTES, TRANSSHIPMENT TIMES AND TRANSSHIPMENT PORTS)

Table 10: Quarterly cocoa exports to Turkey via Tema and Takoradi

Crop Year/Port/Quarter	2011/2012		2012/13	
	<i>Tema</i>	<i>Takoradi</i>	<i>Tema</i>	<i>Takoradi</i>
Q1	-	11,000	6,250	1,500
Q2	8,450	21,000	7,500	-
Q3	12,750	4,250	6,500	-
Q4	2,000	9,000		-
TOTAL	23,200	26,350	20,250	1,500

Source: GPHA, 2013

Cocoa production is highly sensitive to changes in weather conditions. During the 2010/2011 season, the weather has been excellent for crop development and harvesting in Ghana and Africa in general, thereby producing the largest output on record. Thanks to ideal weather conditions, production held up very well.

Cocoa cultivation in Ghana is also predominantly rain fed and the best conditions for cocoa farming are those in which there is favourable rainfall during the night followed by sunny days as these results in healthy looking trees with fully filled pods. The main cropping season in the country is October-February/March while there is also a smaller/light mid-crop cycle, which occurs from around April/May to mid-September.

Demand for road transport is highly seasonal, requiring a high transport capacity at the peak. Especially the transport of agricultural produce both for export and for the domestic market is highly peaked. It also originates in rural areas with generally poor road infrastructure where transporters are often unwilling to go.

In order to serve this peaked demand the agricultural parastatals, which have traditionally been responsible for the collection of a large share of the agricultural produce, have mostly used a combination of own-account vehicles (to serve peripheral areas where the private transport companies are unwilling to go) and transport

contracts with large transporters (to serve the major transport flows), supplemented with hire of trucks at the spot market during the highest peaks.

Table 11: Major Shipping Lines' Transshipment Ports And Transit Times From Tema Ports To Major Ports In Turkey

	POL	Tema	Tema	Tema	Tema	Tema
	POD	Izmir	Marport	Gemlik	Mersin	Samsun
Arkasline	T/S 1	Valencia	Algeciras	Valencia	Valencia	Algeciras
	T/S 2					Marport
	T/T (Days)	33	35	32	29	40
Maerskline	T/S 1	Tangier	Algeciras	Algeciras	Algeciras	
	T/S 2	Port Said		Kumport		
	T/T (Days)	45	34	36	30	
Msc	T/S 1		Le Havre		Antwerp	
	T/T (Days)		31		37	
Cma Cgm	T/S 1	Tangier	Tangier	Tangier	Tangier	Tangier
	T/S 2	Malta			Malta	
	T/T (Days)	24	22	20	27	26

Source: Created by Author

The major importer of Ghana cocoa beans into Turkey is Altinmarka through commodity trading houses such as Facta International B.V. and Touton S.A. The major shipping lines involved in cocoa shipments from Ghana to Turkey are Arkasline, Maersk line, MSC, and CMA-CGM. There is practically no direct call from West African ports to Turkey. Most shipping lines have transshipments in Spain, Morocco and Malta. Transshipment usually takes place in transport hubs.

From the above table, it could be deduced that, Valencia, Algeciras, Tangier and Malta are transshipments port for cargoes from West and East Africa to European and Mediterranean ports. The reason for transshipment is to combine small shipments into a large shipment (consolidation), or divide the large shipment at the other end (deconsolidation). This strategy enables shipping lines to maximize their capacity (fill their allocation / slot); however, it attracts operational cost and adds up to transit times.

Figure 13: Routes and transshipment ports from Tema to Turkey



Source: Google map: Author's construct

Transit times from Tema to Turkey vary according to shipping lines. This variation depends on the number ports a shipping line decides to call along the loop. Transit times are also affected by the number vessels involved a rotational schedule. On average, transit times from Tema to Turkey ranges between a minimum of 22days to a maximum of 45days. Due to congestion in most West African ports, transit times may be prolonged further due to longer waiting times at anchorage. Therefore great care should be taken that containers stuffed with cocoa beans should not be allowed to stand exposed to sunlight for long periods of time at either loading port.

In some situations, connection schedules at transshipment ports could also be a prolonging factor. Shipping lines use transit times to market and fix their freight rates. Shorter transit time means good service and there attracts premium freight rates. The vice versa is true for longer transit times; however, this is always not the case in this era of fierce competition.

A minimum of 12 x 2 kg desiccant bags must be hooked inside a 20' container. For long transit time shipments. It is recommended that a minimum of 20 x 2 kg desiccant bags be placed per 20' container. The recommended target for unstuffing of

containers is 7 days from being made available by the Shipping Line. It is most important that containers be stripped without delay after arrival, as the danger of excessive condensation is greatest after the container has been discharged and is waiting on the pier to be moved and stripped. Moreover, containers arriving from origin at destination in a moderate climate zone during the winter should either be stripped immediately upon discharge from the vessel or transported to a sheltered indoor area, to prevent rapid drops of the temperature in the interior of the container and the formation of condensation.

4.4. TO INVESTIGATE THE SHIPPING LINES STRATEGY DURING PEAK SEASONS OF COCOA BEANS EXPORT

Trade imbalances are probably the most important source in the accumulation of empty containers in the global economy in general. A region that imports more than it exports will face the systematic accumulation of empty containers, while a region that exports more than it imports will face a shortage of containers.

Table 12: 2012 total trade volumes in TUE between Turkey and Ghana for all commodity types

2012								
TEMA IMPORT				TEMA EXPORT				TRADE IMBALANCE
POD	20FT	40FT	TEU	POD	20FT	40FT	TEU	TEU
ISTANBUL	3925	726	3965	ISTANBUL	410	515	1490	2475
MERSIN	1086	504	2094	MERSIN			80	2014
IZMIR	479	251	981	IZMIR	13	0	13	968
GEMLIK	53	91	235	GEMLIK	2	0	2	233
TOTAL	5543	1572	7275		425	515	1585	5690

Source: GPHA, 2013

From the table above, during 2012, total export to Tema from Turkey amounted to 7,275teu. However, total export to Turkey from Tema was only 1585teu. During this year, there was a total trade imbalance of 5690teu. Export from Turkey to Tema is mainly in 20ft units while export to Turkey from Tema is mainly in 40ft unit. This is because cocoa bean is main export commodity from Tema to Turkey and it is usually shipped in 40ft units.

The main export destinations from Tema to Turkey are Istanbul, Mersin, Izmir and Gemlik. Export to Istanbul alone accounted to 94 per cent (1490teu). This is because most of the cocoa beans processing firms are located in Istanbul; therefore, cocoa bean which is the main commodity of trade is destined to this area.

Table 13: 2013 total trade volumes in TEU between Turkey and Ghana for all commodity types

2013								
TEMA IMPORT				TEMA EXPORT				IMBALANCE
POD	20FT	40FT	TEU	POD	20FT	40FT	TEU	TEU
ISTANBUL	2018	483	2984	ISTANBUL	721	458	1637	1347
MERSIN	698	342	1382	MERSIN	144	169	482	900
IZMIR	510	203	916	IZMIR	48	72	192	724
GEMLIK	41	71	183	GEMLIK	46	18	82	101
TOTAL	3267	1099	5465		959	717	2393	3072

Source: GPHA, 2013

There was a slight change in trade pattern for 2013. 2013 experienced a total trade imbalance of 3072teu. This is mainly because export to Turkey from Tema improved, therefore reducing the imbalance. Despite above, export from Turkey to Tema is remained mainly in 20ft units. However, export to Turkey from Tema changed to be in 20ft unit. This is because new commodity trade such as palm kernel, pet food, and processed cocoa product were on the rise and are usually shipped in 20ft units. Main export destinations from Tema to Turkey remained the same for 2013 as well.

If trade imbalance situation persists, a repositioning of large amounts of containers will be required between the two trade partners, involving higher transportation costs and tying up existing distribution capacities. Once a container has been unloaded, another transport leg must be found as moving an empty container is almost as costly as moving a full container. Shipping companies need containers to maintain their operations and level of service along the port network they call. Containers arriving in a market as imports must eventually leave either empty or full.

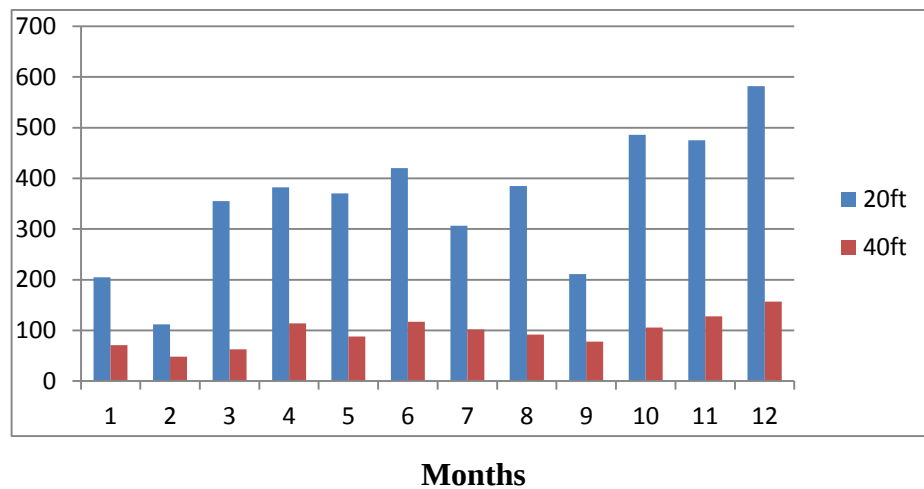
Table 14: 2013 monthly trade volumes between Turkey and Ghana for all commodity types

TEMA IMPORTS				TEMA EXPORTS				IMBALANCE		
MONTHS	20ft	40ft	TEU	MONTHS	20FT	40FT	TEU	20FT	40FT	TEU
01	205	71	347	01	67	15	97	138	56	250
02	112	48	208	02	55	17	89	57	31	119
03	355	63	481	03	62	36	134	293	27	347
04	383	114	611	04	81	142	365	302	-28	246
05	370	88	546	05	37	105	247	333	-17	299
06	420	117	654	06	90	34	158	330	83	496
07	307	102	511	07	60	17	94	247	85	417
08	385	92	569	08	86	42	170	299	50	399
09	211	78	367	09	133	68	269	78	10	98
10	486	106	698	10	169	241	651	317	-135	47
11	475	128	731	11	145	319	783	330	-191	-52
12	582	157	896	12	201	452	1105	381	-295	-209
TOTAL	4291	1164	6619	TOTAL	1186	1488	4162	TOTAL		

Source: GPHA, 2013

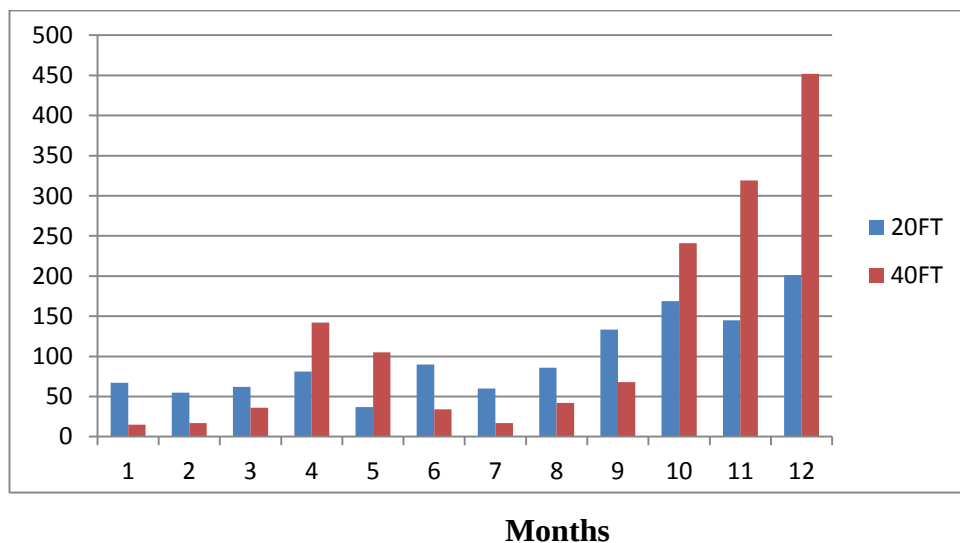
From the table above, import to Tema for 2013 from Turkey has not been linear. Volumes fluctuate according season. Peak season is usually during October, November and December. Import from Turkey to Tema is generally in 20ft units as indicated before. For example in December, total import was 4291x20fts and 1164x40ft. Graphical pictorial view shown below:

Figure 14: 2013 Import to Tema from Turkey for all commodity types shown in 20ft and 40ft



Source: Created by Author

Figure 15: 2013 Export from Tema to Turkey for all commodity types shown in 20ft and 40ft



Source: Created by Author

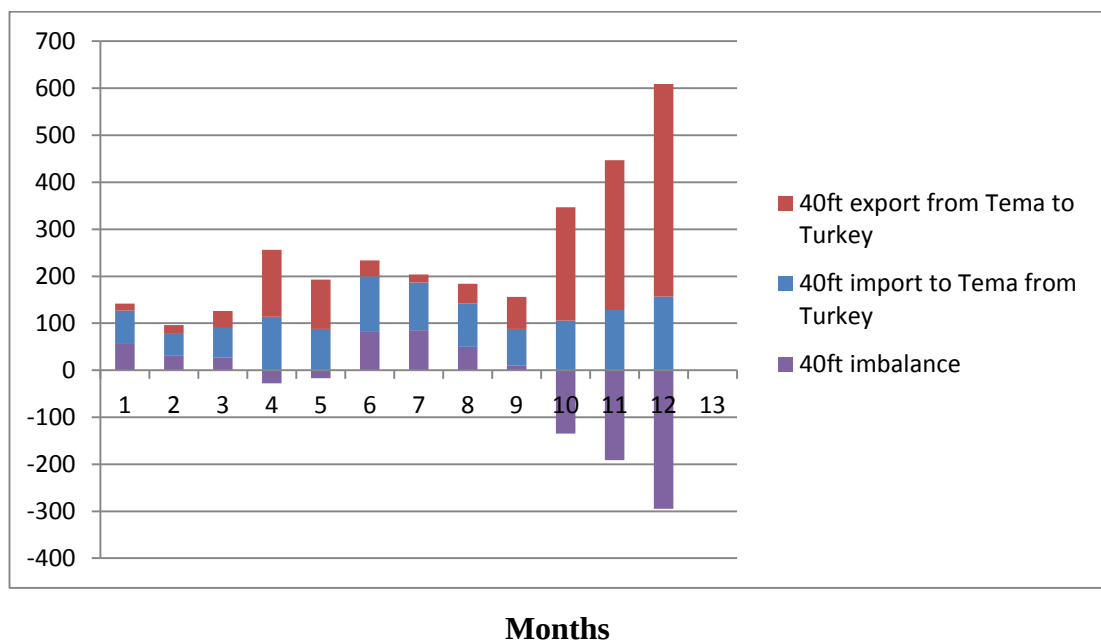
Export from Tema to Turkey is mostly in 40fts during cocoa peak seasons. Cocoa beans main peak seasons are September, October, November and December. Second peak season occurs during April, May, and June. As shown from the table above, during these months export from Tema in 40ft more than triples (651units, 783units and 1105units) as compared to the average. As a result, there are equipment

imbalances throughout the year. The most acute imbalance is during cocoa peak seasons when 40ft containers are needed.

During these seasons, the shipping lines strategy is to position more 40ft empty containers in other to meet demand. The fundamental reason behind the repositioning of a container is the search for cargo to insure the continuity of paid movements. A container is an asset which usage level is linked with profit and thus must constantly be in circulation

The longer the delay, the higher the cost. Repositioning thus begin immediately after a container has been unloaded and it is important since it involves costs. Empty container repositioning costs are substantial and include handling and transshipping at the terminal, chassis location for drayage, empty warehousing while waiting to be repositioned, inland repositioning by rail or trucking towards a maritime terminal and maritime repositioning. An empty container takes the same amount of space in a truck, railcar or containership slot than a full container

Figure 16: 2013 equipment imbalance (40ft only) for import and export between Turkey and Ghana for all commodity types



Source: Created by Author

Transport companies must cope with access and storing charges at terminals as well as wear and tear on equipment. Truck drivers are losing hours waiting to access terminal gates and distribution centres to return empty containers and chassis. Terminal operators lose productivity because of congestion and are facing pressures from localities to reduce the number of idle trucks at their gates.

CONCLUSION

Cocoa from Ghana continues to enjoy high premium on the World's Commodities Markets because of its unsurpassable high quality and the COCOBOD grading mechanism has done much to ensure it remains so. Cocobod sets a monopolistic market, this has two implications. On the one hand, a lack of competition along cocoa supply chain means that farmers capture very little share of the retail price of final cocoa products. The price uniformity allows that farmers all over the country benefit equally (that is if transportation costs are not taken into account). There is almost no competition among Ghanaian cocoa farmers as buyers are readily available and prices are fixed; rather competition is more important among LBCs that have to reach a threshold volume to be able to export.

On the other hand, competition could actually make farmers more vulnerable; farmers who are mainly based in remote areas where a limited number of buyers are willing to travel to could also be taken advantage of. However, in Ghana, farmers have the advantage that there are a large number of LBCs to choose from and as such farmers tend to choose LBCs that offer cash and credit facilities.

The cocoa value chain in Ghana can be more costly due to the increased attention paid to quality. As such, the handling cost is increased due to the intensive quality assessment. Cocoa marketing costs are relatively high at 15 per cent, and the costs and margins of profit of the COCOBOD and its subsidiaries account for around 5 per cent of the price of cocoa. Margins paid by the government to traders is said to be among the lowest in the sub region due to the large exporter margins and taxes the industry has to pay to the government.

Over the last decade, consumer markets in Turkey have grown insubstantially (at over 3% per annum). Total demand in Turkey has increased; there are millions of new consumers in these markets. Averagely, the import of cocoa bean by Turkey from Ghana accounts for over 52% of total import. This proportion in recent times is rising as bilateral relation is improving and more investment is the trade sector. Stronger growth is being experienced in the cocoa beans markets as incomes rise.

Cocoa production is highly sensitive to changes in weather conditions. Cocoa cultivation in Ghana is also predominantly rain fed and the best conditions for cocoa

farming are those in which there is favourable rainfall during the night followed by sunny days as these results in healthy looking trees with fully filled pods. The main cropping season in the country is October-February/March while there is also a smaller/light mid-crop cycle, which occurs from around April/May to mid-September. Change in national output has not been linear; it has fluctuated in various patterns between different years. However, in general, cocoa beans production increased in most years. Increases in production are attributed mainly to favourable weather conditions and increased investment in the cocoa sector by the Ghana Government. In some extreme situations, political turmoil in Côte d'Ivoire (Ghana's main competitor) which made it uncompetitive to export, leads to increase in Ghana's cocoa bean export volume.

CIF is most preferred to FOB mainly because of the following; it boosts Ghana's Balance of payments on the international market. It gives the Shipping department of CMC/COCOBOD control over shipments arrangements because the department handles the nomination of vessels. It creates employment opportunities for Ghanaians since the services of local seafarers and insurance brokers are required. Moreover, the taxes charged on the transactions also increases Government's revenue. FOB is used when developing new markets.

Export from Turkey to Tema is mainly in 20ft units while export to Turkey from Tema is mainly in 40ft unit. This is because cocoa bean is the main export commodity from Tema to Turkey and it is usually shipped in 40ft units. If trade imbalance situation persists, a repositioning of large amounts of containers will be required, involving higher transportation costs and tying up existing distribution capacities. The outcome has been a growth in the repositioning costs as shippers attempt to manage the level of utilization of their containerized assets. Export from Tema to Turkey is mostly in 40fts during cocoa peak seasons.

During peak months export from Tema in 40ft more than triples as compared to the average. There are equipment imbalances throughout the year, but the most acute imbalance is during cocoa peak seasons when 40ft containers are needed. During these seasons, the shipping lines strategy is to position more 40ft empty containers in order to meet demand. The fundamental reason behind the repositioning of a container is the search for cargo to insure the continuity of paid movements.

In Ghana, demand for road transport is highly seasonal, requiring a high transport capacity at the peak of cocoa bean season. High road transport demand originates in rural areas with generally poor road infrastructure where transporters are often unwilling to go. Transport companies must cope with access and storing charges at terminals as well as wear and tear on equipment. Truck drivers are losing hours waiting to access terminal gates and distribution centres to return empty containers and chassis. Terminal operators lose productivity because of congestion and are facing pressures from localities to reduce the number of idle trucks at their gates.

In order to serve this peaked demand shipping lines have to use a combination of own-account vehicles (to serve areas where the private transport companies are unwilling to go) and transport contracts with large transporters (to serve the major transport flows), supplemented with hire of trucks at the spot market during the highest peaks. For long transit time shipments, it is recommended that a minimum of 20 x 2 kg desiccant bags be placed per 20' container. The recommended target for unstuffing of containers is 7 days from being made available by the Shipping Line. It is most important that containers be stripped without delay after arrival, as the danger of excessive condensation is greatest after the container has been discharged and is waiting on the pier to be moved and stripped.

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APPENDIX

APPENDIX 1: QUESTIONNAIRE FOR COCOBOD



DOKUZ EYLUL UNIVERSITY
MARITIME FACULTY, TINAZTEPE CAMPUS
BUCA 35160, IZMIR, TURKEY



The questionnaire is designed to ANALYSE THE MARITIME TRADE OF COCOA BEANS BETWEEN GHANA AND TURKEY. The result of this study is solely for academic purpose and any information provided is firmly for such purpose.

Name of Respondent

Position of Respondent

Department of Respondent

Respondent's work experience with COCOBOD?

1. What are the annual production, annual local consumption, quarterly export (to Turkey) and annual stock statistics of cocoa beans from 2002 to 2012?
2. How is cocoa shipment carried out? (Containerised / bulk).
3. What is the proportion of containerised to bulk shipment between 2002 and 2012?
4. Why is C.I.F / F.O.B the preferred freight type in cocoa beans trade?
5. Who are the major importers (in Turkey) of cocoa beans from Ghana?
6. What are the quarterly volumes of import by these major importers from 2002 to 2012?
7. What are the quarterly volumes of export to Turkey through Tema and Takoradi port?
8. Why is Tema/Takoradi the main port of cocoa beans export to Turkey?
9. What are the major shipping lines involved in the seaborne transport of the cocoa beans from Ghana to Turkey, and what are their quarterly volumes from 2002 to 2012?
10. What are the cocoa beans seaborne transport- related regulatory and legal frameworks?

Thank you.

APPENDIX 2: QUESTIONNAIRE FOR GPHA



DOKUZ EYLUL UNIVERSITY
MARITIME FACULTY, TINAZTEPE CAMPUS
BUCA 35160, IZMIR, TURKEY



This questionnaire is designed to ANALYSE THE MARITIME TRADE OF COCOA BEANS BETWEEN GHANA AND TURKEY. The result of this study is solely for academic purpose and any information provided is firmly for such purpose.

Name of Respondent

Position of Respondent

Department of Respondent

Respondent's work experience with GPHA

1. How is the cocoa bean custom export procedure carried out?
2. What are the necessary custom documentations for cocoa beans export?
3. How are the responsibilities of the shipper different from that of the shipping line in cocoa beans export?
4. What are the cocoa beans export tariffs statistics (from 2002 to 2012) to Turkey and the rest of the world?
5. What is the average lead-time from arrival of cocoa beans at the port of loading, to the departure of vessel? (yearly statistics from 2002 to 2012)
6. Where are the storage and loading terminals or locations? Are they special (dedicated) terminals with special facilities?
7. Why and how is cocoa beans container dressing requirement different from other cargo types?
8. What are the quarterly volumes of export to Turkey through Tema and Takoradi port (from 2002 to 2012)?
9. Why is Tema / Takoradi the main port of cocoa beans export to Turkey?

Thank you.

APPENDIX 3: QUESTIONNAIRE FOR ARKASLINE



DOKUZ EYLUL UNIVERSITY
MARITIME FACULTY, TINAZTEPE CAMPUS
BUCA 35160, IZMIR, TURKEY



This questionnaire is designed to ANALYSE THE MARITIME TRADE OF COCOA BEANS BETWEEN GHANA AND TURKEY. The result of this study is solely for academic purpose and any information provided is firmly for such purpose.

Name of Respondent

Position of Respondent

Department of Respondent

Respondent's work experience with ARKASLINE.....

1. What are monthly lifting of all containers shipments (all commodity types) from Tema to All Turkish port for 2012 and 2013?
2. What are monthly lifting of cocoa beans from Tema to All Turkish port for 2012 and 2013?
3. What are the average transit times from Tema to major Turkish ports?
4. What are the main ports of destination for cocoa beans from Tema to Turkey?
5. How do you respond to cocoa beans seasonal changes?
6. What is the preferred container type for cocoa beans shipments and why?
7. Who are the major shippers of cocoa beans from Tema to Turkey?
8. What are the preferred freight types for cocoa beans shipment?

Thank you.