Quality Enhancement in Cocoa Production

a Study of the Cocoa Sector of Ghana

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Adjoa Tsetsewa Annan

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Zusammensetzung der Prüfungskommission:

Prof. Dr. Jörg Blasius

(Vorsitzender)

Priv. Doz. Dr. Eva Youkhana

(Betreuerin und Gutachterin)

Prof. Dr. Mathias Becker
(Gutachter)

Prof. Dr. Christian Borgemeister
(weiteres prüfungsberechtigtes Mitglied)

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Abstract

The cocoa value chain emphasises farmers' poor environmental, social, and post-harvesting practices during cocoa beans production. These poor quality practices raise ethical and environmental issues in cocoa production and affect finished products' food quality. Thus, there is a proliferation of industry, certification, and sustainability standards to address quality and ethical issues in cocoa production. These initiatives create a positive impression on the cocoa end-market and inform consumers when buying chocolate and other confectionery. Given this, the study sets to understand how cocoa and chocolate companies implement quality standards in growing communities to enhance environmental, social, and post-harvesting practices in cocoa production. Concerning this, the study seeks to examine knowledge sharing on quality enhancement technologies. It also examines the assessment process of farmers' compliance with quality standards. Therefore, literature and theory on value chain, standards, and extension, are reviewed to understand the interplay of knowledge sharing and assessment of quality standards in value chains. The study employed a qualitative methodology to assess the promotion of quality enhancement in two communities in the Ashanti region of Ghana. In-depth interviews, focus group discussion, participatory observation, and net-mapping were used to collect empirical data from key respondents. These respondents include certified and conventional farmers, cocoa and chocolate companies, non-governmental organisations, purchasing clerks, cocoa scientists, extension agents, and Ghana Cocoa Board. The implementation of quality standards in the cocoa sector, is an issue of governance, specifically, loosely coordination of activities. Precisely, the characteristics of loosely coordinated activities concerning the implementation of quality standards in the cocoa sector, comprise weak communication among actors, inadequate information and knowledge sharing, lack of monitoring and control of activities and actors. Due to the absence of strict coordination of extension services and quality standards assessment, there was an overall low impact of quality enhancement programmes on farmers' quality practices. Specifically, there was inadequate knowledge sharing on environmental, social, and post-harvesting practices. Therefore, farmers' quality practices also showed mixed results. Certified male and female farmers struggled to comply with environmental standards on agrochemical application and farm sanitation. Nonetheless, both male and female certified farmers complied with social standards on child labour and slavery. Both certified and conventional farmers struggled to comply with all

standards under post-harvesting. The quality standard assessment employed to monitor farmers' conformity to standards was lenient, reducing farmers' quality consciousness. Concerning quality assessment on certification programmes, many farms went unaudited, and there were insufficient tools to monitor farmers' practices on environmental and social standards. In like manner, during cocoa beans purchasing, inferior cocoa beans were accepted. However, competition for farmers in the sector was a factor that influenced lenient quality assessment. It also led to the establishment of informal power relations between farmers and cocoa and chocolate companies. Even though at the cocoa end-market, quality standards are portrayed as a useful tool to eradicate poor quality practices in cocoa production, its implementation in the growing communities did not improve farmers' quality practices in the studied communities.

Zusammenfassung

Die Kakao-Wertschöpfungskette betont die schlechten Umwelt-, Sozial- und Nacherntepraktiken der Landwirte während der Kakaobohnenproduktion. Diese schlechten Qualitätspraktiken werfen ethische und ökologische Probleme bei der Kakaoproduktion auf und beeinträchtigen die Lebensmittelqualität der fertigen Produkte. Daher gibt es eine Zunahme der Industrie-, Zertifizierungs- und Nachhaltigkeitsstandards, um Qualitäts- und ethische Probleme bei der Kakaoproduktion anzugehen. Diese Initiativen hinterlassen einen positiven Eindruck auf dem Kakao-Endmarkt und informieren die Verbraucher über den Kauf von Schokolade und anderen Süßwaren. Vor diesem Hintergrund soll untersucht werden, wie Kakao- und Schokoladenunternehmen Qualitätsstandards in wachsenden Gemeinden umsetzen, um die Umwelt-, Sozial- und Nacherntepraktiken bei der Kakaoproduktion zu verbessern. In diesem Zusammenhang wird der Wissensaustausch über Technologien zur Qualitätsverbesserung untersucht. Darüber hinaus wird der Bewertungsprozess für die Einhaltung der Qualitätsstandards durch die Landwirte untersucht. Daher werden Literatur und Theorie zur Wertschöpfungskette, zu Standards und Erweiterungen überprüft, um das Zusammenspiel zwischen Wissensaustausch und der Bewertung von Qualitätsstandards in Wertschöpfungsketten zu verstehen. Die Studie verwendete eine qualitative Methodik, um die Förderung der Qualitätsverbesserung in zwei Gemeinden in der Region Ashanti in Ghana zu bewerten. Eingehende Interviews, Fokusgruppendiskussionen, partizipative Beobachtung und Netzkartierung wurden verwendet, um empirische Daten von wichtigen Befragten zu sammeln. Zu diesen Befragten gehören zertifizierte und konventionelle Landwirte, Kakao- und Schokoladenunternehmen, Nichtregierungsorganisationen, Einkäufer, Kakaowissenschaftler, Berater und das Ghana Cocoa Board. Die Umsetzung von Qualitätsstandards im Kakaosektor ist ein Governance-Problem, insbesondere die lose Koordinierung der Aktivitäten. Zu den Merkmalen lose koordinierter Aktivitäten im Hinblick auf die Umsetzung von Qualitätsstandards im Kakaosektor gehören eine schlechte Kommunikation zwischen den Akteuren, ein unzureichender Informations- und Wissensaustausch sowie eine unzureichende Überwachung und Kontrolle der Aktivitäten und Akteure. Aufgrund einer lockeren Koordinierung der Beratungsdienste und der Bewertung der Qualitätsstandards hatten die Programme zur Qualitätsverbesserung insgesamt nur geringe Auswirkungen auf die Qualitätspraktiken der Landwirte. Insbesondere gab es keinen

ausreichenden Wissensaustausch über Umwelt-, Sozial- und Nacherntepraktiken. Infolgedessen zeigten auch die Qualitätspraktiken der Landwirte gemischte Ergebnisse. Zertifizierte männliche und weibliche Landwirte hatten Probleme, die Umweltstandards für den Einsatz von Agrochemikalien und die Hygiene in landwirtschaftlichen Betrieben zu erfüllen. Dennoch haben sich sowohl männliche als auch weibliche zertifizierte Landwirte an soziale Standards für Kinderarbeit und Sklaverei gehalten. Sowohl zertifizierte als auch konventionelle Landwirte haben Probleme, alle Nachernte-Standards zu erfüllen. Die Bewertung der Qualitätsstandards zur Überwachung der Einhaltung der Standards durch die Landwirte war mild und verringerte das Qualitätsbewusstsein der Landwirte. In Bezug auf die Qualitätsbewertung von Zertifizierungsprogrammen blieben viele Betriebe ungeprüft, und es gab nicht genügend Instrumente, um die Praktiken der Landwirte in Bezug auf Umwelt- und Sozialstandards zu überwachen. Beim Kauf von Kakaobohnen wurden auch minderwertige Kakaobohnen akzeptiert. Der Wettbewerb um Landwirte in diesem Sektor war jedoch ein Faktor, der die milde Qualitätsbewertung beeinflusste. Es führte auch zum Aufbau informeller Machtverhältnisse zwischen Landwirten und Kakao- und Schokoladenunternehmen. Obwohl Qualitätsstandards als nützliches Instrument zur Beseitigung von Kakaoproduktionspraktiken von schlechter Qualität auf dem endgültigen Kakaomarkt dargestellt werden, hat ihre Umsetzung in den wachsenden Gemeinden die Qualitätspraktiken der Landwirte in den untersuchten Gemeinden nicht verbessert.

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Dedication

To,

Almighty God,
Prophet Emmanuel Kwesi Adomako
and
Grace Aba Ansahba Mensah.

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Abbreviation and Acronyms

CEPS	Custom Excise and Preventive Service
CMA	Cocoa Merchant Association
COCOBOD	Ghana Cocoa Board
CPC	Cocoa Processing Company
CSSVD	Cocoa Swollen Shoot Virus Disease
ECOWAS	Economic Community of West African States
ECOSTAND	Economic Community of West African States Standards
EU	European Union
FCC	Federation of Cocoa Commerce
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
GPA	Ghana Ports Authority
GPN	Global Production Network
GSA	Ghana Standards Authority
GSC	Global Supply Chain
HACCP	Hazard and Critical Control Point Identification Systems
MoFA	Ministry of Food and Agriculture
BCCCA	UK Biscuit, Cake, Chocolate and Confectionery Alliance
WCF	World Cocoa Foundation

Chapter 1 Introduction

Many people love chocolate; the most popular food made from cocoa. Cocoa is a low-canopy forest tree which is grown by smallholder farmers in the tropical climates (COCOBOD, 2020). Recently, its production practices have come under scrutiny, as it influences the quality and taste of the finished product. It also poses a threat to the sustainability of the crop, environment, and lives of cocoa families; especially raising ethical concerns on labour practices, loss of biodiversity and inequality during cocoa production. Production practices relate to the agricultural, environmental, and social practices undertaken, during the cultivation of cocoa plant, and production of cocoa beans (End & Dand, 2015). Ensuring quality enhancement in cocoa production, cover proper practices on waste and water management, safe use of agrochemical application, good labour, and post-harvesting practices (Bijman & Bitzer, 2016; Quarmine, 2013; Tampe, 2016). However, these practices are not always ensured among farmers during cocoa production.

In the early 2000s, cocoa and chocolate companies were scrutinised for being involved in child slavery and labour in the West African cocoa-producing countries, especially in Cote d'Ivoire and Ghana, the two major cocoa producers. Children were employed to work on cocoa plantations, where big chocolate companies like Mars, Nestle, and Ferrero bought cocoa beans (Tampe, 2016; Whoriskey et al., 2019). After the incidence of child labour, other issues of poor post-harvesting and environmental misconduct as well as labour discrimination, especially among females surfaced (Tampe, 2016; Whoriskey & Siegel, 2019). Since these incidences, the banner of enhancing quality practices in cocoa production was raised high in the media, among industry players, standard-setting bodies, producing and consuming countries, as well as consumer activists and Non-Governmental Organisations (NGOs).

Promoting quality practices in cocoa production has also influenced consumers' awareness. International consumers especially have also become more aware of production practices. They are eager to know where their chocolate and confectionery ingredients come from, how they are produced and the consequences of production practices on the lives of farmers, the environment, and their community. Research shows that international consumers are willing to pay a premium for chocolate that has been ethically produced and promotes environmental conservation (Didier & Lucie, 2008).

As a result of poor production practices, there have been both international and regional efforts to enhance production practices. In 2001 for instance, cocoa and chocolate industry players signed an international cocoa agreement called the Harkin-Engel Protocol, initiated by U.S. Senator Tom Harkin and U.S. Representative Eliot Engel to eliminate the worse forms of child labour in cocoa production (Tampe, 2016). Among other international initiatives, include Global Cocoa Agenda, and Cocoa Action. During the global cocoa agenda, for instance, industry players agreed:

> "There is the need to improve cocoa quality by better communication of industry needs, post-harvesting processing and quality assessment and to enhance food safety by wider promotion and adoption of good agricultural practices" (End & Dand, 2015, p. 6).

At the regional level, the cocoa and forest initiative, spearheaded by cocoa and chocolate companies, Ghana, and Cote d'Ivoire, aims to combat deforestation in growing communities. Additionally, certification schemes in the sector, among which include Fairtrade, UTZ, Rainforest and Organic, which evolved in the early 2000s also promote quality enhancement practices among other concerns in cocoa production. In like manner, some cocoa and chocolate companies, implement sustainability programmes in cocoa-growing communities which seek to enhance environmental sustainability and social standards. As a result, there is now the proliferation of multinational initiatives, company sustainability and certification standards in the cocoa-producing countries and communities, primarily in Cote d'Ivoire and Ghana.

In Ghana, cocoa is an important cash crop that serves as the primary source of livelihood among more than 800,000 farmers and families (COCOBOD, 2020). Ghana is the second-largest cocoa-producing country after Cote d'Ivoire (Vigneri & Kolavalli, 2018). The Ghanaian cocoa beans is known for its high quality, attracting a premium in the global market (Kolavalli et al., 2012; Kolavalli & Vigneri, 2018; Laven, 2007). Premium is paid on Ghanaian beans due to the product quality (higher fat content, flavour, lower content of defective beans and foreign matter) in addition to the packaging, traceability (label and identity through bag marking) and the consistency of supply and the timely delivery of produce. This makes contracts with the Ghanaian market preferable, and the price paid is 3 to 5 per cent higher compared to other African producing countries (Kolavalli et al., 2012). Producing better quality beans gives Ghana a comparative advantage over other countries (Fold, 2002).

However, since the liberalisation of the internal marketing of cocoa beans in the sector in 1992, the quality of cocoa beans keeps deteriorating (Quarmine, 2013; Vigneri & Kolavalli, 2018). The Ghanaian cocoa beans presently suffer from purpled beans, as a result of poor fermentation during post-harvesting practices. There are also poor environmental and social practices among farmers during cocoa production, which is affecting the forest, wildlife and overall ecosystem of the cocoa communities (Camargo et al., 2019). Factors contributing to the deteriorating of quality in the sector, include poor extension services on quality enhancement, and lenient quality control at the farm and purchasing levels. Liberalization of internal marketing has also induced competition among cocoa and chocolate buying companies which has led to lenient quality control and consequently, the production of inferior cocoa beans. Due to this, the Ghanaian beans have been rejected in recent years and there is a fear that the quality of Ghanaian cocoa beans may worsen if there is no improvement in production practices (Quarmine, 2013; Vigneri & Kolavalli, 2018).

To enhance production practices in the sector, the Ghana Cocoa Board (COCOBOD), the regulator of the cocoa sector, work closely with licensed cocoa buying companies consisting of both local and international cocoa and chocolate companies to implement physical cocoa standards among farmers in the various growing communities. As part of their responsibilities, they are mandated to train farmers on best post-harvesting practices and perform quality assessments during purchasing of cocoa beans. To promote good environmental and social practices, some of these licensed buying companies, also implement certification schemes in the cocoa communities. In addition to this, some multinational cocoa and chocolate companies, implement sustainability programmes in the cocoa communities. In 2017, for instance, there were more than 40 certification and sustainability programmes implemented in the sector (In-depth Interview, COCOBOD, 4.07.2017, Accra). In this regard, the sector heavily relies on cocoa and chocolate companies to promote quality enhancement in cocoa production among farmers in the growing communities.

Given this, the thesis is set to investigate how cocoa and chocolate companies are implementing quality standards in cocoa production among farmers in the cocoa communities of Ghana. It seeks to understand how these initiatives overall improve farmers' quality practices in cocoa production. Therefore, the study aims to examine the quality enhancement knowledge shared with farmers and how this is delivered. Farmers' quality practices during the cultivation of cocoa and production of

cocoa beans are also analysed. Finally, the study seeks to find out how cocoa and chocolate companies carry out quality assessments at the farm and purchasing stages of cocoa beans.

1.1 Research Problem

There are poor production practices in cocoa production among farmers, which leads to profound consequences. For example, Hainmueller et al. (2011, p. 24) claim that about 34 percent of cocoa beans are lost due to poor post-harvesting practices. In addition to this, poor environmental practices, including cultivating reserved forests, clearing land by setting a fire, and poor farm sanitation, affect low crop yield and lead to loss of soil fertility and water contamination (Waarts et al., 2015). Whereas poor labour practices, including child labour and low wages paid to labourers, increase social disparity and affect children's health and education (Barrientos, 2013; Barrientos & Bobie, 2016). Beyond these, poor quality practices disturb cocoa production's overall sustainability, contributing to an unstable ecosystem and society (End & Dand, 2015). Poor production practices also reflect unsustainable sourcing practices of cocoa beans among cocoa and chocolate companies.

However, despite the proliferation of quality-initiated programmes to eradicate poor production practices, the cocoa value chain governance is characterised by loose coordination on quality standards programmes. Due to this, there is a lack of monitoring and control of activities among actors, weak communication among actors, lenient quality assessment and inadequate information and knowledge sharing. This affects the effectiveness of quality-initiated programmes to eradicate poor quality practices in cocoa production. As a result, because of inadequate information and knowledge sharing, and lack of monitoring of extension services, farmers' do not have access to adequate knowledge on quality enhancement practices in cocoa production. Lack of monitoring and control of farm auditing and physical inspection of cocoa beans also leads to a poor quality consciousness among producers. Consequently, in a long term, poor coordination of quality standards programmes affects the production of quality cocoa and farmers' quality practices.

1.2 Relevance of the Study

Research conducted in the cocoa sector has explored the nature of the crop and how it can be cultivated (Asare et al., 2018; Dzahini-Obiatey et al., 2006; Franzen & Borgerhoff Mulder, 2007). Further studies have also examined the political discourse on the Ghanaian cocoa sector and the

role of institutions in the development of the sector (Kolavalli & Vigneri, 2011; Kolavalli et al., 2013). The pricing policy and its effects on farmers in the sector are vastly explored (Gockowski et al., 2011; Vigneri & Kolavalli, 2018). In the context of the study, Quarmine (2013), extensively investigated the role of incentives to motivate farmers to produce quality cocoa. In his research, he depicts how the organisation of the cocoa sector in Ghana, affects information asymmetry and incentives for quality cocoa production. Tampe (2016), thoroughly, assessed the impacts of Fairtrade on the livelihoods of farmers in Ghana. Other research, has also examined the various sustainability standards in the cocoa sector and analysed how they affect cocoa productivity and farmers' income (Bymolt et al., 2018; Deppeler et al., 2014; Ingram et al., 2018; Laven et al., 2017).

However, this study touches on the role of cocoa and chocolate companies in enhancing quality practices in cocoa production. It also explores, the different quality enhancement knowledge shared with farmers. Farmers' quality practices and how quality assessment is carried out in the studied communities are studied. To this effect, the study, documents how the promotion of quality enhancement in cocoa production is implemented in practice; identifying the dynamics and struggles when enhancing quality practices in cocoa production. In this way, the study substantially contributes to providing insights into the real challenges, and prospects of improving quality practices among farmers. The results of the study inform standard bodies, COCOBOD, cocoa and chocolate companies and other industry players, on the challenges of standards' implementation on the ground. Vividly, it also contributes to the theory of value chain governance and how the cocoa value chain can be upgraded and enhanced through well-coordinated interventions.

1.3 Organisation of the Thesis

The thesis is structured into nine chapters to address the research objective and questions under the study. Chapter two provides the literature review, theoretical insights, and conceptual framework adapted to analyse the thesis. The chapter explores literature and theoretical lens on the value chain and the different structures which can affect the coordination of interventions in a value chain. The literature will also cover quality, its role in value chains and assessment in value chains. The literature on extension services in value chains will explore the different extension systems, extension delivery approaches, and knowledge-sharing processes during extension delivery.

Chapter three documents the methodological process of collecting data for the write-up of the thesis. It discusses how the different methods were used in the context of the cocoa sector to collect data from various respondents. The chapter provides information on the different interactions among different respondents, participatory tools employed, and the experiences encountered during data collection. The ethics of research and positionality of the researcher is also discussed.

Chapter four presents information on the context of the study area. It further provides information on the context of cocoa production practices in the study areas. Chapter five provides information on the governance structure of the cocoa value chain. It provides information on the different segments that constitute the cocoa value chain, relating it to the Ghanaian context. It also provides information on the governance of quality standards, highlighting the different standards implemented in the sector and the actors involved. The various governing styles employed to manage the sector and implement quality standards are reviewed.

Chapter six examines the extension services provided on post-harvesting, environmental and social practices in cocoa production. It presents the challenges of extension and knowledge sharing on quality enhancement and how this affects farmers' access to adequate knowledge. It also reflects on the power and control dynamics that occur in the process of knowledge sharing. Chapter seven explores the quality assessment of environmental, social, and post-harvesting practices among farmers. Therefore, it examines the quality assessment process that is carried out and how it influences farmers' quality consciousness and enhancement practices.

Chapter eight documents farmers' quality and non-quality enhancement practices during cocoa production in the studied communities. The quality practices examined include environmental, social, and post-harvesting practices. It explores how the provision of extension services and quality assessment affects the production of quality cocoa beans. Chapter nine gives insights into the conclusion and summary of the findings of the study. It also identifies further research areas that could be investigated in the future.

Chapter 2 Theory, Concept and Literature Review; Value Chain, Standards and Extension

Quality plays a vital role in value chains, and its promotion has become prominent among agricultural commodities. Recently, quality concerns have become global since it connects end-users and producers in a value chain through traceable labels. In addition to this, promoting quality has become relevant because it addresses issues on agricultural, environmental, and social practices, which determine the food safety and quality of an end-product. To enhance quality, it is relevant that it begins at the production stage of a crop. As such, there is a need for producers to adopt good agricultural, environmental, and social practices at the farming stages. In this regard, the provision of extension services and the implementation of quality assessment to check standards conformity are relevant in promoting quality standards. Therefore, the chapter begins by examining the literature on value chains. It also reviews the literature on standards to identify how quality is monitored and controlled. The chapter further examines literature and theory on extension, to understand how knowledge is shared or exchanged. The chapter ends with the conceptual framework and the research questions addressing the thesis.

2.1 Value Chain and Concepts

A value chain can be defined as "the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use" (Kaplinsky & Morris, 2000, p. 4). Although this definition assumes value chain as static and its stages exist automatically, in the real world, the composition of value chains is complex. They are complex because, they move beyond the economic activities of the production of a product and its consumption, to incorporate issues on socio-cultural, political and the environment, which influence the proper functioning of value chains. It also involves policies, standards, and high technological systems, which introduce power relations among different actors in a value chain. As a result, value chain has become a vital concept in development studies and has been applied to the food and agriculture, apparel, automobile, and computer industries.

Value chain application goes beyond industries, to include the realisation of developmental goals. Based on value chain analysis, pro-poor policies and interventions have been developed and implemented in agricultural value chains to help producers in producing countries capture higher returns. For example, standards have been identified as a tool to integrate producers into global markets to increase producers' income, improve livelihoods and also to alleviate poverty (Seville et al., 2011). Value chain analysis also points out the nature of competitiveness in markets and how commodities are sourced and branded to capture returns. Kaplinsky and Morris (2000) suggest value chain analysis can understand how gains are distributed among actors and at which stages margins are captured.

Kaplinsky and Morris (2000) identify five general stages in a value chain, including production, trading and delivery, processing, marketing, and consumption. In the real world, the five general stages are intertwined with different sub-stages, divisions, activities, actors, and power relations. The stages from production to consumption or after consumption may differ in various value chains. For example, in environmentally driven value chains (forest products), a recycling stage comes after the consumption stage of the chain. Kaplinsky and Morris (2000) also ignore the influence of developments in global markets that might demand extra activities along the value chain. For instance, the introduction of global standards in value chains requires additional activities and functions as well as extra demands along the different stages of a value chain. With the introduction of standards, for example, producers carry out extra activities on environmental and social best practices at the production stage to comply with quality standards. Global standards have also introduced traceability systems and technological advancements in logistics and transportation at the trading and delivery stages as well as certification and labels in the marketing stage.

Another component that is ignored by orthodox literature on value chain is the role of gender in the various stages of a value chain. For example, Barrientos and Bobie (2016) denote that both male and female producers contribute to the sustainability of cocoa. However, female farmers contribute more to social and labour standards because they are more sensitive to protecting children from engaging in hazardous activities. Because of the extensive nature of the production stage of a value chain, it is relevant to assess the different production systems, the role of both

male and female producers in contributing to the production and sustainability of a commodity and male and female producers' access to knowledge, inputs and resources.

Actors play different functions in value chains. Actors found in value chains may be distinguished into primary and external actors. Primary actors are those who play the main roles in every segment of a chain. Primary actors may include producers, traders, manufacturers, branding companies and retailers. External actors are those who perform periphery services, including extension providers, input supply companies, certification bodies but also NGOs and international organizations. In my study, value chain analysis can identify different production systems and their contribution to environmental and social sustainability as well as product quality. It can also determine the prominent actors in the cocoa value chain that are involved in controlling resources, extension activities and undertaking quality assessments. Issues on why power relations exist, and how it affects the production of quality, and trading activities can be highlighted.

Concepts of Value Chain

Different concepts have evolved to explain value chain and how it operates in different industries. The first concept to describe value chain was the ***Filière*** concept developed in the 1960s. The concept served as an analytical tool to describe the African agricultural commodity chains such as cocoa, coffee and cotton in the French African colonies. The concept is based on the assumption that value chains are a set of chains that are connected (Raikes et al., 2000). Until the early 1980s, it was a simple tool that helped to identify the different stages of a value chain, its related activities, and actors in a production system were included. In the early 1980s, the analysis of power relations within production systems was included in the analysis but this was limited to state power. Its' application to analyse power relations is limited due to its initial focus on agricultural commodities controlled by marketing boards (Raikes et al., 2000).

The Filière approach to analysing value chain is limited as a tool to capture the relevant aspect of chain activities, interrelations between internal and external actors, and its dynamics (within production systems and outside production systems). The concept features value chain stages and activities as predictable and not innovative as well as evolving. Therefore, it fails to address sustainability issues in the environment, culture, and society, which are at the core of recent value

chains. According to Raikes et al. (2000), the Filière approach is limited to quantitative research and analysis. In this regard, the concept does not comprehensively capture the processes of power, knowledge transfer, and interactions. Therefore, its focus has so far been limited to research on marketing in agricultural commodity chains. The concept is also limited to the local contexts of production systems and does not incorporate the global context into its analysis. Consequently, critical research areas on producers' integration into global markets and their impacts cannot be reflected. Beyond this, issues on global policies and standards cannot be thoroughly analysed with this concept and the influence of globalisation on agricultural commodity chains is simply ignored.

Commodity Chains Theory is rooted in world-system theory, and Hopkins and Wallerstein (1986) first introduced the concept of commodity chains in 1977. Their input was marked by analysing the significant changes that occurred in the seventeenth, eighteenth and nineteenth-century in commodity chains. The concept denotes commodity chains as networks of labour as well as production processes that contribute to the manufacture of the final commodity. From this perspective, the division of labour constituted the main form of the production process at every stage of development. Significant structural changes in a commodity chain that can affect the division of labour occurred based on its geographical distribution of operations, forms of the labour force within a particular chain, technology and its relation to production and degree of dispersion of operations found within a production site (Hopkins & Wallerstein, 1986, p. 163).

The world system theory perspective of commodity chains emerged from analysing the integration of global labour into the world economy. Using the shipping and wheat flour commodity chains for understanding this process, Hopkins and Wallerstein explored the global division of labour in a capitalist world economy from the period 1590 to 1790 (Bair, 2009; Hopkins & Wallerstein, 1986). Further remarks on this argument suggest that commodity chains are intertwined in a social production system, which predates the existence of the capitalist world economy (Bair, 2009). Regardless of the integral global division in the world economy noted by Hopkins and Wallerstein (1986) their ideas were strongly contested to treat commodity chains as a perfect market in the world economy. This system creates an unequal distribution of rewards along commodity chains and in the world economy (Arrighi & Drangel, 1986).

The world system theory perspective of commodity chains deeply accounts for the synergies that interplay in producing a final commodity. This may pertain to overlapping activities in different commodity chains to produce a particular final product resulting in a commodity network and not within the boundary of a chain. It also reflects on the power and control of forms of labour along a commodity chain. Although other commodity chain authors share the world-system perspective, critics of the methodology raise concerns firstly its definition of a chain or perhaps a chain network and the cut point of its analysis which is argued to be wide (Bair, 2009). Therefore, it fails to analyse real issues of poverty and does not analyse how producers are integrated into the world market.

In the early 1990s, the ***Global Commodity Chain (GCC)*** concept, analysed value chains in a broader context to include the global distribution and arrangement of production systems with linkages in economic activities and players along the chain. Three dimensions, which describe a GCC have input-output structure, territoriality, and governance structure. An input-output structure is a process of adding value to economic activities along the chain through the availability of services provided and a set of products enhancing a product. The territoriality component conforms to a cluster of firms, production and distribution networks found in a geographical setting (Gereffi & Korzeniecwicz, 1994). At the same time, the governance structure relates to the power and control of certain players in the chain who control resources (fiscal, human, and material) in a chain (Gereffi & Korzeniecwicz, 1994).

Central to the analysis of commodity chains is analysing of the production networks. It depicts the dynamism of complex actors in production networks (Henderson et al., 2002). This approach pays attention to patterns of exploitation and profiteering, identifies winners and losers, and pays attention to patterns of inequality. Because of this, the concept can address issues on power relations within the cocoa value chain and bring out the nexus of quality standards implementation and its management, as well as producers' control of production systems. However, it fails to analyse the influence of external actors who are service providers and different supplier networks found within chains. It also limits its functionality to examine the local, regional, inter-firm and global nexus of commodity chains and assumes a similar methodological approach used in analysing different GCCs (Bair, 2009).

Another limitation of the GCC is that the concept does not highlight the multi-dimensional dynamics of social networks except for NGOs and trade unions mentioned by Gereffi and Korzeniecwicz (1994). More so, albeit the mention of the input-output relationship as a component of GCC, this is passively analysed. Thus, the GCC approach to commodity chains partially analyses value chains. It is also limited to its description mainly of the manufacturing industry and rarely addresses the agricultural chains (Henderson et al., 2002).

Critique of GCC led to the concept of ***Global Production Network (GPN)***, which adds a geographic perspective to describing commodity chains. Taking into consideration, the internal but also external complexities of specific commodity chains and not merely treating commodity chains as belonging to one global economy (Bair, 2009). However, GPN is mostly used to analyse cluster development and territorial studies. Its' focus is limited in the analysis of the agricultural sector and cannot capture issues on power relations and inequalities among actors in value chain.

In 2000, a group of researchers began a study of the different concepts and theories addressing value chains developed over the decades. The term ***Global Value Chain (GVC)*** was used to integrate different concepts of value chain (global commodity chain, global supply chain and global production network) (Bair, 2009). GVC examines inter-firm relations as well as interlinkages between various actors in a value chain, emphasising production networks, interactions within the industry and the complex structures of actors within a global industry (Gereffi & Fernandez-stark, 2016). Six dimensions characterise the concept of the global value chain. These include input-output structure, geographic scope, governance, upgrading, local institutional context and industry stakeholders (Gereffi & Fernandez-stark, 2016). Table 2.1 summarises the components of the global value chain.

Table 2.1: Components of Global Value Chain

Components of GVC	What it Analyzes
Input-Output Structure	Describes the activities that support the production of a commodity to its manufacturing, distribution, and marketing.
Geographic Scope	The global division of labour links the production and consumption of a commodity. These include activities carried out by firms and actors found in producing and consuming countries and how functions are carried out across different geographic spaces.

Governance	Focuses on patterns of control and power within global value chains. There are five different governance structures. These include market, relational modular, captive, and hierarchy.
Upgrading	This analyses how firms and actors in a value chain move to higher-value activities. There are different forms of upgrading; product, process, functional, chain, entry in the value chain, backward linkages, and end-market upgrading.
Local Institution	This examines the enabling environment to support value chain activities/interventions.
Industry Stakeholders	The identification and mapping of relevant stakeholders within a value chain and how they interact to implement activities.

Source: (Gereffi & Fernandez-stark, 2016, p. 8)

In development studies, GVC is a concept that has been applied to trade. For example, the United Nations Conference on Trade and Development (UNCTAD), examined the input-output structure of value chains to explore the value generated by developing countries participating in global markets. UNCTAD concluded that on average, "value-added trade contributes 30 per cent to countries' GDP" (UNCTAD, 2013, p. x). The relevance of GVC in the lens of *upgrading* has wildly been linked to its potential to reduce poverty, create jobs, increase income, and improve livelihood among producers through their enrollment into certification standards which connects them to the global market. For example, Chiputwa et al. (2015, p. 409) claim that the living standards of Uganda's coffee producers enrolled in Fairtrade certification has increased by 30 percent and in the long run, the improvement of producers' living standards, reduced poverty.

GVC has been applied to understand the governance of interventions such as standards in value chains. Because of this, GVC examines the power relations and dynamics among different actors in the process of implementing programmes. GVC serves as a tool to investigate the sustainability of value chains. GVC application to food standards in the agricultural value chain has gained momentum in the last decade. The emergence of social and environmental standards in food production allows the transfer of knowledge on the best practices of these standards to producers. One can analyse the impacts of food standards throughout the different stages of a value chain, from its production to consumption and its socio-cultural and environmental impacts. Through companies' socially responsible and sustainability projects, government food policies and food standards, Sustainable Development Goals (SDG) have been the target of most companies and governments participating in global value chains (Kaplinsky, 2016).

Nevertheless, GVC has been critiqued. Gibbon et al. (2008) argue that the concept is too broad, and one may not be able to always apply it to research which requires an in-depth study. Gibbon et al. (2008) also argue, that the application of GVC needs upgrading in technology and management, which may favour developed countries and firms more than developing countries and firms. Building on these critiques, GVC attempts to analyse value chain from both the global and local contexts; however, its approach ignores the local dynamics and actual challenges that surface among producers and communities as well as among producing countries. Therefore, GVC does not shed light on the issues of value chain interventions, policies and implementation challenges. The concept assumes value chains and sectors function in a proper setting and does not include risks and shocks that can influence the proper functioning of activities within every stage of a value chain. Risks and shocks such as epidemics (disease outbreaks on crops, humans, and disasters) or technological transformation can alter the production systems and activities of producers positively or negatively. For instance, the outbreak of diseases in crop production can upgrade technologies and farmers' practices to eradicate the problem. At the same time, an outbreak of diseases can also drastically reduce the output of production, affect the lives of producers and increase transaction costs.

Summary

Albeit the limitations of the various value chain concepts, its application to analyse standards in the cocoa value chain cannot be ignored. The **Filière** concept, for instance, can help to map the various stages and sub-stages of the cocoa value chain as well as activities that contribute to enhancing quality in the chain. **GCC** can help to identify issues on power relations, and the consequences of power relations on producers or even buyers in the process of implementing quality standards in the cocoa value chain. Whereas **GVC** gives a broader and in-depth insight into the influence of global standards in ensuring quality enhancement in cocoa production; taking into consideration, the analysis of the cocoa governance structure and its influence on buyer-producer relations and how this affects knowledge exchanges, control of quality and the impact of standards in cocoa production. Overall, both GCC and GVC can give insights into how producers are integrated into the global cocoa market through their adoption of standards.

2.2 Value Chain and Governance

The focus of my research is to understand how quality standards are implemented, monitored, and controlled in cocoa-growing communities. Implementing standards in value chains, demands policy development, management, and monitoring activities to implement it and achieve results, which could address farmers' poor production practices and improve food safety (Nadvi, 2008). Regarding this, governance plays a significant role in the proper functioning of standards and its achievements in value chains and markets. Therefore, the type or form of value chain governance employed to implement standards is essential, since it can influence the outcome and long-term impacts on production systems, producers and growing communities, ecosystem, food safety and health of consumers. It also means that issues on power relations among actors in value chain, access and control of resources, and risk-sharing come at the forefront when analysing standards in value chain.

Governance is a central concept in value chains that highlights the power relations among different actors (Gereffi & Fernandez-stark, 2016; Gereffi, 1994; Gereffi et al., 2005). As an analytical tool to understand the power relations and actor-network in value chains, it helps to identify which actor(s) make decisions, determine the flow of resources, and control activities at different stages in value chains. Value chain governance has also been used to analyse how value chain segments such as the production systems, sourcing, branding, marketing, research and development segments are managed and controlled (Docherty, 2012; Gereffi et al., 2001; Trienekens, 2011). Therefore, using value chain governance as an analytical tool is relevant to understanding in-depth issues on the abuse of power, patterns of exploitation and profiteering and the winners and losers in interventions.

Value chain governance helps to understand the sustainability of interventions, policies, standards, and projects. It helps to determine how interventions are managed, who manages and how they are implemented. With this approach, different ways of how activities are coordinated and how actors cooperate to achieve a goal are analysed. Governance helps to identify bottlenecks that impede the progress, success, and impact of interventions. Value chain governance has for instance been used to measure the impact of pro-poor interventions and policies in the coffee value chain (Seville et al., 2011) and the impacts of certification programmes in cocoa, coffee, tea, forest trees, and

apparel industries (Chiputwa, 2014; Deppeler, 2014; Hainmueller et al., Tampe, 2011). Concerning my studies, value chain governance will help me to examine the dynamics of managing standards in the cocoa sector. Specifically, value chain governance will help to understand how standards cascade to the growing cocoa communities; how it is implemented among producers monitored and controlled; and their contribution to addressing quality and sustainability issues in the cocoa sector.

Concepts of Value Chain Governance

According to Gereffi and Korzeniecwicz (1994, p. 97) value chain governance is the "authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain". From the definition of value chain governance, power is a key determinant of governance in value chains. Power is defined as "the capacity of an actor to exercise and achieve control over a particular strategic outcome in its interests" (Coe & Yeung, 2015, p. 66). It is also seen as a "relation between people" (Dahl, 1957, p. 201), where one actor influences the other. In value chains, power may be exercised by different actors such as buyers or lead firms, external actors such as multinational and certification bodies as well as producers. What makes an actor powerful, lies in the ability of the actor to possess an asset (material and non-material including market shares, control of key technology, and brand name) or authority over a resource such as land (Kaplinsky & Morris, 2000).

Forms of power exercised in value chains include coercive power, where there is an uneven bargaining power between buyers and suppliers or producers (Dallas et al., 2017). This is also known as asymmetry power, where stronger actors exercise power over weaker ones. In such value chains, a buyer or lead firm has more control over production networks, suppliers, and producers. In value chains where few buyers or lead firms control most activities from production to sourcing, marketing, and branding, such power is termed oligopsonistic. Other forms of power in value chains include institutional power (Dallas et al., 2017), where power is exercised among collective actors (i.e. multistakeholder bodies, social movements, trade unions). However, power may also be perceived as a manipulation and control tool which may be used to serve intentional purposes and selfish interests.

Closely related to the analysis of governance is also control. Control is defined as an action taken by an actor to "overcome resistance and exercise authority over others" (Gossett, 2009, p. 1). It is an action, activity or decision taken (individually or collectively) to manipulate and influence a system or an actor directly or indirectly. Control as a concept has been used in management and organisational studies to understand how power is exercised in firms (Otley, 1999). Its application in interfirm relationships argues that measures are put in place to monitor and achieve performance and the firm's goals. To do this, schemes such as incentives (increasing wages, and bonus), are put in place and serves as a control tool to either punish or reward workers (Otley, 1999). In value chains, control may be viewed as manipulation. As a manipulation tool, a buyer may implement rewarding and motivational schemes to control suppliers or producers to serve selfish interests. Exercising control for example in value chains may be seen through the enforcement of quality standards or using quality as an enforcement tool to achieve a buyer's goals.

Two main concepts that describe value chain governance include producer and buyer-driven governance and the five modes of value chain governance.

Producer and Buyer Driven Governance

Gereffi (1994) identified two types of governance in value chain: a producer-driven and buyer-driven chain. A producer-driven chain comprises those companies which control production systems across various geographical locations. They control the forward and backward linkages of a value chain, within which they operate, and decisions are made from the company's head office (Gereffi & Korzeniecwicz, 1994). Examples of such chains include the automobile, computers, and aircraft industries. These industries are coupled with high barriers of entry (technology and capital), limiting control to a few companies (Gereffi & Korzeniecwicz,1994; Gereffi, 2001). Producer-driven chains are vertically integrated and coordinate their activities in an arm's length market relations. In producer-driven governance, the power asymmetry in such chains allows for patterns of profiteering and manipulation.

A study by Hill (1989) in the Japan and USA automobile industry reported that profit is accumulated among multinational manufacturers whiles, suppliers who work in different production layers building components such as body parts, machinery and subassemblies receive

fewer profits. In Japan, it was found that Toyota and Nissan automobile manufacturers strictly control quality, transactions, and delivery as well as working conditions of their suppliers. Suppliers working for such companies are expected to conform to high standards. Suppliers are also expected to lower prices while maintaining the high standards set by manufacturers. Hill (1989) argues, that the manufacturer-supplier relationship found in Japan automobile industry, allows manufacturers to exert control over their suppliers. In the USA, auto manufacturers exercise bureaucratic control over their suppliers and dictate quality parameters and strict working conditions. Besides, the selection of suppliers through competitive bidding favours those who can meet the manufacturer's stringent requirements.

Buyer-driven chains are found in industries where manufacturers, retailers and international traders play the key role in controlling production networks decentralised in most developing countries (Gereffi, 1994). This typology of governance is found in the apparel, fashion, foot ware and other consumer goods industries (Gereffi, 1994). However, it can also be found in the agricultural sector, for instance, in cocoa, coffee, tea, and shea value chains. Lead firms control chains through strategic decision making on resource flow, price, quality, and sourcing patterns (Gibbon et al., 2008). Gereffi (2001) argues that lead firms in buyer-driven chains pay more attention to the branding and sourcing segments of the chain. This is due to the high returns associated with the branding segments placing them in a better position to control markets which creates patterns of exploitation and power abuse among producers and suppliers.

Pros and Cons of Producer and Buyer Driven Governance

Producer and buyer-driven governance identify power as the fuel to drive value chains. It recognises lead firms, traders, manufacturers, and retailers as the main actors who drive the chain by controlling resources, making decisions, and solely having access to information. Therefore, the governing style emphasised in producer and buyer-driven chains is *governance as driving* (Gibbon et al., 2008). The way leads actors and firms' direct activities, norms and taking the lead in decision making and actions, also denote lead firms and buyers as steering the affairs in value chains. Just as the role of the government or the state in directing policies, monitoring and realigning policies is seen as 'steering' (Crawford, 2006); likewise, *governance as steering* is similarly applied to governance as driving, where the lead firm or actor is seen as the state

controlling activities, norms, and standards in value chains. In this way, producer, and buyer-driven governance help to analyse exploitation, profiteering and abuse of power in value chains. One can be able to identify who controls affairs in a value chain by indicators such as who dictates, makes the final decision, and distribute resources.

However, it ignores external actors who likewise exert some control and power in value chains. These external actors include certification bodies or consumer activists, who have the power to tarnish the image of a brand. The state, as an actor in agricultural value chains, as well as producer networks and enterprises, are ignored in the producer and buyer-driven governance analysis. Therefore, it is too narrow and limits the study of different power structures that may take place at various stages in a value chain. In like manner, Gibbon et al. (2008), argue that producer and buyer-driven governance is biased because it excludes the analysis of different strands or divisions of value chain and those actors who drive those different divisions. Due to this, value chain governance should include how activities or functions are coordinated to achieve a goal and at which level different actors are involved. In this way, one can also identify other actors controlling different segments of a value chain. Kaplinsky and Morris (2000) argue that the theory neglects the analysis of the various forms of power exercised in chains, which is crucial to understanding how interventions are managed and controlled in value chains.

Five Modes of Value Chain Governance

In the early 2000s, another value chain governance theory surfaced. Gereffi et al. (2005) identified five different types of value chain structures distinguished based on the information flow and coordination dynamics within buyer-supplier or producer transactions. The five forms are market value chains, modular value chains, relational value chains, captive value chains and hierarchy value chains. This value chain governance highlights the buyer-producer relationship depending on three factors: "the *complexity* of information and knowledge transfer required to sustain a particular transaction, particularly concerning product and process specifications; the extent to which this information and knowledge can be *codified* and, therefore, transmitted efficiently and without transaction-specific investment between the parties of the transaction; and the *capabilities* of actual and potential suppliers with the requirements of the transaction" (Gereffi et al., 2005, p. 85). Table 2.2 demonstrates the five modes of governance in value chains.

Table 2.2: The Five Modes of Value Chain Governance

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	Degree of explicit coordination
Market	Low	High	High	Low
Modular	High	High	High	↕
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	High

Source: (Gereffi et al., 2005, p. 87)

From table 2.2, loose coordination occurs when suppliers have both high abilities to codify transactions and have the capabilities in the supply-base, even though transactions or trading terms may be complex. In such cases, such as seen in the market and modular governance type, there is low power asymmetry. An example of a loose coordinated value chain is the automobile and technology industries. However, a high form of coordination and power asymmetry will occur when a supplier has a low ability to codify transactions and low capabilities in supply. The consequences of tight coordination in value chains such as in hierarchy and captive include the high degree of control and monitoring by lead firms which leads to manipulation. In these chains, there is also limited access to information and resources. Examples of captive and hierarchy value chains include the cotton, coffee, cocoa, and apparel industries.

Pros and Cons of Five Modes of Value Chain Governance

The five-mode governance focuses on *coordination* between buyers and suppliers/producers, but it can be related to various actors operating within and outside the value chain. The governing style emphasised here is *governance as coordinating*. Here, lead firms coordinate activities and transactions directly with their suppliers or producers or sometimes coordinate through their operational offices in other locations. However, depending on the form of transaction (for example, logistics), lead firms coordinate activities via intermediaries. Therefore, lead firms may be dependent on other actors to coordinate activities in value chains.

Gereffi et al. (2005) only noted the complexity of information, ability to codify transactions, and the capabilities of suppliers as indicators to influence the form of value chain governance. However, developments or other forms of variables such as quality standards, consumer demands,

and trade rules may lead to changes in a value chain's governance. These developments will require a new form of coordination and cooperation among various actors to achieve results. Thus, value chain governance is not static, and it is highly contingent on different forms of innovations. For instance, innovations in some value chain over time has led to different forms of chain governance in the bicycle, apparel, fruits, and vegetable industries. The bicycle value chain, which used to be vertically integrated in the 1890s, has shifted to a market value chain structure. Changes to the governance structure were attributed to the technical skills acquired by suppliers like Shimano where innovation played a pivotal role to produce different specific product models within the industry's standards (Gereffi et al., 2005, pp. 90–91).

The apparel industry, which used to be a captive value chain structure, has shifted to a relational form of coordination. This change is attributed mainly to the changing improvement of suppliers' competence in the industry. Also, trade agreements such as World Trade Organization (WTO), and textiles and clothing agreements in the apparel industry formed part of the chain's governance structure (Gereffi et al., 2005, pp. 91–92). The fruits and vegetable sector has also been coupled with food and safety standards but also the role of supermarkets in controlling their supply chains with strict quality parameters meeting consumer demands. These changes have, for instance, shaped the fruits and vegetable trading between the United Kingdom and Kenya from a market governance structure to a more coordinated value chain structure (Gereffi et al., 2005, p. 93). Table 2.3 summarises the concepts of value chain governance and their strengths and weaknesses.

Table 2.3: The Strengths and Weaknesses of Value Chain Governance Concepts

Category	**Buyer and Producer Driven**	**5 Mode Governance**
Governing Style	Driving	Coordinating
The implication of governing style	Power abuse, profiteering, exploitation, power asymmetry.	Power abuse, profiteering, exploitation, information asymmetry, failure of interventions.
Strengths	Analyses power relations between main actors of a value chain. Identifies issues on exploitation, profiteering and abuse of power. Indicators for measuring power include buyer or lead firms' capability to dictate and make decisions.	Analyses the power relations between buyers and lead firms and producers of a value chain. Has the ability to analyse exploitation and manipulation in value chain. Points out issues on management, access, and actor-network.

		Defines indicators that determine the buyer-producer relationship in value chains.
Limitation	Ignores the role of external actors' influence to control value chains. Ignores power structures that occur at different stages of a value chain, thereby leaving out the analysis of actors such as producers' role to control production systems.	Indicators are narrow and might not be applicable in all situations. Leaves out external actors who can influence value chains.
Application	International trading.	International trading, global standards, development interventions.

Source: author's own (2020)

Both value chain governance theories underpin governance as top-down and neglect bottom-up governance (the influence of producer associations, and unions e.g., the Chiquita producer association in the banana industry). Nevertheless, the concepts allow for bottom-up analysis by examining power relations in the production stage and examining their influence on other segments of the value chain and actors. Although both value chain governance theories identify lead firms and buyers as drivers, in agricultural value chains, external actors such as standard bodies, and certification auditors drive the implementation of standards. They also exhibit control in value chain, and they should not be ignored in value chain governance analysis.

Two distinct governing styles have been identified, namely, governance as driving and governance as coordinating. Under both value chain governance theories, issues on power, and control, interplay to describe governance as driving and governance as coordinating pointing out indicators such as who makes the decision, who controls resources and, who dictates, commands or give out instructions to identify power relations. These indicators also relate to management theory, which considers control, commanding, organising and coordinating as forms of governing (Frederickson et al., 2015). Therefore, value chain governance is a strong analytical tool to analyse power relations in value chains as well as to measure the consequences of governing style used in the implementation of interventions in value chains. Five-mode governance has been widely used to understand vase issues on trading terms, development, and social and environmental sustainability in value chains. My research will consider both governing styles to know how actors implementing

standards utilise different forms of governing styles in the cocoa sector by examining power relations from bottom-up and top-down.

2.3 Standards and Value Chain

According to Nadvi et al. (2001), "standards are agreed criteria […] by which a product or a service's performance, its technical and physical characteristics, and the process, and conditions, under which it has been produced or delivered, can be assessed" (Nadvi et al., 2001, p. 4). The definition of standards is also applied to mean ***quality*** and used interchangeably in food and agricultural studies. From the definition, standards fall under two main categories, namely, intrinsic, and extrinsic quality. Intrinsic quality is the product characteristics such as size, colour, and shape and extrinsic quality, refers to the social, environmental and sustainability issues relating to a product, and the production process of a commodity (Ponte & Gibbon, 2005).

Standards also pertain to the ***guidelines, rules*** **and** ***norms*** that instruct how standards are supposed to function in markets (Kaplinsky & Morris, 2000). This definition means that standards may be a form to punish those who do not conform to the rules, guidelines, and norms. In this regard, standards may be seen as a manipulating tool to either reward or punish producers in value chains. This may be seen in value chains that are driven by quality such as fresh fruits and vegetables, where quality is the source of power for buyers and retailers to reject or accept producers' commodities. In a way, this ensures food safety but also creates inequality among producers. ***Certification*** describes standards that are issued by a third-party accreditation body (Nadvi et al., 2001). Building on the definition, certification is a means of providing assurance, accountability, transparency and trust in value chains.

A central concern in the studies of standards lies in its capability to ensure quality, trust, assurance and transparency in global markets. Therefore, the governance of standards has become essential in development studies to understand its real impact on society and across value chains and industries. Nevertheless, the role standards play in value chains, trade and development are relevant, and their contribution to sustainability cannot be ignored. Therefore, research on standards contributes to identifying the opportunities as well as barriers in trading, especially in assessing how standards help developing countries engage in global trading and how their participation affects economies. Regarding this, Nadvi (2008) denotes that standards propel

competition among engaging countries and reduce transaction costs which can expand the growth of exportation in developing countries. At the same time, standards can also be a barrier to countries and poor producers who cannot meet international trading requirements. Consequently, the nexus between standards and producer participation in global markets needs to be stressed in the study of value chains and development studies.

Already, research demonstrates mixed results on the benefit of standards as a means for producers' participation in global value chains. For instance, Chiputwa et al. (2015, p. 409) found that the living standards among Uganda's coffee producers enrolled in Fairtrade certification increased by 30 percent due to the standards' contribution to high productivity and income. However, Hansen and Trifković (2014) note that standards promote elite capture among Vietnamese pangasius farmers by benefiting only the upper-middle class of farmers whiles it pushes the poor ones into more poverty because of the high cost and poor access to knowledge and inputs. Within this context, it is important when research on standards point out the limitation of access, opportunities, and threats of standards on producers' livelihood, poverty alleviation, and rural development.

Globalisation has transformed food consumption patterns towards sustainability, safety, and health consciousness. Consumers are concerned about where their food is sourced and how production systems contribute to environmental and social sustainability in producing communities. Because of this, standards have become the means to address quality issues, labour conditions, and environmental sustainability in food production. Liu (2003) and Nadvi et al. (2001) argue that standards have the potential to connect consumers and producers through labels and traceability tools. Standards can also play a vital role in realising sustainable development goals, especially on goal twelve, which promotes responsible consumption and production. Without standards to trace sources of food production and process, as well as ensuring food safety, environmental and social management in value chains, goal twelve of the SDGs will be hard to be achieved.

In light of the relevance of standards, it should be noted that standards do not reside in a perfect market or trading system or value chains. They are coupled with power issues, trust and transparency issues. Therefore, standards without the proper management and control, should not be seen as the solution to resolving quality, food safety, environmental and social issues in value chains.

Governance as an Analytical Tool for Standards

Different research has employed value chain governance to analyse standards in value chains. Gereffi and Lee (2009), for instance, used GVC governance to analyse how private standards are controlled in fruits and vegetables, and automobile value chains. In their analysis, they concluded that firms and industries that are regulated by private standards exhibit a tight form of coordination. Firms make decisions and dictate to producers, control resources and information on standards. In standards' control in value chains, large-scale suppliers are likely to meet the requirement of retailers and lead firms' private standards, whereas small-scale suppliers might be left out. For example, retailers in the UK fruits and vegetable and USA chicken value chains, tightly coordinate activities and impose strict quality standards on supplies, delivery, exportation, and packaging from suppliers found in developing countries. In this way, small-scale farmers are left out of the value chain because they cannot translate information on standards nor comply with standards.

Producers may also have limited access to information and the governing style may restrict knowledge exchanges. This form of governance is also applied to public and industry-specific standards where the government or a standard body, act as the main regulator of ensuring standards. An example of an industry-specific standard is the Hazard Analysis and Critical Control Points (HACCP), which is a food standard, which conforms to national and international trading policy. Gereffi and Lee (2009) analysed the regulation of HACCP in agricultural value chains, for instance, and argued that it requires strict coordination between governments, standard bodies, traders, and producers.

Ponte (2009) analysed voluntary standards in agricultural value chains and suggest that the introduction of sustainability standards (environment, social and labour standards), has shifted value chains implementing voluntary standards, from a tighter form of coordination to a looser one. According to (Ponte, 2009; Tampe, 2016) a loose form of coordination stimulates an informal buyer-producer relationship and requires flexible control. An example of this form of governance can be seen in the control of third-party certification through external players such as NGOs, certification bodies and auditing firms, among competitive value chains such as cocoa, and coffee. In these value chains, lead firms outsource the management and monitoring of standards to external actors.

External actors control the chain by auditing and, monitoring standards compliance, extension services, and incentive distribution. They act as intermediaries between lead firms/buyers and producers as well as various actors in the chain. These external actors coordinate and cooperate with buyers, lead firms, producers, extension agents, researchers, and other relevant actors in the process of regulating standards. To an extent, this type of governance may give producers' the room to negotiate as well as participate in monitoring activities. Producers may also get access to information on standards. However, flexible governance of voluntary standards has had some implications in the food industry. For instance, Tampe (2016) and Whoriskey (2019) argue, that the quality assessment of certification schemes in the cocoa value chain, is lenient and results in severe producers' non-compliance to environmental, social and labour standards.

Lee et al. (2012), analysed how standards are controlled in buyer and producer-driven value chains. Their research claim that in buyer-driven chains such as agricultural food chains, retailers and manufacturers exhibit both flexible and rigid control of standards. Whereas in producer-driven chains such as automobile and telecommunication industries, there is a high degree of standard control in every segment of the chain. Suppliers in these value chains conform to strict standard requirements and instructions from buyers and lead firms. Table 2.4 describes the different types of standards in value chains, and the different governing styles utilised in implementing these standards.

Table 2.4: The Governance of Different Types of Standards in Value Chains

	Private standards	**Industry-specific/Public**	**Voluntary standards**
Governing Style	Driving Formal buyer-producer relationship	Driving Formal buyer-producer relationship	Coordinating. Flexible or loose coordination. Semi-formal and informal buyer-producer relationship.
Consequences	Standards conformity Limited access to information Inequality among suppliers/producers Manipulation of producers	Standards conformity. Inequality among suppliers/producers. Manipulation of producers. Limited access to information.	Opportunistic producer behaviour leads to non-compliance. Equal access to producers. Less manipulation. Access to information.

Examples	Automobile	Automobile, fruits, and vegetables.	Agricultural food chains (cocoa, coffee, tea, palm), forest products.
Author/ literature	(Gary Gereffi & Lee, 2009)	(Ponte, 2009b; Tampe, 2016)	Ponte, 2009b; Tampe, 2016)

Source: based on (Gereffi & Lee, 2009; Lee et al.,2012; Ponte, 2009b; Tampe, 2016)

The various discussions on governance of standards have demonstrated different forms of governing styles utilised to implement different types of standards in value chains. The form of governing style utilised imposed both positive and negative consequences on producers and their conformity to standards. It also explained that the governance of voluntary standards could influence the organisation of a value chain from tight coordination to loose coordination. Voluntary standards introduce external actors who are not directly engaged in value chain activities. They come with their style of coordination, which seems to be flexible. According to Nadvi (2008), the proliferation of standards leads to a loose form of coordination which may affect monitoring systems and transparency.

Therefore, in value chains that exhibit all types of standards, governance of standards may be complex and conflicting. Consequently, it implies an overlap of standards and their functions, challenges of measuring effectiveness and impact, policy challenges, and complex power relations. It may also result in high costs and demands, creating a burden for producers, affecting the production process, and increasing information asymmetry. On the side of consumers, there will be a lack of trust in standard systems. The various literature explored in the governance of standards demonstrated that a governing style might have implications on a buyer-producer relationship, and result in conformity or non-conformity to standards. Therefore, standards may lose their relevance in value chains if not properly governed.

2.4 Knowledge and Extension

There is a need for knowledge sharing on technologies promoting standards in value chains to achieve quality enhancement at the production stage. As such, this research takes a keen interest to understand the dynamics of knowledge sharing in the process of implementing standards in the cocoa value chain. Knowledge plays a significant role in social change and developmental processes. Modernisation theory, for instance, argue knowledge is a prerequisite for the transition

of a society from a pre-modern to a modern society because it serves as an educational tool to provide the know-how to develop and make transformations to an economy (UNESCO & ISSC, 2010). It also informs on policy development, implementation, and amendment. In agricultural development, knowledge is an impetus for a firm's competitiveness and comparative advantage through the diffusion of technologies, and information dissemination (Long, 2003).

Therefore, it becomes relevant in understanding knowledge sharing and extension in agricultural systems to highlight the different forms of knowledge systems and actors within a system, power nexus, struggles and resistances to innovations in development interventions. It also helps to understand the power relations that exist or are created in the process of knowledge dissemination. Concerning my study, knowledge plays a vital role in the implementation of standards in value chains. For producers to adopt technologies on standards at the production stage, there is a need for knowledge sharing and the provision of extension services.

Knowledge System

The concept of a knowledge system is employed to understand the dynamics of knowledge sharing in agricultural value chains. Knowledge sharing is the process of exchanging information. It is a reciprocal communication that shares mutual interests and facilitates a learning process (Fazey et al., 2013, pp. 19–20). Knowledge sharing involves information exchanges between various actors in a system. Knowledge sharing is a process but also an act. It demands some level of professionalism and skill in engaging actors to interact, learn and effectively exchange information. In the context of the agricultural sector, this means, a dialogue between producers, extensionists or other actors. Knowledge sharing could also occur spontaneously and therefore, engaging in informal interactions.

Knowledge Systems is a concept that emerged from extension science to address the effectiveness of transmitting information to others within a system. Two forms of knowledge; scientific and local knowledge are identified as belonging to a knowledge system (Leeuwis, 2013; Long, 1989; Röling, 1992). Knowledge systems also include the actors within the system for which knowledge is constructed, developed, and disseminated. Analysing knowledge systems helps to understand the interlinkages between extension and knowledge exchanges. It also helps to understand the power relations that exist or are created in the process of knowledge development and

dissemination. Within the context of knowledge systems, it applies to analysing knowledge sharing in value chains. In this case, a value chain can be viewed as a system within which different actors acquire knowledge or information to operate.

In the late 1980s, the concept of ***Agricultural Knowledge and Information System*** **(AKIS)** was used to understand how extension, education and research are integrated to improve agricultural sectors. The concept, therefore, identifies the different actors within an agricultural setting and the various forms of technologies and information that need to be transferred among actors. The concept can identify the challenges of knowledge exchanges and how the extension can be used to resolve communication problems. However, the concept was critiqued to be limited to boosting agriculture development and ignoring issues of rural development and poverty (World Bank, 2012). The concept also misses the challenge of misinterpretation of information due to language problems. The concept also promotes scientific knowledge and approaches extension as top-down.

Agricultural Innovation System (AIS) was developed to improve on AKIS, which largely ignored innovation as a knowledge process. Crucial for an innovation system is the knowledge creation, sharing and learning among the different heterogeneous actors belonging to the same network. It also goes beyond the use of knowledge but also the demand for learning and the complex interaction among actors (Rajalahti et al., 2008; World Bank, 2012). AIS also analyses the adoption of agricultural innovations, where a producer decides to implement a technology. The way knowledge is shared (scientifically or expert initiated which is top-down or producer initiated, which is bottom-up), is at the heart of decision-making among producers to adopt a technology. Therefore, AIS also sheds some light on the approach and delivery of knowledge sharing and argues this can influence innovation adoption. However, AIS ignores the conflict that may occur during knowledge exchanges. It fails to identify what knowledge is shared and which actor's knowledge is at the frontier in the process of knowledge sharing. However, the concept attempts to stimulate bottom-up knowledge sharing.

However, an ***actor-oriented theory*** perspective on knowledge systems argues that knowledge is socially constructed and involves social actors at different interfaces with levels of interest and power. How different actors construct knowledge and behave in their social arena becomes relevant in understanding the power dynamics in the process of knowledge negotiation and re-negotiation (Long, 2003). Another element of the actor-oriented approach is the notion of multiple

realities (Kuiper & Röling 1991, p. 25) which are intertwined in multiple social networks and webs. Consequently, different social networks may also mean that power structures are created in the process of knowledge sharing which may affect the flow of information in value chains. In regard, this is essential to understand how knowledge flows among different actors involved in the process of knowledge sharing (for instance, between scientists, extension agents, knowledge brokers and farmers). In this way, one can be able to understand where power is kept and gated and the consequences it has on knowledge sharing. The actor-oriented theory focuses on power relations at interfaces during knowledge exchange and can be applied to the agricultural sector to understand what unfolds during knowledge sharing.

Knowledge System and Approaches for Knowledge Sharing

The different concepts of the knowledge system acknowledge extension as a medium to exchange knowledge among actors found in a system. Therefore, the extension also functions as a medium through which scientists and producers interact. As such, extension is a communicative tool to disseminate information in an agricultural system or a value chain. As a communication tool, there is a likelihood for conflicts to arise between different actors and their knowledge in the process of knowledge sharing. In applying this to information dissemination in value chains, the power relations between lead firms, buyers, producers and other actors may be a constraint to effective communication on standards. Beyond agricultural systems, it is a tool that can help disseminate information on sustainable development goals in different industries. In this regard, it is essential to understand how the extension is approached, and the impact extension systems have in enhancing effective communication, learning, and sharing.

Another component of the knowledge systems is the role of extension as an advisory tool to inform producers in an agricultural sector on technologies. Therefore, extension is utilised in the agricultural sector to improve farmers' access to information to improve production systems, boost food security, and productivity, and alleviate poverty. Beyond extension and role of knowledge as an advisory tool, it is also an educational and learning tool. According to UNESCO and ISSC (2010), it is an educational tool for social change and transformation. Knowledge system theories, for instance, touch on education and extension as important components for the innovative design

and development process. Through education, skills, and inputs, knowledge can be shared to facilitate the developmental process and achieve developmental goals.

Concerning the relevance of extension, both the extension system and delivery method used in sharing knowledge can influence intervention failure. The different forms of extension systems are contended to affect the effectiveness of a diffusion process and uptake of innovations (Diederen et al., 2003; Leeuwis, 2013). Table 2.5 is a summary of the literature on extension systems and delivery methods, which highlights their strengths and weaknesses.

Table 2.5: Typology of Agricultural Extension and Delivery Approaches

Extension System	
Public	The public extension system is often implemented by public institutions or ministries, to regulate the agricultural sector of the country. The public extension system employs highly qualified and experienced extensionist agents. <u>Strengths</u> Performs better in promoting extension on the public good, quality enhancement and assurance Can serve as an enabling environment to foster private sector development Has the ability to extend services to all producers including remote areas <u>Weakness</u> Top-down, promoting scientific knowledge; Poor logistical and limited financial support
Private	Private extension services are provided by private actors such as input suppliers, retailers, NGOs, traders, and cooperatives. These services may target market-oriented information. Farmers or cooperatives may also demand the services of private actors at a fee. <u>Strength</u> Has the ability to promote bottom-up knowledge sharing. <u>Weakness</u> Extension services provided are limited and narrow; target a small population of producers Lacks technical expertise; Inadequate monitoring of extension activities.
Public-Private Partnership	This system is a collaboration between private and public actors in an agricultural system to share extension delivery services and funding. <u>Strengths</u> Has the ability to support weak public extension services. <u>Weakness</u> Poor coordination on extension services and activities; poor extension monitory systems; Over-dependency on an actor(s) for financial support.

Pluralistic	A pluralistic extension system is known to "capture the emerging diversity of institutional forms for providing and financing agriculture extension" (Davis & Heemskerk, 2012, p. 182). It is also tailored to a specific need or service and engages diverse actors from the public, private and international organisations. Provides business and market-oriented extension services. <u>Strength</u> Fosters bottom-up knowledge exchange. <u>Weakness</u> Lack of collaboration, limited financial support, and time-consuming.
Extension Delivery Approaches	
Advisory delivery	Its purpose is to provide advisory services to producers. It employs visits and training, and group meetings as an extension delivery approach to train producers. Requires professional extension agents to deliver training. <u>Strength</u> It is inexpensive and targets the majority of producers. <u>Weakness</u> It is scientifically initiated and supply-driven; lacks participatory delivery methods; does not facilitate knowledge exchange among producers and extensionists.
Participatory	Participatory extension delivery models have been preferred as it facilitates an interactive learning process among producers and extension agents. Participatory models include on-farm demonstration training, farmer field school, ICT-based peer to peer technology, participatory farm management tools and train the trainer delivery concept. <u>Strengths</u> It is participatory and increases the understanding of producers; facilitates learning and knowledge exchanges between producers and extensionists. <u>Weakness</u> May require tools and logistics at the expense of producers.

Source: based on (Chilemba & Ragasa, 2018; Rivera & Qamar, 2003)

It is assumed that private and pluralistic extension systems initiate a bottom-up knowledge exchange, relying mostly on participatory tools for communication. At the same time, public extension systems have less impact on knowledge sharing in agricultural systems because it is scientifically initiated. Though from the table, extension approaches and delivery methods may have struggles and benefits, overall, the extension needs to be adequately coordinated and managed properly to achieve developmental goals. However, extension as a tool to facilitate adequate knowledge sharing for realising development goals, cannot be achieved if it is not effectively managed.

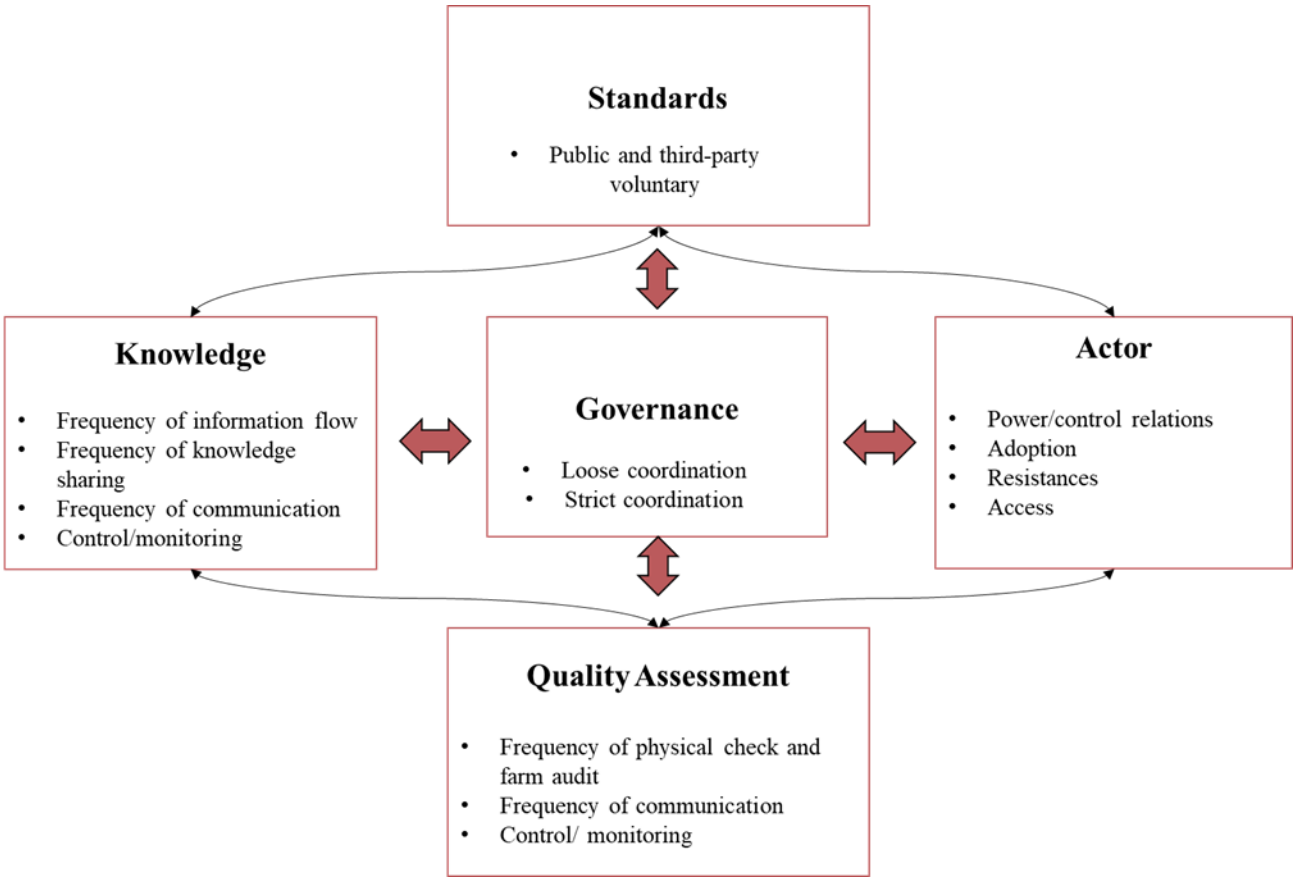
Therefore, value chain governance can be applied to access the effectiveness of extension services. The extension systems and approaches can be a tool to understand in which way extension is managed, and how information or knowledge is controlled, how logistics, inputs, training timeline and funding are regulated. This also considers issues such as frequency of training and male and female equal access to extension services. The theory of financing extension also speculates that close monitoring of funding for extension activities contributes to realising intervention goals (Rivera & Qamar, 2003). This is also at the heart of realising other development interventions, including standards in the agricultural industry.

2.5 Synthesis of Theory, Concepts and Literature; Application to the Study

This section applies the theoretical, concepts and literature on value chain, governance, standards, and knowledge to examine quality standards implementation in the cocoa sector of Ghana. My research argues that the governing style employed to implement quality standards in the cocoa sector, affects extension services, quality assessment schemes and producers' conformity to standards. The overall outcome will be the impact of value chain governance on achieving quality enhancement or not in cocoa production.

Concerning this, value chain analysis helps to identify both chain and external actors and their respective roles, responsibilities, and activities to quality standard implementation at the production and trading stages of the cocoa value chain. Value chain informs the various networks within the cocoa production segment that can provide insights into the various dynamics in the production systems. In this regard, the production stage of the cocoa value chain will be assessed to identify the key actors controlling and supporting cocoa cultivation, providing extension services and implementing assessment systems to check quality conformity at the farm and trading levels. Value chain governance informs on the different governing styles utilised by chain actors to control activities and interventions. Value chain governance helps to examine the form of governing style used in implementing quality standards and its effects on extension delivery, knowledge sharing and monitoring schemes. Figure 2.1 visualizes the relation between the different concepts utilised to understand the governing of standards in the cocoa sector.

Figure 2.1: Relation of Concepts



Source: author's own (2020)

Governing style indicators identified in value chain governance literature include the ability of an actor to command, make decisions, direct activities and control resources. These indicators come into line when mapping actors who control extension services, production of cocoa beans, and those undertaking quality assessment at the farm and purchasing levels. The study argues that in the case of quality standards implementation, loose coordination may indicate low communication among actors, less or no monitoring of activities, inadequate knowledge sharing, and little or no control of relevant actors responsible for sharing knowledge and conducting a quality assessment. However, tight coordination of quality standards programmes may indicate frequent communication, adequate knowledge sharing, control of relevant actors and frequent monitoring of activities. In light of this, the power relations that exist or are created or gated in the process of knowledge sharing, and monitoring quality conformity comes into play when implementing

quality standards. To analyse the power relations, the literature on a buyer-producer relationship in value chain will inform on the different relations that exist when implementing standards at the production and trading stages of the cocoa sector.

The literature on extension has emphasized extension as an educational tool to foster effective knowledge sharing and innovation adoption. Consequently, this helps to examine the extension approaches provided. It also helps to understand the dynamics of knowledge sharing at different interfaces between farmers, extension agents and relevant actors. It is expected that depending on the extension approach and delivery method adopted by cocoa and chocolate companies, may influence effective knowledge exchanges which will lead to the adoption of quality enhancement technologies and practices. Consequently, indicators that will help to measure extension services include frequency of training, participatory delivery methods, equal access to male and female farmers, frequent monitoring of activities, and integration of local knowledge. It is believed that farmers' access to frequent training in a month, will help farmers familiarise themselves with the quality enhancement technologies. Training farmers, through participatory delivery approaches, will facilitate adequate farmers' understanding of how to implement quality enhancement technologies in cocoa production.

However, the conceptual framework also argues that extension services are loosely coordinated when there is less communication among actors, lack of monitoring of activities and lack of control of producers. Whereas extension services are strictly coordinated when there is frequent communication among actors, frequent monitoring and control of actors. When extension services are loosely coordinated, it leads to information and power asymmetry. Strictly coordinated extension services will instead encourage the flow of information and balance of power distribution between actors.

The literature on standards provides insight into quality standard categorisation for a more effective analysis. To this end, the physical cocoa standard, which falls under industry standards will be assessed, whereas environmental and social standards which fall under voluntary standards will be evaluated. The components of quality standards, which includes the knowledge, information, and monitoring systems will be examined to understand how cocoa and chocolate companies control quality standards in the growing communities. The literature on quality in value

chains (Alli, 2004; Fairtrade International, 2017; Liu, 2003; Nadvi, 2008; UTZ, 2015), will also guide the assessment of quality control measures that are employed among cocoa and chocolate companies in the studied communities. Indicators that will be used to assess monitoring systems of both voluntary and industry standards at the production and trading stages include the following: the ability of the system to organise a surprise farm audit, provision of sufficient audit and monitoring tools, corrective measures, preventive measures, and the ability to withhold or deny certification to farmers in cases of non-conformity.

The conceptual framework argues that loosely coordinated quality assessment activities consist of less communication among actors, and a lack of monitoring and control of actors and activities. In regard, the lack of monitoring of quality assessment activities, lack of control of actors and less communication among actors, will lead to a less quality consciousness among producers and purchasing clerks in the sector. Whereas a tightly coordinated quality assessment consists of frequent communication among actors, frequent monitoring of activities and control of actors. A tightly coordinated quality assessment will improve the quality consciousness of producers, purchasing clerks, external auditors, and internal inspectors.

In the context of the cocoa sector, it is assumed that adopting these criteria for analysing the monitoring process in certification standards, will help identify and understand the steps carried out to audit farms and internal inspectors under the scheme. The certification standards, in the sector, specify the auditing process carried out by the auditor and these are in line with corrective, preventive and rejection measures suggested by (Alli, 2004; Liu, 2003; Nadvi, 2008). The component of organising a surprise audit visit as suggested by the UTZ and Fairtrade code of conduct (Fairtrade International, 2017; UTZ, 2015b), will also determine which auditing visit is implemented in the studied communities. Proper implementation of auditing and monitoring of the production practices is expected to result in certified farmers' compliance and conformity to certification standards. In like manner, proper implementation of monitoring measures to check physical cocoa beans during purchasing of cocoa beans will also lead to farmers' compliance and conformity to standards.

The literature on quality assessment in value chains helps to identify competition, as a factor, which may impose a lenient quality control in the cocoa sector. Because there is competition for

farmers among cocoa and chocolate companies in the cocoa sector, this may push cocoa and chocolate companies to create informal relationships with farmers. The results of informal relationships with farmers may lead to lenient quality control at the production and trading stages. Tolerant quality control may influence farmers' non-compliance and non-conformity to quality standards. It also gives farmers some leverage over cocoa production and creates resistance to standards conformity.

Drawing from the theoretical, conceptual and literature review on value chains, standards, extension as well as knowledge sharing, this thesis seeks to shed light on the following questions.

Research Questions

How do cocoa and chocolate companies in Aponapon and Subiriso communities, implement physical, environmental, and social cocoa standards, to improve producers' quality practices in cocoa production?

a. In what ways do the governing style (s) adopted by cocoa and chocolate companies in the studied communities, to implement quality standards, affect knowledge sharing, quality assessment systems and overall producers' quality practices?
b. What are the power structures that impede effective knowledge sharing and assessment systems on quality enhancement, and how does it affect the production of quality cocoa among producers?
c. In what ways are male and female producers' knowledge negotiated in the process of knowledge sharing, and how does it influence the adoption of quality enhancement technologies?
d. What are the different power relations that exist or are created among various actors in the studied communities during the process of implementing standards at the production and trading stages, and how does it influence quality enhancement?
e. To what extent are producers in Aponapon and Subiriso communities integrated into the global cocoa market through their adoption of physical, environmental, and social cocoa standards? Does enhancing quality cocoa beans, benefits producers?

Chapter 3 Method and Data Collection

This chapter discusses the methodology utilised for the study. The study adopted a qualitative research approach using a case study research design. The study employed interviews, Focus Group Discussions (FGD), Net-mapping, and Participatory observation in gathering data.

3.1 Research Design

The study employed a case study research design to plan data collection and analysis. There are several descriptions of case study research. Yin (2013) for instance, denotes a case study as a methodological process for inquiry research and evaluation research. According to Creswell et al. (2007);

> "Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audio-visual material, and documents and reports) and reports a case description and case-based themes" (Creswell et al., 2007, p. 245).

Based on this definition, this study employed case study research as a qualitative approach to understanding how quality enhancement is achieved in the cocoa sector of Ghana. Case study research has been used in varied fields of study, some of which include, natural sciences, social sciences, business and law, to understand processes, interventions, circumstances or a problem (Harrison et al., 2017).

A case study is suitable to answer research questions on *how*, *why* and to an extent *what*, because these questions lead to more in-depth answers to the research (Creswell et al., 2007; Yin, 2014). The choice of case study research design is dependent on the unit of analysis and the size of the analysis (Creswell et al., 2007; Yin, 2014). In this regard, there are three variations to case studies including, a single case study, multiple or collective case study and intrinsic case study (Creswell et al., 2007; Harrison et al., 2017; Yin, 2014). A single case study examines one case for analysing the study or unit area of analysis or the subject. Whereas, in a multiple case study, several case studies may be selected to investigate the subject or study or unit area (Creswell et al., 2007; Yin, 2014). Concerning this, the researcher may choose several communities or different programmes to examine the study. The intrinsic case is the study of the case itself (e.g., a situation or

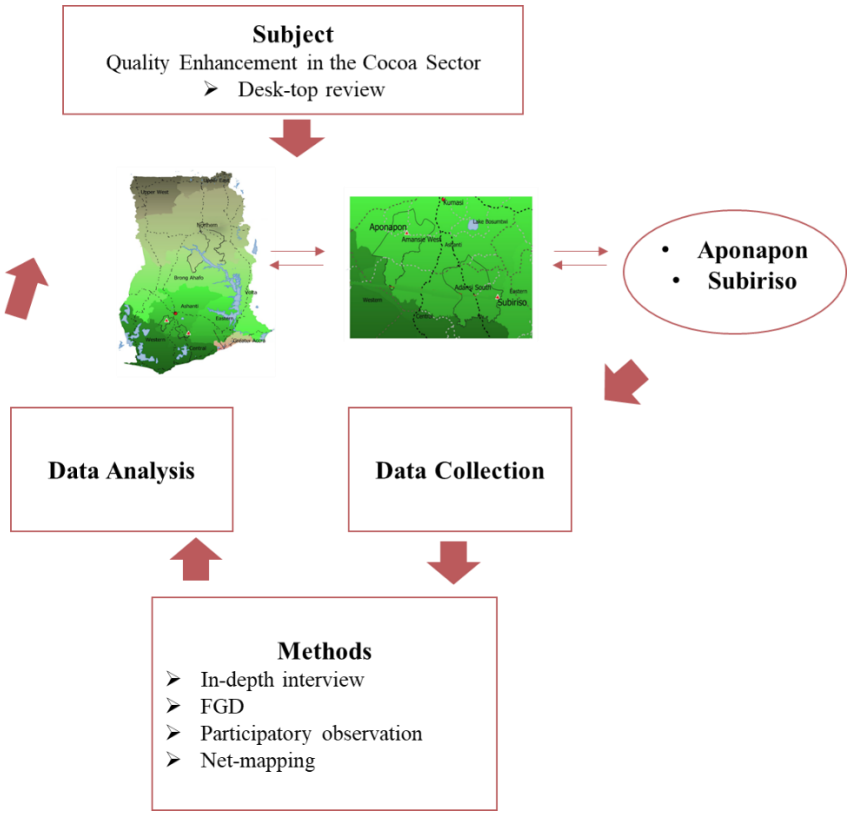
phenomenon) (Creswell et al., 2007). Among these variants, a multiple case study is argued to be more productive, as it offers an in-depth description of the subject, in addition to using multiple case stories to illustrate the issue (Creswell et al., 2007; Yin, 2014).

Case study research, can employ both qualitative and quantitative research methods, to enrich data and support analysis (Creswell et al., 2007; Harrison et al., 2017; Yin, 2013, 2014). Qualitative methods could include, participant observations, interviews, audio-visual material, and documents and reports, whereas quantitative methods could consist of surveys and questionnaires (Creswell et al., 2007; Harrison et al., 2017).

However, as suggested by Seawright and Gerring (2008), one should be innovative about the methods used for collecting data. Case study research design has been attributed to its ability to provide a thick and rich description or analysis of a study (Creswell et al., 2007; Harrison et al., 2017; Seawright & Gerring, 2008). In addition to this, multiple cases study, for instance, provide the opportunity for diverse perspectives of respondents which, is necessary for answering a research question (Seawright & Gerring, 2008). However, the case study research design has been critiqued that the results are usually limited and biased and could not be generalised (King et al. 1994). The small size employed for a case study may result in varied interpretations which may be conflicting (George & Bennett., 2005).

In this regard, it is advised that to avoid a limited interpretation of results, and biased data, one should increase the number of observations and employ a purposive case selection instead of a randomised case selection (Creswell et al., 2007; King et al., 1994; Seawright & Gerring, 2008). In this regard, to overcome the shortcomings of case study research design, this study, employed multiple case studies, a mixture of qualitative methods to collect data, increased the number of observations and purposefully selected communities and respondents for data collection. Figure 3.1 illustrates the case study design employed to study the control of quality enhancement in the cocoa sector of Ghana.

Figure 3.1: Research Design



Source: author's own (2019)

3.2 Field Entry and Case Selection

Before going to Ghana, a desk-top review was carried out to have an overview of quality enhancement promotion in the sector. It also helped to obtain a thorough background of the cocoa sector and the subject. In Ghana, a visit was made to COCOBOD and some active NGOs in the sector (Solidaridad, and World Cocoa Foundation) in Accra. This introductory phase was crucial because before anyone researches the cocoa sector of Ghana, permission must first be granted from the head office of COCOBOD in Accra. If permission is not given, sub-divisions of COCOBOD and some NGOs in the regional and districts offices will cease to interact or share information. As such, observing protocols before entering the district and community levels was implemented.

Since this study seeks to understand how quality enhancement (post-harvesting, environmental and social standards) is promoted in the cocoa-growing communities, from the initial visits to

COCOBOD and NGOs, a list of quality enhancement interventions in the cocoa sector was provided. Because post-harvesting standards are implemented in every cocoa growing community in the sector, communities were therefore selected based on the cocoa district zones that had the highest number of certifications and cocoa company sustainability programmes implementing environmental and social standards. Based on this list, Adansi South and Amansie West districts were selected based on the highest number of certification and cocoa sustainability programmes implemented within the districts. In the respective districts, a visit was made to the cocoa health and extension division of COCOBOD's office and interactions with the officers, identified the different cocoa communities in the district and the interventions implemented on the ground. Some communities had no interventions, while some had interventions. As a result, Aponapon and Subiriso communities were selected based on the highest number of cocoa and chocolate companies operating in the communities and their implementation of certification or cocoa sustainability programmes. After the selection of communities, a visit was made to the communities to seek community entry and identify the various licensed cocoa buying companies operating in the communities. The selection of cocoa and chocolate companies was based on their contribution to sales of cocoa beans, implementation of certification or sustainability programme, and the geographical organisational structure of the company (foreign or locally owned).

Community entry was made possible through contacts and interactions made with extension agents at the cocoa health and extension division of COCOBOD's district office. Through the extension agents, arrangements were made to visit the various communities. In the communities, an informal discussion was held with the local chief and later with farmers. The informal meeting discussed the research intents and the activities to be conducted based on the data collection methods. Participants were also told of their voluntary participation in the fieldwork activities. Feedback from introductory sessions helped in the planning of data collection at this level. Participants identified the allocated time setting for various data collection activities. Feedback also helped in identifying the key actors who worked alongside or engaged with cocoa farmers in enhancing quality, such as community facilitators and purchasing clerks.

Also, during community entry, research assistants were selected from the communities. Factors considered in choosing research assistants included the ability to speak and write in the English language, organisation skills, and knowledge of cocoa production.

3.3 Data Collection and Methods

Data was collected during the major harvest season which falls from October to January; and the light season which falls from February to July. In the respective communities, data was collected from October to December 2017 for the major harvest season and continued in February 2018 for the light cropping season. Data was collected in the different cropping seasons because of the different events and dynamics that were likely to take place in terms of quality practices and knowledge exchange. Aside from the respective communities, data was collected from various actors at the district levels and key informants from organisations. Data collection elapsed for six (6) months; four months were spent in the studied communities, and two months were spent collecting data from other actors and organisations. Table 3.1 informs the different methods used to collect data on respective topics under the study. Each of these methods is discussed in detail in the next sections.

Table 3.1: Methods Applied to Collect Data on Sub-topics

Topic	Methods	Respondent
Governance - Actors' Role - Power relations	In-depth interview, FGD, Net-mapping, grey documents review, secondary data review.	Key informants from NGOs, LBC, CHED, CRIG, extensionists, farmers, purchasing clerks, internal inspectors, and community facilitators.
Knowledge Sharing and Extension services - Post-harvesting - Environmental and Social	In-depth interview, FGD, Grey documents review, secondary data review.	Key informants from NGOs, LBC, CHED, CRIG, extensionists, farmers, purchasing clerk, internal inspector, community facilitator
Quality Standards - Physical cocoa beans - Certification standards - Production Practices	In-depth interview, participant observation, FGD, grey document review.	Internal inspector, community facilitator, Purchasing clerk, LBC, QCC, farmers.
Quality Assessment - Physical cocoa beans - Farm Auditing	In-depth interview, FGD, participant observation, grey document review.	Internal inspector, community facilitator, purchasing clerk, LBC, QCC, farmers.

Source: author's own (2020)

3.3.1 Focus Group Discussion

FGD was vastly used throughout the study because it served to gather substantial information in a short period. It served as a tool to gather the perspectives and experiences of producers on the study. Most interestingly were the interactive discussions that transpired among and between respondents. It captured the different views, forms of interactions within and between the members of the group, reasons behind answers given and the rationale behind the answers. FGD method is argued by Carey and Smith (1994) that creates a positive synergy in groups which adds value to data.

Open-ended questions asked led to interactions and assessment of the various areas under the study. It led to the discovery of other relevant issues under each discussion but also the confirmation of assumptions. It was organised mainly among producers in the studied communities to discuss and understand their perspectives on, extension services and knowledge sharing on cocoa production, quality practices during cocoa production and quality control measures. The discussions covered varied concepts necessary to understand the study. As such, some discussions focused on power dynamics found in promoting interventions in value chains, the level of influence of certain actors on producers as well as the coping strategies and collective action adopted.

Participants were categorised into different groups based on age, gender, and cropping system (conventional and certified farming). A series of interviews from among different groups based on these characteristics were run until there was no new data to be collected. As it is identified in table 3.2, at the end of the data collection period, a total of fifteen (15) FGDs were organised among farmers. The group size was made up of about seven (7) to ten (10) participants. The different groups formed added value to the information collected because of the different perspectives each group contributed.

Table 3.2: Number of FGDs Held with Farmers[1]

Male farmers	**Young male** (20-40 years)	**Middle male** (40-60 years)	**Old male** (60-80 years)	***Sum***
Conventional	1	1	1	4
UTZ	1	1	1	2
Fairtrade	1	1	-	3
Sum	3	3	2	8
Female Farmers	**Young female** (20-40 years)	**Middle female** (40-60 years)	**Old female** (60-80 years)	***Sum***
Conventional	1	1	1	4
UTZ	1	1	-	2
Fairtrade	1	1	-	1
Sum	3	3	1	7
Total	**6**	**6**	**3**	**15**

Source: author's own (2018)

Participants were selected based on a list created during introductory sessions and through snowballing. Each participant was pre-informed before every discussion. A quiet venue, mostly a classroom block or under shaded trees was a priority in selecting a venue for discussions. Arrangements to use classroom blocks and the setup for meetings was made possible with the help of research assistants. At the beginning of the discussions, participants were asked to introduce themselves, and the agenda for the meeting was explained before the discussions began.

Photo 3.1: Focus Group Discussion with Conventional Male and Female Farmers

Source: author's own (2018)

[1] Farmers were categorized into young, middle, old and elderly according to their ages. Young farmers fall from the ages of 20 to 40 years. Middle aged farmers fall from the ages of 40 to 60 years, old aged farmers fall from the ages of 60 to 80 years and elderly aged farmers fall from the ages of 80 to 100 years. See appendix 9 for more details.

The researcher moderated some of the activities during discussions. During discussions, notes were taken as well as audio recordings. Participants were usually motivated to explain further relevant issues raised and clarifications made to points that were not well understood. At the end of each discussion, a summary of key points was shared with participants, giving them the chance to validate the information gathered at the end of each discussion. The downside of FGDs organised was mainly the articulation of cultural norms that restrained some participants from expressing their views. As noted by Leung and Savithiri (2009), the issue of non-reactive persons in a discussion can contribute to biased data. However, informal, and in-depth interviews sessions were carried out, making room for those who could not adequately express themselves better during FGDs. Other studies have also documented other downsides of FGDs including poor moderation of discussions which leads to biased answers (Morgan, 1996), difficulty in organising groups and tracking discussions (Powell & Single, 1996). However, this study did not encounter such challenges. It served as an appropriate tool to explore different perspectives and experiences on the subject, built rapport with participants before other methods were used and helped to re-orient the initial questions of the study.

3.3.2 Net-Mapping

It is an innovative tool for analysing multi-stakeholder governance networks depicting the different social and power networks that exist in managing resources but also in any intervention that involves many players (Schiffer & Hauck, 2010). It is known to be used to understand the reasons behind policy and intervention implementation but also its promotion (Waale, 2008). Widely used by multi-stakeholder organisations but also research institutions and researchers, it analyses the power/influence nature of multi-stakeholder players in interventions (Brenda et al., 2007; Schiffer & Hauck, 2010). Forms of data collection for this method include both qualitative and quantitative tools. However, this study relied on qualitative techniques in gathering information. The use of a net-map tool for the study was to collect in-depth data on, the roles and activities of different actors in promoting quality enhancement, the power and influence of different actors in the cause of knowledge sharing and quality assessment. This tool was used among farmers at the end of FGDs. Before its execution, the procedure was pre-tested among research assistants. The preparation phase with research assistants was necessary to develop the clarity of questions and the steps to be taken in the process of mapping.

Photo 3.2: Net-Mapping Exercise with Conventional Male Farmers

Source: author's own (2017)

The research assistant translated questions and instructions into the local dialect; thus, it became necessary to critically access the clarity and meaning of questions in the local dialect. It made the understanding of the exercise easier to implement among farmers. After questions were developed, links were defined to be able to explain the correlation that exists between and among actors. Links that were defined in the study included the flow of inputs, the flow of knowledge and information, and the flow of resources in promoting quality enhancement. Before discussions began, participants were introduced to the method and given a detailed explanation of how the method works, and the expectations and outcomes of the exercise. Below, sums up the procedure adopted for the execution of the tool.

- After the introduction, participants were asked to identify the various actors they work together or separately in enhancing quality. Names of actors were then written on small cards differentiating actors by colour and pined on a large white sheet for easy identification.
- The next step dealt with the links established among and between the actors. These are the links that were defined initially. A different colour differentiated each link in a legend found at the corner of the sheet. The colour used for the flow of knowledge was green while that used for the flow of resources was red. Participants then linked actors using the different colours defined in the legend. As participants drew a link, they explained how an actor contributes to enhancing quality, giving the goals or roles of each actor.
- Afterwards, influence and power were defined. Participants were asked to rate actors on a scale from 0 to 5, indicating the level of influence of such an actor; zero as 'no influence'

while five as the ‘greatest influence’. Participants reached a consensus in agreeing on the level of influence, and they were asked to give reasons for the rates given to actors.

- After the drawing stage, there were discussions on the goal orientation of different actors and the level of influence of each actor. In the discussions, participants were asked about other links which they thought were necessary but were not included in the drawing. The contributions were added, and a summary explaining key points was shared with participants, at the end of each session.

The method proved to be extremely useful for the topic under assessment and yielded valuable results on the various actors working together to promote the quality enhancement, their power relations with farmers and their roles and responsibilities. Initially, the purpose of this tool was to understand the actor-network in promoting quality enhancement and also the network in knowledge exchange. However, during implementation, other relevant information, such as the sharing of inputs and incentives, was brought up. It also identified the informal networks that exist and are created among and between actors at the community levels when exchanging quality enhancement knowledge. The tool was locally adaptable to suit the context of the study and participants. Language of instruction was the main change made, but it also needed rigorous training before research assistants were able to assist in the execution of the exercise correctly.

3.3.3 In-depth Interviews

Known for its highly effective output according to Boyce and Neale (2006), in-depth interviews were carried out to gather intensive perspectives from individuals at the community, district, traders, and organizational levels. This tool was used to collect detailed information from farmers (25), key informants (16), purchasing clerks (5), labourers (5), community facilitators (2), and local leaders (2). Farmers were identified and selected based on previous interactions during, FGDs, and informal discussions. Whereas other participants such as extension agents, government officials, cocoa, and chocolate companies, and, scientists, were identified through referrals. Conducting this method required a rigorous review of questions to be covered, depending on the participant’s area of speciality. Guideline questions were also set to direct the discussions and probing was a useful tool to get further explanations from discussions. The use of open-ended questions helped participants to expatiate on topics. The topics discussed touched on different

training, extension services, knowledge sharing, quality control measures, and farmers' quality practices.

These questions were pretested with the help of research assistants and guideline questions in the case of farmers, and traders were administered in the local dialect. Therefore, research assistants were trained on techniques for delivering questions. Training and pretesting became necessary so that the right questions were asked in the proper context. At the beginning of the discussions, participants were briefed on the purpose of the interview and the confidentiality of information shared. Also, permission was sought before discussions were recorded if applicable.

In cases where participants were not comfortable being recorded, reliance on notetaking took the form of data collection. In addition to note-taking, audio recording, and picture taking were the primary forms of data collection. Verifications took a crucial role in following up on claims made by participants at the end of the discussions. Verification was made through document checking, further interviews with other key informants, observation and also sought further proof through farm visits or practical demonstrations. For instance, further proof through demonstration evidence was required during an interview with a PC that discussed quality cocoa checking techniques in the sector. The participant took me to the warehouse and sampled cocoa beans to explain how the cocoa bean is checked for moisture content and flavour at the community level. Though this method was highly effective, it required much time for planning, executing the interviews and transcribing.

3.3.4 Participant Observation

This method was employed in different social situations that occurred during the period of data collection in communities and on farms. The aim of applying this method was to understand the various interfaces that transpired in the process of promoting quality; sharing or introducing quality enhancement technology, carrying out quality enhancement practices and purchasing commodities. Observation in action was carried out at,

- *Training Sessions*: training sessions attended at the community level observed how quality enhancement was shared or exchanged among actors, particularly, extension officers and farmers. Most crucial was also the spontaneous observation of knowledge sharing among

and between farmers and labourers (paid, family and informal groups). These situations helped to understand the formal and informal networks that exist in sharing quality enhancement knowledge in the sector.

- *Farms*: quality enhancement practices were carried out on farms, (traditional and scientific technologies) but also the forms of interactions that occurred during post-harvesting activities of cocoa beans were captured.
- *Warehouses*: spontaneous visits were made to warehouses of licensed buying companies at the community and district levels. The practices and interactions that transpired when purchasing cocoa beans were captured.
- *Market Places and Selling Points*: visits to the cocoa selling points captured the process of negotiating prices or not. Encounters between producers and traders were also captured. Also, the physical quality check techniques employed by purchasing clerks, and farmers were captured.

In various situations, the forms of interaction, encountered at the different interfaces and the power and control nexus were captured. The place at which an incidence occurred (concerning cocoa purchasing, knowledge sharing, quality assessment and cocoa production), the actors involved and the activities they were engaged in were taken into optimal consideration when observing (Spradley, 2016). The researcher participated in activities with producers, purchasing clerks and relevant actors. While participating in those activities, informal interactions took the form of exploring the meanings of certain activities they undertook. Repeated observations helped in differentiating types of actors involved in a process and distinguishing them by certain characteristics (age, farming system, experience, and gender). However, in settings such as training sessions, the researcher instead observed and not participated in the activity. Note-taking and picture taking were the form of capturing data. On the other hand, participant observation helped in relating to the contexts of the study, giving the researcher a better feeling, and understanding of what occurs on the ground.

3.3.5 Secondary Data

Secondary data review was employed throughout the entire data collection period. Sources of this data included literature from scientific journals and books, grey documents (policy reports,

organisation documents) and statistical information. These were collected to be able to understand, quality standard evolvement, its process and promotion, the political context of the cocoa sector, cocoa production, market development, generic statistical data on the sector, and knowledge and innovation systems development and operation in the sector. Archives and grey literature were retrieved from the cocoa research institute of COCOBOD's library. Other forms of data, such as statistical data, were retrieved from the Ghana Statistical Service (GSS) and the Ministry of Food and Agriculture (MoFA).

3.4 Data Analysis

The form of data collection included notetaking (field notes and field diary), audio and video recording, photography, and sketching. Audio and video recordings were transcribed and summarised. By using Atlas ti qualitative analysis tool, Microsoft word and excel sheet, data were categorised into themes according to the questions of the study. A cross-case analysis was utilised to identify the similarities and differences within the cases. Therefore, the various themes were analysed to identify the similarities and differences within the studied communities. For qualitative data, case stories, descriptive, narratives, maps, photos, and visualisation were the forms of reporting the data. Quantitative data retrieved from both primary and secondary data sources were reported using tables and graphs.

3.5 Data Validation

The data collection design and procedure took into consideration the validity of the data collected. The need to create mechanisms to control the quality of data collected is critical to ensure data validity and reliability (Sousa, 2014). Therefore, data source triangulation and method triangulation were adopted to ensure data validation. Triangulation is the validation of data through several methods or sources (Carter et al., 2014).

Data Source Triangulation

The aim of conducting a data source triangulation is to provide perspectives from different types of people, including individuals, groups, families, and communities on the same subject of analysis (Carter et al., 2014, p. 545). It also helps the researcher to capture in-depth information and understand the subject under scrutiny (Sousa, 2014). In the study, different respondents (farmers,

extension agents, purchasing clerks, cocoa, and chocolate companies, COCOBOD and its respective divisions) were asked questions on the same themes under the research. In this was way, there were different perspectives on the same theme categories. It helped to have an in-depth and broad understanding of a particular subject under study. It also helped to address research questions that dealt with *how* and *why*. Data source triangulation ensured unbiased data and provided a means to cross-check data with different players in the sector. Table 3.3 explains how data source triangulation was employed to collect data from different respondents on the topics under the study.

Table 3.3: Data Source Triangulation used Under the Sub-topics of the Study

Topic	Respondents
Governance - Actors' Role - Power relations	Key informants from NGOs, LBC, CHED, CRIG, Extensionists, farmers, purchasing clerks, internal inspectors, and community facilitators.
Knowledge Sharing and Extension services - Post-harvesting - Environmental and Social	Key informants from NGOs, LBC, CHED, CRIG, Extensionists, farmers, purchasing clerks, internal inspectors, and community facilitators.
Quality Standards - Physical cocoa beans - Certification standards - Production Practices	Internal inspector, Community facilitator, purchasing clerk, LBC, QCC, farmers.
Quality Assessment - Physical cocoa beans - Farm Auditing	Internal inspector, community facilitator, purchasing clerk, LBC, QCC, farmers.

Source: author's own (2020)

Method Triangulation

Method triangulation entails collecting data using multiple methods on the same subject or unit of analysis (Carter et al., 2014). It helps in "confirming findings, more comprehensive data, increase validity and enhance understanding of studied phenomena" (Bekhet & Zauszniewski, 2012, p. 40). According to Bekhet and Zauszniewski (2012), there are two types of method triangulation namely across method and within method. Across method employs both qualitative and quantitative methods to collect data on the same subject. Whereas within method, uses either qualitative or quantitative methods to collect data on the same subject. In the context of the study, the within method was employed and qualitative methods (In-depth interview, FGDs, and participation

observation) were used to collect data on the same themes under the study. It helped to resolve some biases and misunderstandings of some subjects. In some instances, it helped to confirm the information provided by different respondents. It also helped to have an in-depth understanding of the subjects of the study. Table 3.4 highlights the different methods used to collect data on the various topics under the study.

Table 3.4: Method Triangulation used Under the Sub-topics of the Study

Topic	Methods
Governance - Actors' role - Power relations	In-depth interview, FGD, Net-mapping, Grey documents review, secondary data review
Knowledge Sharing and Extension services - Post-harvesting - Environmental and Social	In-depth interview, FGD, Grey documents review, secondary data review
Quality Standards - Physical cocoa beans - Certification standards - Production Practices	In-depth interview, participant observation, FGD, grey document review,
Quality Assessment - Physical cocoa beans - Farm Auditing	In-depth interview, FGD, participant observation, grey document review

Source: author's own (2020)

Ensuring Data Quality

Also, data quality was ensured through purposive sampling and in-depth descriptions of data. The different methods used in collecting data for the study were embedded in such a way to confirm, validate, and ensure the reliability of the information. A purposeful sampling design using different characteristics (age, farming system, gender, and experience) was relied on to select the rightful participants under the study. In so doing, different perspectives from participants added to the in-depth description of the study.

3.6 Ethical Concerns

An ethical clearance permit for the study was approved by the institution (Center for Development Research of the University of Bonn). Therefore, ethical issues that may arise in the field were

anticipated before going to the field. The necessary protocols which must be observed for field entry at the various studied communities, organisations, and respondents, were also expected before leaving the field. Therefore, various measures such as the provision of safety equipment to research assistants and seeking the voluntary consent of respondents were carried out to prevent possible ethical issues that may arise during data collection. Thus, the following was observed during data collection to ensure observance of research ethics.

Informed Consent

Consent was sought from respondents before engaging in discussions. It was done with the various respondents at the community, district, and organizational levels. A written consent which entailed the purpose of the study, field work activities and respondents' voluntary participation was prepared. However, respondents voluntarily agreed to participate in the study through oral consent. Even before a discussion would begin, consent was also sought before any recordings took place. Almost all respondents were comfortable with recording the session, and few denied permission for audio recordings.

Field Entry Protocol

Before data collection began in every community, a field entry protocol proceeded. I paid a visit to the local chiefs and elders of the community with the resource person (extension agent from the cocoa and health extension division of COCOBOD) to introduce the research. Permission was sought from the local leaders to allow for data collection in the community. By doing this, respondents in the studied communities were willing and open to participate in the study. At the end of data collection in the studied communities, respondents were informed of the closure of field activities. They were informed of the final product of the study and the possibility of sharing results after the study. At the organisational level, research consent was granted by COCOBOD and its respective divisions that were engaged in the study. It was a mandatory step to be able to collect information from the institution. Otherwise, other organisations, such as the NGOs, did not require research permission to engage in the study.

Respondent Anonymity

The researcher was careful in respecting the privacy and confidentiality of information and respondents. Names and other bio-information of respondents were not revealed in the data analysis. Respondents were also allowed to choose the venue and time for interviews and other discussions. It helped to build confidentiality among respondents, and they opened up to speak and express themselves better. Observing research ethics in the study contributed to the confidentiality of respondents and data trustworthiness.

3.7 Research Positionality

Conducting field work activities in the cocoa communities as a female researcher was an opportunity to broaden my knowledge and experience with working in rural communities. It was not my first time working in cocoa communities in the Ashanti region, therefore, I was aware and familiar with the cultural setup in the region and some struggles I could anticipate during data collection. Since I am an Akan, I could speak the local dialect spoken in the communities, which made it easier to interact with respondents. However, there were some strategies adopted in various studied communities which helped to build trust with respondents. For instance, I attended social gatherings and paid informal visits to respondents' homes. I also engaged community members as research assistants to help in gathering data. Because of these strategies I adopted, the community members and respondents welcomed me and were open to contributing to my research. Beyond my research, community members also sought my opinions on how to improve farming activities that enhance community development. I experienced only one struggle concerning respondents' expectation to receive financial support at the beginning of data collection. Respondents' expectations were due to the support they receive from NGOs and international donors during interventions in the communities. However, during my introductory sessions with the community members, they found out I was a student, and the purpose of my visit was to conduct research and learn from them. Because of this, community members and respondents were willing to share knowledge and experiences on the research topic without demanding financial support in return. As a way of appreciating their contributions to my research, during interview sessions, I shared snacks with respondents. At the end of field work activities in the communities, a solid rapport was built between the researcher and community members and respondents.

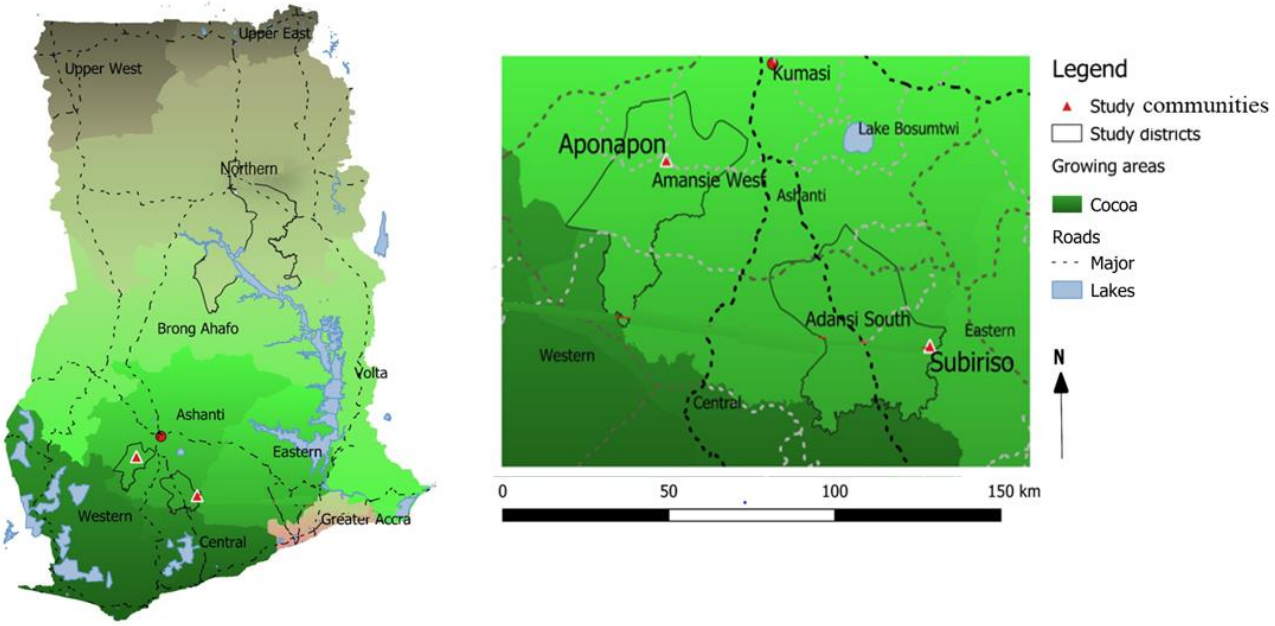
Chapter 4 Study Area in Context

4.1 The Ashanti Region

The studied cocoa communities are found in the Ashanti region, which is located in the southern part of the country and lies "approximately between longitude 0.15' to 2.25' west and latitude 5.50' to 7.40' north" (GHS, 2010, p. 4). The region shares a boundary with the Brong Ahafo region to the north, the central region to the south, the Eastern region to the east and the Western region to the south (GHS, 2010, p. 4). The Ashanti Region is the highest populated with a population of 4,780,280, which represents 19.4 per cent of the total population of Ghana (GSS, 2012, p. 1). The capital town of the region is Kumasi, which has a population of 1,559,807, which accounts for 32.4 per cent of the total regional population (GHS, 2010, p. 4). The region has 27 districts and 132 sub-districts (GHS, 2010, p. 4).

Akan is the dominant ethnic group of the region, popularly known as the Ashantis'. In terms of cocoa production, the region is the second-largest cocoa-producing area. The entire cocoa growing area in the country is divided into cocoa districts, and the Ashanti region's cocoa growing area has fifteen cocoa districts which account for the second-largest number of growing areas in the country. Cocoa purchasing in the region is continually active, and there is competition among the various licensed buying companies in the sector. All the 51 licensed cocoa buying companies present in the sector, have established warehouses at the district level and buying centres at the community level. The region accounts for one of the highest quality enhancement interventions. As of 2017, the number of quality enhancement projects in the region, identified by COCOBOD was more than 40. This number, according to COCOBOD, is even underestimated. The projects include certification schemes, company sustainability programmes, and capacity development interventions (In-depth Interview, Project Unit of COCOBOD, 20.09.17, Accra). In the region, both Adansi South and Amansie West districts are some of the active cocoa producing districts.

Figure 4.1: Map of Studied Area



Source: author's own (2020)

4.2 Brief Description of the Study Area

The studied communities Subiriso and Aponapon are found in Adansi South and Amansie West, respectively. These cocoa growing areas are among the highest cocoa producing areas in the Ashanti region (COCOBOD, 2018).

4.2.1 Aponapon

Aponapon is found within the Amansie West district and the Amansie West district has a population of 134,331(GSS, 2014). Manso Nkwanta is the capital of the district. The district shares boundaries with nine different districts, some of which include, Atwima Mponuah to the west, Obuasi municipality to the east, Antwima Kwanwoma to the north and Bibiani to the south. The total land size of the district covers 1,230 square kilometres (GSS, 2014). The climate is favourable with two rainfall patterns. The district is bound by the Offin and Oda rivers (GSS, 2014). Ninety-nine percent of the population is engaged in crop farming, with cocoa farming as the main crop cultivated. The region is also active in small scale mining which is said to cause environmental

degradation as well as poses a threat to cocoa production (GSS, 2014). Aponapon has a population of about 3000 inhabitants with about 1500 as cocoa farmers (In-depth Interview, Community Facilitator, 16.11.17, Aponapon). The community lies in a range of hills surrounded by some forest reserves. The community has a local chief who has rights over customary land, including cocoa farms in the community.

The main occupation is farming, with cocoa as the main growing crop alongside other crops including stable food, vegetables, and palm plantations. There is a licensed small scale gold mining company within the community that has employed some of the young population from the community. Some of the community members also engage in illegal mining which is the second-largest occupation after farming. Some youth and middle-aged cocoa farmers are also involved in illegal mining activities, and because of this, they are not able to pay attention to cocoa production. Others in the community are petty traders who sell foodstuff and household items by the roadside. There are two different ethnic groups in the community. The native occupants are the Ashanti Akan who settled in the early 1960s and a small population of Dagbanis who migrated from the Northern region of Ghana in the early 1980s. Most of the community population belongs to Christianity and the Islamic religion.

The significant development in the community is a new school block constructed by a licensed buying company and a modern church building located at the community's main entrance. There are also other church buildings as well as mosques. Community members must buy water from tap water situated in the middle of the town. The community has access to electricity, and some of the population have access to satellite televisions. There is also a public toilet, but most people also have private utility-hole toilet facilities. Cooperatives and extensionists use an old school block structure for training as well as meetings. The community has poor road infrastructure, and in that manner, farmers have poor access to their farms. Some cocoa farms are found by the main roadside while others are found on hills, and some are found within forests. On average, farmers must walk about an hour to reach their farms. There are few private vehicles used as taxis, while other means of transportation include motor vehicles and bicycles. When there is heavy rainfall, one must remain indoors for some days due to frequent flooding during rainy seasons.

An important facility within the community is the information centre. It is a small concrete building that is privately owned, and in the building, there is a speaker and a table in it. The information centre serves as the communication channel to convey any form of news or message to community members. One must pay about two USD to be able to make an announcement. Announcements range from farming training to the advertisement for drugs and any form of relevant information. The community does not have any health facility, and the nearest hospital is about fifteen kilometres away.

Photo 4.1: Aponapon Community Housing and School Structure

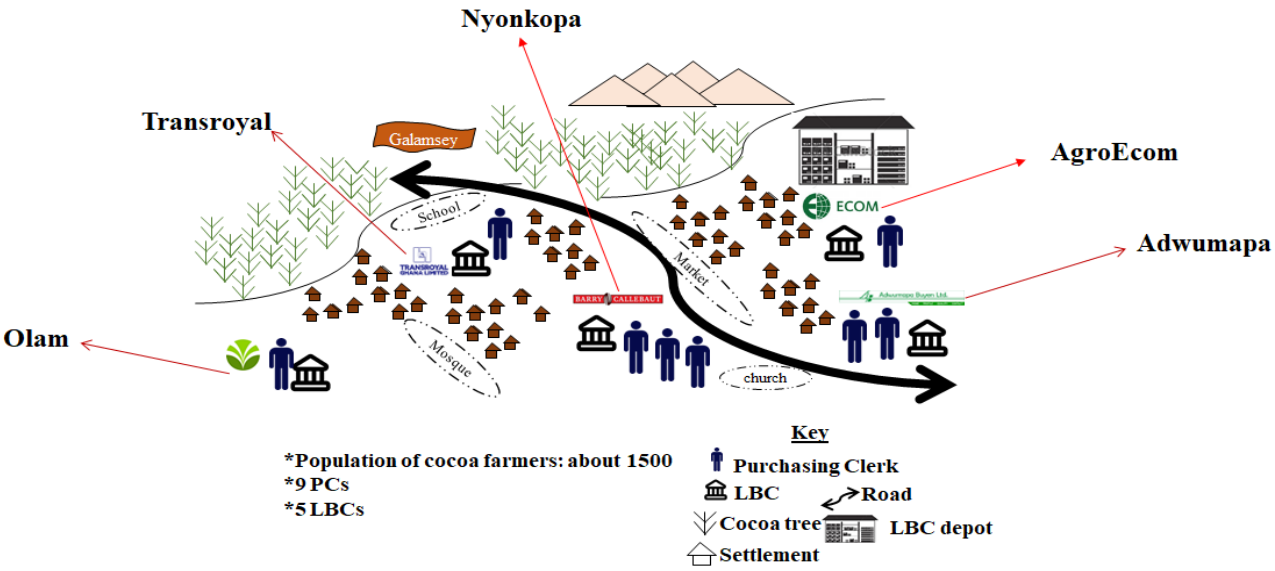
Source: author's own (2017)

In terms of the cocoa marketing structure in Aponapon, it has about four licensed buying companies that have building structures as their selling points. Four LBCs are operating in Aponapon namely Olam Company, AgroEcom, Nyonkopa Company and Adwumapa Company. Olam and AgroEcom are international traders while the other two companies are locally owned. Although four LBCs are present in the community, there are seven purchasing clerks in the community. Among the LBCs, Olam has one purchasing clerk, AgroEcom has one purchasing clerk, Nyonkopa has two purchasing clerks and Adwumapa has three purchasing clerks working in the community, respectively. On average, each purchasing clerk has about 120 farmers selling cocoa beans to them. Six PCs are male while one PC is female and falls between the ages of 40 to 60 years. Figure 4.2 is a social map that illustrates the various licensed buying companies, their locations, and the number of purchasing clerks working in the community.

Concerning quality enhancement production, AgroEcom implements UTZ and Rainforest certification while Nyonkopa, Adwumapa and Olam buy conventional cocoa beans. Adwumapa and AgroEcom however, buy Fairtrade cocoa beans from a cooperative called Amansie West

District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited. The cooperative farmers are part of an International Confectionery Company's sustainable programme which implements Fairtrade certification.

Figure 4.2: Licensed Cocoa Buying Companies in Aponapon



Source: author's own (2020)

4.2.2 Subiriso

Subiriso community is found within the Adansi South District. Adansi South has a population of 115,378, and it is located in the South-Eastern Ashanti region, and it is about 92km from Kumasi (GSS, 2014, p. 1). The district lies between Obuasi Municipal and Adansi North districts to the North as well as shares boundaries with Amansie Central and Bosome Freho Districts (GSS, 2014, p. 1). The district has a total land area of 1328.2 square kilometres and 25.2 percent of the total land area is a forest reserve. The climate of the district is favourable with two rainfall patterns within a year (GSS, 2014, p. 1). The district has some of the major rivers in the country, which include River Pra and Fosu.

72.5 percent of the population is involved in skilled agriculture, forestry and fishery, 9.4 percent in the services and sales work, 7.1 percent in the craft business, and 4.5 percent working as managers, professionals and technicians (GSS, 2014, p. xi). About 57.7 percent of households are

involved in agriculture, with 98.6 percent of persons within these households involved in crop farming. Cocoa is one of the main crops grown, aside from other crop food including rice and staple crops. Subiriso is situated in a hilly and forested environment and has a population of about 900 inhabitants of which about 500 are cocoa farmers (In-depth Interview, Local Chief, 9.10.18, Subiriso). The community has two ethnic groups, namely the Akan and Ewe speaking tribes.
Three (3) tribes (Asante Twi, Fantes and Akwapim) consist of the Akan ethnic group. Farming is the main occupation with petty trading among women, also playing an important role in the community. The main crops grown are cocoa, with rice as the second-highest crop cultivated. Other food crops also include stable food and vegetables. The first settlers migrated to the community from the central region to farm cocoa in the early 1970s.

> "My father moved to this town to start cocoa farming in the early 1970s. We were young when we settled in this town. At that time, tall trees surrounded the whole community and cocoa was in abundance. Even cocoa trees covered the main road which is presently constructed. There were few settlers when we migrated, but everyone was growing cocoa. Things have changed; the land is not fertile anymore, the landscape has changed, but now there is electricity, a community centre, a constructed road, a school building and a public toilet and water tap" (In-depth Interview, Conventional Female Farmer, 17.02.18, Subiriso).

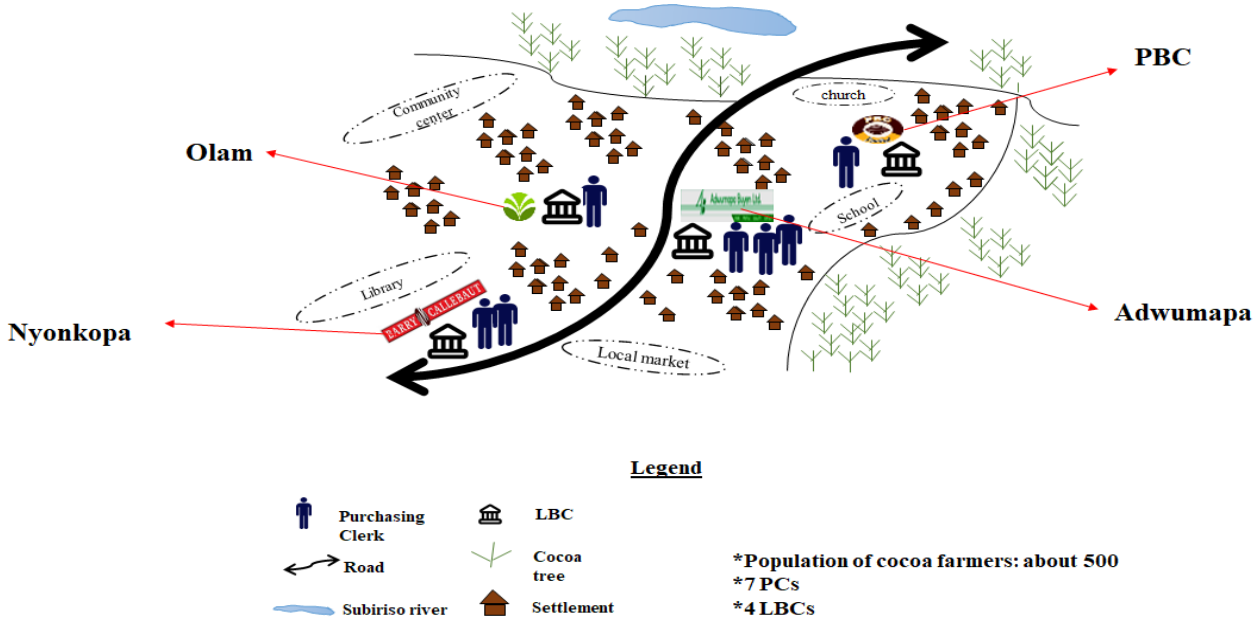
As compared to other surrounding communities, Subiriso has advanced in terms of community development projects (See photo 4.2). The local chief in the community plays a vital role in the development of the community. Aside from his role as holding rights over customary lands, including cocoa farms, he has helped the community to build a public toilet, a community resource centre, a market, and a community centre. There is a river in the community, and community members rely on it as one of their sources of water for domestic purposes aside from public-owned tap water built by the government. The community has access to electricity, as well. The community also has a school building which was built by the government. There are church buildings found within the community. The main road to the community is constructed. The community has an information centre that announces any form of news or information to the community members. It is privately owned, and one must pay about 2 USD (5 Ghana Cedis to 1 USD as of 2017) for an announcement. Means of transportation include private vehicles used as taxis, as well as motorcycles and bicycles. One has to travel to New Edubiase, the district's capital town to get access to health care.

Photo 4.2: Developmental Projects in Subiriso Community (Market center, Public toilet)

Source: author's own (2017)

In terms of cocoa marketing, in Subiriso, there are four LBCs presents within the community and have built buying centres for purchasing cocoa beans. Four LBCs are operating in Subiriso namely Purchase Buying Company, Olam Company, Nyonkopa Company and Adwumapa Company. Olam is an international trader while the other three companies are locally owned. Although four LBCs are present in the community, there are six purchasing clerks in the community. Among the LBCs, PBC has one purchasing clerk, Olam international has one purchasing clerk, Nyonkopa has two purchasing clerks and Adwumapa has two purchasing clerks working in the community, respectively. Aside from PBC which buys both conventional and UTZ cocoa beans, the rest of the LBCs buy only conventional cocoa beans. On average, each purchasing clerk has about 150 farmers selling cocoa beans to them. All six purchasing clerks are male between the ages of 40 to 60 years. Figure 4.3 visualizes the locations of various licensed buying companies in the communities, with their respective purchasing clerks.

Figure 4.3: Licensed Cocoa Buying Companies in Subiriso



Source: author's own (2021)

4.3 The Context of Quality in Cocoa Production

At the global level, cocoa production faces poor environmental and post-harvesting management as well as child labour and discrimination (Hütz-Adams et al., 2016). Likewise, in the studied districts and communities, similar production practices are found in cocoa production. In both Adansi South and Amansie West, although there is an active cocoa production, farmers' activities including slash and burn clearing of land, the clearing of forest reserves for cocoa production has over the years put a threat to the environment in the district (MoFA, 2021). In addition to farmers' poor production practices, there is also illegal mining and logging in the districts.

These poor environmental activities found in the district, pose a threat to biodiversity, making the district lose important animal and fora species over the years (MoFA, 2021). It also causes river contamination and pollution, reducing the quality of water for consumption. Because of these unsafe environmental cocoa production practices in addition to illegal mining and logging, it is feared, that in some years to come, the district might lose all its forest reserves (MoFA, 2021). According to MoFA (2021), the vegetation of the district is gradually changing from rain forest type to mosaic secondary forest. In the Aponapon community, I observed that forests, have been

cleared for cocoa production and illegal mining in the community, have polluted a water body. Some farmers also grow cocoa near polluted water bodies, which is forbidden by the UTZ and Fairtrade standards (see appendix 2).

According to MESW (2010), and Baah (2010) Amansie west and Adansi South district has one of some active child labour practices in agriculture, including cocoa production. Some of the child labour issues in cocoa production include engaging children under the ages of 12 and 15 in hazardous activities such as the application of chemicals, and climbing of trees (Baah, 2010). In the communities, farmers testify that child labour is a common practice and has been a norm in cocoa production since the colonial era (In-depth Interview, FGDs, October 2017, Aponapon and Subiriso).

Across the cocoa sector, post-harvesting practices such as inadequate fermentation and drying of cocoa beans is a prominent issue that affects the quality (physical appearance and flavour) of cocoa beans. Since the colonial era, farmers in the sector, struggle to conform to proper post-harvesting standards of cocoa production (Quarmine et al., 2012). Interactions held with the quality control company unit of COCOBOD, imply that farmers in the Adansi South and Amansie West districts encounter poor quality beans production due to inadequate fermentation and drying of cocoa beans (In-depth Interview, Technical Officer at QCC, October 2017 and February 2018, Tema and New Edubiase). These poor production practices in the Amansie West and Adansi South districts contribute to the deteriorating of quality cocoa beans.

Chapter 5 Governance of the Cocoa Sector and Cocoa Standards

This chapter provides an overview of the governance structure of the Ghanaian cocoa sector. It also reviews the governance of quality standards regulating different cocoa production systems to highlight the different actors in the sector and how they interrelate to implement quality standard programmes.

5.1 Overview of the Cocoa Value Chain

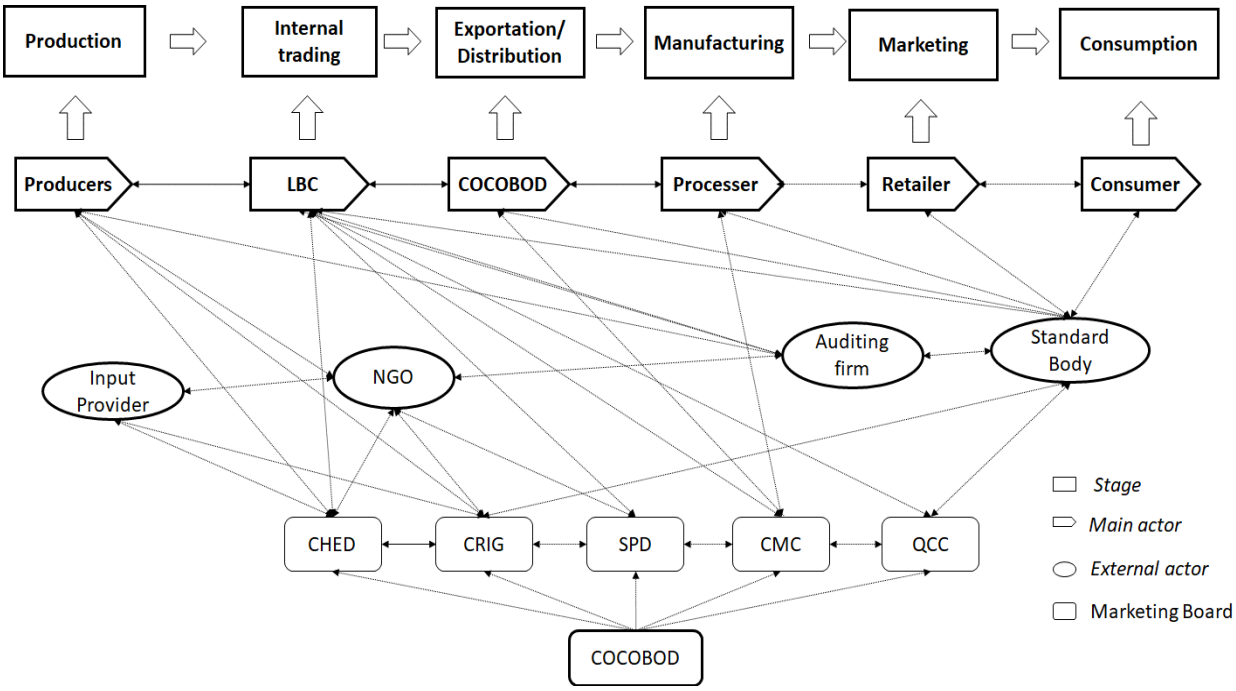
Cocoa has a long history of contributing substantially to the Ghanaian economy. It generates about two (2) billion USD annually in foreign exchange (Kolavalli & Vigneri, 2011). Cocoa contributes 30 percent of the total export revenue, accounting for about 4 percent of the country's total Gross Domestic Product (GDP) (Quarmine et al., 2012, p. 7). The cocoa sector contributed tremendously to the country's achievement of poverty reduction as part of the millennium development goals (Kolavalli & Vigneri, 2011). Ghana is the second-largest cocoa-producing country after Cote d'Ivoire. In 2017/2018, it produced about 26 per cent of the total cocoa beans production (ICCO, 2018).

Since the late 1940s, the sector has been regulated by a parastatal organisation called COCOBOD. In 1947, the British government established the then Cocoa Marketing Board (CMB) as the parastatal agency responsible for developing the sector. The board was by then the only exporter of cocoa through its purchasing arm, the Purchasing Buying Company (PBC), by which the board was the sole buyer of cocoa beans. The board also researched cocoa-related diseases and provided extension, quality control and inputs to farmers. After independence in 1956, the government maintained the marketing board but, in 1979, the government operated the cocoa sector through the board under the name of COCOBOD.

COCOBOD by then was the largest employer in the country and continued to control the entire sector. However, in 1984, the board went through reform and eliminated itself from the production and processing of cocoa but maintained monopoly control of purchasing and marketing segments. As part of the Structural Adjustment Programme (SAP) in 1992, the cocoa sector was partially-

liberalised[2], causing the internal marketing of cocoa beans to be liberalised. However, the cocoa beans' external marketing, fixation of producer prices, quality control, and research and extension are regulated by COCOBOD through its sub-divisions.

Figure 5.1: The Organisation of the Cocoa Value Chain



Source: author's own (2020)

Figure 5.1 illustrates the organisation of the cocoa value chain. The cocoa value chain is categorised into the production, marketing, and processing of cocoa beans and the marketing of end-products segments. The cocoa value chain begins with farmers who plant and cultivate cocoa trees and harvest, ferment, and dry cocoa beans for sales. Farmers are responsible for adopting best-practices in agronomic, environmental, social, and post-harvest practices. Farmers sell cocoa beans to licensed buying companies through their purchasing clerks in the various communities. After purchasing cocoa beans from farmers, cocoa beans are carried to the warehouse of licensed buying companies, which serves as a storage hub of all cocoa beans from the various cocoa-

[2] As a recommendation of the World Bank and International Monetary Fund (IMF), to liberalize agricultural domestic markets, the government of Ghana, liberalized the domestic marketing of cocoa beans and this introduced both international and local traders in the purchasing of cocoa beans from farmers at the growing communities.

growing communities within a district. Through an arrangement with hauliers, licensed buying companies transport cocoa beans in long vehicles to the take-over centres of COCOBOD where preparations for export begin. At the take-over centres, cocoa beans are kept in warehouses regulated by the Cocoa Marketing Company (CMC) of COCOBOD. Cocoa beans are fumigated against rodents and other insects which may pose damage to the product before exportation. Cocoa beans are then evacuated from the premises of various take-over centres to the harbour or ports for exportation to overseas buyers or distributed to processing companies who are engaged in primary processing in the country.

At the processing level, cocoa beans are roasted to reduce moisture content and enhance semi-finished products' aroma and flavour. It is ground into paste and liquor and further processed into cake and butter and cocoa powder (Gayi & Tsowou, 2017). At the manufacturing stages sugar, nuts, dairy, or other supplements are added to make chocolate and other confectioneries. After cocoa is processed and manufactured into end products, the marketing of finished products is the next step toward maximising profits and meeting consumers' quality preferences. The various marketing channels for marketing chocolate and other confectionery include retail shops, supermarkets, and online shops.

Table 5.1: Actors in the Cocoa Sector and their Responsibility

Actor	**Responsibility**
Producer	They are both male and female farmers who cultivate cocoa beans from the growing to the harvesting, fermentation and drying stages.
COCOBOD	The Ghana cocoa board is the parastatal institution regulating the cocoa sector through its sub-divisions.
CHED	The Cocoa Health and Extension (CHED) division regulates the extension activities in the sector. It trains extensionists and develops training manuals on cocoa production. CHED trains farmers on the pre-harvesting stages of cocoa farming on agronomics practices.
CRIG	The Cocoa Research Institute (CRIG) is responsible for researching cocoa diseases and for developing cocoa technologies.
SPD	The Seed Production Division (SPD) oversees the distribution of cocoa seedlings and inputs across the cocoa-growing communities. It collaborates with private input companies to supply the required inputs prescribed for cocoa farming. At the district level, it works with CHED to identify and distribute inputs to farmers.

CMC	CMC division is responsible for all marketing arrangements and trading from the district level to the exporting level. It collaborates with LBCs to procure cocoa beans from farmers and transport the produce through hauliers to the various designated take-over centres.
QCC	The Quality Control Company (QCC) division is responsible for quality control and assurance from the district level to the exporting level. QCC collaborates with LBCs to control crude physical quality in the cocoa-growing communities.
NGO	NGOs implement certification standards, capacity building projects and rural development projects. The NGOs in the sector, collaborate with the various sub-divisions of COCOBOD in providing extension services, and input distribution per its programme goals.
LBC	LBCs are licensed buying companies that are both local and international cocoa trading companies. Some of the LBCs are also processing companies. They have the mandate to purchase cocoa beans from farmers in the various cocoa-growing communities. As of 2018, there were 51 LBCs in the sector.
Cocoa and Chocolate Companies	These include cocoa trading, processing, manufacturing, and retailing companies. Some of them implement certification standards and company sustainability programmes in the sector. Therefore, they have offices in the growing communities and the sector.

Source: author's own (2020)

Figure 5.1 and Table 5.1 highlight the different actors working together to perform functions at the cocoa value chain's various stages. It also points out which actor controls different stages of the sector. For example, producers control the growing and harvesting of cocoa beans, whereas retailers control cocoa end-products marketing. However, COCOBOD's active presence in the sector is demonstrated in its coordination of activities with other actors through its sub-divisions. As indicated in sections 2.1 and 2.2, external actors have become active in agricultural value chains because of interventions in third-party certification and sustainability programmes. In this context, external actors including NGOs, auditing firms, input providers and standard-setting bodies, have also become active in the sector. Consequently, this also implies the management of different sector functions, requiring different governing styles leading to complex power relations in the cocoa sector.

According to Kaplinsky and Morris (2000), actors in value chains gain power through the ownership and acquisition of shares. Likewise, Fountain and Hütz-Adams (2015) argue that power is distributed along the cocoa value chain through value creation. For instance, in the chocolate industry, higher value is captured among manufacturers (35.2 percent) and retailers (44.2 percent),

whilst farmers receive only 6.6 percent of the total share of the value created in the industry (Fountain & Hütz-Adams, 2015, pp. 34–35). Based on the value creation among actors in the cocoa value chain, there is unequal power distribution which allows powerful actors such as manufacturers to exert control over less powerful actors such as farmers. In the Ghanaian cocoa value chain, the presence of the marketing board, COCOBOD, deepens the control of producers. For instance, farmers become price takers and have no bargaining power because a fixed price is determined by COCOBOD every cropping year (Kolavalli, 2012; Gayi & Tsowou 2017).

5.1.1 Governing the Cocoa Sector; Driving and Coordinating

The cocoa sector's partial liberalisation in the early 1990s has shifted the governing style of some of COCOBOD's functions from 'driving' to 'coordinating' (see table 5.2). As discussed in section 2.2, coordinating as a governing style demands sharing responsibilities, actors' dependence on each other to perform operations, and frequent communication. Whereas, driving as a governing style requires the direct overseeing of an actor solely implementing all activities in a segment or interventions (Gereffi et al., 2005). The shift of governing styles has demanded the collaboration and cooperation of various actors along the different stages of the cocoa value chain and led to the public-private partnership in extension services, marketing of cocoa beans, quality control, and certification standards.

Because of this, 'coordinating' as the governing style is employed to manage public-private partnership activities. For instance, the management of post-harvesting extension services and quality control in the growing communities, in the current partial liberalised system, involves the partnership between the quality control company of COCOBOD and the various licensed buying companies. In this regard, quality control company trains licensed buying companies on post-harvest technologies and quality control measures and LBCs in turn, train farmers in various growing communities. Table 5.2 identifies the different governing styles employed to manage various functions in the sector.

Table 5.2: Governing Styles Utilized under the Various Value Chain Segments

Function	Governing style	Actor
Extension on post-harvest	*Coordinating*	QCC: Trains LBCs LBC: Trains farmers
Quality control	*Coordinating*	QCC: Trains LBCs, performs quality control among LBCs at the district and exportation level LBC: Perform a physical inspection of communities
Input supply and distribution	*Coordinating*	CHED: Record-keeping on farmers' SPD: Organisation of seedling LBC: Communicate the quantity of inputs NGO: Communicate the quantity of inputs
Research	*Driving*	CRIG: develop technologies
Internal marketing (purchasing of cocoa beans from farmers)	*Coordinating*	CMC: Organisation of cocoa beans exportation and distribution LBC: Organisation of cocoa beans supplies in the communities
External market (sales of cocoa beans to manufacturers, traders)	*Driving*	CMC: Oversee sales of cocoa beans to final buyers
Price setting	*Driving*	COCOBOD
Certification standards	*Coordinating*	LBC: register farmers, provide extension, sharing of the price premium Cocoa and Chocolate company: implements a certification scheme COCOBOD: Grants permission to certification implementers Auditing company: Performs farm inspection and organisation monitoring Standard-setting body: Sets standards and gives accreditation to certification implementers

Source: author's own (2020)

However, the lack of communication, control and monitoring of activities and actors, may render coordinating as a governing style ineffective. For instance, in the studied communities, some LBCs communicated with farmers once a year on post-harvesting technologies. Unfortunately, there was no monitoring of activities among actors in implementing activities in the studied communities. For example, regarding extension services for post-harvesting and the physical inspection of cocoa

beans, licensed buying companies did not monitor their representatives' activities at the community level. Neither did the quality control company of COCOBOD monitor the progress of LBCs activities at the community level. These instances led to farmers' inadequate access to information, ad-hoc implementation of good post-harvesting, and environmental and social standards.

In contrast, COCOBOD continues to directly drive the research segment, setting of producer price[3], and cocoa's external marketing. 'Driving' as a governing style employed to manage technology development in the sector also has some implications on knowledge transfer. According to Kolavalli et al. (2012), the cocoa research institute as the sole actor in developing technologies in the sector has induced a top-down knowledge transfer that excludes the participation of farmers' knowledge. Therefore, the monopoly of technology development in the sector, restrict knowledge sharing, and according to Morgan and Murdoch (2000), top-down knowledge transfer, consequently, affects the uptake of innovations among farmers. In the case of price setting in the sector, the 'driving' governing style employed has both advantages and disadvantages. Prices fixed for farmers protect them from volatile world prices, but it also means that prices are dictated for farmers, making them price takers (Kolavalli et al., 2012). The fixation of farmers' prices in the cocoa sector is a clear indication of a buyer-driven value chain, where producers are manipulated and highly controlled.

Box 5.1 Examples of the Shift of Governing Styles

Extension; towards a Public-Private Partnership

Extension in the cocoa sector has gone through different reforms. From 1945 to 1972, the Ministry of Agriculture delivered extension services on cocoa with the sole responsibility to control the Cocoa Swollen Shoot Virus Disease. In 1972, a ministry called the Ministry of Cocoa Affaires was formed, and

[3] Crucial to COCOBOD's operations in the sector is also the fixation of producer price for farmers. The most significant argument that led to maintaining the board was to protect farmers (Kolavalli et al., 2012; Van Tilburg, 2008). Revenue gotten from future contracts, forecast prices and premium paid for Ghanaian beans account for the fixation of a producer price (Kolavalli et al., 2012). However, the prices of neighbouring countries are also considered in the fixation of prices. A committee set up in 1983/84 and chaired by the Ministry of Finance and Economic Planning (MOFEP) set prices. It is composed of representatives of farmers, COCOBOD subdivisions, LBCs, hauliers, Institute of Statistical Social and Economic Research (ISSER) and Bank of Ghana (BoG) (Kolavalli et al., 2012). COCOBOD announces prices before the major season, and LBCs must pay the proclaimed fixed price (Kolavalli et al., 2012). By paying farmers a fixed floor price, the decline of world cocoa prices does not affect producer prices. When world prices decline, the government maintains the previous cropping season prices paid to farmers and government rather keep increasing producer price percentages.

from 1972 to 1979, the ministry delivered cocoa extension services. However, in 1985, cocoa extension services were brought under the management of COCOBOD (Acquaah, 1999; Kolavalli and Vigneri, 2018). In the early 1990s, cocoa extension services were merged with the Ministry of Food and Agriculture (MoFA) extension services to unify extension activities in the country's food and agricultural sector. Nevertheless, in 2001, cocoa extension services were shifted back under the management of COCOBOD and have since remained under the management of the cocoa and health extension division of COCOBOD (COCOBOD, 2018). The extension system has since been operated solely on a public delivery service until 2010. The cocoa health and extension division of COCOBOD shifted extension activities on post-harvest, and capacity building training from a public extension system to a public-private partnership extension system. Consequently, cocoa extension services presently include NGOs, international donors, LBCs, processing companies, chocolate companies and community facilitators (COCOBOD, 2016b).

Some of the public-private partnership extension programmes include Farmer Business School (FBS). The Farmer-business school was introduced by the German Development Agency (GIZ) into the sector in 2013 and ended in 2018. This extension programme trained farmers on how to approach cocoa farming as a business. It sought to improve farmers' business skills through record keeping, calculating cocoa production's profit and costs, saving money, and maximising cocoa yields. GIZ financed the logistics (training manuals, training of extensionists) and CHED of COCOBOD delivered the extension to farmers. Farmers in every community were enrolled in a five-day training, and after the training, farmers received certifications recognising their participation in the programme (Frimpong, 2015). However, under the present public-private partnership, challenges including lack of sufficient extension agents, insufficient funds and poor road infrastructure, impede an effective PPP extension system.

Marketing; the Liberalised Marketing System

The purchasing of cocoa beans has shifted from a monopolised to a liberalised system. Different licensed cocoa and chocolate companies have engaged in purchasing cocoa beans from farmers in the cocoa-growing communities since the establishment of cocoa in the country. The cocoa sector was run under a liberalised system, where the purchasing of cocoa beans from farmers was open to private buyers during the early period of the colonial era (Kolavalli & Vigneri, 2011; Kolavalli & Vigneri, 2017; Laven, 2010). Foreign exporting firms were by the late 1800s and during the early 1900s the leading exporters of cocoa mainly to Europe. Among these firms included Cadbury Brothers and Company Ltd, an international chocolate company and the United Africa Company (UAC). The liberalised cocoa purchasing continued until the establishment of the cocoa marketing board in 1947. The cocoa marketing board abolished the liberalized cocoa beans' purchasing and became the only buyer of cocoa beans from farmers in the

growing communities (Laven, 2010). From 1962 to 1966, a farmers' cooperative called the United Ghana Farmers' Cooperative Council (UGFCC), formed in 1953, became the cocoa marketing board's sole cocoa buying agent.

From 1967 to 1977, CMC re-introduced the liberalised purchasing system, but this time, it was opened to only Ghanaian traders and adopted cocoa beans' procurement through purchasing agents. However, due to setbacks such as late payment of traders, the bankruptcy of many traders and late supply of cocoa and sometimes failure to deliver the claimed quantity of cocoa, the liberalised purchasing system was abolished (Kolavalli et al., 2012; Laven, 2010). Therefore, in 1977, the Produce Buyer Agency (PBA), a subsidiary of the cocoa marketing board, was created to function as a monopoly buyer. It operated as the sole cocoa buyer from 1977 to 1992 in the various cocoa-growing communities (Kolavalli & Vigneri, 2011; Kolavalli & Vigneri, 2017; Laven, 2010). However, following the structural adjustment programme, introduced by the world bank and the international monetary fund to relieve economies that faced severe economic crises, Ghana's government adopted an Economic Recovery Programme (ERP) to reform the cocoa sector gradually. In 1992, the government liberalised cocoa beans' internal marketing, which introduced both local and foreign licensed buyers to compete for cocoa beans from farmers (Kolavalli & Vigneri, 2011; Kolavalli & Vigneri, 2017; Laven, 2010). Under the liberalized system, there is intense competition on non-price incentives such as inputs, and food items, which has influenced a lenient quality control and consequently farmers have become less quality conscious.

5.2 Governing Cocoa Production

Cocoa is a low-canopy forest tree that grows in tropical climates, and it has been about 4000 years since its discovery (Acquaah, 1999, p. 1). The plant takes its origin from the Amazon, South America (COCOBOD, n.d.). For long, cocoa has served as a luxury commodity for western culture. The Europeans from the early 1500s started to consume cocoa, a native drink among the Native Americans. From the early 1700s, the cocoa drink gained popularity in Spain Italy, France, Germany, Netherlands, Switzerland, and later Great Britain.

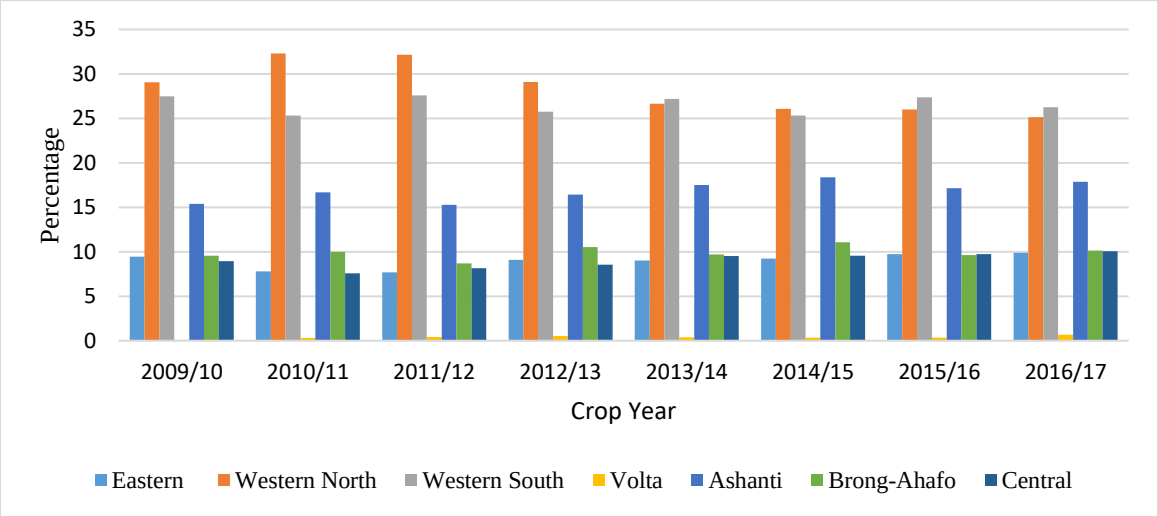
By then, countries such as Mexico, Venezuela and Ecuador were some of the leading cocoa exporters. The many health and cultural benefits and beliefs attached to cocoa, increasingly made cocoa a vital commodity. It was termed as a nutritious food for all ages, and among the Maya Indians, it was seen as *food for the gods* (Acquaah, 1999; COCOBOD, n.d.). In the early eighteen century, however, cocoa was introduced to Brazil, SÃO Tome, Fernando Po and parts of Western

Africa including Ghana, Nigeria and the Ivory Coast (COCOBOD, n.d.). Presently, the African market is the largest cocoa beans producer, and Europe is the largest cocoa consumer.

Cocoa thrives well in areas with rainfall between 1100mm and 3000mm per annum and in a temperature range of 32^0C and 18^0C (CRIG, 2010a, p. 20). Cocoa has two harvesting seasons. In Ghana, the major harvesting season falls between September and February and the light-harvesting season falls between June and August. Cocoa farming in Ghana is a smallholder business, and the average farm size is 2.5 hectares with a mean yield of about 400kg/ha (Barrientos & Bobie, 2016; CRIG, 2010, p. 7). About 800 000 cocoa farmers undertake the production of cocoa beans. Some of them are farmers' associations, while the majority are individual farmers (COCOBOD, 2018).

In Ghana, the cocoa sector is in the southern parts of the country. It is found in six growing regions, including Eastern and Western (this region is divided into Western North, Western South) Volta, Ashanti, Brong-Ahafo and Central regions. Western North and South are the largest producing regions, followed by the Ashanti region. Central, Eastern and Brong-Ahafo regions produce around the same quantity every cropping year (COCOBOD, 2018).

Figure 5.2: Production of Cocoa at the Regional Level from 2009-2017



Source: based on (COCOBOD, 2018)

5.2.1 Historical Production of Cocoa Beans

In Ghana, the Dutch missionaries were the first to introduce cocoa in Ghana. The missionary planted cocoa seedlings in 1815 in the coastal areas. Later, the Basel missionaries also planted cocoa seedlings in Aburi in 1857. Sir William Brandford Griffith, the governor from 1886 to 1895, cultivated a cocoa nursery at Aburi gardens which later became the Aburi Agricultural Station. The station became the selling point of cocoa seedlings, seeds, and pods to farmers in Akim, Akwapim, Krobo, Akwamu, New Juabin and Kwahu growing areas.

The governor experimented and wrote extensively on cocoa cultivation and taught the Aburi farmers how to grow cocoa (Acquaah, 1999, p. 33). Not until around 1879, did cocoa cultivation spread rapidly among farmers because of Tetteh Quarshie, a Ghanaian blacksmith who returned from Fernando Po and established a cocoa farm in the Akwapim Mampong, Eastern region. Famers then bought seedlings from Tetteh Quarshie, and cocoa farming soon spread throughout the Eastern region. It made the Eastern region the centre of production from the late 1880s to the early 1900s. In the mid-1940s the centre for cocoa production gradually shifted from the Eastern region to the Ashanti and Brong Ahafo regions, and in the mid-1980s to date, cocoa production is concentrated in the Western region (Laven, 2010, p. 107).

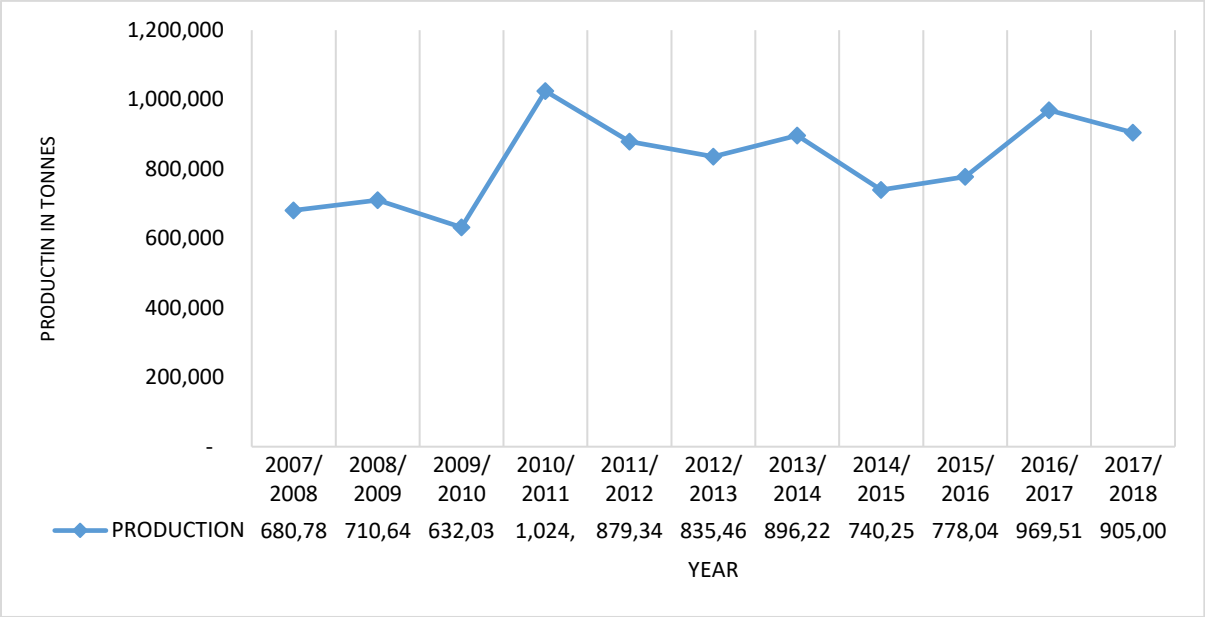
The first cocoa was exported in 1885. A volume of 121 lbs. was sent to Great Britain (Acquaah, 1999; Bixler, 1972). There was low export of cocoa beans around the early 1880s and 1900s due to a lack of transportation. During this period, farmers transported cocoa in barrels to buying centres. Cocoa beans rotted in villages because there was no railway system to carry cocoa beans from the hinterlands to the coast for shipping. In this regard, during Sir Gordon Guggisberg's governance from 1919 to 1927, railway lines were constructed to the Takoradi harbour to ship cocoa (Acquaah, 1999, p. 45). It helped in the production and export of cocoa. By the end of 1924, the production of cocoa rose to 223,000 tons. The production growth continued to rise to 300,000 tonnes in the mid-1930s (Kolavalli & Vigneri, 2011, p. 2). However, in 1936, an outbreak of swollen-shoot disease, a cocoa tree disease caused by a virus that induces a low yield of cocoa to kill the tree after a few years of infection, attacked most cocoa plantations in the country.

Farmers became devastated, and as a result, many cocoa farms were destroyed. Between the years 1936 and 1944, fifty million trees were cut down, which led to the drastic reduction of cocoa production from 300,000 tonnes to about 200, 000 tonnes (Kolavalli & Vigneri, 2011, p. 2). However, the disease outbreak led to the establishment of the Central Cocoa Research Station (CCRS) at Tafo in 1938 to investigate the disease and subsequently, other related cocoa pests and diseases (Kolavalli & Vigneri, 2011, p. 2). In 1947, the British government established the cocoa marketing board as the parastatal agency responsible for developing the sector. The board implemented a rehabilitation scheme to compensate farmers whose farms had been affected by the swollen shoot disease. At this time, the board worked in close relation with the CCRS and the Ministry of Agriculture to manage the sector's welfare.

These efforts led to the rise of cocoa production from independence in 1957 to the mid-1960. Cocoa production by then rose to 430,000 tonnes (Kolavalli & Vigneri, 2011, p. 2). In the 1964/65 cropping season, production rose to 581,000 tonnes, and Ghana became the largest world producer (Kolavalli & Vigneri, 2017, p. 2). However, in 1982/83, there was a drop in cocoa production because of the reduced yield of old cocoa trees. In addition to this, the low price paid to farmers around this time made cocoa farming unattractive, and cocoa farming was abandoned to other food crops (Kolavalli & Vigneri, 2011, p. 4). Bush fires in 1983/84, also destroyed many cocoa farms.

As a result, in 1983, the government implemented the Economic Recovery Programme (ERP) which sought to revive the sector by implementing cocoa rehabilitation. Efforts were made to increase farm gate prices and grow improved cocoa varieties to replace old trees. At the end of 1984, Ghana was now the third-largest producer after Cote d'Ivoire and Indonesia. By the 1994/5 cropping year, production increased to 400,000 tonnes, and the increase in production continued to the early 2000s (Kolavalli & Vigneri, 2011, p. 4). By the 2010/11 cropping year, Ghana's output increased to one million tonnes making it the world's second-largest producer. This growth was because of interventions introduced by COCOBOD to improve cocoa yield. For example, through the free mass spraying programme, cocoa farms were sprayed with pesticides to prevent the outbreak of cocoa diseases and subsidized input such as fertiliser helped farmers buy and apply fertiliser to cocoa (Kolavalli & Vigneri, 2017). Since the 2010/11 cropping season, it has maintained its position as the second-largest producer.

Figure 5.3: Ghanaian Cocoa Production from 2007 to 2018



Source: based on (COCOBOD, 2018) and (ICCO, 2018b)

Not until the early 2000s, did Ghana begin to produce certified beans. Since the international agreement among cocoa and chocolate companies to sustainably source cocoa beans, many cocoa buying and chocolate companies pledged to ensure sustainable cocoa beans production in producing countries (Tampe, 2016). Most of the buyers pledged and envision sourcing 50 to 100 percent sustainable cocoa by 2020 and beyond. As sustainability issues became rampant, it led to the rise of certification schemes, in producing countries. About 22 percent of certified cocoa is sold out of the total world cocoa production (CBI, 2019). Certified cocoa production has increased in time past among the various certification schemes and consists of Fairtrade, Rainforest, UTZ and organic bean[4].

Among the certified schemes, Ghana is the second-largest producer, and there is an increase in certified cocoa beans production. In 2017, the number of farmers who produced certified cocoa

[4] Between 2011 and 2016, the growing certified areas have trebled (Lernoud et al., 2018, p. 81). UTZ is by far the largest certified cocoa. Certified cocoa beans are sourced from almost all the cocoa-producing countries. In 2017, UTZ produced 1,449,000 metric tonnes. In 2016, Fairtrade produced 291,000 metric tonnes. Rainforest produced 458,000 metric tonnes in 2017. In 2016, 157,275 metric tonnes of organic cocoa was produced. Concerning certified beans, there is the likelihood that the percentage of certified farmers will increase, as the global demand for certified cocoa end-products increases (Fountain & Huetz-Adams, 2018).

beans accounted for over 35 percent of the country's total number of cocoa farmers. There were 144,007 farmers under UTZ, 92,789 farmers under Fairtrade and 46,470 farmers under Rainforest certifications, respectively (FiBL & ITC, 2019). Farmers who join certification programmes receive inputs (agrochemical spraying machine, fertiliser, and improved seedling), price premium, and sustainable cocoa production training. Studies show that most farmers are more likely to join certification programmes because of the buyer's incentive packages and the number of enrolled farmers keeps increasing (Basso et al., 2012; Deppeler et al., 2014). The young to middle-aged farmers mostly enrol on certification programmes in Ghana, and among these categories, more than half are male farmers (Basso et al., 2012; Laven et al., 2017). So far, organic production in the sector is produced only in the Eastern region and produced on a small scale.

5.2.2 Organisation of Cocoa Production

Cocoa production is categorised into the pre-harvesting and post-harvesting stages (see appendix 1). The pre-harvesting entails planting cocoa seedlings and performing activities such as pruning the cocoa tree, and fertiliser application. The post-harvesting stages entail cocoa pods' harvesting, breaking cocoa pods, fermenting and drying cocoa beans. There are three different cocoa production systems in the sector, including conventional, sustainable, and organic cocoa (see appendix 1). Depending on the production system, a farmer gets access to different extension services, input supplies, or farm audits. For instance, conventional cocoa production requires access to pre-harvest and post-harvest training, fertiliser and chemical application subsidised by COCOBOD. At the same time, sustainable cocoa production requires pre-harvest, post-harvest, environmental and social training, and farm audit. Organic production requires access to training on pre-harvest, post-harvest, environmental and social, and organic farming.

In my studied communities, conventional and sustainable cocoa production was the main production system in Aponapon and Subiriso. Cocoa and chocolate companies, i.e., LBCs and manufacturers, were active in the studied communities engaging farmers in conventional and sustainable cocoa production. Table 5.3 presents the number of interviewed farmers engaged in conventional and sustainable cocoa production in the studied communities.

Table 5.3: Cocoa Production Systems Employed by Farmers in the Studied Communities

Community	Male	Female	Sum
	Conventional cocoa production		
Aponapon	7	8	15
Subiriso	4	6	10
	Sustainable cocoa production		
Aponapon (Fairtrade)	11	4	15
Subiriso (UTZ)	8	4	12
Total	30	22	52

Source: author's own (2020)

According to farmers, cocoa production is labour-intensive and demands time and resources. From focused group discussions, male and female farmers engaged in conventional and sustainable cocoa production indicated that cocoa farming is demanding. According to farmers, it is time-consuming, tedious, costly, and sometimes becomes a burden. For example, a middle-aged male farmer in conventional production said,

> "You see, cocoa farming involves hard work. Sometimes, one must walk for a long distance before he or she can reach the farm. You must also weed, prune and harvest cocoa. They say we should apply fertiliser and chemicals to cocoa, so it also means that one must invest money into these inputs. Sometimes, the government brings us free fertiliser, but you must use your money if the government disappoints you. If you hire labourers, you must also provide food and water in addition to their fee…" (In-depth Interview, Conventional Male Farmer, 12.11.17, Aponapon)

Environmental and social farming activities in sustainable production also demand farmers' access to additional information, knowledge, and extension agents' interactions. However, according to farmers engaged in sustainable cocoa production, these different activities amount to an extra cocoa production burden. A middle-aged UTZ female farmer exclaims,

> "Now, they want us to remove rubbish from the farm and apply fertiliser in a prescribed way. There are so many things they tell us to do. This adds on to our normal farming activities and puts a lot of burden on us…" (FGD, UTZ Female Farmer, 9.10.17, Subiriso).

Aside from the additional demands of sustainable cocoa production on farmers, the quotation above also implies that standards impose rules and regulations on farmers, which may increase a farmer's resistance to innovations. Therefore, resistance to technologies was observed among male and female certified farmers in the studied communities (see section 8.1), because farmers did not

implement all requirements stipulated under the post-harvesting, environmental and social standards.

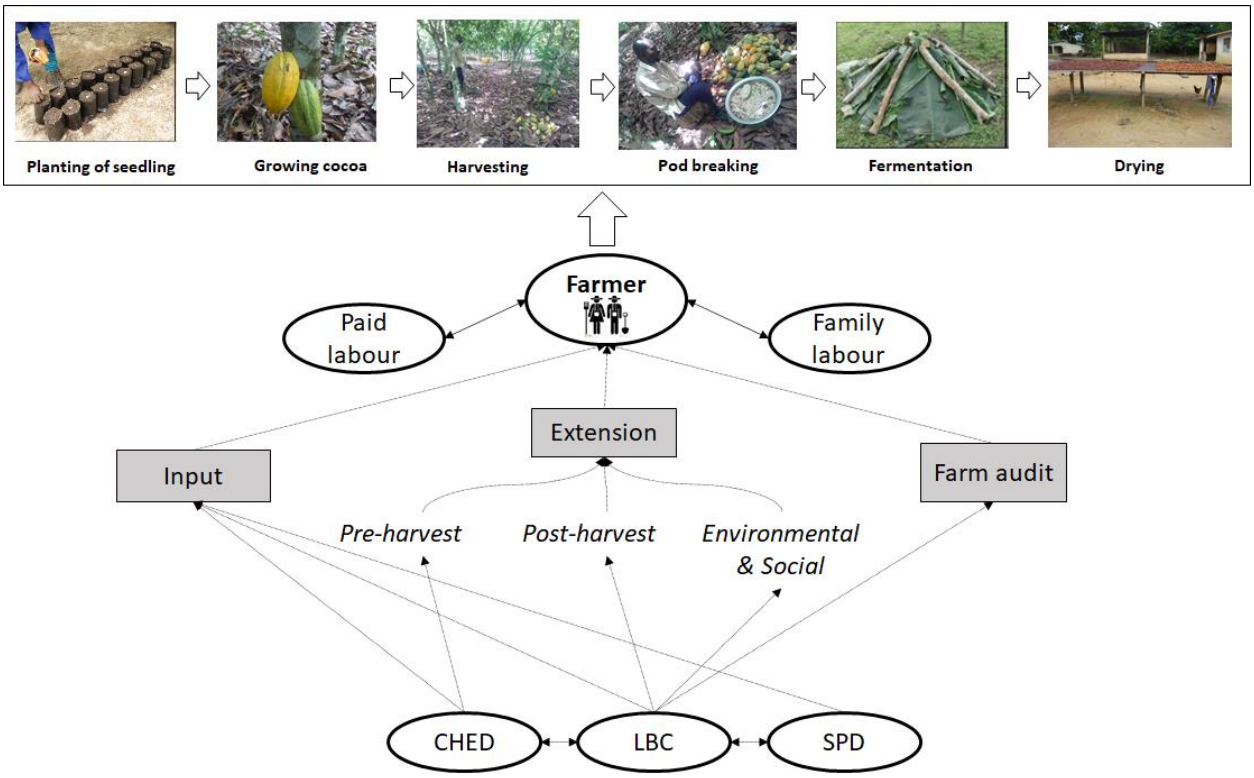
In cocoa production, gender plays a significant role in farming activities, which also influences the division of labour in cocoa production. Division of labour in the cocoa sector stems from the traditional belief that females are to help in domestic and farm-related activities, while males are to take care of the market-related activities in cocoa production (Barrientos & Bobie, 2016). Therefore, women have long played as family labourers in the cocoa sector, helping their spouses plant cocoa, ferment and dry cocoa beans. According to Laven (2010), labour division is partly due to Ghana's land rights. Rights to lands in Ghana are embedded in customary laws which recognises male as the rightful custodian of lands. In the cocoa sector, the traditional system for sharing land is through matrilineal inheritance, where males receive land as an inheritance from their mothers' heritage. Recently, females can inherit farmlands from their husbands through gifting. Gifting of lands is a common practice in the cocoa sector, where male spouses give parts of their farms to their wives to help them with farm activities over time. Therefore, females who do not have land are forced to rely on their husbands to support farming activities.

From my own experiences in Aponapon and Subiriso communities, I observed male farmers engaging in pruning, spraying agrochemicals, and sometimes weeding. For instance, pruning was indicated as male farmers' role, which is because women are unable to climb cocoa trees. Some women, therefore, depend on hired labour or their male children to perform pruning. Barrientos and Bobie (2016) argue that female cocoa farmers who are dependent on hired labourers spend more money on cocoa farming than male cocoa farmers. I also observed female family labourers engaged in harvesting, breaking pods, and fermenting cocoa beans. It was also noticed that female farmers involved in sustainable production were more sensitive to avoiding child labour than male farmers in sustainable production. In contrast, male farmers in sustainable production were actively engaged in chemical application compared to female farmers in sustainable production, simply because it is a cultural belief that male farmers can handle machinery equipment better than female farmers.

Access to farmlands in the cocoa sector goes beyond its influence on the gender division of labour and extension services. Because extension services in the sector target farm owners, men receive

better access to training than females, since cocoa lands are owned by males. In this regard, it also affects females' access to inputs and restricts female decision making in cocoa production. Laven (2010) argues that females' lack of adequate training and inputs poses severe risks in cocoa production since they are actively engaged in cocoa farming activities.

Figure 5.4: Main Actors and their Functions in the Cocoa Production Stages



Source: authors' own (2020)

5.2.3 Main Actors and Functions in Cocoa Production

Farmers are the main actors ensuring the various activities in the production of cocoa. Cocoa farming in the sector, is not mechanised, making it labour intensive for farmers. Figure 5.4 identifies the main actors engaged in cocoa production and the services they provide to farmers. The cocoa health and extension division for instance control extension services on pre-harvesting. Whereas the cocoa health and extension division of COCOBOD, licensed buying companies and the seed production division of COCOBOD together coordinate activities on input distribution to farmers.

Producers are male and female cocoa farmers who can be landowners, caretakers, or sharecroppers (Barrientos & Bobie, 2016). A landowner may grow cocoa by him/herself on his/her land or may lease it to a caretaker. The practice of leasing to a caretaker is called *abusa.* In this arrangement, the caretaker manages the farm and takes one-third of the output, while the landowner receives two-thirds of the output. Sharecropping cocoa farming practice is called *abunu,* and in this system, the landowner shares the farm into two parts with the tenant when the crop begins to bear (CRIG, 2010a, p. 7). The traditional land tenure system practised in the cocoa-growing areas consists of matrilineal (inheritance through mother lineage) and patrilineal (an inheritance through father lineage) inheritance. Both male and female kinship can inherit a cocoa farm in the matrilineal system.

The patrilineal system allows male kinship to inherit a cocoa farm. Although cocoa farmers are both female and male, over half are owned by males (Barrientos & Bobie, 2016; CRIG, 2010). The cocoa sector is embedded in the cultural systems found within the regions it is grown. The Akan ethnic group constitutes the largest cultural group in the sector. These consist of the Ashantis, Fantes, Akwapim, and the Guans and originate from the Ashanti, Central and Western, Eastern, and Brong Ahafo regions. Other ethnic groups consist of the Ewes, who originate from the Volta region. The Mamprusi and Gonja tribes in the Northern region of Ghana settled in cocoa-growing areas during the colonial era when they migrated to Ghana's southern parts searching for greener pastures. They also engage in cocoa farming. Most farmers live in remote areas, and farmers have poor access to roads, irrigation on farms, electricity, medical care, education and drinking water (Laven et al., 2017).

Farmers' associations in the countries are grouped into five types: farmers' production associations, farmers' assistance societies, farmers' marketing companies, cocoa farmer marketing societies and farmers' cooperative marketing organisations. These associations aim to improve cocoa production and marketing. They also invest in inputs such as agrochemicals and subsidise inputs to their farmers (CRIG, 2010a, p. 10). Recently, these associations have also adopted certification programmes in the cocoa sector, although their influence in decision-making in, for instance, setting of premium price or producer price is limited. Partly because COCOBOD firmly controls the sector in the setting of producer prices and cocoa and chocolate companies control setting price premiums on certification programmes.

Farmers rely on labourers to perform farming activities such as weeding, fertiliser and chemical application, and post-harvesting activities. There are paid labourers who are hired by farmers and are paid hourly for their services. Until recently, labourers rely on local knowledge or farmers' instructions to carry out activities. However, recent interventions[5] in the cocoa sector are training labourers in the sector on chemical applications. There are also social labourers which include family and farmers. Farmers rely on their children, and wives to help in the farming activities, especially post-harvesting. Whilst other farmers rely on friends who are also farmers, to help carry out farming activities.

The ***cocoa health and extension division of COCOBOD*** provides training on pre-harvesting[6] and targets every farmer in the cocoa sector. Aside from farmers' training on pre-harvesting, CHED also coordinates the distribution of cocoa seedlings, fertiliser, and farming inputs such as cutlass to farmers in the sector. COCOBOD has subsidised these inputs, and every farmer is entitled to receive subsidised inputs. Through CHED's extension agents at the community level, farmers' names, and the communities they belong to are recorded and used as a reference for input distribution. The ***seed production division of COCOBOD*** coordinates the distribution of seedlings to farmers with CHED. SPD relies on CHEDs for farmers' information to determine the number of seedlings needed in every community. ***Licensed buying companies*** train farmers on post-harvesting technologies. LBCs who implement certification programmes, also train their farmers on social and environmental practices and organic production practices. Certification programmes require farm audits; auditing companies carry out farm inspections to check farmers' compliance with standards.

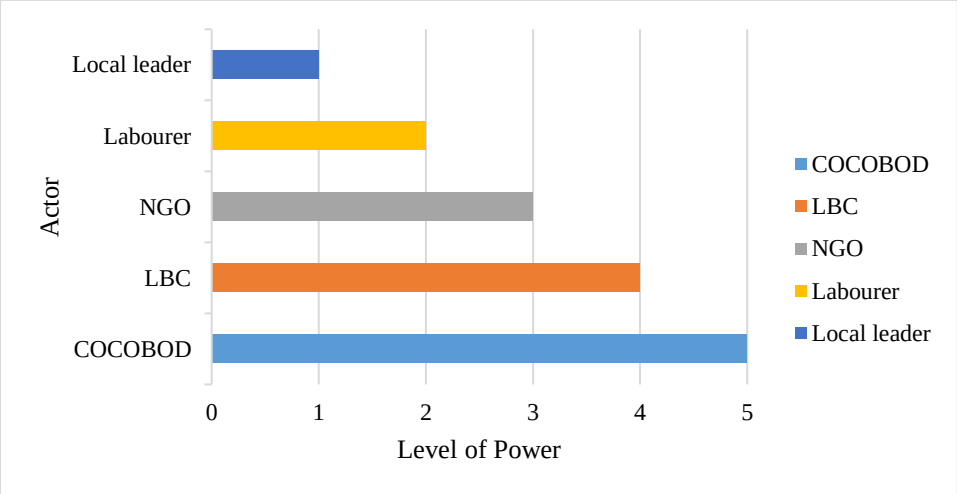
[5] Business related projects include MASO programme by Solidaridad, in collaboration with Fidelity bank and COCOBOD. It targets the youth in the cocoa sector and train them on chemical application and other business-related strategies along the cocoa value chain. COCOBOD through CHED has also started providing trainings to labourers on chemical application.

[6] Pre-harvesting training include Land selection; Land preparation and shade establishment; Nursery establishment and management; Pruning and shade management; Weed management in cocoa; Fertiliser application; Management of insect; pests on cocoa; Integrated pest management in cocoa; Management of cocoa diseases.

Actors' Control and Power in Cocoa Production

In a net-mapping exercise among farmers in the studied communities, farmers identified the actors who exert power and control in cocoa production. On a scale from 5 (highest) to 1 (lowest), farmers assessed the sector's most influential actors. Figure 5.5 demonstrates the rating of the influential actors in the process of cocoa production. Farmers rated COCOBOD and its subdivisions the highest whereas local leader does not have much control over the production activities. COCOBOD was rated the highest because of its control over setting producer prices, distributing inputs, and regulating public extension on pre-harvesting. LBCs were ranked the next highest because of their influence to provide loans and inputs to farmers in the sector. NGOs in the sector also played relevant roles in distributing inputs and providing extension services; therefore, farmers saw them as influential actors. Farmers admitted that without labourers, both paid and family sources, they would be unable to perform production activities adequately.

Figure 5.5: Farmers' Ranking on Actors' Control in Cocoa Production



Source: author's own (2020)

The farmers' rankings suggest how different actors in the sector determine the flow of resources, knowledge, and information. It also shows that farmers in the cocoa sector, are always at the receiving end and possess little power or control. The situation can even be worse for certified farmers. Additional actors including cocoa and chocolate companies, certification bodies and auditing companies, have control over sustainable cocoa production. A young female farmer in

Aponapon who is enrolled in an international confectionery company's (Mondelez International) sustainability programme identifies different actors' influence on farmers,

> When it comes to inputs and training, we think Mondelez International has power because they can decide on the price premium and decide to pay the premium price to us or not. The government has more control over us when it comes to the pricing of cocoa. They can choose to increase the price or reduce it. The external auditor can also decide to issue certification to us or reject us (In-depth Interview, UTZ Female Farmer, 13.10.17, Subiriso).

This statement explains how power distributed among actors is exercised through 'decision making', and control of resources. The actor who makes the decision is more powerful than the one who is at the receiving end. This example from the cocoa sector conforms to the theory of power relation in value chains which argues that the powerful actors make the decisions and control resources (Gereffi, 2001; Gereffi et al., 2005).

5.3 Governing Quality Standards in Cocoa Production

A challenge in cocoa production is farmers' poor quality practices. Poor quality practices in cocoa production fall under poor post-harvesting, environmental and social practices. Two main standards enhance cocoa production practices. These include the physical cocoa standards which enhance poor-post-harvesting practices and third-party voluntary standards, which enhance poor environmental and social practices. In Ghana, cocoa and chocolate companies have the greater task of ensuring quality standards at the farm gate level. All licensed buying companies implement physical cocoa standards because this is mandatory. In addition, some licensed buying companies and cocoa manufacturers also implement third-party certification and sustainability programmes. Table 5.4 documents the various cocoa and chocolate companies in Subiriso and Aponapon communities, implementing physical cocoa standards or certification and sustainability programmes.

Table 5.4: Quality Standards Implemented in the Studied Communities

Cocoa and Chocolate Company	Role	Quality Standards	Community
PBC	LBC	UTZ certification Physical cocoa standards	Subiriso

Olam	LBC	Physical cocoa standards	Subiriso
Nyonkopa	LBC	Physical cocoa standards	Aponapon Subiriso
Adwumapa	LBC	Physical cocoa standards	Aponapon Subiriso
AgroEcom	LBC	Rainforest certification Physical cocoa standards	Aponapon
Transroyal	LBC	Physical cocoa standards	Aponapon
Mondelez	Chocolate manufacturer	Fairtrade certification (Sustainability programme)	Aponapon
Touton	Cocoa processor	UTZ certification (Sustainability programme)	Subiriso

Source: author's own (2021)

5.3.1 Quality Standards in Cocoa Production

Physical Cocoa Standards

The physical cocoa standards also known as product standards, focus on the physical attributes and promote the best post-harvesting practices in cocoa production (see appendix 5). Poor post-harvesting practices consist of improper fermentation of cocoa beans which leads to purpled coloured cocoa beans. The purpled cocoa bean is a significant quality issue in Ghana. It causes bitter flavour and taste in chocolate, but this can be improved when farmers adopt the right fermentation technologies. Other poor post-harvesting also includes improper drying of cocoa beans, which results in maggot-infested cocoa beans and the growth of mould in cocoa beans. Over the past and in recent times, there has been some rejection of Ghana's cocoa beans because of purpled beans due to low fermentation, mouldy cocoa beans, and maggot-infested cocoa beans.

For instance, from 1893 to 1898, a cocoa trader called the Hamburg and London broker, rejected cocoa beans from Ghana. According to the trader, the cocoa bean was infested with maggot, and there were immature beans and the presence of slaty beans. During that period, farmers washed beans and sun-dried them without fermenting the beans[7]. In 2018, there were claims of cocoa beans

[7] The following cropping year, farmers fermented the beans; however, feedback from the Hamburg and London brokers in 1904 claimed that cocoa beans were not properly dried and was infested with maggot. It reduced cocoa price for that cropping year from 6d to 4d lbs. (Acquaah, 1999). At the end of the 1934/35 crop season, a cocoa trader rejected a volume of 21,760 tonnes because of low fermentation. In 2004/2005 cropping season, a Japanese trader

rejection from a Japanese trader in the media. During interviews with some technical experts at COCOBOD, confirmed the allegations and stated that there are cocoa rejections that go on which is unknown to the public (In-depth Interview, Technical Expert, Bonsu Training Centre, 13.01.2018, Bonsu).

The standard has three attributes that define the quality of cocoa beans. The quality attributes include slaty, mouldy and insect-damaged cocoa beans (End & Dand, 2015; Wood & Lass, 1985) (see appendix 4). The conventional cocoa beans market conforms to the physical cocoa bean quality. The International Standards Office (ISO), an international standards body, develops quality standards on cocoa and according to ISO, quality cocoa beans should be,

> "Well fermented and thoroughly dry, free from smoky beans and abnormal or foreign odours, Free from the evidence of adulteration, reasonably free from living insects, Uniform in size, Free from broken beans, fragments, pieces of shell, and be virtually free from foreign matter" (End & Dand, 2015; COCOBOD, 2016b, p. 55).

The physical cocoa standards are meant to enhance the quality of cocoa beans and serve as a guideline to improve farmers' farming practices. However, End & Dand (2015) argue that cocoa standards do not always yield their purpose because of poor quality control measures and institutional structures which restrict adequate information dissemination to producers. Aside from these factors, cocoa farmers in Ghana, do not receive incentives for enhancing physical cocoa. According to farmers, the farm gate prices[8] are extremely low and do not serve as an incentive to enhance physical cocoa. Farmers made grievances about the farm gate price they receive from COCOBOD, which they feel does not reward them for producing quality. In FGDs, farmers said they only get more money if they produce more cocoa beans, as such, they focus on increasing yield instead of producing quality. A middle-aged male farmer argued,

> "We suffer in cocoa farming. Therefore, some do not take their time in producing quality cocoa. If the government is serious about quality cocoa, they must motivate farmers and

called the Morinaga and Co. Ltd declined 2000 metric tonnes of cocoa beans which had about 32.3 percent of purpled cocoa beans (Kolavalli et al., 2012; Kolavalli & Vigneri, 2018). It is anticipated that this was due to under-fermentation carried out by farmers (Van Tilburg et al., 2008).

[8] Revenue gotten from future contracts, forecast prices and premium paid for Ghanaian beans account for the fixation of a producer price (Kolavalli et al., 2012). However, the prices of neighbouring countries are also considered in the fixation of prices. A committee which was set up in 1983/84 and chaired by the Ministry of Finance and Economic Planning (MOFEP) set prices. It is composed of representatives of farmers, COCOBOD subdivisions, LBCs, hauliers, Institute of Statistical Social and Economic Research (ISSER) and Bank of Ghana (BoG) (Kolavalli et al., 2012). COCOBOD announces prices before the major season and LBCs are required to pay the proclaimed fixed price (Kolavalli et al., 2012).

> consider a price increase. They must check all these issues at the community level to motivate farmers to produce quality beans. Some farmers do not have money and are always in a hurry to sell their beans. Because of this, the farmer is in a hurry to dry the cocoa, so they just ferment for a few days, which is not up to the six days prescribed to us. The government must wake up and introduced some credit or loans to farmers to ease off the financial burden on farmers. Otherwise, farmers will always not take their time to ferment cocoa" (In-depth Interview, Conventional Male Farmer, 12.02.18, Aponapon).

In 2017 and 2018, farmers received a gate price of 475 Ghana Cedis per 64kg cocoa bag (95 US Dollars at the rate of 5 Ghana cedis for 1US Dollar in 2017), and according to COCOBOD, the producer price is 70 percent of the Free on Board (FOB) price. On average, a farmer in Ghana owns between 2 to 8 hectares of cocoa farm, which produce an average annual yield of 423 kg/hectare, depicting a low income of about 3,200 Ghana Cedis a year (640 USD) (Bymolt et al., 2018b, p. 197). Meanwhile, a price differentiation according to quality which was introduced in the early 1950s in the sector led to a consistent supply of quality cocoa beans (Kolavalli & Vigneri, 2018; Quarmine, 2013). Therefore, farmers' requests for an increase in cocoa prices, may encourage the production of physical quality cocoa beans if the cocoa price is fixed according to quality.

Third-party Voluntary Standards

Third-party voluntary standards are production process quality standards, which assess how cocoa cultivation and production should meet environmental and social standards. These standards promote good environmental[9] and social practices[10] in cocoa production (see appendix 3). Environmental and social issues in cocoa production have been in the sector since its production. However, these issues only came to public attention in the early 2000s when big chocolate companies like Mars, Nestle, and Ferrero were accused of buying cocoa beans from farms engaged in child slavery in Ghana and Cote d'Ivoire. Since then, issues on labour practices and environmental practices became a focus in the cocoa industry.

[9] Good environmental practices demonstrate how a certified farmer should incorporate proper waste management, water management, and ecosystem protection, safe handling of agrochemicals and biodiversity.
[10] Good social practices require a certified farmer ensures fair treatment of workers and avoidance of child labour have been identified among the various certification schemes.

In the sector, poor environmental practices include clearing land cover through burning, felling of forest trees, poor observation of sanitation on cocoa farms, water bodies contamination, and killing of wildlife species (COCOBOD, 2016b; CRIG, 2010b). Already, it is noted Ghana is losing most of its reserved forests through cocoa production (Camargo et al., 2019; COCOBOD, 2016b; CRIG, 2010b). Poor environmental practices also extend to the wrong usage or overdose of chemical applications, leading to food contamination (Cargill, 2020; Tampe, 2016). Poor social practices in the sector include child labour or slavery and poor working treatment of hired labourers, which undermine children and labourer's health and safety (COCOBOD, 2016b; CRIG, 2010b). Therefore, farmers are trained on best practices on social and environmental standards by certification bodies, during the pre-harvesting stages of cocoa production.

The various certification companies in the industry include UTZ, Rainforest Alliance, Fairtrade International and Organic (see appendix 2). The different certifications schemes have similar social, environmental, and economic objectives. Fairtrade aims at improving trading conditions as well as social and ethical issues. Rainforest promotes environmental standards; UTZ addresses some sustainable cocoa production components and seeks to train farmers as professionals and increase cocoa yields. All the standards address waste management, water management, ecosystem protection, safe handling of agrochemicals and biodiversity, child labour and slavery, and working conditions of labourers. Some of the benefits received by farmers from certification include low-cost agricultural inputs such as fertiliser and seedlings, training and premiums paid to farmers or cooperatives.

Many of these third-party and sustainability standard programmes are implemented in the West African producing countries, especially in Cote d'Ivoire and Ghana. Some cocoa and chocolate companies that implement sustainability standards include Barry Callebaut, Nestle, Lindt and Sprüngli and Mondelez international. Some buyers (Lindt and Sprüngli, Barry Callebaut) employ third-party evaluators to monitor and audit their programmes while Mondelez international for instance, rely on its programme to monitor progress. In the studied communities, there were two company sustainability programmes implemented among farmers. These include the Mondelez Fairtrade Cocoa Life programme and the Touton-PBC UTZ programme (see table 5.4 and appendix 6). Even though these programmes are company regulated, they also implement

certification standards. For instance, the Mondelez Cocoa Life programme implements Fairtrade principles whiles the Touton-PBC programme, implements UTZ standards.

Although third-party certification standards and company programmes aim to improve producers' livelihoods and their social and environmental production practices, it has been critiqued for yielding mixed results (Deppeler, 2014; Hainmueller et al., 2011; Owusu-Amankwah, 2015). According to Tampe (2016), certification schemes do not significantly improve farmers' income in the Ghanaian cocoa sector. Owusu-Amankwah (2015) also indicates that child labour issues are not adequately resolved among Rainforest certified farmers in Ghana's Ashanti region. Although certification schemes have also been seen as a tool to integrate farmers into the global cocoa value chain, Gayi and Tsowou (2017), argue producers do not capture the greater value of the final product.

For instance, although selling certified cocoa beans fetches a price premium[11] for farmers (which ranges from 5 percent for UTZ to 18 percent for organic), farmers do not receive the full price premium (Tampe, 2016). First of all, cocoa and chocolate companies negotiate for price premium with buyers, of which the amount is unknown to farmers' and secondly a part of this price premium is used for administrative costs by LBCs or cocoa and chocolate companies (e.g. annual fee for auditing). The problem in the Ghanaian cocoa sector is that cooperatives or farmer unions are not financially capable of paying the cost of certification fees, thereby relying on LBCs and cocoa and chocolate companies to pay annual certification fees for farmers. This implies that farmers do not receive the full amount of the price premium because the administrative costs are deducted from the full price premium and farmers are unable to bargain or negotiate with LBCs and cocoa and chocolate companies on price premium. Table 5.5 highlights the price premium paid to Fairtrade and UTZ farmers in Aponapon and Subiriso communities, respectively.

[11] Each of the third-party certification requires certification implementers to work with cooperatives or farmer groups. In the case of Ghana, more than 80 percent of farmers work individually and so LBCs and cocoa and chocolate companies organise farmers into groups to implement standards. Certification provides access to extension services on good environmental and social practices as well as access to farm inspection and price premium.

Table 5.5: Price Premium for Certification Standards in the Studied Communities (2015-2018)

Certification	2015	2016	2017	2018
Fairtrade Aponapon Community	8 GHS*	8 GHS	8 GHS	8 GHS
UTZ Subiriso Community	10GHS	10GHS	10 GHS	10 GHS

Source: author's own (2020) *1 Dollar equivalent in 2017 was 5 Cedis

Since 2015, the cocoa and chocolate companies implementing these standards have not increased farmers' price premium. Among Fairtrade farmers, they received a price premium of 8GHS (1.6 Euro) annually, for every cocoa bag (64 kilogrammes) sold. However, as cooperatives, a farmer contributes 20 percent of this money to cooperative business projects. In this regard, a Fairtrade farmer receives 6.4 GHS (1.28 US Dollars) per 64 kilogrammes of cocoa bag. UTZ farmers received an amount of 10 GHS (2 US Dollars) per 64 kilogrammes of cocoa bag annually. Price premium have not increased over four years among both certifications. In this regard, if farmers receive a high price premium, it will increase their income and as a result, also serve as an incentive to improve quality practices. The issue of price premium has received attention from the media, and the main argument is that certification schemes do not alleviate poverty among farmers, nor improve their environmental and social practices. Both Fairtrade and UTZ farmers in the studied communities expressed grievances towards this situation.

> "Considering the cumbersome nature of the standard, they must compensate us more than they already give us. I believe Mondelez can do more. They can increase the price premium. We, the farmers, are not even part of the negotiation of the price premium. I believe if they increase the price premium, more farmers will pay attention to the requirements" (In-depth Interview, Fairtrade Male Farmer, 12.02.18, Aponapon).

> "We have realized Mondelez is cheating us. We know they receive a lot of money, but they give us extraordinarily little price premium. Farmers deserve to receive more money from them, yet they decide to give us a small amount of money but expect us to abide by the many regulations they give us. Where is the fairness in this?" (In-depth Interview, Cooperative President, 13.02.18, Aponapon).

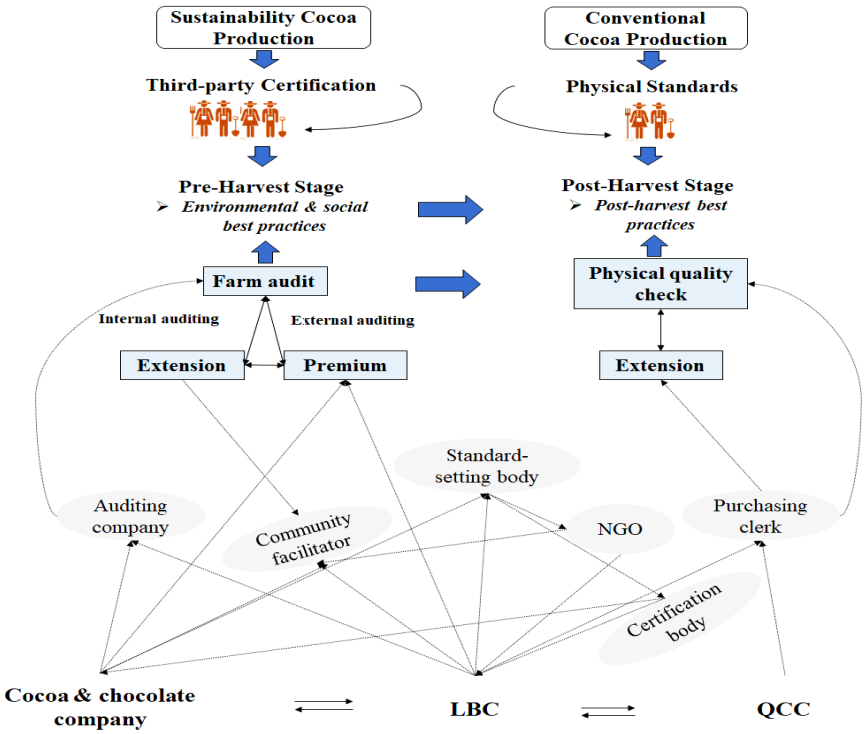
Certified farmers implied they do not participate in premium price negotiation and price premium are dictated for farmers, making them price-takers. Fountain and Hütz-Adams (2015) found that there was no transparency in the price premium set up in their study of the distribution of price premium among certification schemes in Ghana and Cote d'Ivoire. Fountain and Hütz-Adams

(2015), also denote that the price premium for certification schemes is insignificant and cannot alleviate poverty among producers in the cocoa sector. Although certification schemes in the sector seek to promote sustainable cocoa production, the reality of its impact on the ground is questionable. In this regard, a study has shown that if farmers receive a 2.81 percent increase in cocoa price, this will eliminate non-hazardous child labour practices. While an 11.81 percent increase in a price premium for certification schemes, will eliminate the worse forms of child labour (Luckstead et al., 2019, p. 1). Other literature also argues price premium may improve farmers' practices towards cocoa production (Fountain & Huetz-Adams, 2018).

5.3.2 Coordinating Quality Standards in Cocoa Production

In the Ghanaian cocoa sector, implementation of quality standards is a collaboration between internal actors and external actors. The internal actors include cocoa and chocolate companies, licensed buying companies, and COCOBOD. Whereas external actors include standard-setting bodies, NGOs, and auditing companies.

Figure 5.6 The Organisation and Management of Quality Standards in Cocoa Production



Source: author's own (2020)

Figure 5.6 illustrates the various actors ensuring the implementation of quality standards in cocoa production. It also identifies the different components of physical and third-party certification standards. For instance, components of physical cocoa standards consist of extension and physical cocoa inspection. There are four main components of certification standards: organisation, extension, auditing, and premium price. The standards spell out the requirements certification bodies must take under each component. Table 5.6 further identifies the various actors' roles regarding implementing physical cocoa and third-party certification standards in the sector.

Table 5.6: Roles of Actors Promoting Quality Standards in Cocoa Production

Third-Party Certification		
Actor	**Role**	**Function**
Certification body	Cocoa and chocolate companies are the certification bodies, implementing third-party standards. They are responsible for negotiating premium prices with traders/buyers of certified cocoa beans. Some LBCs are also certification bodies that also implement third-party standards.	Negotiates premium price
LBC	Sometimes, LBCs collaborate with cocoa and chocolate companies and act as the mediator between the producer and cocoa and chocolate companies. In such cases, LBCs provide extension services for farmers and coordinate certified cocoa beans supplies among farmers in the implementing communities. They organise farmers into groups.	Extension The organisation of farmer groups Coordination of certified cocoa supplies
Standard-setting body	A standard-setting body is an organisation responsible for developing third-party standards. They train certification bodies on the requirement of the standards. They are the decision-makers in issuing certifications to farmer groups and certification bodies.	Develops standards Issues certification Training
Auditing company	They are responsible for conducting external auditing for farmer groups and physical farm inspection of farms. They provide reports to the standard-setting body for decision making.	Auditor
NGO	Certification bodies liaise with NGOs to train community facilitators on good environmental and social practices. They also sometimes assist in organising farmers into groups and cooperatives.	Training/Extension The organisation of farmers into groups/cooperatives.
Community facilitator	A community facilitator is sometimes a cocoa farmer, purchasing clerk or a community member who has been voted by certified farmers to train them on standards and conduct an internal inspection.	Extension Internal inspection

Physical Cocoa Beans		
LBC	LBCs are responsible for conducting the physical quality inspection of cocoa beans during cocoa beans sales in the communities. They also provide farmers with training on post-harvesting.	Extension Quality control in communities
QCC	QCC is responsible for quality control in the entire sector. It liaises with LBCs to monitor quality control among farmers in the communities. It also trains LBCs and their purchasing clerks on quality control measures.	Regulator of quality control Trains LBCs
PC	LBCs employ purchasing clerks to coordinate cocoa beans supplies in a community. He or she can be a farmer or a community member. He or she is responsible for conducting physical quality inspections during sales of cocoa beans, and training farmers on post-harvesting practices.	Trains farmers Reject or accept cocoa beans

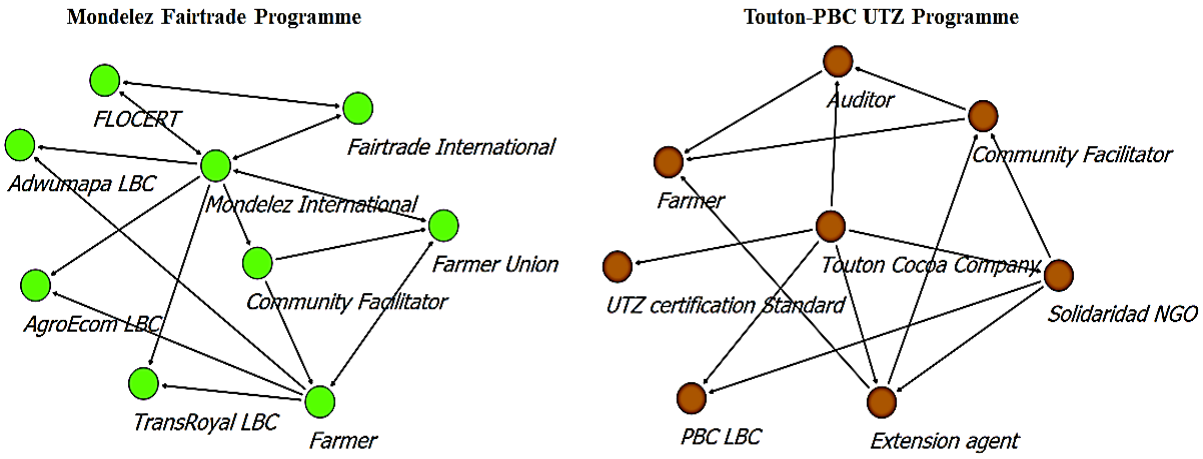
Source: author's own (2020)

Regarding physical quality standards, the quality control company of the COCOBOD is the main driver of the implementation of physical cocoa standards. However, at the production and internal marketing stages, the QCC of COCOBOD employs coordinating as a governing style to work with the various licensed cocoa companies in diffusing post-harvesting technologies and performing physical inspections during cocoa purchasing. The quality control company of COCOBOD trains LBCs and their purchasing clerks on quality control measures and purchasing clerks train farmers on post-harvesting practices. This implies that though the quality control company of COCOBOD is the main actor who controls activities on physical cocoa standard, it outsources the activities of implementing physical cocoa standard at the production and internal marketing stages to the licensed cocoa companies. Therefore, in the studied communities, the various licensed buying companies namely, Olam international, Nyonkopa, Adwumapa, PBC, Transroyal and AgroEcom, are responsible for diffusing post-harvesting technologies to farmers whiles at the same time, physically inspecting cocoa beans for quality issues during cocoa purchasing.

Regarding certification and sustainability standards, the certification standard-setting bodies, and cocoa and chocolate companies, are the focal actors implementing these standards. A certification body is the implementing body of standards, and in the sector, cocoa and chocolate companies and licensed buying companies are the certification bodies. They collaborate with standard-setting bodies for the training on various standards requirements. Implementing certification standards requires a certification body to work with farmer groups; therefore, cocoa and chocolate companies

collaborate with LBCs and NGOs to organise farmers into groups or cooperatives. Certification bodies also collaborate with NGOs and LBCs to train purchasing clerks of LBCs on certification requirements and environmental and social practices. Certification bodies also negotiate premium prices with traders or buyers. Certification bodies collaborate with auditing companies to inspect certified farms annually, for compliance with standards to re-issue certification to farmer groups. The implementing actors (cocoa and chocolate companies) employ coordinating as a governance style to collaborate with other actors to execute functions through the outsourcing of activities to other actors such as NGOs and farmer cooperatives. Figures 5.7 demonstrate typical examples from the cocoa and chocolate companies, namely Mondelez international and Touton implementing Fairtrade and UTZ certification standards in the Aponapon and Subiriso communities, respectively.

Figure 5.7: The Coordination of Mondelez Fairtrade and Touton-PBC UTZ Programmes



Source: author's own (2020)

In providing extension services to certified farmers, Mondelez international coordinate activities with a Farmers' union called Amansie West District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited to deliver extension services. Mondelez also coordinates auditing activities with FLOCERT, the auditing company for Fairtrade International. In sharing price premium to farmers, it collaborates with LBCs in the Aponapon community to identify Fairtrade farmers and the volumes they supplied. The president of the farmers' union explains their relationship with Mondelez international.

> "We work closely with Mondelez international when it comes to extension services, input distribution, auditing, and price premium distribution. For instance, in Accra, the Mondelez office sometimes calls us instructions or informs us of the activities they want to implement. We as a union, collect all the records of farmers and we also update Mondelez on the progress of activities at the community level" (In-depth Interview, President of the Farmers' Union, 13.02.18, Antrakrom).

The quotation implies Mondelez drives activities on Fairtrade certification by giving instructions or commands. As indicated in section 2.2, and the conceptual framework, the ability of an actor to give commands or instructions is an indicator of the actor's control of a value chain. Also, in the Subiriso community, Touton collaborates with the produce buying company LBC to identify UTZ farmers and their volumes to share price premium. Touton also collaborates with Solidaridad NGO to train extension agents and community facilitators.

Challenges of Coordinating Physical, and Third-Party Certification Standards

According to Gereffi et al. (2005), producers' low capacity to codify transactions in value chains, allows for more explicit coordination. Whereas producers' high capacity to codify transactions allows for less coordination. Meanwhile, in the study's context, farmers have a low capacity[12] to translate information on quality standards to practical farming activities, implying that there's a need for frequent communication and knowledge sharing. However, although cocoa farmers' have a low capacity to translate and implement standards, it was noticed that physical cocoa, certification and sustainability programmes were loosely coordinated because of low communication among actors, inadequate information dissemination to farmers and lack of monitoring of activities. Examples from the studied communities are discussed below.

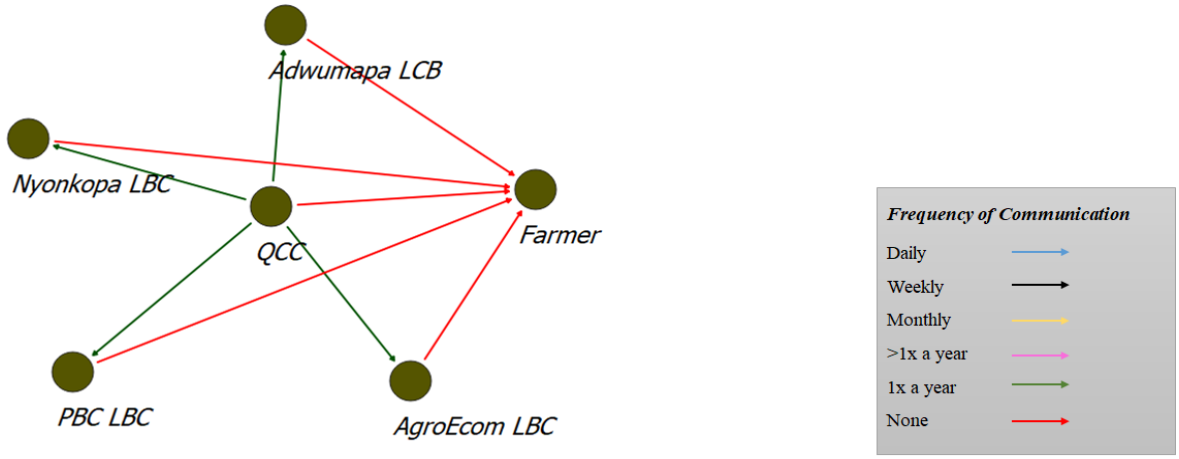
Low Communication

Both figures 5.8 and 5.9 depict that there is little communication among actors in the studied communities concerning extension, and quality assessment on physical and certification standards. From the diagram, different colours represent the frequency of communication between actors.

[12] In the cocoa sector, more than 60 percent of male and female farmers have no educational background (Bymolt et al., 2018). Likewise, among farmers interviewed in the studied community, more than 40 percent of farmers' interviewed have no education, whereas more 40 percent have primary education. Farmers' low educational background also indicate that they have low capacity to translate or codify transactions including cocoa standards.

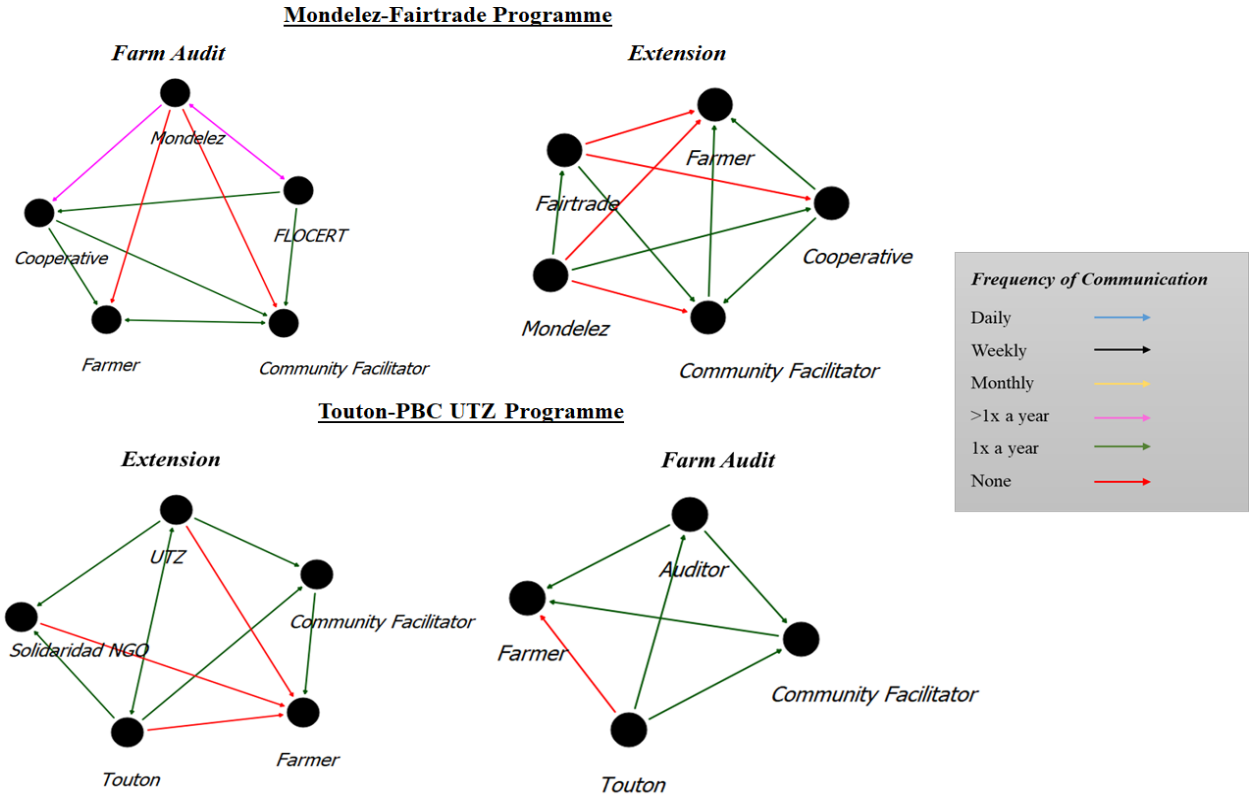
Blue for instance depicts daily communication whereas red, depicts no communication among actors. For example, the quality control company of COCOBOD, communicated with purchasing clerks once a year, whereas there was no communication between QCC and farmers. Concerning communication on certification programmes, there was no communication between the cocoa and chocolate companies (Touton, Mondelez), and farmers. Whereas cocoa and chocolate companies communicated with cooperative members once a year. Less communication among actors and especially with farmers in the studied communities also indicates a captive value chain governance as indicated by Gereffi et al. (2005), which implies that in the context of the cocoa value chain, this leads to information asymmetry. According to Gereffi et al. (2005), less communication in value chains occurs when producers have the capabilities to codify information on standards. In the context of the study, even though producers cannot codify information on quality standards, there was a low level of communication with farmers. This is likely to worsen information dissemination on post-harvesting, environmental and social practices in cocoa production among farmers.

Figure 5.8: Communication among Actors Implementing Physical Cocoa Standards



Source: author's own (2020)

Figure 5.9 Communication among Actors Implementing Certification Programmes



Source: author's own (2020)

Lack of Control and Monitoring

Another indicator discussed in section 2.2 on governing style in value chain is the control of actors through monitoring of activities, which also determines a loose or strict coordinated value chain. As indicated by Gereffi et al. (2005), less coordination in value chains does not impose strict control among actors. Loose coordination denotes that an actor does not frequently monitor activities, whereas strict coordination denotes the frequent monitoring of activities. Unfortunately, there was no monitoring of extension and quality assessment activities among actors in the implementation of physical cocoa and certification standards in the studied communities. For example, in the studied communities, regarding extension services on post-harvesting and the physical inspection of cocoa beans, LBCs did not monitor their representatives' activities at the community level. Neither did the quality control company monitor progress of LBCs activities at the community level. A technical officer at the quality control company argues,

> "We expect LBCs to perform their activities in the various communities properly. They know what should be done so why should we go and see what they are doing in the communities. If they do not perform strict quality control at the community level, it goes against them, because we might detect it when they bring their cocoa beans for inspections. We do our part of the job so they must also do the same" (In-depth Interview, QCC Technical Officer, 19.03.18, Tema).

In like manner, both Mondelez and Touton companies, in the implementation of certification standards, did not monitor the activities on extension and quality assessment in the studied communities.

Lack of monitoring of activities on quality standards in the sector also affects the impact of quality standards in addressing poor quality issues in cocoa production. Over time, the management or governing style of third-party certification as well as the physical cocoa standards in the sector, have been heavily critiqued for being less effective and lenient in monitoring quality control in cocoa production (Kolavalli & Vigneri, 2018; Tampe, 2016; Whoriskey, 2019). For instance, studies from Camargo et al. (2019), Hainmueller et al. (2011) and Whoriskey (2019) stress that with third-party certifications, auditing firms are lenient with farm inspections and do not punish farmers who do not conform to standards. Especially among UTZ certification, the lenient auditing crisis led to the dismissal of about two auditing firms in Cote d'Ivoire in the past (Whoriskey, 2019). In the studied communities, Aponapon and Subiriso respectively, some of the auditing measures utilised for the Mondelez Fairtrade programme and Touton UTZ programme also found that auditors ignore farmers' non-compliance to environmental and social standards and go ahead to recommend the granting of certification to farmer groups (see section 7.2).

5.4 Conclusion

The chapter provides information on the governance of the Ghanaian cocoa value chain and the various actors prominent in cocoa beans production and the implementation of standards at the community level. It also provides a historical perspective on the production of cocoa beans in Ghana. Actors in the sector employ both coordinating and driving as governing styles to control the sector's different functions. On quality standards, coordination is the main governing style, employed to implement physical cocoa, certification and sustainability programmes. Regarding the implementation of quality standards, licensed buying companies and cocoa and chocolate

companies coordinate activities with external actors, including NGOs, auditing firms and standard-setting bodies. However, activities on extension services and quality assessment were not strictly coordinated because there was weak communication among actors, a lack of monitoring of activities and a lack of control of actors. In regard, the governing of quality standards in the sector although flexible restricts farmers' participation in the negotiation of prices. Consequently, the governing style cocoa and chocolate companies employ to manage the extension and quality control services in conventional and sustainable cocoa production, affects farmers' quality practices in the Aponapon and Subiriso communities. However, certification and physical cocoa standards have integrated farmers into the global cocoa value chain through the marketing of Touton and Mondelez chocolate and other confectionery products. Because of traceable cocoa end-products, consumers can trace it back to the producers. Nonetheless, producers' integration into global value chains as shown in the cocoa sector, does not necessarily improve farmers' income and livelihoods.

The next chapter examines the challenges of weak coordination of extension services on quality enhancement knowledge sharing in cocoa production.

Chapter 6 Extension and Knowledge Sharing in Studied Communities

This chapter argues that extension services on quality enhancement are loosely coordinated. Accordingly, the conceptual framework argues that extension services in value chain are not strictly coordinated when there is less communication, inadequate information and knowledge sharing, lack of monitoring of activities and control of actors. As identified in chapter five, post-harvesting, environmental and social practices during cocoa production determine the production of quality cocoa beans. As a result, this chapter reviews the challenges of poorly coordinated extension services on quality enhancement in the studied communities. The power relations and nexus created during knowledge sharing are also captured in the chapter.

6.1 Extension and Knowledge Sharing on Best Post-harvesting Practices

Although Ghana is known for its premium cocoa beans, the physical quality of the Ghanaian cocoa beans is deteriorating due to farmers' non-adoption of post-harvesting technologies during cocoa production (Kolavalli & Vigneri, 2018). Poor post-harvesting practices including inadequate fermentation leading to purpled beans, inadequate drying of cocoa beans leading to mould growth, injury of cocoa beans as a result of usage of cutlass for breaking pods and non-removal of infested cocoa pods which results in infested cocoa beans. Post-harvesting technologies consist of best practices for harvesting, pod-breaking, fermentation and drying of cocoa beans (see appendix 5). However, farmers need to get access to adequate post-harvesting extension services before the quality of cocoa beans can be improved. However, on this matter, Quarmine (2013) and Kolavalli and Vigneri (2018) argue that overall, there has been an inactive and low knowledge sharing on post-harvesting in the sector, and this has become a concern (Kolavalli & Vigneri, 2018).

Overall, there has been inactive knowledge sharing on post-harvesting since the colonial era. From the early 1950s to the present era, COCOBOD and licensed cocoa buying companies have embarked on only two campaigns promoting post-harvesting. The campaigns were organised because of the massive rejection of cocoa beans in the 1950/51 and 2005 cropping seasons. Although cocoa beans are recently rejected, these two campaigns have been the major sector-wide knowledge intervention on post-harvesting. The campaign in 1950/51 was organised mainly due

to poor fermentation and utilized a brochure that portrayed what a good cocoa farmer should do to enhance cocoa production and quality. This brochure was used to train farmers across the cocoa sector. The brochure, packed with diagrams, thoroughly demonstrates each post-harvesting stage's best practices. Extension officers from the agricultural department went to all the cocoa communities and trained farmers. They assisted farmers in carrying out fermentation processes and drying, which took a participatory approach. The second campaign was in 2004/05. Again, this took on massive extension activities on post-harvesting best practices. The quality control company of COCOBOD, the cocoa research institute of COCOBOD, and the cocoa health and extension of COCOBOD, were all involved in the exercise. LBCs and their purchasing clerks and district officers were trained, and farmers in all cocoa-growing communities were trained. After these campaigns, there was an improvement in farmers' adoption of post-harvesting technologies in the following cropping years. However, after the liberalisation of domestic marketing, the extension on post-harvesting has since been dormant.

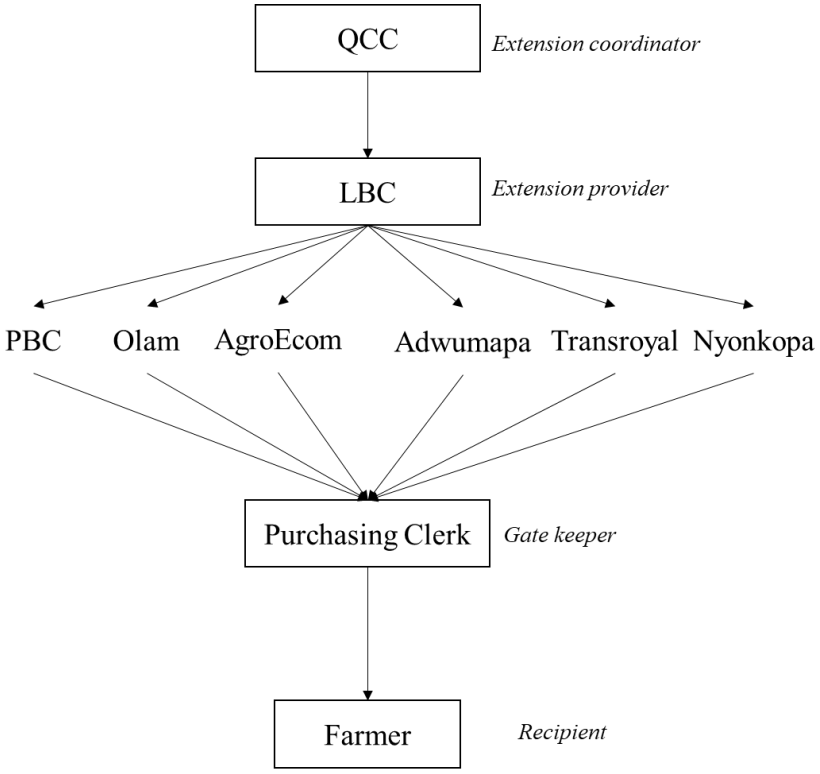
Presently, through the public-private extension partnership, between the licensed buying companies and the quality control company of COCOBOD, post-harvesting knowledge is shared with farmers in the respective cocoa-growing communities. Before the major harvesting season (October to February), purchasing clerks[13] from the licensed buying companies, organise farmers to train them on post-harvesting technologies. Purchasing clerks are also trained before the major harvesting season by the quality control company of COCOBOD. Because of the public-private extension partnership between the quality control company of COCOBOD and licensed buying companies, the extension system for post-harvesting is the same in the growing communities.

Likewise, in both Aponapon and Subiriso communities, the various licensed buying companies, namely, Olam international, produce buying company, Adwumapa, Nyonkopa, Transroyal, and AgroEcom, implemented the same post-harvesting extension system. Figure 6.1 illustrates the post-harvesting extension system practised among the licensed cocoa buying companies in the

[13] The role of a purchasing clerk is a sensitive one in the purchasing business. He performs the extension role in the community he operates in and is expected to share post-harvesting technologies with farmers every cropping season. PCs who belong to LBCs implementing certification schemes, also are expected to transfer best practices on social and environmental standards. He is expected to carry out crude quality inspection of cocoa beans at the point of sales (to check for moisture content, traces of poor fermentation, moldiness, germination and bean wholeness).

studied communities. The post-harvesting extension system employs an advisory delivery method, whereby farmers are advised or reminded of post-harvesting practices.

Figure 6.1 Post-Harvesting Extension Approach among LBCs in Studied Communities



Source: author's own (2020)

Extension Coordinator: the extension coordinator is identified as the quality control company of COCOBOD because of its role in coordinating post-harvesting training among licensed buying companies in the sector. The quality control company of COCOBOD control post-harvesting knowledge at the regional and district level.

Extension Provider: the provider of post-harvesting training to producers in the sector is identified as the licensed buying companies. The licensed buying companies, through their purchasing clerks, control post-harvesting knowledge sharing at the community level.

Extension Delivery Channel: purchasing clerks are the facilitators of post-harvesting training among farmers in the studied communities. In this study, purchasing clerks are also identified as gatekeepers because of their role as mediators between the quality control company of

COCOBOD, licensed buying companies and farmers. Every year, around September, the various purchasing clerks from the respective licensed buying companies in the communities attend training at the quality control company of COCOBOD's district office. In Aponapon, the purchasing clerks attend this training at Manso Nkwanta and in Subiriso, the purchasing clerks attend training at New Edubiase. After the training of purchasing clerks, they are expected to also train farmers in Subiriso and Aponapon.

In this regard, in the studied communities, it was noticed that the public-private extension system and advisory delivery method utilised for the sharing of post-harvesting knowledge restricted adequate knowledge sharing with farmers. This was due to inconsistent training, limited farmers' access to training, and a lack of monitoring and gated knowledge. According to Narrod et al. (2009), a public-private extension system is confronted with poor coordination, lack of monitoring and over-dependency on one actor. Improper implementation of this extension system may also lead to inadequate knowledge exchanges. Whereas Leeuwis (2013) argue that an advisory knowledge delivery system limits farmer access to knowledge and information because it is supply-driven. Relating extension systems to value chains, according to Gereffi et al. (2005) and Humphrey and Schmitz (2002), because of power relations, producers in the captive and buyer-driven value chains have limited access to frequent knowledge. Likewise, these setbacks in the public-private extension partnership system were also seen in the post-harvesting extension system in the studied communities.

The challenges of the post-harvesting extension system affecting knowledge sharing with farmers in the studied communities are discussed in the following sections.

6.1.1 Inconsistent Knowledge Sharing

There was inconsistent knowledge sharing on post-harvesting with farmers among the various licensed buying companies in both Aponapon and Subiriso communities. Even though purchasing clerks from Subiriso and Aponapon went for training at the quality control company of COCOBOD at the respective district offices, none of them organised training sessions with farmers in 2017. Farmers pointed out that aside from the 2017 cropping year, some purchasing clerks did not train farmers in the previous years (2015 and 2016). Additionally, purchasing clerks did not also have a timeline for training farmers on post-harvesting. Table 6.1 depicts an example of

inconsistent training among licensed buying companies in the studied communities. Examples of licensed buying companies that organised inconsistent training with farmers include AgroEcom and Adwumapa. Among these licensed buying companies, purchasing clerks did not remember if they organised post-harvesting knowledge with farmers in 2015.

Table 6.1 Inconsistent Training among Licensed Buying Companies in Three Years (2015-2017)

Year	Olam (Subiriso)	AgroEcom (Aponapon)	Adwumapa (Aponapon)	Nyonkopa (Subiriso)	PBC (Subiriso)
2015	None	-	-	None	None
2016	None	October	October	None	None
2017	None	None	None	None	None

Source: author's own (2020)

For three consecutive years, the purchasing clerks of Olam and Nyonkopa companies did not share post-harvesting knowledge with farmers in Subiriso. The situation in Subiriso seemed severe as compared to Aponapon. Interactions with Subiriso farmers during FGDs confirmed that they had not received training from purchasing clerks for three years (2014 to 2017). One young male farmer said,

> "… Hahaha, madam, no purchasing clerk in this community trains us o. I do not remember when a purchasing clerk in this community announced that he is organising training for us. They have stopped doing that. It was the PBC man who made announcements that he wanted to train us some years ago" (In-depth Interview, Conventional Male Farmer, 14.02.18, Subiriso).

However, further interactions with purchasing clerks suggest that they are not motivated to train farmers on post-harvesting because of a lack of incentives. For instance, the purchasing clerk of PBC said to me,

> "We bare extra cost to go for training in New Edubiase. We pay for the transportation fee, and the company does not pay us for that. The commission we receive is only for buying cocoa beans from farmers, which is not enough to also train farmers" (In-depth Interview, PC, 12.10.17, Subiriso).

From the quotation above, purchasing clerks consider purchasing cocoa beans as a job requirement whereas they do not consider post-harvesting training as a job requirement. According to Bitzer (2016), incentives can motivate extension agents and facilitators to provide better extension

delivery to farmers. In this regard, the finding on inadequate and inconsistent knowledge sharing on post-harvesting due to lack of incentives strongly confirms Bitzer's (2016) argument. Other studies have also shed light on the low knowledge transfer of post-harvest practices by LBCs and their purchasing clerks in Ashanti, Western, Central and Brong Ahafo cocoa-growing areas. In these studies, it was found that there was inadequate training on post-harvesting and purchasing clerks sporadically shared knowledge with farmers (Quarmine et al., 2012; Ruben et al., 2007, pp. 189–210). On this matter, Quarmine (2013) and Kolavalli and Vigneri (2018) also argue that farmers' access to adequate knowledge is limited under the current public-private extension system on post-harvesting.

One may think that purchasing clerks, aside from formally organising training sessions, would share post-harvesting and general quality information with farmers during their encounters during the purchasing of beans. However, at four different buying stations in the studied communities, observations suggest no knowledge sharing and interactions on post-harvesting among farmers exist (Box 6.1).

Box 6.1: Quality, not the Most Interesting Talk in Aponapon Community

About five spontaneous visits were made to four buying centres in the community (Armajaro, Adwumapa 1, Nyonkopa and Adwumapa 2). Aside from these visits, several transact walks made within the community included stops at LBCs buying centres. During visits to different buying centres, about three to four farmers who may also be friends of purchasing clerks sat together on a bench, usually in front of the buying centres. They often engaged in serious discussions about their families or business-related news. Rarely did they talk about cocoa production or quality issues.

I passed by Adwumapa LBC, and in front of the buying centre seated the district officer, the purchasing clerk, and about four farmers. One may think subjects on cocoa production may be brought up; instead, they discussed personal issues. For instance, on one occasion, two female farmers and one male farmer were gathered in front of the Adwumapa LBCs buying centre. They were discussing an incident that occurred in the mining company found in the community. On another occasion, farmers were also gathered with the AgroEcom purchasing clerk. They were talking about access to loans because they had come over to speak to the purchasing clerk about money. On several occasions, I observed farmers bring in cocoa beans for sales. The farmers usually handed over the sacks to purchasing clerks, and the PCs weighed the bag and paid off the farmer. Even then, there were no discussions or advice on quality. Female farmers' possibility to receive advice on quality issues from purchasing clerks is low. Female

farmers in the early mornings, afternoons and evenings attend to domestic duties and rarely carry cocoa beans to purchasing clerks for sales. A male relative or their sons mostly carry out this activity. Instead, the buying centres, which seemed to have been an opportunity for purchasing clerks to advise farmers on quality issues, turned out to be a casual meeting point.
Source: (Field Note, November 2017)

Although there were fewer interactions and knowledge exchanges on post-harvesting, it was noticed that there was instead active training on cocoa agronomic provided by the cocoa health and extension division of COCOBOD through the public extension services (see box 5.1). The agronomic extension (which seeks to promote cocoa productivity) was tightly coordinated. For example, in the Subiriso community, an extension officer from the CHED division, visited the community at least once a month, during the 2017 cropping year. Likewise, CHED has initiated a training calendar, allowing extension agents to visit various communities regularly. The CHED extension officer to the Subiriso community shares training activities on agronomics as follows,

> "… I usually train farmers and visit them. The maximum number of people in a group should be thirty farmers. So, before I begin training, I visit the community before the day of training. I announce through the community information centre and inform all farmers of the training. So, in Subiriso, for instance, there are about 180 farmers. If I make announcements and the next day, 90 farmers show up: I categorise them into three groups. On the 1st, 2nd and 3rd and I must visit the community the next day to train the other group (s). I give each farmer a number, and I pick the first 30 farmers as group 1, the next 30 as a group and the next 30 as group three. I make sure they do not exceed 30 people in a group. Some other times, depending on the topic, I can train all the groups in one day. If I do not do that, I may not be able to visit the community until the following month, which might be too late for that particular training…" (In-depth Interview, Extension Officer, 10.10.2017, Subiriso).

Because less training and knowledge was shared on post-harvesting practices, both certified and conventional male and female farmers in the studied communities, were more concerned about applying agronomic technologies to increase yield instead of enhancing quality.

6.1.2 Lack of Monitoring

In-depth interviews with licensed buying companies, purchasing clerks and the quality control company of COCOBOD suggested that LBCs established no monitoring system to make sure purchasing clerks share knowledge with farmers. Likewise, COCOBOD does not implement a

system that monitors nor evaluates extension activities on post-harvest practices across the sector. The result from discussions with licensed buying companies and COCOBOD attests that neither of the actors takes up responsibility for monitoring post-harvesting extension activities, at the community level.

Meanwhile, the lack of monitoring post-harvesting extension affects the complete eradication of quality issues in the sector. For instance, the previous rejection of cocoa beans in the 2005/06 and 2006/07 cropping seasons by a Japanese trader was a result of inadequate fermentation of cocoa beans leading to purpled beans; however, licensed buying companies still accepted purpled beans from farmers. After these incidences, both COCOBOD and licensed buying companies blamed the other for causing farmers' poor post-harvesting practices (Quarmine et al., 2012). Because of this, in the 2005/06 cocoa bean rejection, the government asked both COCOBOD and licensed buying companies to work on improving post-harvesting practices among farmers (Quarmine et al., 2012) (see Image 6.1).

Image 6.1: Media Report on Poor Quality Control Practices in 2005


Daily Graphic

TUESDAY, DECEMBER 4, 2005.

Govt asked to check purchase of bad cocoa

Source: (Daily Graphic, 2005)

Both the quality control company of COCOBOD and licensed buying companies' lack of monitoring of post-harvesting extension also indicates poor coordination. According to Gereffi et al. (2005), poor coordination in value chains reflect poor value chain governance. Kolavalli and Vigneri (2018) have also noted that the public-private post-harvesting extension partnership in the cocoa sector exhibits a lack of coordination. This means that the absence of coordinated activities may not resolve issues in value chains but can create complex conflicts among different actors and their ability to improve problems adequately. Given this, it was observed that because of the lack of monitoring of post-harvesting extension services, issues of inadequate and inconsistent knowledge sharing could not be identified and resolved. For instance, the quality control company of COCOBOD had little idea of the reality of post-harvesting knowledge sharing in the communities. A technical officer at QCC argued,

> "We do not go to the communities to check whether LBCs are sharing knowledge with farmers or not. We expect them to play their role as extension providers in the sector. We must not tell them what to do so we cannot tell the situation on the ground. We believe they are doing their job" (In-depth Interview, QCC Technical Officer, 19.03.18, Tema).

Likewise, the management of licensed buying companies also did not know the situation of extension on post-harvesting in their operating communities. A technical officer from the purchase buying company told me that;

> "We do not monitor purchasing clerks on the post-harvesting extension in the communities. I know they attend training at the QCC district office, and when they come back, they must train farmers. We believe they are playing their role, but we do not go round to monitor them" (In-depth Interview, QCC Technical Officer, 19.03.18, Tema).

On the issue of monitoring post-harvesting extension in the cocoa sector, Quarmine et al. (2012) mention that the lack of monitoring of post-harvesting services results in farmers' inadequate knowledge of post-harvesting practices in cocoa production. This result was also emphasized during FGD discussions with farmers in Subiriso. In an FGD with middle female farmers and old male farmers, the recommended number of days for post-harvesting technologies was raised. However, farmers gave different answers, and they started discussing which of those days the recommended standard is. Below is an interview extract that reports the state of confusion among middle-aged female farmers under conventional cocoa production.

> Researcher: Can you share with me the recommended number of days for fermentation?
> Farmer 1: they said we should ferment the cocoa for six days.
> Farmer 2 and Farmer 3 together: are you sure for six days?
> Farmer 4: I know for five days
> Farmer 1: for six days

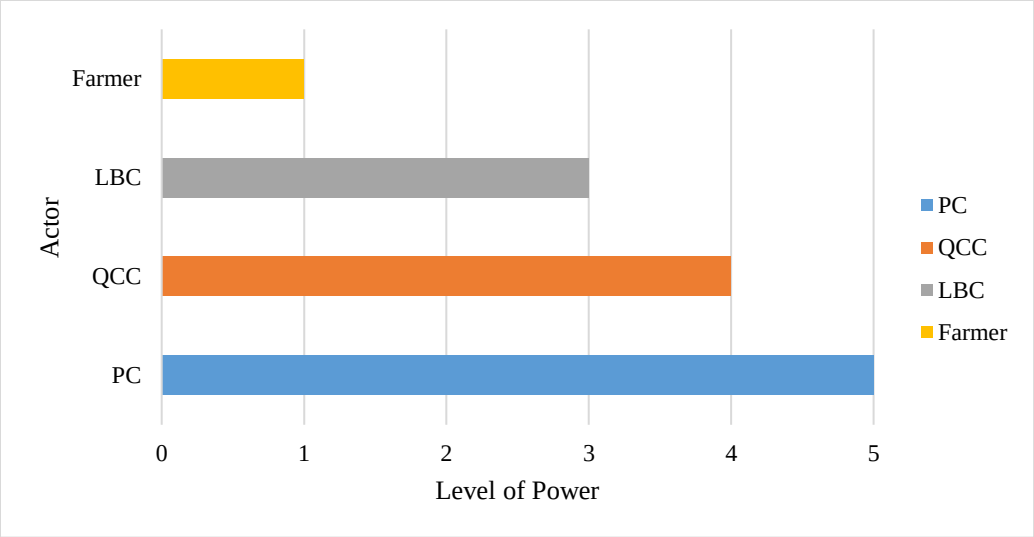
Source: FGD, Conventional Female Farmers, 12.10.17, Subiriso.

According to COCOBOD (2016), the recommended number of days for fermentation is six days (see appendix 5). However, from the interview extract, farmers were confused about the recommended number of days. According to Gereffi et al. (2005), value chains interventions fail when actors do not monitor activities. Likewise, Hanyani-Mlambo (2002) argues that the public-private extension system becomes weak when there is a lack of monitoring extension services. In this regard, the lack of monitoring of extension services identified in the cocoa sector contributes to a weak post-harvesting extension system.

6.1.3 Power and Control of Post-Harvesting Knowledge

From figure 6.1, the knowledge transfer is top-down and scientifically initiated. In the studied communities, it was realised that the top-down knowledge transfer gave purchasing clerks some control of post-harvesting knowledge at the community level. Based on the net-mapping exercise, Figure 6.2 identifies farmers' rankings of actors' influence and control of post-harvesting knowledge in the studied communities. On a scale of 5 (highest) to 1 (lowest), farmers assessed the most influential actors when it comes to post-harvesting knowledge sharing. According to farmers, purchasing clerks have control of post-harvesting knowledge at the community level because they can decide to train or not to train. Farmers also identified the quality control company of COCOBOD as the next influential because they are the regulators of post-harvesting extension in the sector.

Figure 6.2 Farmers' Ranking on Power and Influence among Actors in Post-Harvesting



Source: author's own (2020)

On this issue, it was noticed that purchasing clerks have the leverage to exercise control on post-harvesting knowledge sharing in the studied communities because, as it was indicated in sections 6.1.1 and 6.1.2, they are not incentivised but also not monitored. On this matter, it suggests that when there is a lack of monitoring and sanctions in value chains, actors may abuse power, and an actor's poor actions may be left unchecked. Consequently, this may have adverse effects on the flow of resources and knowledge, as demonstrated in post-harvesting knowledge. Examining the

power and control of post-harvesting knowledge in the studied communities suggest that the top-down nature of knowledge transfer restricts the flow of information to farmers, consequently limiting access to post-harvesting knowledge. The consequences of a top-down governance structure on post-harvesting also create power and information asymmetry among various actors.

Power Asymmetry

According to Ponte and Gibbon (2005), knowledge transfer on quality standards in captive value chains is top-down. One can identify which actors in a value chain control knowledge by knowing who develops technologies and initiates knowledge transfer. In post-harvesting knowledge transfer, the quality control company of COCOBOD and the cocoa research institute of COCOBOD develop post-harvesting technologies. As illustrated in figure 6.1, the quality control company of COCOBOD initiates the post-harvesting knowledge transfer in the sector. As such, both technology development and knowledge transfer on post-harvesting are scientifically initiated. It is controlled by the quality control company of COCOBOD and the cocoa research institute of COCOBOD. This creates power asymmetry when it comes to post-harvesting knowledge. According to Dallas et al. (2017), power asymmetry is created when there is an uneven distribution of power on knowledge or resources among actors in a value chain. In the context of post-harvesting knowledge, the quality control company of COCOBOD and the cocoa research institute of COCOBOD exhibit strong power because of their ability to make decisions on the development of technologies. Gereffi et al. (2005) noted that an actor's ability to make decisions in value chains gives him or her authority.

It also means that there is little or no participation of farmers in post-harvesting technology development and knowledge transfer. For instance, during FGDs with farmers in both studied communities, farmers claimed that they do not participate in the post-harvesting technology development process. A female middle-aged farmer under conventional production argued,

> "No one from COCOBOD or NGOs seeks our opinion on cocoa technologies. When they come to the community, they only dictate what we should do or not do. We know that they are knowledgeable about cocoa production, but we also know a lot about cocoa farming" (FGD, Conventional Female Farmer, 12.10.17, Subiriso).

The quotation above demonstrates that farmers are knowledge takers, and their knowledge is not negotiated in the development of technologies and knowledge transfer. Saliola and Zanfei (2009) contend that the top-down knowledge transfer in value chains renders those at the bottom of the

chain always to be the receivers of information and knowledge. It also means that the knowledge transferred reflects the interest of scientists, COCOBOD, and standard organisations and not the interest of farmers.

Further interactions with scientists responsible for the development of post-harvesting technologies from the cocoa research institute of COCOBOD, also confirmed that farmers do not participate in the development of technologies because the results of post-harvesting technologies must be scientifically tested to achieve the desired post-harvesting standard. However, according to Diederen et al. (2003), ignoring and overruling farmers' experiences and knowledge risks losing significant local expertise and rendering well-meaning interventions and innovation failures. To this end, Boahene et al. (1999) and Quarmine (2013) argued that farmers in the cocoa sector have low adoption of technologies because it is scientifically initiated. Therefore, as knowledge takers in post-harvesting knowledge transfer, farmers are prone to resist best practices on post-harvesting.

Information Asymmetry

The control of post-harvesting knowledge by COCOBOD also leads to information asymmetry. Saliola & Zanfei (2009) denote that information asymmetry is caused when one actor in a value chain possesses more information than the other. During FGDs, it was exposed that farmers have little information on post-harvesting and physical cocoa standards. Farmers were not aware of what physical cocoa standards are and the requirements under these standards. During FGDs, farmers were asked about their knowledge of physical cocoa standards. One male farmer argued, "*We do not know what you are talking about* " (FGD, Conventional Male Farmer, 12.10.17, Subiriso). They further explained that no one from COCOBOD or licensed buying companies and other actors had educated them on the physical cocoa standards. However, questions raised on post-harvesting technologies suggested that farmers' were aware of some of the best post-harvesting practices recommended in the physical cocoa standard. For instance, farmers considered adequate fermentation and drying of cocoa beans as processes to enhance the physical cocoa beans.

However, farmers did not fully understand the relevance of each recommended step in post-harvesting technologies. For instance, as part of COCOBOD's recommended fermentation technology, farmers are required to adopt four different fermentation methods based on the specified quantity of cocoa beans, namely heap, tray, basket, and box fermentation (see appendix 5). Whereas heap and basket fermentation requires a small amount of harvested cocoa beans, box

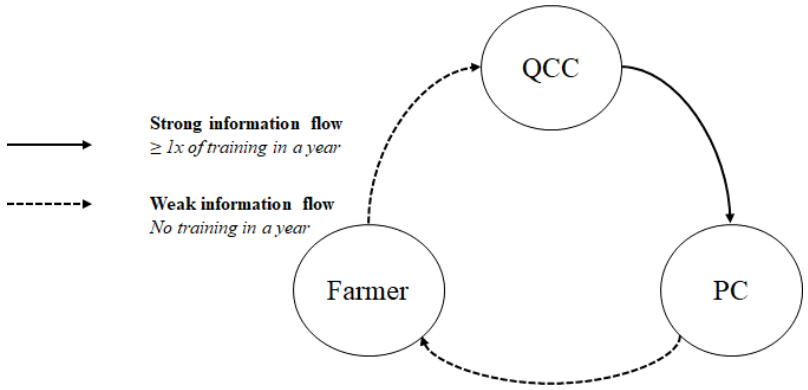
and tray fermentation require a large quantity of harvested cocoa beans. According to COCOBOD (2016), each fermentation method is needed to allow the right amount of heat penetration, facilitating the fermentation process. However, in the studied communities, farmers' adopted only the heap fermentation method irrespective of the quantity of cocoa beans they harvested. Farmers' did not know the relevance of each fermentation method and had a poor understanding of the fermentation process.

The example suggests that the control of knowledge on post-harvesting by COCOBOD, without farmers' participation in knowledge development, only deepens information asymmetry and causes producers who are the primary custodians of cocoa farming to miss important quality enhancement information. On this matter, Quarmine (2013) also confirms that there is information asymmetry on post-harvesting knowledge among cocoa farmers in Ghana's Eastern region. This result also explains why Gereffi et al. (2005) argue that information asymmetry in the agricultural value chain deepens due to chain governance structure. It also deepens when producers do not have access to frequent knowledge or information.

Limited Access to Knowledge

As discussed in section 6.1.1, inconsistent and inadequate training on post-harvesting in studied communities, limits farmers' access to adequate post-harvesting knowledge. According to Fazey et al. (2013), employing intermediaries in extension services may sometimes prolong knowledge transfer and cause communication breakage. In the study's context, it was noticed that because the quality control company of COCOBOD relied on purchasing clerks for information dissemination, it caused a weak information flow to farmers.

Figure 6.3 Post-Harvesting Information Flow in the Studied Communities in 2017



Source: author's own (2020)

Based on the frequency of knowledge sharing on post-harvesting, figure 6.3 explains that there is a strong information flow if actors receive training on post-harvesting once or more a year. Whereas, a weak information flow occurs when there is no training within a cropping year. Although there is a strong information flow from the quality control company of COCOBOD to purchasing clerks, there is a weak information flow from purchasing clerks to farmers. This implies that should farmers get the direct training from the quality control company of COCOBOD, it will increase their access to training in a year and this could also allow for knowledge exchanges between farmers and the quality control company of COCOBOD, which does not exist presently.

Weak information flow can be attributed to the habit of 'gating knowledge' among purchasing clerks in the studied communities. This is because even though purchasing clerks in the studied communities received training in post-harvesting, they did not train farmers in the year 2017 and in previous years. This is a bottleneck that impedes adequate knowledge sharing on post-harvesting to farmers in the communities and causes a breakage of information flow.

6.2 Extension and Knowledge Sharing on Good Environmental and Social Practices

Sustainable cocoa production began in the early 2000s in the Ghanaian cocoa sector. Thus, since the early 2000s, good environmental and social practices are shared with farmers enrolled in certification or sustainability programmes. Good environmental practices consist of waste management, water management, and ecosystem protection, safe handling of agrochemicals and biodiversity (see appendix 3). Good social practices consist of fair treatment of workers and

avoidance of child labour (see appendix 3). Good environmental and social practices are promoted in cocoa production due to poor production practices such as clearing forest trees, which endanger wild species. Besides, some farmers also engage their children under the age of eighteen in hazardous cocoa production, such as climbing cocoa trees, using cutlass and sharp tools for weeding and pruning, and applying chemicals to cocoa.

These poor environmental and social practices have come to the notice of the public and international chocolate consumers. Thus, there has been an active implementation of certification standards and company sustainability programmes that promote sustainable cocoa production and knowledge shared on sustainable cocoa production has been intensified. The Ghana cocoa board is responsible for the promotion of conventional cocoa production and marketing. For this matter, sustainable cocoa production is promoted by licensed cocoa buying companies or chocolate companies implementing company sustainability programmes.

This section reviews the extension services and knowledge sharing experiences encountered by licensed cocoa buying companies and chocolate companies promoting sustainable cocoa production in Aponapon and Subiriso communities. For this purpose, two company sustainability programmes implementing UTZ, and Fairtrade standards are examined to understand the extension systems, struggles of knowledge sharing, and power relations in sharing good environmental and social practices. In the Aponapon community, the Fairtrade sustainability programme of Mondelez international (an international chocolate company) is reviewed. In Subiriso, the UTZ sustainability programme of an international cocoa processing company (Touton), in collaboration with the produce buying company, is reviewed.

Extension System and Approach of the Programmes

Extension Approach under Touton-PBC UTZ Programme in Subiriso

Under the Touton-PBC UTZ programme[14] in Subiriso, the extension on good environmental and social practices is organised by Touton. At the commencement of the programme in 2014, the UTZ

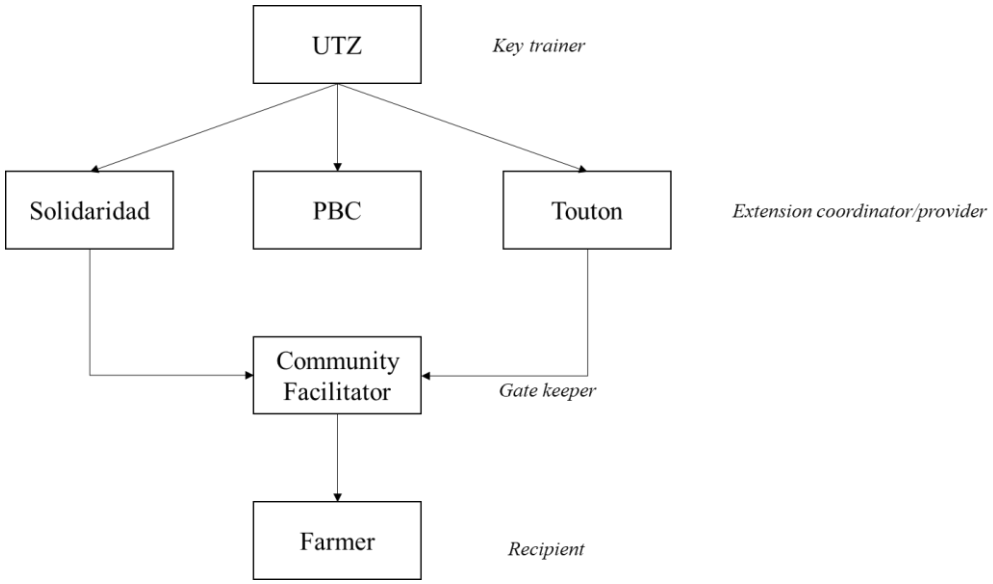
[14] In collaboration with Touton S.A, the licensed buying company, PBC, a French-owned multinational agricultural trader and processer, implement UTZ certification programme under Touton's sustainable sourcing programme. The UTZ programme begun in 2010, however in Subiriso, the programme commenced in 2014. The PBC is responsible for running the certification programme with its farmers in selected districts of the Ashanti, and Brong Ahafo regions

certification organisation in Accra trained an international NGO called Solidaridad, PBC licensed buying company and Touton on the certification's standard requirements and environmental and social standards. Also, at the commencement of the programme, enrolled farmers and community facilitators were trained for six months on the certifications' standard requirements and environmental and social standards by Solidaridad NGO. After the six months of training by Solidaridad NGO, community facilitators selected to train farmers at the community level every year are trained by Touton extension agents around July every year. The community facilitator in Subiriso for instance is also a farmer and is enrolled in the UTZ programme. He was selected by the farmers (those enrolled in the programme) through elections.

Upon receiving training from Touton extension agents, the community facilitator also trains farmers around September every year on good environmental and social practices. During the six months of training in 2014, farmers received both group training organised in classrooms and farm demonstrations on environmental practices such as chemical application. However, after the six-month training, farmers no longer received farm demonstrations but were trained in classrooms once every year around September. Figure 6.4 illustrates the extension coordination on environmental and social standards. The diagram depicts a top-down knowledge transfer. UTZ is the key trainer and initiates the knowledge transfer process of environmental and social practices by training the programme coordinators and extension providers. The final recipient is the farmer who relies on the community facilitator for information on environmental and social standards.

and directly supply Touton with UTZ certified cocoa beans. The programme also collaborates with Solidaridad, an international NGO responsible for the administration of the project. There are 60 farmers (42 male and 18 female farmers) enrolled into the PBC-Touton UTZ programme in Subiriso.

Figure 6.4 Extension System under Touton-PBC UTZ Programme



Source: author's own (2020)

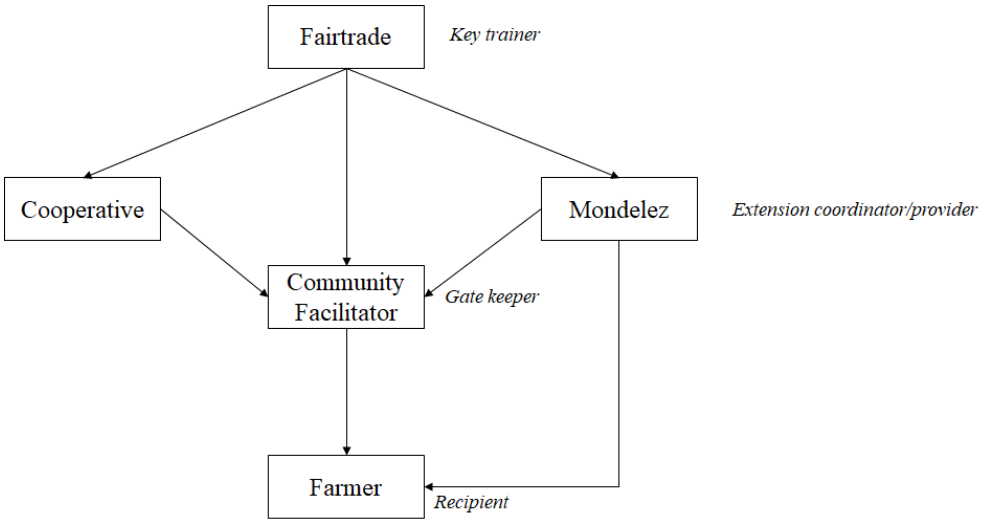
Extension Approach under Mondelez Fairtrade Programme in Aponapon[15]

At the programme's commencement, Fairtrade Certification Company in Accra trained Mondelez, cooperative officials, and community facilitators on Fairtrade certification requirements and good environmental and social practices. For almost two years (2008-2010), farmers were trained on Fairtrade certification requirements, good environmental, and social practices. The training was organised at least once a month. After the two-year training, the community facilitator, a Fairtrade farmer (who was voted for by the rest of the Fairtrade farmers in Aponapon), attends training at least once every year on environmental and social practices. He is expected to share knowledge with the rest of the farmers after his return. However, after two years of training, certified farmers

[15] Mondelez, an international Confectionery Company, implements its sustainability programme called Cocoa Life, which implements Fairtrade standards. In Aponapon community, 54 farmers (36 male and 18 female) are enrolled into the programme. The farmers also belong to Amansie West District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited. The union was formed in 2008 by Cadbury Company, a multinational confectionery company with the assistance of an international NGO called Care International. The association became the farmers of Cadbury and implemented a Fairtrade certification programme under its Cadbury Cocoa Partnership. The programme aimed to promote sustainable cocoa production and improve the livelihoods of farmers. In 2011/2012, the association was registered with the cooperative department and became an official cocoa farmers' union. However, in 2012, Mondelez International, a multinational confectionery company acquired Cadbury and took over the Cadbury cocoa partnership programme but now under the Cocoa Life Programme.

do not receive formally organised training on environmental and social practices. After the two-year training for the entire farmer group, on the certifications' requirements and environmental and social practices, training on environmental and social practices are unstructured and not formally organised. Figure 6.5 illustrates the extension system under the Mondelez Fairtrade Programme.

Figure 6.5 Extension System under the Mondelez Fairtrade Programme



Source: author's own (2020)

From the diagram, the programme adopts a top-down knowledge transfer where Fairtrade is the initiator of training on environmental and social standards. Farmers are the final recipient of training, and the community facilitator, playing a key role as the gatekeeper and mediator between farmers and programme coordinators.

Summary of Extension Systems on Environmental and Social Practices in Studied Communities

Extension System: both UTZ and Fairtrade programmes in the studied communities employ a private extension system to regulate extension services on environmental and social practices. As depicted in Figures 6.4 and 6.5, both programmes rely on external actors to manage extension services. For instance, the Touton-PBC UTZ programme in Subiriso relies on Solidaridad NGO, whiles the Mondelez Fairtrade programme relies on cooperative management. As discussed under the theory of standards in section 2.3, external actors play a vital role in extension services on third-party certification, and NGOs and cooperatives are the leading players in managing private

extension systems. This implies that although external actors do not control value chain segments, to an extent, they sometimes control resources and knowledge in value chains. As argued by value chain theory, lead firms coordinate segments of value chains by outsourcing activities to external actors (Gereffi et al., 2005). The outsourcing of extension activities to other actors under the programmes under review denotes an example of how lead firms in value chains drive segments of value chains through external actors. However, it also gives some leverage of control to these external actors.

Extension Coordinator: the main coordinator of extension services in both certification programmes is the cocoa and chocolate companies. In the Touton-PBC UTZ programme, Touton is the coordinator of extension services and Mondelez is the coordinator of the Fairtrade programme in Aponapon. However, the cocoa and chocolate companies coordinate extension activities with Solidaridad NGO and cooperative management. Thus, some functions of extension activities are designated to external actors. For instance, In the Touton-PBC UTZ programme, Touton bears the expenses of training (logistics) whiles Solidaridad acts as the trainer to community facilitators.

Extension Delivery Method: the extension delivery method employed by both certification programmes is participatory through the 'train the trainer approach. According to the theory of extension, the train the trainer approach is a concept that selects a farmer (s) and trains them to train other farmers (Brumfield et al., 2017). In the study's context, community facilitators who are also cocoa farmers are utilised for training farmers. However, this is a voluntary service and does not offer payment to community facilitators. Therefore, it is a delivery method that attempts to empower farmers but also reduces extension costs.

Extension Delivery Channel: in both UTZ and Fairtrade programmes in the studied communities, the community facilitator is the trainer designated for sharing knowledge on good environmental and social practices with farmers. He is also the gatekeeper because he is the mediator between farmers and cocoa companies, and the certification organisations.

According to Davis and Heemskerk (2012), a private extension system can facilitate bottom-up knowledge exchanges among the agricultural sector actors. However, extension services provided under private extension are limited and lack monitoring. In the study context, it was noticed that the private extension system utilised by Touton and Mondelez on good environmental and social

practices was characterised by challenges such as inadequate knowledge sharing and farm demonstrations and lack of monitoring of extension services at the community level. Brumfield et al. (2017) argue, that the train the trainer delivery method empowers farmers and facilitates bottom-up knowledge sharing. However, in the context of the studied communities, both UTZ and Fairtrade farmers had limited access to environmental and social knowledge from the community facilitators. These challenges had implications on farmers' understanding and adoption of environmental and social standards. The challenges of extension services and knowledge sharing on environmental and social knowledge are discussed below.

6.2.1 Inadequate Knowledge Sharing

According to Berthe (2015), training farmers once or more than once a month is defined as frequent knowledge sharing under an agricultural extension. Therefore, in the studied communities, it was found that there was inadequate knowledge sharing on environmental and social practices among the certification programmes reviewed under the study. Among both certification programmes (Touton-PBC UTZ and Mondelez Fairtrade), farmers were advised on environmental and social practices once a year. Table 6.2 illustrates the frequency of training shared with farmers for three consecutive years (2015-2017).

Table 6.2 The Frequency of Training on Environmental and Social Practices in the Studied Communities (2015-2017)

Programme	**2015**	**2016**	**2017**
Touton-PBC UTZ (Subiriso)	Once in September	Once in September	Once in September
Mondelez Fairtrade (Aponapon)	Once in October	Once in September	Once in September

Source: author's own (2020)

This training seemed to be organised in an ad-hoc manner. For instance, on the Mondelez Fairtrade programme in Aponapon, there was no timeline drawn for training Fairtrade farmers on these practices. Farmers only heard about environmental and social practices once or twice a year during cooperative meetings, when it was about time for farm assessment. According to the community

facilitator of the group, there are fewer interactions on environmental and social practices. Below is my interaction with the facilitator for the group.

> Researcher: When do you train farmers?
>
> Facilitator: We do not specifically organise training sessions for good environmental and social practices
>
> Researcher: How do farmers receive knowledge of environmental and social practices?
>
> Facilitator: We remind them of the standard requirements at the end of cooperative meetings.
>
> Researcher: How do you remind them?
>
> Facilitator: We tell them that the farms' assessment will soon begin, so they should remember not to take children to the farms. They should also remove rubbish from the farms and make sure they comply with all the standards of Fairtrade.
>
> Researcher: How many times do you do this?
>
> Facilitator: About twice a year

Source: In-depth Interview, Community Facilitator, 16.02.18, Aponapon.

The interview extract suggests that there is no scheduled timeline for training farmers on good environmental and social practices. The extension services on environmental and social practices seemed unstructured and were not formally organised.

Given inadequate knowledge sharing on environmental and social practices, Gereffi et al. (2005) argue that a vital indicator of value chain governance is the frequency of communication and information sharing. Therefore, this may imply that farmers under the Touton-PBC UTZ and Mondelez Fairtrade programmes, may struggle with getting access to adequate information, which could improve their production practices. This could also affect the overall adoption of environmental and social standards during cocoa production. For instance, during FGDs among UTZ male farmers in Subiriso, one farmer argued,

> "Because they advise us on environmental and social practices once a year, we tend to forget about most of the things they teach us by the following year. If they could increase the frequency of training on environmental and social standards, I think we will improve on these cocoa practices" (FGD, UTZ Male Farmer, 12.10.17, Subiriso).

From the quotation, inadequate training leads to farmers' inability to adopt standards and does not help to improve the environmental and social quality consciousness among farmers. On this matter,

Tampe (2016) also noticed that there is insufficient knowledge sharing on environmental and social practices among farmers enrolled in the Mondelez Fairtrade programme in the Ashanti region. She argues that the frequency of extension services provided to environmental and social standards was only 1.4 times a year. This finding of hers corresponds to the result under the Mondelez Fairtrade programme implemented in Aponapon. Even at cooperative meetings where the community facilitator to the Fairtrade programme at Aponapon claimed they talk about good environmental and social practices, observations made at cooperative meetings and among certified farmers suggest otherwise. Box 6.2 sets an example of interactions on business-related issues among certified farmers instead on quality enhancement.

Box 6.2: Interactions on Business Related Issues among Certified Farmers.

There seemed to be active interactions on business-related and monetary issues instead of quality enhancement. This was observed during cooperative meetings, interviews held with certified farmers, and informal interactions among farmers. Twice, I attended the cooperative meetings to observe farmers' interactions and about cocoa production and quality enhancement. At the first cooperative meeting I attended, the topic discussed was the Village Savings and Loans Association (VSLA) where farmers contributed an amount of money every week and saved it in a bank. It serves as a loan system for the farmers. Issues were raised on some of the farmers' failure of regular contributions and loan abuse. At the second cooperative meeting I attended, business projects which have been established by the members were discussed. An example of business projects created by the group includes a chair rental business. Farmers also interacted more on the price premium received as a benefit of joining Fairtrade certification.

Source: (Field Note, January 2018)

6.2.2 Inadequate Participatory Training Method

At the commencement of the certification programmes, farm demonstration was employed to train farmers on environmental standards such as chemical application and farm sanitation. However, soon after the initial phase of the programme farm demonstrations utilized to train farmers ceased. For instance, under the Touton-PBC UTZ programme, there was intensive training for six months in 2014. Whereas under the Mondelez Fairtrade programme, there was intensive training for two

years (2008-2010). After those periods, training on good environmental and social practices was organised in group meetings, held in classrooms.

Davis and Heemskerk (2012) argue that inappropriate extension methods to train farmers do not facilitate farmers' understanding and adoption of technologies. During farm observations, it was noticed that even though farmers heard about environmental and social standards in classrooms, they struggled with the implementation of it on their farms. A typical example is the measurement of chemicals to spray cocoa pods against pests and diseases. Farmers under both UTZ and Fairtrade programmes in studied communities did not know how to measure the spraying chemical. One middle-aged female farmer under conventional production argued, "*They taught how to measure the chemical, but that was a long time ago"* (FGD, Conventional Female Farmer, 12.10.17, Subiriso). This statement implies that if farm demonstration had continued to be employed for training farmers under environmental standards after the intensive training period, farmers would know how to accurately measure chemicals for spraying.

Under the Touton-PBC UTZ and Mondelez Fairtrade programmes, both community facilitators mentioned that they do not organise farm demonstrations on environmental standards due to time constraints. Since community facilitators are also farmers, they spend some time managing their farms. However, it was also found that community facilitators were not motivated to organise farm demonstrations due to a lack of incentives. On this matter, Bitzer (2016) notes that although community facilitators may play a vital role as information disseminators in farming communities, a lack of incentives may break the flow of information and knowledge to farmers. During FGDs with both UTZ and Fairtrade farmers, it was observed that although farmers were aware of some of the good environmental and social practices, they were displeased with how they were trained. In FGDs held with male and female farmers under UTZ certification, a question was raised on farmers' experiences of training on good environmental and social practices. Below are some of the farmers' responses.

> "We are taught so many things at a time. He says everything in a short time. How can we understand everything he is saying? I would rate the facilitator 'poor' because of the method he uses to train us" (In-depth Interview, UTZ Female Farmer, 12.10.17, Subiriso).

> "If he can improve the way he teaches us, this will help us. Some methods like the application of fertiliser should be taught on the farm, but they show us pictures in the

> classroom. How can we apply this to our farms?" (FGD, UTZ Male Farmer, 12.10.17, Subiriso).

Farmers' responses imply that the extension delivery does not help them understand some of the practices, especially those requiring farm demonstrations (application of fertiliser or agrochemical).

6.2.3 Lack of Monitoring

During in-depth interviews with community facilitators, cooperative management, and Touton management, it was disclosed that extension services on environmental and social standards provided at the community level were not monitored. The community facilitator to the Touton-PBC UTZ programme explained, *"No one comes here to monitor extension activities on environmental and social practices. The management hardly visits the community"* (In-depth Interview, Community Facilitator, 17.02.18, Subiriso). Under the Mondelez Fairtrade programme, the cooperative management also stated that there was no monitoring system to regulate extension services in the Aponapon community.

Therefore, it was noticed that the reality of knowledge sharing on environmental and social practices was not known to the management of Fairtrade cooperative and cocoa and chocolate companies. Davis and Heemskerk (2012) indicated that the lack of monitoring extension systems leads to a weak extension and knowledge management of an organisation. Lack of monitoring extension services also affects information flow. During discussions with community facilitators, it was highlighted that lack of monitoring extension services also influenced the low knowledge sharing on environmental and social practices, as indicated in section 6.2.1. This is because community facilitators were not compelled to share knowledge frequently with farmers. After all, they were not monitored.

Although Gereffi (2005) argues that there is a high control of activities and actors in captive value chains, the results of monitoring extension services on environmental and social standards explain otherwise. The results report that in value chains, the lack of control over activities or actors' responsibility can result in poor performance. In the Touton-PBC UTZ and Mondelez Fairtrade programmes, the lack of monitoring of extension services at the community level affected the frequency of knowledge sharing on environmental and social standards.

6.2.4 Power and Control of Environmental and Social Knowledge

The study results indicate that the top-down nature of knowledge sharing on environmental and social practices in the studied communities creates information and power asymmetry, and limits farmers' access to knowledge.

Power Asymmetry

According to Kaplinsky & Morris (2000), lead firms or buyers use knowledge as a source of power to control actors in a value chain or make decisions on how to distribute knowledge among actors in a value chain. In this sense, power also has to do with which actor is giving out decisions and carrying out those decisions. The actors giving out decisions are seen as having authority over those carrying out decisions. In the context of the study, the coordination of extension on good environmental and social practices has created a hierarchy, and knowledge sharing is top-down, allowing actors at the top to make decisions on knowledge. From figures 6.4 and 6.5, for instance, UTZ and Fairtrade certification organisations, are the knowledge initiators and develop technologies on environmental and social standards. Cocoa and chocolate companies (Touton and Mondelez), Solidaridad NGO, PBC licensed buying company, cooperative management, and community facilitators rely on UTZ and Fairtrade to provide information on environmental and social standards before this is disseminated to farmers.

Gereffi (2005) argues that external actors such as certification bodies control value chains by enforcing external knowledge on producers. In like manner, the coordination of the extension of good environmental and social practices on both UTZ and Fairtrade programmes shows that farmers are on the receiving end and do not make decisions on knowledge development. This confirms Humphrey and Schmitz's (2002) argument that cocoa farmers are knowledge takers and hardly make an input in knowledge development. During FGDs with UTZ and Fairtrade farmers in the studied communities, a common phrase farmers used when describing knowledge sharing on environmental and social practices was 'They told us.' For instance, a middle-aged female UTZ farmer stated, "*They told us to stop taking children to school. They also gave instructions on how to remove rubbish from the farms*" (FGD, UTZ Female Farmer, 12.10.17, Subiriso). This statement demonstrates how farmers are dictated when sharing environmental and social practices in the studied communities.

Farmers being dictated to on environmental and social practices may also imply that farmers regard expert knowledge as superior. For example, during FGDs, a young male Fairtrade farmer indicated that "*Fairtrade people know more than us*" (FGD, Fairtrade Male Farmer, 19.11.17, Aponapon). This example supports Hornidg (2012) and UNESCO and ISSC (2010), who argue that farmers' knowledge is overlooked during knowledge sharing, creating tension between expert and farmer knowledge, and creating scientific knowledge imperialism. Under both certification programmes, the extension delivery approach employed has given some power to community facilitators. Although community facilitators under both certification programmes are also farmers, they have firsthand information on environmental and social practices. They also have the ability to make decisions on when to train farmers. For example, the community facilitator for the Touton-PBC UTZ programme in Subiriso stated,

> "I am supposed to train farmers more than once before external farm auditing every year, but I am the one who decides when to train them" (In-depth Interview, Community Facilitator, 17.02.18, Subiriso).

Information Asymmetry and Limited Access to Knowledge

The coordination of extension activities among both UTZ and Fairtrade programmes in the studied communities limited farmers' access to frequent training. This was shown through the frequency of training received by farmers and community facilitators. According to both community facilitators for the certification programmes under review, they attend training at least once every year. Whereas both UTZ and Fairtrade farmers received training from community facilitators once a year. During FGDs with UTZ farmers, a middle-aged female argued,

> "We have to wait for the community facilitator to train us before we can receive some information on environmental and social standards. Even though he lives in the community with us, getting access to him is difficult, and one has to wait for him to organise us for training" (FGD, UTZ Female Farmer, 12.10.17, Subiriso).

The statement above shows that farmers have limited access to knowledge, and training on environmental and social standards is not demand-driven. Community facilitators also mentioned that when they attend training sessions organised by Fairtrade and UTZ officials, they are engaged in farm demonstrations on environmental standards. However, in the studied communities, farmers under both UTZ and Fairtrade programmes, do not have access to frequent farm demonstrations on environmental and social standards. Because of inadequate training and farm demonstrations,

UTZ and Fairtrade farmers do not acquire a thorough knowledge of environmental standards such as chemical and fertiliser applications. This suggests that community facilitators have access to frequent information on environmental and social practices compared to farmers. Although Farnworth and Colverson (2015), argue that the train the trainer extension delivery approach fosters bottom-up knowledge exchanges, the results discussed above under the UTZ and Fairtrade programmes under study, highlight that the train the trainer delivery, instead created information asymmetry and limited farmers' access to frequent knowledge.

6.3 Conclusion

This chapter has examined the extension systems and knowledge sharing on quality enhancement, including post-harvesting, and environmental and social standards in Aponapon and Subiriso communities. The post-harvesting extension is driven by a public-private partnership between the quality control company of COCOBOD and the licensed cocoa buying companies. Therefore, on post-harvesting knowledge, the extension delivery practices by the various licensed buying companies operating in the studied communities were examined. However, the extension of environmental and social standards is privately driven by cocoa and chocolate companies through certification and sustainability programmes. Not every licensed buying company promoted environmental and social standards in the studied communities. In this regard, two sustainability programmes, namely Touton-PBC UTZ and Mondelez Fairtrade implemented in the studied communities, were examined to capture the extension delivery practices on environmental and social standards.

Though different extension systems (public-private and private) were adopted to share knowledge on post-harvesting and environmental and social standards, the result shows similar challenges in the different extension systems which affected effective knowledge exchanges. These challenges include inadequate knowledge sharing, lack of monitoring of extension services, and insufficient participatory delivery methods. These challenges are also indicators of weak coordination of extension in value chains. Both extension systems implemented a top-down knowledge transfer structure, limiting farmers' access to adequate information, creating information asymmetry, and power asymmetry among actors in the knowledge systems. Arguably, the long-term effects of the top-down extension systems implemented on post-harvesting and environmental and social standards lead to farmers' resistance and non-adoption of quality enhancement technologies.

The results confirm with value chain theory, which argues that there is little knowledge sharing with producers in captive and buyer-driven chains such as cocoa. Additionally, value chain theory claims that lead firms/buyers in captive and buyer-driven chains highly control activities and actors, which leads to manipulation. However, in the study's context, the result indicates that the lack of control or monitoring of activities on knowledge transfer leads to low performance of extension systems and actors. The next chapter examines the coordination and implementation of quality assessment at the farming and purchasing stages of cocoa production.

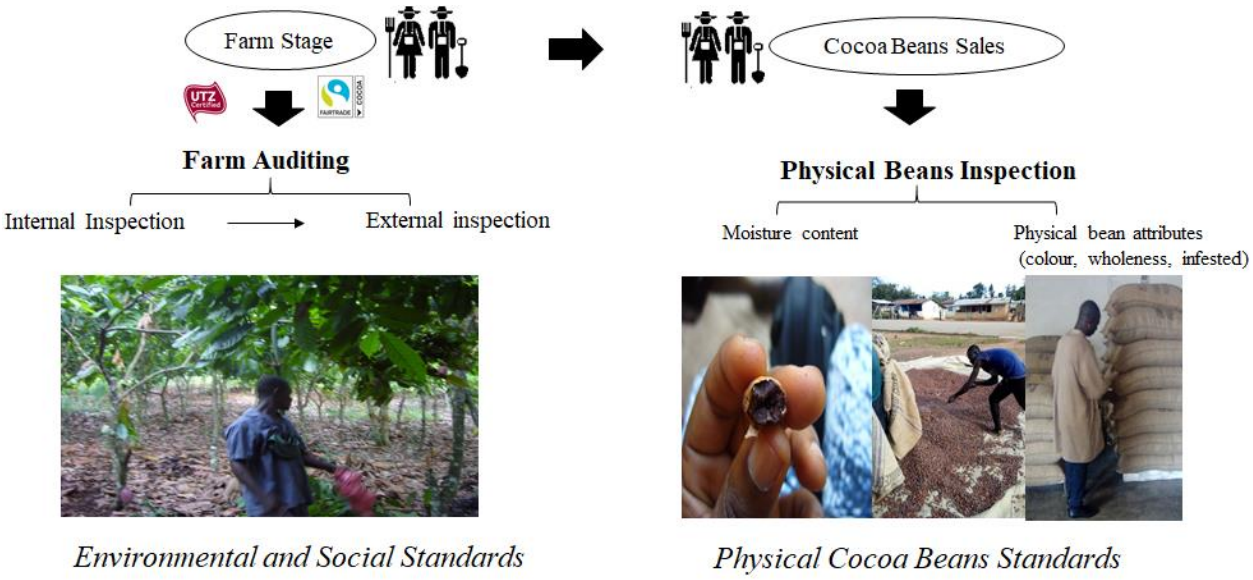
Chapter 7 Quality Assessment in the Studied Communities

Chapter six examined the challenges of a loosely coordinated extension system on quality enhancement. This chapter examines the coordination and practices of quality assessment under the environmental, social, and physical cocoa beans standards. The chapter shows that due to less communication among actors, and lack of monitoring and control of activities, quality assessment was not strictly coordinated. Quality assessment of farms and cocoa beans was also lenient because of insufficient monitoring tools. However, competition plays a keen role in influencing a lenient quality assessment in the sector. The auditing and monitoring measures employed to assess good environmental and social standards are firstly discussed. Quality control measures adopted during the purchasing of cocoa beans follow the discussions.

7.1 Monitoring and Inspection of Cocoa Beans

Figure 7.1 illustrates an overview of the quality assessment that occurs at the farm and purchasing stages. Farm audit is firstly carried out among farmers enrolled in the different certification schemes implemented in the sector before a physical inspection of cocoa beans among all farmers occurs during the purchasing of beans.

Figure 7.1 Quality Inspection at the Farm and Purchasing Stages of Cocoa Production



Source: author's own (2020)

Two processes, including internal inspection and external auditing, entail farm auditing. Only farms of farmers enrolled on certification and sustainability programmes are audited. At the farms, environmental and social standards which require a physical inspection (e.g., sanitation) are checked against the certification standards to check certified farmers' compliance or non-compliance. According to the standards, if farmers' practices comply with the certifications' standards, certification is granted or renewed. In non-conformity cases, farmers are provided with a corrective period to resolve non-conformity issues (Liu, 2003). In extreme cases, when there are non-conformities after the corrective period, the certification may be withheld. After farm auditing, another quality assessment takes place during purchasing of cocoa beans. Cocoa beans are physically inspected for compliance or non-compliance with physical cocoa beans standards. At this stage, both certified and conventional cocoa beans are inspected by the various licensed buying companies' purchasing clerks found in the growing communities.

7.2 Farm Auditing for Social and Environmental Standards

This section reports on the quality assessment of environmental and social standards under UTZ and Fairtrade certification in Subiriso and Aponapon.

7.2.1 Touton-PBC UTZ Programme, in Subiriso

According to the UTZ code of conduct, internal inspection and self-assessment should be first carried out to check farmer groups' readiness for an external audit. After the internal inspection and self-assessment, an external audit should be carried out by an accredited institution, recognised by UTZ or with experience in auditing agricultural commodities. In the Touton-PBC UTZ programme, Touton performs external audits while the community facilitator of the programme also carries out the internal inspection. After the external audit, a report is sent to the standard-setting body to decide on granting or not granting certification to farmer groups. This implies that the external audit is the main criterion for determining if a farmer group deserves to receive certification. It also means the external auditor, can influence the final decision-maker, which is the UTZ standard-setting body.

The UTZ auditing and inspection list used for farm inspection are grouped under the management, farming practices, working conditions and environmental segments. Each of these segments has a checklist, which serves as a guide for auditing the programme (see Box 7.1). In the case of the

studied UTZ programme, the Touton administration is audited on Block A because they handle certification documentation. Farmers and their farms are audited for farming practices, working conditions and environmental practices, i.e., blocks B, C and D, respectively.

Box 7.1: UTZ Monitoring Checklist

BLOCK A: MANAGEMENT

- Production area identification
- Record keeping
- Internal Management System (Responsible persons for each block, Member identification and agreement, Internal inspection and self-assessment, Risk management and management plan)
- Training and awareness-raising
- Traceability
- Premiums and transparency
- Yield optimisation

BLOCK B: FARMING PRACTICES

- Planting material and nursery
- Farm maintenance
- Diversification of agricultural production
- Soil and fertility management
- Pest and disease management
- Pesticide and fertiliser application records
- Pesticide and fertiliser application method and equipment
- Empty pesticide containers and obsolete pesticides
- Pesticide and fertiliser storage, handling, and diluting
- Irrigation
- Harvest and post-harvesting

BLOCK C: WORKING CONDITIONS

- Worker's rights (Forced labour and child labour, education, freedom of association and collective bargaining, working hours, wages and contracts, discrimination, and respectful treatment)
- Health and Safety (First aid and emergencies, pesticide handling, drinking water and hygiene)

BLOCK D: ENVIRONMENT

- Water
- Protection of nature
- Climate change adaptation
- Energy
- Air
- Waste

Source: (UTZ, 2015b, pp. 13–40)

Internal inspection and external auditing are carried out on farms to check farmers' compliance with the UTZ Standards. Both the internal inspection and external audit are carried out once every year. In the case of the studied Touton-PBC UTZ programme, the external audit of management, farms and farmers takes place in September every year. However, an internal inspection takes place before external auditing each year. Suppose there are non-conformities during the external

audit of farms and the certification body's management, a maximum number of 60 days is given as a correction period to resolve the issues. However, if a follow-up audit is carried out, and the problems are not resolved within the maximum number of days, the certification group will be suspended for up to 3 months. This period is also given to the group to address non-conformities. If this period exhausts without resolving the issues, the group shall no longer be granted an UTZ certification (UTZ, 2015a).

Farm Inspection and Monitoring Practices in Subiriso

I did not encounter the farm inspection and the external auditing but, interactions with the community facilitator, purchasing clerk of PBC licensed buying company, Touton staff in Edubiase, Solidaridad, and farmers explained the process and activities that take place during an internal inspection and external audit.

Internal Inspection

The community facilitator responsible for training farmers on environmental and social practices (see section 5.1.2) also carries out the internal inspection for the Touton-PBC UTZ programme. He holds a secondary school level education and attends training twice every year. He is also a young male cocoa farmer and resides in the community with his wife and child. He was appointed as the inspector by UTZ farmers, based on his ability to speak, read, and write in the English language, and his experience as a community facilitator for an NGO programme implemented in the community.

> "When they introduced the programme into the community, they told the farmers that they have to select someone who will act as the internal inspector in the community. The person will inspect farms, train the farmers, and report his observations to the external auditor. They told farmers that the person should know how to read and write in the English language. When the farmers heard this, they considered me because, I can read and write, and I have experience as a community facilitator" (In-depth Interview, PC, 17.02.18, Subiriso).

Before an external audit is conducted in September by an external auditor, the community facilitator for UTZ is supposed to visit the various UTZ farmers' farms. However, the inspector does not have a specific time for his inspection and can be within the year before September.

> "I visit the farms maybe twice a year before the external auditor comes. I do not have a fixed time for this activity. You know I also have my farm, and there are 60-acre UTZ farms I must inspect. Some of the farms are located extremely far away, almost near the

> forests. So, I must plan before I visit the farms" (In-depth Interview, Internal Inspector, 16.02.18, Subiriso).

UTZ has a certified 60 acres cocoa farm in Subiriso. Every certified farmer has contributed one acre of their farm for UTZ certification. In this case, is it expected that the facilitator visits all 60 farms before September. The rationale for this first inspection is to observe farmers' farming practices and caution farmers' non-conformity to standards. The facilitator observes farmers' practices that fall under Block B, C, and D under the auditing checklist. According to the facilitator, under block B, he checks if farmers use compost for the soil, prune cocoa and remove infested pods. On a few occasions, he also helps farmers who struggle to measure the right dosage of chemicals for application.

> "You know, the biggest challenge farmers have is measuring the right dosage of chemicals. Sometimes, few of the farmers call upon me to help them, especially the male farmers. If I am available, I pass through their farm and show them how to measure the chemical. But you know farmers already, sometimes I get to the farm, and he has already measured it. He will tell you that he was in a hurry to spray his farm. There is a sprayer who has been trained by Solidaridad, but he charges for his services, and it is not all the farmers who can afford his services" (In-depth Interview, Internal Inspector, 17.02.18, Subiriso).

Under block C, he watches out to see if UTZ farmers engage under-aged children in hazardous activities. He also engages hired labourers in conversations to find out if UTZ farmers are cheating them. He occasionally observes if UTZ farmers put on protective clothing as well as their hired labourers. Under block D, he particularly inspects farm sanitation because that is the external auditor's main activity when he visits the farm. On the various farms, he checks for farmers who leave rubbish around and those who do not correctly dispose of agrochemical bottles around the farm. The inspector shares his experience of his observations during farm visits.

> "When I visit the farms, what I often see is the rubbish. Farmers do not remove plastic bags, food peels, and agrochemical bottles from their farms. I keep telling them to practice farm sanitation every day or every time they visit the farm, but they do not listen. They only tidy the farm when it is almost time for external auditing. Every UTZ farmer knows that September is the month for external auditing. So, I do not even have to inform them to tidy their farms. When it comes to child labour, I do not see any Subiriso farmer or UTZ farmer engaging children in hazardous farming activities. I can boldly testify to this. Like I said earlier, another problem is the measurement of the right dosage of chemicals. Farmers struggle with this. All the farms selected purposely for UTZ, are not by the river. In this case, farmers do not pollute water bodies. Some farmers also use a red cloth as a form of signal to indicate that he or she has sprayed his or her farm" (In-depth Interview, Internal Inspector, 17.02.18, Subiriso).

The inspector's account of farmers' practices conforms to observations made on farmers' practices discussed in section 8.1. It also implies that the inspector visits the farms before the external audits take place in September. According to the inspector, he advises farmers to conform to UTZ's standards during training sessions around May (see section 6.1.2). During FGDs with both male and female UTZ farmers, they gave the impression that the inspector takes the opportunity to give farmers feedback on his observations made during farm visits at training sessions. A middle male farmer said, *"He reminds us to abide by the good environmental and social practices when we meet together for training*" (FGD, UTZ Male Farmer, 12.10.17, Subiriso).

However, interactions with the inspector indicate that he is not compensated for the internal inspection activities he performs. Although he is elected by farmers, his position is voluntary and does not receive incentives for his work as an internal inspector. When he was asked what inspires him to perform his duties, he argued,

> "…Hmm, it is difficult to work on the programme without being paid. You know how these organizations work with us. They always want our services for free, but they do not pay us or reward us. I conduct the inspection when I find some time. That is why I said I do not have a fixed time. I just make sure I do it before the external auditor comes in September" (In-depth Interview, Internal Inspector, 17.02.18, Subiriso).

The quotation points out that the internal inspector is not incentivised and to a certain degree, he is being exploited for his services without payment and if one is not highly motivated for the internal inspection role, it will be difficult to explicitly carry out this duty effectively. This means that the voluntary service is based on trust and Touton cannot impose strict measures on the internal inspector to perform his duty. For example, interactions with an extension officer for Solidaridad and Touton offices in Edubiase suggested that no one monitors the internal inspection activities. The only chance the UTZ internal inspector in Subiriso gets to interact with a UTZ representative concerning farm audit is during external auditing when the auditor requests verbal reporting on farmers' practices from the inspector.

External Audit

The external auditor, who is a male, has been auditing UTZ farms in Subiriso, every September, since 2014. He only informs the internal inspector of his visit to the community through a phone call on the morning of his visit. When he arrives in the community, he randomly selects ten farms to visit with the internal inspector. According to the internal inspector, the auditor mostly selects

farmers who have their farms within 30 minutes' walk, but he avoids farmers who have their farms at far distances. Below in Box 7.2 is the internal inspector's account of what transpires during external auditing.

BOX 7.2: External Auditing

The external auditor only calls me when he is already in Edubiase or on his way to the community. If I am not around, he will go to the purchasing clerk or call one of the UTZ farmers to help him visit the farms. But like I told you, we are aware he will come in September, so all farmers are alert during this period. I am always around at the time of his arrival. When he arrives, he goes through the farmers' list and randomly selects the farms he wants to visit. He has the record of farmers' names and the location of their farms, so he knows how far or close a farm is. You know, some farmers have their farms inside the bush, and you must walk for more than an hour before you get there. He always chooses the farms close by. So, if you are a farmer and your farm is far, he relies on my observation for his reporting. He selects about ten farms to visit and calls the farmers of those farms to go along with him. So, I go with him together with the selected farmers.

On our way to the farms, he asks me questions about how farmers are implementing the standards and I give him feedback. When we get to a farm, he has a long list, and he always refers to the list and marks against the item. I do not know what he writes or marks, but he has a long list with him. He checks the cocoa tree, whether a farmer prunes his cocoa or not. He also checks whether the farm is kept clean or not. So, as I said, the main thing he checks is the rubbish. He checks if there is no rubbish on the farms. He asks the owner of the farm, how he disposes of the rubbish or chemical bottle from the farm. So, he asks me questions as well as the farmer, and we all give him answers.

When we come back from the farms, he asks me to give my feedback on farmers' practices on good environmental and social practices during my internal inspection. I tell him that farmers are trying to comply with the standards, but they still need help in, for instance, chemical application. He relies on my feedback on issues of child labour. I tell him that farmers are not engaging their children in child labour practices. He asks the farmers to bring their records out. A farmer is given a record book, he inputs information on for instance, when he applied chemical and fertiliser on his farm. It takes about 6 to 7 hours for the external auditing exercise so, when he comes around 8 am, he leaves around 2 pm or 3 pm.

Source: (In-depth Interview, Internal Inspector, 17.02.18, Subiriso).

The interview excerpt has documented the auditing of farms and UTZ farmers in Subiriso for compliance with UTZ standards. It showed that the auditing method used according to UTZ standards as a surprise auditing among existing group certifications such as the Touton-PBC UTZ certification does not entirely qualify as a surprise audit. In the case of Subiriso, the audit is fixed

in September every year. It does not become a surprise anymore since both farmers and the internal inspector are expecting him any day in September. Farmers could hide evidence of non-compliance before the external auditor's arrival.

The farm selection per distance, de-selects some UTZ certified farms that may be necessary for auditing. For this selection criteria, not all UTZ farms are inspected or may never be inspected for compliance or non-compliance with standards. Also, the auditing approach summarised in box 7.2, including, an assessment of farmers' records and a verbal report from the internal inspector, is not suitable to check for complete compliance or non-compliance with environmental and social standards. For instance, an oral report from the internal inspector is insufficient to verify the conformity or non-conformity of child labour and discrimination practices. In cases where the internal inspector does not report on such incidences or in situations where the internal inspector did not witness such occurrences, the auditing measures used will fail to capture non-compliance issues.

The auditing measures are unable to detect or correct the ad-hoc farmers' practices in on-farm maintenance. Farmers who are unable to read, write or calculate may fail to record farming practices accurately. Accordingly, during FGDs farmers said they struggle to document farming practices, and sometimes must rely on their children. In this regard, the internal inspector argued, some farmers could not record all the farming practices. The scheme does not measure post-harvesting activities, although post-harvesting is identified in the UTZ code of conduct as a requirement for internal inspection and external auditing (UTZ, 2015b). Table 7.1 summarises the auditing measures the PBC-Touton UTZ programme adopts to carry out farm inspections under the components of environmental and social standards. Farm inspection, record assessment and verbal reporting are the only means of conducting farm auditing. Under block D for instance, both farm inspection and verbal reporting are used to detect farmers' conformity and non-conformity to standards.

Table 7.1 Inspection and Monitoring of Different Farmer Practices, Working Conditions and Environment

Block	UTZ standards	Auditing measures in Subiriso
B	Planting material and nursery, Farm maintenance, Diversification of agricultural production, Soil and fertility management, pest and disease management, Pesticide and fertiliser application records, Pesticide and fertiliser application method and equipment, Empty pesticide containers and obsolete pesticides, Pesticides and fertiliser storage, handling, and diluting, Irrigation, Harvest and postharvest.	Farm inspection, records assessment, Verbal report from an internal inspector.
C	Worker's rights (Forced labour and child labour, education, freedom of association and collective bargaining, working hours, wages and contracts, discrimination, and respectful treatment) Health and Safety (First aid and emergencies, pesticide handling, drinking water and hygiene)	Verbal report from an internal inspector.
D	Water, Protection of nature, Climate change adaptation, Energy, Air, Waste.	Farm inspection and verbal report from the internal inspector.

Source: author's own (2020)

Interactions on what happens if the external auditor finds non-conformity practices among farmers suggested that Touton-PBC has always been issued with the UTZ certification, even when farmers do not conform to the standards. However, farmers who do not conform to standards are instead punished. According to the internal inspector, in 2017, about four farmers did not receive their price premium because the auditor found non-conformity practices to the standards among these farmers. However, according to the UTZ standards, if non-conformities are found, 60 days is given to resolve all non-conformities. It appears this corrective period was not given to the farmers and although punished, the farmer group received certification.

Other studies have referred to UTZ's auditing measures as weak, insufficient to address sustainability issues, lacks transparency and accountability (Fountain & Huetz-Adams, 2018; Fountain & Hütz-Adams, 2015; Whoriskey, 2019; Whoriskey & Siegel, 2019). A news article published in Washington Post, dated 23rd October 2019, claimed that auditors overlook cooperatives or farmer groups' non-conformities to child labour and farming in forest reserves and

fail to sanction farmer groups. It was noted that in Cote d'Ivoire, auditing firms approved 4,900 cocoa farms located in forest reserves. In addition to this, it reported widespread poor auditing practices, including acceptance of bribes, biased selection of farms that allow some farms to go unchecked, corruption issues, poor certification decisions, and failure to sanction farmers for non-compliance. Consequently, the UTZ certification body investigated the auditing firms in Cote d'Ivoire and sanctioned four auditing firms. UTZ certification body responded to the claims of weak auditing measures and acknowledged their failure to implement an effective child labour monitoring system (Whoriskey, 2019). Some of these poor auditing practices were identified in the Touton-PBC UTZ auditing practices presented above. Because of the profound inadequate monitoring and auditing measures implemented by the certification body over the decade, in 2018, it merged with the Rainforest alliance to achieve reliable monitoring of standards.

The discussions so far, on the auditing and monitoring measures implemented to check for non-conformities of UTZ standards in Subiriso, have highlighted some challenges. These challenges include insufficient monitoring tools to assess environmental and social standards, the inability to deny farmer group certification even under non-compliances and the lack of monitoring of inspection and farm auditing activities. In sum, internal inspection and external auditing were not strictly coordinated, as some of their activities did not conform to the UTZ auditing and monitoring standards. The monitoring and auditing process was not monitored by a UTZ standard body or Touton. At the same time, external auditing employed lenient measures for farm inspections.

7.2.2 Fairtrade; Mondelez Cocoa Life Programme

FLOCERT is the global certifier for Fairtrade standards, and they are responsible to audit farmer groups or cooperatives under Fairtrade certification programmes. They employ a physical audit by visiting the farmer groups or cooperative offices and farms. During visits to the cooperative office, documents audited include certification contract, list of farmers, how the cooperative uses the premium, attended, and organised training, minutes, and reports of annual meetings. This falls under the auditing of management of production practices (see box 7.3). Based on the external auditor's report from FLOCERT, the Fairtrade standard-setting body decides to grant or deny certification to farmer groups. The internal inspector influences the external auditor's account because the external auditor relies on the internal inspector to provide feedback on some environmental and social practices among farmers, such as their compliance with child labour

requirements. Under the Mondelez Fairtrade programme, before an external farm audit by FLOCERT occurs, the community facilitator carries out an internal inspection of the group. In the Mondelez programme, FLOCERT communicates the auditing schedule with the secretary of the Amansie West District (CCP) Cooperative Cocoa Farmers union, who also disseminates the information to the Aponapon farmers' group.

During audits, if there are non-compliance cases among cooperative officials or farmers, a corrective period is given to correct non-conformities. After this period, there is another audit, and when no issues are found, certification is granted. If problems persist during the second auditing, FLOCERT may take action by either suspending or denying the certificate to the farmer group or cooperative (Fairtrade International, n.d.; FLOCERT, 2019).

Box 7.3: Fairtrade Monitoring List

Management of Production Practices

- Member information
- Additional member data
- Allocation of tasks and responsibilities between 2nd or 3rd-grade SPOs and their member SPOs
- Farm assessment
- Plan of training and support activities
- Farm improvement plan

Environmental Management

- Pest management and hazardous materials use.
- Soil and water
- Biodiversity
- Waste
- Genetically modified organisms (GMO)
- Climate change adaptation and mitigation

Labour Conditions

- Freedom from discrimination
- Freedom from forced or compulsory labour
- Child labour and child protection
- Freedom of association and collection bargaining
- Conditions of employment
- Occupational health and safety

Business and Development

- Development potential
- Democracy, participation, and transparency
- Non-discrimination

Source: (Fairtrade International, 2017, pp. 10–13; Fairtrade International, 2019, p. 2)

Farm Audit and Inspection Practices on Fairtrade Certification in Aponapon

For this purpose, in-depth interviews with the environmental and child labour facilitator, FGDs with farmers, in-depth interviews with the President of the Union, and farm visits, were used to document the internal inspection and external audit process among Fairtrade farmers in Aponapon. Cooperative officials are audited against the management of production practices and business and development segments while farmers are audited against environmental management and labour conditions segments. However, the information below accounts for internal inspection and farm audit among Fairtrade farmers in Aponapon.

Internal Inspection

Before an official farm audit occurs, an internal inspection is carried out by the environmental and child labour facilitator who is the same as the community facilitator. Besides his role as a facilitator of good environmental, and social training, he undertakes the internal inspection of Fairtrade farmers. The internal inspector has a secondary level of education and can read and write in the English language. He was voted for by the rest of the Fairtrade farmers in Aponapon during a cooperative meeting. In his role as an internal inspector, he inspects farms belonging to 54 member farmers in Aponapon. He does not have a specific schedule for farm inspection, but he ensures that he inspects before the external auditor visits the community.

When he visits the farms, he observes if farmers implement good environmental and social practices. Some of the practices he checks include farmers' ability to remove rubbish from the farm, whether farmers wear protective clothing, and farmers' engagement of children in hazardous farming activities. According to the inspector, he notifies farmers' who do not comply with the standards to adopt the practices before an external audit is scheduled.

> "Before the Fairtrade programme began in the community, I received training on how to conduct farm inspections. So, when I visit the farms, I observe what the farmers are doing. I tell them not to engage children in applying chemical spraying or allowing a child under 12 years to carry heavy loads. I tell them it is not good for the child. I also inspect if farmers remove rubbish from the farm or are abiding by all the Fairtrade principles" (In-depth Interview, Internal Inspector, 13.03.18, Aponapon).

I followed the internal inspector to some of the Fairtrade farms during farm visits, and it was common for farmers to leave rubbish and empty agrochemical bottles on farms. During the farm visit, we got to a Fairtrade farm that had empty agrochemical bottles kept on it. The inspector said,

> "… See what I was telling you. Look at this agrochemical bottle which has not been rinsed and the farmer has left it on the farm. This is a problem among farmers. It has become a habit, and I do not know when they will cease doing this. Every year, you find the same issue. You know, the danger of leaving used agrochemical bottles on the farm is that people passing by the farms, can pick up empty agrochemical bottles and store salt or spices in them. It is not good for human consumption. So, I keep telling them to stop this practice. It is not easy visiting all the farms. It is very tedious, and I am not compensated for this, so I worry when I talk to farmers, and they do not listen. The only risk we have for non-compliance is non-certification. But we have never faced such a problem. As I previously mentioned, we are the ones who invite the external auditor to come when we are ready. So, before we ask him to come, farmers have already removed rubbish from the farm" (In-depth Interview, Internal Inspector, 13.03.18, Aponapon).

According to the inspector, farmers have a big problem when it comes to complying with sanitation standards. The internal inspector's main challenges are walking long distances to members' farms and farmers' non-compliance with the standards. According to the internal inspector, he does not get compensated for carrying out internal inspection services, and farmers seem unconcerned with thoroughly abiding by the standards. However, as an internal inspector, he has the right to report a farmer's non-compliance to the cooperative head office. He warns a farmer thrice before he takes action, and a delegate will confirm non-compliance reports, and if evidence of non-compliance is found, the farmer will be suspended from the group.

Although Aponapon farmers have never been denied certification or any of the farmers suspended due to non-compliance, other Union members from other communities have been suspended because of non-compliance to Fairtrade standards.

> "Even though Aponapon farmers have not had serious problems obtaining certification, about ten communities under the union, were sanctioned because of poor compliance results. They were suspended until further notice. That is why, as for us, we call upon the external auditor when we know we are ready" (In-depth Interview, Internal Inspector, 13.03.18, Aponapon).

External Auditing

A representative from FLOCERT carries out farm and farmer auditing. She visits the community around October and November every year to officially inspect farms. Before visiting the community, she pre-informs the union executives and gives out the date for her visit to Aponapon.

Farm and Farmer Auditing

Farmers, as well as the internal inspector, are pre-informed on the time for external auditing. However, according to the internal inspector, because auditing is carried out around October and November, farmers tidy the farms before this period. When the external auditor arrives in the community, she contacts the internal inspector and goes to the selected farms. The auditor randomly selects farms, and according to the internal inspector, the auditor selects around 2 to 5 farms to visit and inspect. Below the internal inspector describes how external audits function.

> "When she arrives in the community, she calls me, and I go with her to the farms she has already selected. She has a list of what she is checking. She does not allow me to lead. Instead, she leads, and I follow. She purposely leads because she does not want me to remove rubbish from the farm if a farmer has not tidied up the farm. We interact on our way to the farm. She asks me questions about farmers' conformity behaviour. I tell her what I also observe when I go for inspections, for instance, on child labour, protective clothing, or chemical use among farmers. Here, farmers are unable to use the right chemicals. When we get to a farm, this is what she checks for; first and foremost is farm sanitation. She goes around the farm to see if the farmer has removed rubbish or disposed of chemical bottles. She also checks the farming practices, like compost or how a farmer is taking care of cocoa trees. So, in this case, pruning or removal of pods which has insects in them is something she inspects. When we come back from the farms, she tells me she will get in touch with us in a few days about her decision" (In-depth Interview, Internal Inspector, 13.03.18, Aponapon).

After the farm inspection, the auditor meets with all Fairtrade Aponapon farmers and questions them on the standards of Fairtrade. Some of the questions are related mostly to farmer organisation and cooperative collective businesses. Farmers are also asked to share their experiences on good environmental, and social practices. According to farmers, questions are raised primarily on child labour and worker discrimination. The auditor asks similar questions each year and farmers can memorize some of the answers to the questions. One young female farmer shared the experience of auditing,

> "When the auditor comes, she asks us issues on child labour. For instance, she asks us to tell her about the age requirements of child labour and the various activities restricted under each age category. She also asks us if we wear safety clothing. We are aware of the standards, and we know that farmer organisation should operate based on transparency, accountability, democracy and non-discrimination" (FGD, Fairtrade Female Farmer, 14.02.18, Aponapon).

Fairtrade farmers did not share much on auditing of farms. The only auditing measure they thought was strict was the possibility of losing price premium if the auditor decided on non-conformity

sanctions. According to the internal inspector, he intercedes on behalf of a farmer during farm audits in some instances. He pleads with the auditor to be lenient with her decision regarding non-conformity issues. So, in such cases, the auditor demands corrective action be taken by the farmer (s) before certification will be granted. From the description, on auditing, the auditor carries out farm observation, especially on waste management but relies on the internal inspector and farmers for feedback on other social issues such as child labour practices.

Table 7.2 summarises the auditing measures the Mondelez Fairtrade programme adopts to carry out farm inspections. Farm inspection, record assessment and verbal report are the measures utilised for farm auditing. From the discussions, it appears that auditing measures sometimes may be lenient and overlook farmers' non-conformity practices. For instance, an auditor's visit to about 2 or 5 farms out of 54 different farms, does not guarantee a thorough farm audit to check conformity to standards. Additionally, a verbal report from an internal inspector on farmers' conformity to labour standards, is not sufficient to detect child labour incidences.

Table 7.2 Fairtrade Internal Inspection and External Auditing Practices in Aponapon

Segment	Fairtrade standards	Auditing measures
Environmental Management	- Pest management and hazardous materials - Soil and water - Biodiversity - Waste - Genetically modified organisms (GMO) - Climate change adaptation and mitigation	Farm inspection, records assessment, and Verbal report from an internal inspector.
Labour Conditions	- Freedom from discrimination - Freedom from forced or compulsory labour - Child labour and child protection - Freedom of association and collection bargaining - Conditions of employment - Occupational health and safety	Verbal report from an internal inspector.

Source: author's own (2020)

However, auditing may sometimes be strict on farmers' non-compliance as seen in the case of other community members who received a suspension. As it was shown, there are also some procedures (via internal inspection warning) in addition to the existence of corrective measures in place to report non-compliance of farmers at the internal inspection and audit stages. However,

reliance on an internal inspector's report on labour conditions issues may be a weak tool to adequately monitor non-conformity. According to FLOCERT's approach to monitoring child labour, an auditor who sees a child working on the farm during auditing follows up by interviewing the parent or adult responsible for the child. Upon the answers they give, the auditor decides whether it qualifies for child labour or not (FLOCERT, 2019, p. 2). However, this approach may not be practical in Aponapon since audit announcements are made, and farmers are cautious around the auditing period. Therefore, non-conformity of child labour may highly not be suspected during the auditing period.

The auditing strategies used fail to detect the wrong dosage and unapproved chemical application. Consequently, the auditing measures employed may not be sufficient to identify farmers' struggles with non-conformities and farming practices. In this regard, Tampe (2016) argues that even though an auditing decision may lead to farmers' certification, it does not necessarily translate to farmers' adoption of environmental and social standards. Tampe (2016) in her study on Mondelez Fairtrade Cocoa Life programme among almost 3000 farmers in 350 cocoa communities in Ghana, found out that Fairtrade standards did not improve farmers' agricultural, environmental, and social practices although they are approved Fairtrade certified every year. She also found out that auditing fails to identify actual farmers' non-compliance to standards. Similarly, these results from the case on Fairtrade auditing in Aponapon correspond to Tampe's (2016) findings on the same Mondelez Fairtrade programme which suggest that there is an insufficient monitoring tool to assess farmers' compliance with environmental and social standards.

7.2.3 Summary; Monitoring and Auditing

Discussions on the auditing and monitoring measures implemented to assess farmers' compliance with UTZ and Fairtrade standards in Subiriso and Aponapon have demonstrated that both UTZ and Fairtrade implemented common auditing practices. This entails the first stage of an internal inspection, which is carried out by a community facilitator. The second stage is the farm audit, which requires an external auditor to physically inspect farms for compliance and non-compliance with environmental and social standards. According to the conceptual framework, an effective quality assessment system is implemented if it can organise a surprise farm audit, provide sufficient audit and monitoring tools, corrective measures, preventive measures, and the ability to withhold certification in cases of non-conformity among farmers. Therefore, table 7.3 summarises

the farm auditing measures adopted by the Touton-PBC UTZ and Mondelez Fairtrade programmes which assessed farmers' compliance with environmental and social standards.

Table 7.3 Farm Auditing Measures under Touton-PBC UTZ and Mondelez Fairtrade Programmes

Quality Assessment Measures	Touton-PBC UTZ	Mondelez Fairtrade
Ability to organise a surprise audit?	No, an Audit is announced.	No, an Audit is announced.
Ability to utilise sufficient tools?	Does not utilise sufficient tools to monitor environmental and social standards.	Does not utilise sufficient tools to monitor environmental and social standards.
Ability to reject certification?	Certification is issued under non-conformity cases.	Certification is issued under non-conformity cases. In some instances, it is negotiable.
Consist of corrective measures?	It is not clear	Yes
Consist of preventive measures?	No, it does not exist	No, it does not exist

Source: author's own (2020)

From the table, both UTZ and Fairtrade programmes did not organise a surprise audit since farm audit was always scheduled and announced. The auditing tools utilised to assess environmental and social standards under both programmes were insufficient because most auditing tools did not have clear measures to detect social standards on child labour and labour discrimination. The auditing systems could not also deny farmer group certification even under non-compliances. Under both programmes, the auditing system lacked a preventive measure that could stop farmers from repeating non-compliances with standards. Because of this both UTZ and Fairtrade farmers' environmental and social practices are ad-hoc. UTZ and Fairtrade programmes also did not monitor farm auditing activities in the communities and therefore could not track farmers' performance on environmental and social standards.

Below Image 7.1 describes the mishaps of auditing practices on certification schemes, which include insufficient audit activities to resolve environmental and social practices, issuing of certification under non-compliances situations, and poor audit management practices. These

results revealed in figure 7.2, confirm with auditing practices found in the studied communities, which are discussed below.

Image 7.1: Media Report on Certification Auditing Practices

Source: (Higonnet et al., 2017; Nieburg, 2017; Whoriskey, 2019; Whoriskey & Siegel, 2019)

Insufficient tools

Among UTZ and Fairtrade auditing and monitoring measures, there were no strong tools to track child labour, non-discrimination, and chemical application. According to Fountain and Huetz-Adams (2018), insufficient auditing measures of certification schemes in the sector, have failed to resolve child labour and other sustainability issues in cocoa production. At the same time, insufficient auditing measures have been found to encourage ad-hoc farming practices (Fountain & Huetz-Adams, 2018; Whoriskey, 2019). Image 7.1 documents some reports and remarks on certification auditing measures that have been prominent in newspaper articles and the media over the decade, which condemns auditing methods utilised by certification standard bodies to be insufficient and lenient.

Lack of Monitoring

Under both UTZ and Fairtrade auditing processes, there was a lack of monitoring of internal inspection, the community facilitators, and the external auditing process. It was noticed that under the UTZ external farm auditing, the UTZ standard body, did not partake in this activity, instead this activity was carried out by Touton Company. However, from discussions with the external auditor and internal inspector for the Touton-PBC UTZ programme, their activities are not monitored. This implies that UTZ standard body does not have firm control of the farm auditing process and only relies on the reports from Touton Company. Likewise, although Fairtrade

controlled the farm auditing process in the Aponapon community, the internal inspection was not monitored. As it was indicated in section 2.3, key challenges that may be confronted in the process of farm auditing may be overlooked due to a lack of monitoring. Because of a lack of monitoring of both internal and external farm inspection, farmers' non-conformities to environmental and social standards may not be corrected and farmers' environmental and social practices may not be ultimately improved.

Lenient Control Measures

As it is noted by Ponte (2009) and Tampe (2016), the control of voluntary standards tends to be flexible and does not impose strict measures on producers. As it was demonstrated in both UTZ and Fairtrade farm auditing processes, farmer groups were issued certification even under non-compliances scenarios of some of the members. During FGDs with both UTZ and Fairtrade farmers, they felt reluctant about the topic and did not feel imposed to comply with environmental and social standards. The fact that most farms were not audited, also implies that the auditing process is incapable to correct or report farmers' non-conformities.

Competition a Constraint to an Effective Auditing

However, it was also shown that certification farm assessment was lenient because of competition for farmers in the cocoa sector. The competition also influenced actors' power relations in the process of farm assessment. Although there is a demand for certified cocoa beans, there is a declining number of farmers in the cocoa sector because of the older farmers reaching life expectancy and younger generations are not interested in cocoa farming (Fountain & Huetz-Adams, 2018). As a result, this has also created competition among cocoa and chocolate buying companies for getting access to farmers. For instance, out of the 800,000 cocoa farmers in Ghana, Mondelez, has grouped 38,417 farmers under its company programme, whereas Lindt Sprüngli, have grouped 72,500 farmers under its company programme. Cargill, an international grinder also groups farmers under its sustainability programme (Lindt & Sprüngli, 2019; Mondelēz International, 2019). Also, enrolling farmers and keeping them in one's supply channel is the only way to continue with a certification or company sustainability programme. An officer from the UTZ-Touton programme explains,

> "[…] the pressure of running certification programmes is because of the high demand from consumers. We started our programme four years ago, and we estimated that by 2020 all processing companies would demand certified cocoa. The problem we have in the cocoa sector currently is that almost all LBCs are supplying certified cocoa beans; PBC is supplying, and Armajaro is also supplying. This has created some competition among cocoa buyers" (In-depth Interview, Touton Officer, 18.10.17, New Edubiase).

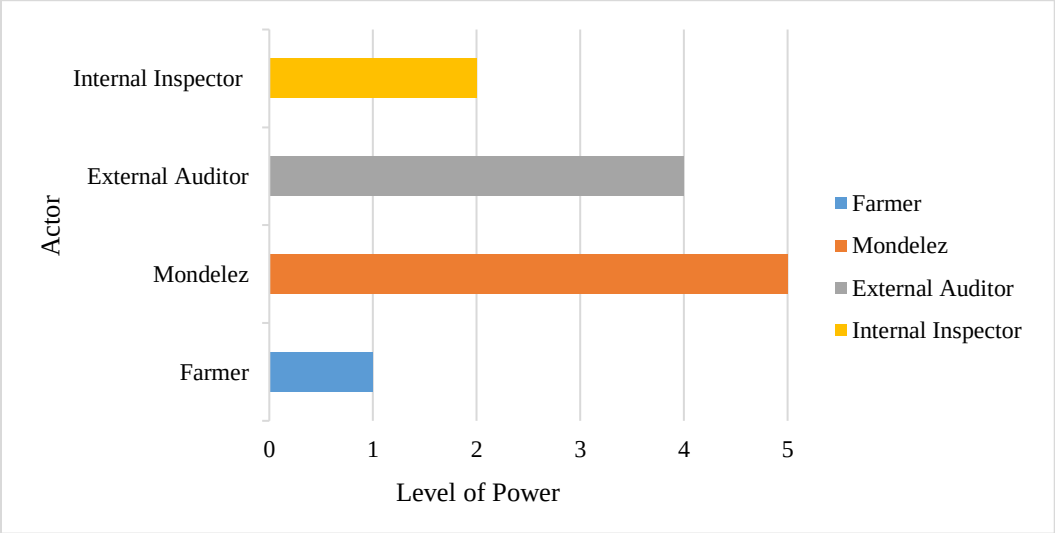
Certification has also induced competition among auditing firms that carry out auditing activities, and these firms try to maintain their clients (FLOCERT, 2019). Because of this, it appears auditing firms and cocoa and chocolate companies do not implement strict auditing and monitoring measures to prevent farmers from opting out of certification programmes. The finding here argues that competition is a factor in value chains that can limit buyers' control over quality assessment. However, orthodox value chain theory which argues that there is high buyer control in captive and buyer-driven value chain such as cocoa (Gereffi et al., 2005), overlook the influence of competition in value chains to alter buyers' power and control over producers. The finding also supports the argument for the governance of third-party certification schemes in value chains which suggests a flexible control (Ponte, 2009). In the context of the study, the flexibility of the control of third-party certification schemes also influences a flexible or informal relationship between actors in the process of farm inspection and auditing.

Power Relations in Farm Auditing

Based on a net-mapping exercise and FGDs, figure 7.2, reflects both UTZ and Fairtrade farmers' responses to the power and influence of internal inspectors, external auditors, and cocoa and chocolate companies in the process of farm auditing. Actors were ranked from 1 (lowest) to 5 (highest). Farmers identified the external auditor to have a high influence and power on the auditing process, based on indicators including, the auditor's ability to give bad feedback to UTZ and Fairtrade standard body and the auditor's ability to decide which farmer deserves a premium and which farmer does not. At the same time, farmers identified the internal inspector as having a high influence, but low power in on-farm auditing based on the internal inspector's ability to report non-compliance with environmental and social standards. Overall, farmers indicated cocoa and chocolate companies as having the highest influence and power on them based on their capacity to pay out price premium or not and increase price premium or not. However, according to farmers,

the internal inspector cannot dictate to them and cannot decide who will receive a price premium and who would not.

Figure 7.2 Farmers' Perception of Actors' Power/Influence on Farm Auditing



Source: author's own (2020)

Interactions with both Fairtrade and UTZ farmers on auditing and monitoring processes did not imply a strict auditing system. Firstly, farmers had extraordinarily little to talk about on this issue, and UTZ farmers felt already, that the current auditing measures implemented were stringent. This demonstrates the extent to which a farmer can contain a strict auditing and monitoring system in a competitive value chain. For example, a middle-aged UTZ female farmer argued, *"Someone coming to visit your farm to check if it neat alone is strict"* (FGD, UTZ Female Farmer, 12.10.17, Subiriso).

From the discussions on both UTZ and Fairtrade farm auditing, two power relations are created, including *external auditor-internal inspector* and *internal inspector-farmer relations*. As it was discovered in both UTZ and Fairtrade cases, the external auditor heavily relies on the internal inspector's report on farmers' compliance with standards, which seems to have created a semi-informal relationship. For example, interactions with both internal inspectors for UTZ and Fairtrade implied that they could plead on a farmer's behalf during farm audits. Other remarks made by the internal inspector for the UTZ programme as "*I know Sammy (the external auditor) and when I go the district office, sometimes, I pass through the office to greet him*" (In-depth

Interview, Internal Inspector, 17.02.18, Subiriso), also indicates a semi-informal relationship between the external auditor and internal inspector.

Both internal inspectors for UTZ and Fairtrade are farmers and reside in the respective studied communities. Therefore, they have close relations with respective UTZ and Fairtrade farmers. UTZ and Fairtrade farmers rely on internal inspectors for assistance, for instance, in measuring the quantity of chemicals for application on farms. Some of the farmers are also close friends with the internal inspectors, making it difficult for internal inspectors to be strict with farmers as they would like to be. For instance, the Fairtrade internal inspector argued, *"they know me, so when I speak to them, sometimes they do not listen to me"* (In-depth Interview, Internal Inspector, 13.03.18, Aponapon). This shows an informal relationship between internal inspectors and farmers but also, impedes an effective internal inspection and monitoring of farmers.

7.3 Quality Control Practices on Physical Cocoa beans

This section presents data on the quality control practices implemented by the purchasing clerks during the purchasing of cocoa beans in the studied communities. The result emphasizes that purchasing clerks do not implement strict quality control measures. The section also discusses the constraints to effective implementation of quality control practices in the studied communities, which include competition and lack of monitoring of quality control practices.

7.3.1 Quality Control Practices

As indicated in section 4.1.1, the quality control of physical cocoa beans is a partnership between QCC of COCOBOD and LBCs, which employs a coordinating governing style. LBCs through their purchasing clerks are required to control physical quality in the various communities during purchasing of cocoa beans. According to the standards of physical cocoa beans, at the selling point, purchasing clerks are required to inspect beans and check for moisture content by sampling a few beans from a bag and squeezing the beans to determine dryness. Beans properly dried are hard by touching and do not tear up when pressed but beans that are not adequately dried tear up when squeezed. Moisture content inspection takes the first form of inspection, after which the colour of the bean is inspected. A brownish colour of the bean indicates properly fermented beans whiles a purple-coloured bean determines poorly fermented beans. The PC breaks open a sampled bean to see the colour of the beans. Other physical attributes, such as the wholeness of beans, are also

checked. When the PC is satisfied, he weighs the bag and pays the farmer a fixed amount according to his weight.

However, in Aponapon and Subiriso communities, purchasing clerks implemented practices such as accepting inferior cocoa beans, implementing quality enhancement for farmers, and mixing cocoa beans of different quality parameters. Purchasing clerks did not strictly enforce quality control measures, and farmers seemed to get away with producing poor-quality cocoa beans. Based on in-depth interviews with purchasing clerks, FGDs with farmers and participant observations, below are quality control practices among four purchasing clerks in the studied communities.

PBC Purchasing Clerk

"I am the purchasing clerk for PBC, in Subiriso. I am 55 years and I have been a purchasing clerk for almost 30 years. I do my best to check if a farmer has properly dried his cocoa beans. Sometimes, I also check if the cocoa beans are well fermented before I weigh the cocoa beans. But many times, the cocoa farmer is interested in the weight of his beans and the money, he will receive. If you try to be strict on quality, farmers tend to get angry, and they would not sell their cocoa to you the next time. So, we try to check for quality. If a farmer brings, for instance, cocoa beans that have a lot of purpled beans in them, instead of paying him the full amount of money (if it is 62.4, then I pay him 475 GHS or a fixed price according to every weight), I pay him lesser. For a farmer to attain quality cocoa beans, he must adequately dry his cocoa beans and ferment them for six days" (In-depth Interview, Male PC, 12.12.17, Subiriso).

Nyonkopa Purchasing Clerk

"I am the only female purchasing clerk in Aponapon. I am almost 40 years and I have been a purchasing clerk for about 5 years now. When a farmer brings his cocoa, I first weigh the cocoa on a scale and open it to check if he has adequately dried the cocoa. If the cocoa is not sufficiently dried, I re-dry it, but I pay the farmer and dry the cocoa beans myself. We keep telling the farmers to properly dry the cocoa beans and ferment them well because they can get quality cocoa beans by doing this. Farmers are always in a hurry to be paid so if you do not pay promptly, they will not be happy and might sell their cocoa beans to another purchasing clerk next time. So, to please them, I firstly weigh the beans, and then I pay him. Checking for quality is also essential, but as

you know, if you begin to advise him on how to improve on quality, he will just nod and leave" (In-depth Interview, Female PC, 4.12.17, Aponapon).

AgroEcom Purchasing Clerk

"My name is Samuel and I have been a purchasing clerk for more than 20 years. When a farmer comes, I weigh the cocoa, and I look at cocoa beans' physical components such as wholeness, and the colour beans. For example, a brownish colour is more quality than purpled beans. Purple beans taste bitter, and it means it was not well fermented. I will reject beans that are purpled and poorly dried. But I am also careful not always to reject the farmer because he will sell his cocoa to someone else. If you are not nice to the farmers, they sell their cocoa to another purchasing clerk who will accept their beans. So, I make sure I do not take a lot of purple beans, but I warn them to adequately ferment their cocoa beans next time. I also mix all the cocoa beans at the end of the day because it is the same product" (In-depth Interview, Male PC, 4.12.17, Aponapon).

Adwumapa Purchasing Clerk

"My name is Kweku, and I am the purchasing clerk for Adwumapa in Aponapon. I have been a purchasing clerk for more than 15 years. If a farmer brings his cocoa, I firstly weigh the cocoa and pay him accordingly. Cocoa purchasing is a business, and one must be careful how to balance buying from farmers and checking for quality. Because there is competition, farmers can choose who they want to sell their cocoa to, so if he comes to you and you are extremely strict on quality, he will decide to sell to someone else. In this case, I make sure I re-dry any cocoa that was not properly dried, and I mix all cocoa beans. The main quality practices a farmer must implement to enhance cocoa beans are proper drying and fermentation. I combine both conventional and UTZ as well as Fairtrade cocoa beans together. It is the same quality. At least you must advise them to dry cocoa beans and ferment as well correctly. It is not all the farmers who are careless with ensuring quality, which is why I mix the beans to get an evenly distributed quality" (In-depth Interview, Male PC, 4.12.17, Aponapon).

Table 7.4 summarises the quality control measures implemented by the four purchasing clerks in the cases above. From the table, none of the purchasing clerks rejects inferior cocoa beans. Only one purchasing clerk inspects most parameters including moisture content, slaty and insect-

damaged under the physical cocoa standards (see appendix 4). Moisture content is the parameter that is mostly inspected by purchasing clerks.

Table 7.4 Quality Control Measures among Purchasing Clerks in Studied Communities

Cases	**Ability to inspect and test for quality attributes**	**Ability to reject poor-conditioned beans**
Case one	The PC inspects for moisture content and fermentation of beans.	No
Case two	The PC inspects for moisture content	No
Case three	The PC inspects for moisture content, the wholeness of beans and fermentation of beans.	No
Case four	The PC inspects for moisture content	No

Source: author's own (2020)

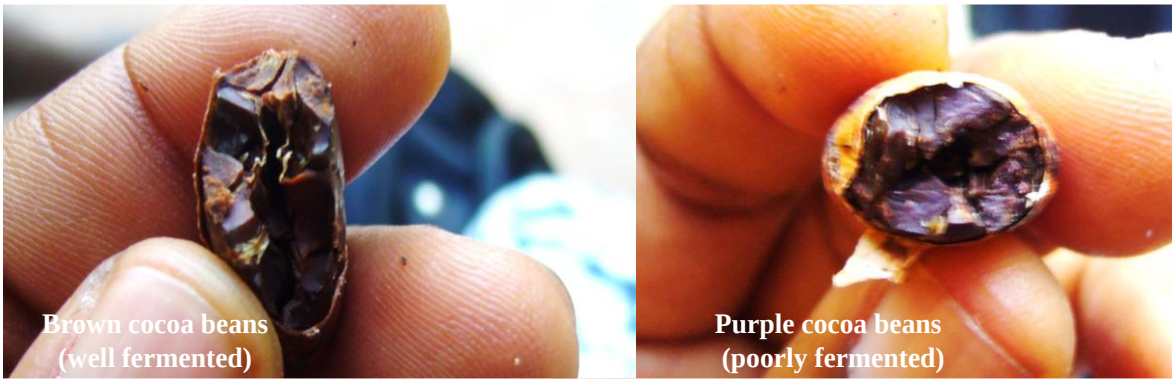
According to the conceptual framework, the inability to reject inferior commodities is an indicator of a lenient quality assessment tool. In like manner, the quality control measures employed by the interviewed purchasing clerks indicate a weak physical inspection of cocoa beans and also control of producers. From my observations, and interactions with purchasing clerks, and farmers, purchasing clerks did not implement strict quality control measures. Inferior cocoa beans were accepted, and cocoa beans with different quality specifications and conditions were mixed. Purchasing clerks also carried out some of the post-harvesting practices like drying for farmers. Ansah et al. (2018), conducted a study in the Antoakrom, Nsokote, Konongo, Nyinahin and Asante Bekwai districts of Ghana and found that purchasing clerks perform the drying of cocoa beans and sorting of cocoa beans for farmers. Purchasing clerks did not implement strict quality control measures because of the fear of losing a farmer to another purchasing clerk. Purchasing clerks' lenient quality control practices are discussed below.

Accepting Poor Conditioned Quality Beans

Purchasing clerks interviewed in the studied communities explained that negotiating price with a farmer for his poor quality cocoa beans prevents farmers from selling to other PCs. It is also done to maintain PC-farmer relationships. This was identified as a PC's strategy to establish relationships with farmers. Since purchasing cocoa beans is competitive, farmers can sell their inferior quality beans to other purchasing clerks if one rejects their beans. Most of the reported low-quality cocoa beans are purple beans because of low fermentation. Purchasing clerks look out

for brownish to reddish colour if the beans are correctly fermented, and purple-coloured beans indicate low fermentation. PCs can also detect this by biting into the beans. Image 7.2 visualizes the different coloured cocoa beans, which are adequately fermented and not properly fermented. According to purchasing clerks interviewed, when farmers bring in low-quality cocoa, they buy it and warn them to adhere to the proper fermentation process the next time. Since PCs can quickly dry poorly dried cocoa beans again, they sometimes buy wet beans from farmers.

Image 7.2: Well Fermented and Poor Fermented Cocoa Beans



Source: author's own (2018)

Mixing of Cocoa Beans

Although purchasing clerks bought inferior quality beans and negotiate for a lower price, they also mix cocoa beans of different quality. Firstly, they combine poor and good product quality and then mix certified and non-certified altogether. Purchasing clerks mix cocoa beans for an even quality distribution. One purchasing clerk argued, *"[…] but there is no difference between someone who belongs to UTZ and produces good beans and someone who does not but also produces good beans. I mix all the beans"* (In-depth Interview, Male PC, 17.02.18, Subiriso). According to a middle male purchasing clerk, even though they accept poorly conditioned cocoa beans, they know how to mix cocoa beans to get an even quality condition that may still meet the quality standard of COCOBOD which stipulates that a 64kg of the cocoa bag should not contain more than 30 percent of purpled beans (Quarmine, 2013). To get an even quality distribution, as farmers themselves, PCs also harvest large quantities of cocoa and properly adopt post-harvesting technologies to enable them to get well fermented, dried, non-slaty, and non-germinated cocoa beans. This was seen as a popular strategy implemented by PCs in the studied communities.

Image 7.3 Mixing of Cocoa Beans among Purchasing Clerks in Subiriso

Source: author's own (2019)

Box 7.4: The Art of Mixing Cocoa Beans; the Work of an Expert!

Before my first visit to the Aponapon community, I anticipated encountering innovative quality enhancement measures at the community level. Upon my arrival in the community, one of the first places I visited, was an LBC's selling point. However, almost near the place from a distance, I could see many cocoa beans poured on the floor. I panicked at this sight but eventually went to the PC and engaged him in a conversation. I panicked because I did not expect to see the mixing of cocoa beans on the ground, although the floor was covered with a large sheet of polythene.

I observed how cocoa beans were mixed. The assistant to the purchasing clerk went inside the storage room and brought out some sacks of cocoa beans and mixed the cocoa beans he brought out of the room with the ones outside. He kept opening different cocoa sacks and kept mixing and mixing until he got the desired uniform he wanted. The other cocoa sacks were from certified farmers, including Fairtrade and UTZ and non-certified farmers. However, he kept fetching bits and bits from each sack and poured out more of some cocoa beans from some sacks but few from others.

The purchasing clerk said, *"some farmers produce good quality beans, and some do not, so I have to mix them"* (In-depth Interview, Male PC, 4.12.17, Aponapon). Although he mixed both certified and conventional cocoa beans, he also incorporated a proportion of good and poor-quality beans. Comparing how cocoa end-product is branded to how quality enhancement was done at the farm gate level, I was quite disappointed at this first experience.

Source: (Field Note, December 2017)

Performing Quality Enhancement Practices

Purchasing clerks also dried cocoa beans for farmers when they detect it was not properly dried. Instead of sending the farmer away to re-dry the cocoa beans, PCs risked re-drying it themselves to prevent farmers from selling it to other PCs. One middle male PC said, *"If you send the farmer off to re-dry his cocoa beans, he will sell it to another purchasing clerk. So, it is better you re-dry it for him"* (In-depth Interview, PC, 17.02.18, Subiriso). Image 7.4, shows the drying of cocoa beans in front of the buying stations of some licensed buying companies. Although LBCs and purchasing clerks did not implement strict quality control measures, it was observed that this was part of the internal marketing organisation, which induces competition among LBCs. The next section discusses this phenomenon.

Image 7.4: Drying of Cocoa Beans in front of LBCs in Studied Communities

Source: author's own (2017)

7.3.2 Competition as a Constraint to Effective Quality Control

Because there is competition in internal marketing[16], in the studied communities licensed buying companies and purchasing clerks did not implement strict quality control measures because they wanted to get access to a continuous supply of cocoa from farmers. Therefore, they shared inputs such as cutlass and hand gloves with farmers and in this way established relationships with them. However, this attitude also altered the power relations between purchasing clerks and farmers. These results are discussed below.

[16] The internal marketing of cocoa beans is liberalised, and the various licensed buying companies compete on non-price basis. Because of this, they distribute incentives including credit, inputs (agrochemical, spraying machine, cutlass, and safety clothing), food items, and toiletries to farmers during the sales of cocoa beans.

Access to Continuous Cocoa Supplies

LBCs did not implement strict quality control measures because farmers in the sector have the liberty to sell to any LBC or purchasing clerk of choice. A second reason is due to the fluctuation of cocoa supplies, LBCs and purchasing clerks worked towards securing volumes. LBCs and purchasing clerks are paid on commission and supplying larger volumes of cocoa beans, maximises LBCs, and purchases clerk's profits. One male purchasing clerk said, *"We depend on buying cocoa beans as our main source of income, and this is dependent on the quantity of cocoa beans you supply to your company"* (In-depth Interview, PC, 14.10.17, Aponapon). The purchasing of cocoa beans is a business and involves risks as well. For instance, purchasing clerks tend to lose their jobs if they are unable to supply the quota of cocoa beans assigned to them by LBCs. The district officer to Adwumapa LBC explains this as follows,

> "Some PCs are unable to supply the required quantity of cocoa beans specified to them and this affects the final delivery of cocoa beans to COCOBOD. In 2016, due to the ineffectiveness of some PCs, I had to sell my Toyota four-wheel car to purchase cocoa beans to meet the requested supply. The PCs working under me could not deliver the specific quantity assigned to them, although they collected money for this. I sacked some of them and I also withheld their commission to cover the cost I incurred. Even so, I could not recover the cost after withholding their commission" (In-depth Interview, District Officer, 12.02.19, Aponapon).

Therefore, it was observed that among LBCs and purchasing clerks, there was a keen interest in quantity than quality. Because competition in the sector is based on non-price and LBC of choice. LBCs shared inputs, including cutlass, spraying machine, hand gloves and boots. Table 7.5 lists inputs shared among the various licensed buying companies and purchasing clerks in the studied communities. These inputs served to reward farmers who consistently supplied cocoa beans but also, in high quantity. It was observed that this rewarding system made farmers more quantity conscious than quality conscious.

Table 7.5 List of Inputs Shared among LBCs in the Studied Communities

	PBC (Subiriso)	**Olam (Subiriso)**	**Adwumapa (Aponapon)**	**Adwumapa (Subiriso)**	**Nyonkopa (Aponapon)**	**AgroEcom (Aponapon)**
LBC	Cutlass, hand gloves, boots,	Food items	-	-	-	Cutlass, hand gloves, boots

Purchasing clerk	Advance payment, borrowing items	Advance payment	Advance payment, cutlass	Advance payment	Recharge cards, Advance payment	Advance payment

Source: author's own (2020)

Table 7.5 notes that in 2017 some of the LBCs operating in the studied communities were able to share inputs with farmers, whiles some were not able to do this. LBCs who stopped sharing inputs with farmers were financially constrained. A young female PC supplying for Nyonkopa said,

> "[…] oh. The company used to share food items and toiletries during Christmas, but they stopped at a point. I have complained to them several times, but they do not say anything to me. I heard they do not have money now, so they cannot share inputs with farmers all the time. So, we as PCs must do something on our own. On my initiative, I distribute different telephone network airtime to the various farmers selling to me" (In-depth Interview, PC, 14.10.17, Aponapon).

Some LBCs are not able to supply inputs to all their farmers and this tends to create disputes among farmers and purchasing clerks. The purchasing clerk for PBC in Subiriso explains a similar phenomenon as follows,

> "The company brought in cutlass and some food items but it was not enough for all farmers under me, so I kept it quiet and secret from all farmers. I hid the inputs somewhere in the office so that no one will see them. Do you know what I did? I identified the farmers I wanted to share the inputs with. They were friends and family members. I went secretly at night to the houses of these persons and gave the inputs to them. I strictly told them not to tell other farmers. But in the morning, the other farmers supplying to me had already heard about this and they came to me in the morning. They were angry and I had to tell them that another set of input was coming so they should go home and when I receive them, I would let them know" (In-depth Interview, Male PC, 17.02.18, Subiriso).

Some LBCs cannot remain in the cocoa buying business because of the uncertainty of purchasing cocoa beans. This has been the case for some LBCs who have ceased engaging in the sector in the past. For instance, according to COCOBOD (2016), 40 LBCs were registered at the beginning of the 2015/2016 cropping year; however, 6 of them were unable to engage in cocoa beans' internal marketing. In this regard, it was observed that the quantity of cocoa beans was a drive for competition and rewards of farmers instead of quality.

Purchasing clerks in the communities, in their effort to reward farmers also shared inputs. An old aged male farmer said, *"I have not received anything from COCOBOD, but the PC I supply to has rewarded me in the past for producing a consistent high quantity of cocoa beans. He gave me cutlass and something else"* (In-depth Interview, Conventional Male Farmer, 14.02.18,

Aponapon). However, they also give advanced payments to regular farmers who want loans in exchange for their cocoa beans before the harvesting period. A middle-aged female farmer who supplies to Olam said she mostly goes for a loan from the purchasing clerk and use her cocoa beans as collateral.

Box 7.5: Purchasing Clerk; the Money Lending Business

I paid a visit to the purchasing clerk of a domestic LBC in Subiriso. At the point of my arrival, I saw a group of farmers, about four in number, pulling the PC to go along with him and saying to him, "Y3 hia wo sisia! Y3 hia wo sisia! Y3 hia wo sisia!" [Meaning, we need you immediately]. The PC signalled me and said I should sit in front of the buying centre and he will be with me soon. I sat down, and he returned in about 30 minutes. We exchanged greetings, and he explained his sudden departure *"the people you saw are farmers. One of them came to see me earlier today and told me he needs money. The rest came along and requested money from me. So, I had to go and attend to them [...] You must give them money; otherwise, they will not sell to you, and they will sell to someone else"* (In-depth Interview, PC, 17.02.18, Subiriso).

Source: (Field Note, November 2017)

This rewarding scheme and the provision of loans also helped LBCs and purchasing clerks get access to a continuous supply of cocoa beans because, in this way, farmers were bound to sell their produce to the LBC or purchasing clerks, they received inputs and money from. This agrees with other studies which also note that sharing of inputs, and provision of credit, are buyer's sourcing strategies to secure produce (Swinnen & Vandeplas, 2007). According to Swinnen and Vandeplas (2007), this is usually prevalent in value chains where there is competition among buyers to secure commodities. By securing commodities in this way, buyers also tend to establish relationships with producers (Michelson, 2016; Moir, 2007; Schmitz & Knorringa, 2000). Image 7.5 illustrates some inputs (cutlass, boots, spraying machine and gloves) shared among licensed buying companies in the studied communities.

Image 7.5: Inputs Shared among LBCs and Purchasing Clerks

Source: author's own (2019)

Establishing Relationships with Farmers

Competition in the internal marketing of cocoa beans has created relations between purchasing clerks and farmers. As was indicated in the conceptual framework, competition alters the power relations between leading firms and actors and producers from a formal to an informal relation. For instance, from the cases on quality control practices presented above, purchasing clerks kept making statements, which implied that they cannot be strict with farmers on physical cocoa inspection for fear of losing or breaking relations with farmers. According to the purchasing clerk for Adwumapa LBC in Aponapon, some purchasing clerks lose their farmers to others because they are strict on farmers. This also creates rivalry between PCs in the community and there had been instances where PCs have confronted and threatened themselves because they lose their farmers to other purchasing clerks.

> "I was warned by several purchasing clerks last year because their farmers started selling to me. They were strict with their farmers because they kept rejecting cocoa beans with high moisture and their farmers also stopped selling to them. When their farmers came to me, I accepted their wet beans but instead, I dried them for them in front of the selling post. In this way, you keep the farmer and at the same time, you get your beans" (In-depth Interview, PC, 17.02.18, Aponapon).

The argument made by the purchasing clerk above demonstrates that purchasing clerks must strategically relate with farmers in a way not to break relationships. Box 7.6, also emphasizes the

role of sharing incentives and efforts made by purchasing clerks in maintaining good relations with farmers.

Box 7.6: Efforts towards Establishing Relationships with Farmers

The purchasing clerk working for PBC LBC has strong sentiments that over his 15 years of experience in the purchasing business, there is only one thing that will attract farmers to you. He argues, that this one thing is to befriend farmers. Samuel was previously working for another LBC, but his current company's district officer approached him to replace the then dismissed PC for a domestic LBC. Farmers praise Samuel for his innovative measures in engaging with them in the community and almost every farmer is willing to sell his or her cocoa beans to him. Samuel has over 100 farmers and pre-finances farmers. He also borrows out drying mats, and a motorcycle to farmers. In addition, he also shares inputs with farmers and takes up some quality enhancement practices for farmers. "*I do all this just to get access to farmers and cocoa beans*" (In-depth Interview, PC, 17.02.18, Subiriso), he exclaims.

Although he has encountered some problems with farmers with pre-financing in the past, he usually exercises patience for farmers. He keeps urging them to work hard to pay off their loans. This he claims, has worked over his past 15 years as a PC. Farmers who do not have drying mats either carry their fermented cocoa beans to Samuel's shed to dry their cocoa beans. Samuel suggests that one must know the needs of farmers to win their trust. He examined these needs and realised he had to fill in the gaps to compete with other PCs within the community. As a cocoa farmer himself, Samuel quickly engages farmers by sharing inputs such as spraying machines. He sees no problem in sharing if the farmer returns the equipment. Samuel points out that transportation to the farms is a challenge. Therefore, he bought two motorcycles and started giving them out to farmers. If a farmer has fuel, he can borrow the cycle and use it for personal purposes. He also takes up some post-harvesting practices such as drying, because of this, some farmers bring their wet cocoa beans to Samuel to dry the cocoa beans.

However, he recalls on certain occasions; farmers bring beans that are not well fermented. In such situations, he does not send farmers away but rather negotiates the price with the farmer and pays half the full amount of the price the farmer ought to have received if they were of good quality. Being inquisitive, I asked why he takes such risks of buying inferior quality beans. He told me if he sends the farmer off with his beans, some other PC will take the beans and buy them. In that case, he will lose the beans and the farmer "*So the best thing to do is to negotiate prices with the farmer"* (In-depth Interview, Male PC, 17.02.18, Subiriso).

Since Samuel is a farmer, he takes another technique to harvest a lot of cocoa beans and goes through proper quality enhancement practices that ensure his beans are properly fermented, dried, and of appropriate sizes. He then mixes his good quality beans with low-quality beans together. However, he

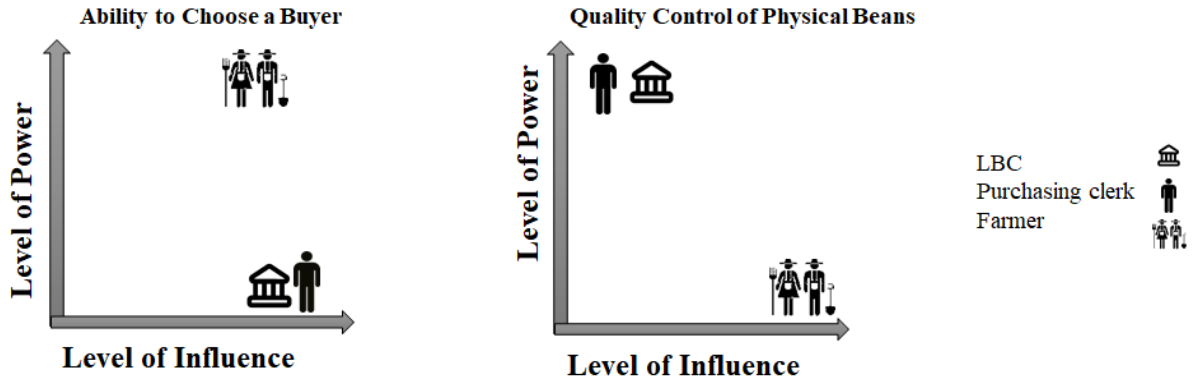
confessed that on one occasion, he had to pay 50 Ghana cedis (5 cedis to 1 dollar as of 2017) to the district officer to rectify poorly dried cocoa beans that were detected at the takeover centre of COCOBOD.

Source: (Field Note, December 2017)

Power Relations in the Control of Physical Inspection

Competition in the internal marketing of cocoa beans has also given farmers some leverage of power in the selection of LBCs and purchasing clerks. Theory on the governance of value chains fails to recognise farmers' influence in a competitive market and assumes buyers continue to have power over producers irrespective of competition. Figure 7.3, for instance, highlight the power/influence map in the criteria of farmers' ability to choose a buyer and actors' power/influence in quality control in the sector based on the decision-maker or taker indicator. From the figure, farmers have a high level of power and influence in the selection of a buyer. Whereas purchasing clerks and licensed buying companies influence farmers' decisions based on the inputs shared with farmers. However, in the control of physical beans during purchasing clerks, licensed buying companies and purchasing do have a high level of power based on their ability to reject inferior beans. However, licensed buying companies and purchasing clerks exhibit a low influence on the quality control of physical beans. Whereas farmers do have a high level of influence based on their decision to sell to other buyers.

Figure 7.3: Power and Influence Map on the Control of Quality among Actors.



Source: author's own (2020)

In the internal marketing of cocoa beans, farmers have high power and influence over who sells cocoa beans. In this case, the farmer becomes the decision-maker and LBCs, and their respective purchasing clerks are the decision takers. During FGDs with farmers, a middle-aged female farmer under conventional production said, *"Frankly, I chose to sell to the PC of Olam because he gives me advance payment*" (FGD, Conventional Female Farmer, 12.10.17, Subiriso). In Subiriso, 22 farmers interviewed, mentioned that the first criteria for selecting an LBC or a purchasing clerk were their ability to provide loans. Among 30 farmers interviewed in Aponapon, about 27 considered access to the loan as the main criterion for selling cocoa beans to LBCs or purchasing clerks. Inputs including food items, fertiliser and cutlass were additional criteria. However, LBCs and their purchasing clerks can also influence farmers' choices based on their frequent sharing of inputs or loans.

In the quality control of physical cocoa beans, LBCs and their purchasing clerks have the mandated power in the sector to reject inferior cocoa beans from farmers. However, as it has been discussed in the case stories on purchasing clerks' quality control practices, they seem to have little influence in the rejection of beans due to farmers' ability to stop supplying to them. In this matter, farmers have a high influence over LBCs and purchasing clerks in the quality control of physical cocoa beans.

7.3.3 Monitoring Quality Control Practices

Even though competition played a role in influencing quality control measures, the lack of monitoring of quality control practices by the licensed buying companies and the quality control company of COCOBOD, affected effective quality control. According to a district officer of Adwumapa LBC in Aponapon, "*We do not monitor purchasing clerk's quality control activities, but we expect purchasing clerks to strictly perform quality control measures during purchasing cocoa beans from farmers*" (In-depth Interview, District Officer, 12.02.19, Aponapon). Whereas a technical officer from the QCC of COCOBOD indicated that "*Because of the traceability system in the sector, we hardly monitor purchasing clerks and LBCs physical inspection in the communities. We expect them to do their work well*" (In-depth Interview, QCC Technical Officer, 19.03.18, Tema).

These statements imply there is a weak monitoring system for controlling quality practices at the community level, which also implies, that quality control of physical cocoa beans is not tightly coordinated. According to (Gereffi et al., 2005; Lee et al., 2012), the lack of monitoring leads to negligence of actors' responsibility and a weak integrated value chain. It also means actors cannot be held accountable for improper actions. For example, shortly after cocoa beans rejection in 2005/2006 by a Japanese trader as a result of purple beans, both licensed buying companies and the quality control company of COCOBOD, did not take responsibility for the issue. Meanwhile, farmers were blamed for inferior cocoa beans irrespective of lenient quality control and lack of monitoring of activities concerning quality control.

Although in the past, there were incidences of rejection of Ghanaian beans due to purple beans, it is argued the introduction of the liberalised purchasing system has worsened the situation. It is contended that when the purchasing system was monopolised, quality control measures during purchasing were observed and purchasing clerks adhered to strict quality inspection when buying from farmers (Acquaah, 1999). At that time, cocoa beans were inspected and graded in the communities. Farmers were paid according to the quality of their beans (Quarmine, 2013). Also, farmers could not sell inferior cocoa beans to any other buyer since there was only one buyer. Old, aged farmers, who shared their experiences on how quality control during purchasing was undertaken before the liberalisation of the system, claimed that at the purchasing centre, cocoa beans were firstly inspected and graded before farmers were paid.

> "[…] But quality has changed. The quality depends on how you ferment; six days as our fathers taught us. Our beans were rejected when we did not have good quality. At that time, the PC cuts through the cocoa, and if the colour is brown, he buys it, and if it is purple, he will immediately reject it. They were strict on quality. There were only one PC and one buying centre at that time and no other buyer, so you have no choice but to produce quality cocoa. If you ferment the beans well, they grade your cocoa grade 1 and grade 11 if it is not properly fermented" (In-depth Interview, PC, 14.11.17, Aponapon).

> "[…] where would you go and sell your cocoa beans? Eii, at that time, you cannot take poor quality cocoa beans to the farmer's council. At that very instant, they graded your cocoa and paid a cheque. They would thoroughly inspect to see if it is properly fermented, and has no germinated beans or other defects. However, now, things have changed. Quality has changed [...]" (In-depth Interview, Conventional Female Farmer, 17.02.18, Subiriso).

This goes to illustrate how strict quality control measures contributed to producing quality cocoa beans but also instilling quality consciousness among the farmers. It was observed that old and elderly male and female farmers were more quality consciousness than the young male and female farmers, who only came to meet the liberalised purchasing system. Also, this goes to show the influence of competition on quality control in value chains.

7.4 Conclusion

This chapter has discussed the quality assessment put in place to check farmers' compliance and non-compliance to environmental, social, and physical cocoa beans standards. The results explain that both farm auditing among certification standards and quality control of physical cocoa beans implemented lenient quality assessment due to competition for farmers in the sector. Concerning farm auditing, both Touton-PBC UTZ and Mondelez Cocoa Life Fairtrade programmes implemented similar auditing measures: an informal farm inspection, followed by an announced and scheduled farm auditing by an external auditor. The monitoring tools that assessed farmers' compliance and non-compliance to environmental and social standards, were insufficient and could not capture farmers' compliances or non-compliances with social standards, especially on child labour and labour discrimination. Concerning the physical cocoa beans inspection, purchasing clerks, frequently accept inferior cocoa beans which are not adequately dried and fermented. However, competition for farmers in the sector has a role to play in lenient quality control and monitoring practices. As a result, farm auditing and quality control measures are not strictly implemented for fear of losing farmers to competitors. This has also induced informal and flexible relationships between buyers (licensed buying companies, and cocoa and chocolate companies) and producers, challenging value chain governance theory which assumes a rigid buyer-producer relationship in captive and buyer-driven value chains, such as cocoa.

The next chapter documents farmers' environmental, social, and post-harvesting practices and the effects of a loosely coordinated extension and quality assessment on the production of quality cocoa beans as well as farmers' quality practices.

Chapter 8 Impacts of Extension and Quality Assessment on Quality Cocoa Production

This chapter examines farmers' post-harvesting, environmental and social practices, and the consequences of a loosely coordinated extension and quality assessment on farmers' production practices. The chapter argues that farmers' inadequate access to knowledge and lenient quality assessment influences farmers' ad-hoc quality practices, poor quality consciousness and different production practices.

8.1 Environmental and Social Quality Enhancement Practices

This section accounts for farmers' environmental and social practices on Fairtrade and UTZ standards. Farmers under Fairtrade and UTZ certification in Aponapon and Subiriso communities respectively shared their experiences in implementing certifications' principles on good environmental and social practices. Aside from farmers' interactions through FGDs and in-depth interviews, I employed observation during farm visits to understand farmers' practices on good environmental and social standards. Interactions covered topics on waste management, safe use of agrochemicals, labour conditions and ecosystem protection which applies to both standards. Additional discussions on farmer organisations were held with only Fairtrade farmers, which is a requirement for Fairtrade standards.

Table 8.1 is a summary of the components of environmental and social standards under the UTZ and Fairtrade standards (see appendix 3). Both UTZ and Fairtrade standards implement similar environmental and social standards except for farmer organisation which is a standard implemented by only Fairtrade. Accordingly, this study examined and observed farming practices under the various standard components identified below.

Table 8.1 Good Environmental and Social Practices under Fairtrade and UTZ Certification

Standard Component	**Fairtrade**	**UTZ**
Waste Management		
- Removal of rubbish from farm	✓	✓
- Build waste pits on farms; one for organic waste and non-organic waste		

Safe Use of Agrochemical		
- Wear protective clothing or provide some for labourers	✓	✓
- Measure the required dosage for chemical application	✓	✓
	✓	✓
- Rinse bottle 3x after use	✓	✓
- Destroy the container by cutting through it	✓	✓
- Dispose of the bottle	✓	✓
- Place warning signs after spraying		
Labour Conditions		
- Do not engage children in hazardous activities	✓	✓
- Do not engage unaged children (below 13) in cocoa production.	✓	✓
- Children who fall between 13 and 18 years must engage in non-hazardous activities on the farm	✓	✓
Farmer Organisation		
- Farmers' cooperative or union	✓	-
- Community projects	✓	-
Ecosystem Protection		
- Growing of shade trees	✓	✓
- Use of Compost	✓	✓
Water Management		
- Do not cultivate near water bodies	✓	✓

Source: author's own (2020)

Discussions with farmers suggested that UTZ and Fairtrade certified farmers were able to implement recommended production practices on labour conditions, farmer organisation (only Fairtrade) and ecosystem protection. However, farmers struggled to implement recommended practices on waste management and safe use of agrochemicals. These results are discussed below.

8.1.1 Environmental Practices

Farm Sanitation

Under waste management for both Fairtrade and UTZ certifications, farmers are advised not to litter their farms with empty agrochemical bottles, plastics, and food peels. They are encouraged to separate the plastics and food peels before they dispose of them. However, it was observed that farmers struggled to adhere to this practice. A visit to some of the Fairtrade farms indicated that farmers hardly disposed of litter from their farms until it was time for external auditing. According to the internal inspector for Fairtrade, they call on the external inspect to inspect their farms when

both male and female farmers are ready which indicates that when all Fairtrade farmers temporarily remove rubbish from farms before external auditing is conducted.

As it was discussed in section 7.2, an inspection of farms is not spontaneous, and farmers are aware of when their farms will be monitored. According to the internal inspector for Fairtrade,

> "Farmers litter their farms, and they do not abide by the Fairtrade principles of on-farm sanitation. What did you see when I took you to the farm? Farmers only tidy their farms when it is near inspection time. That is when you will find farmers removing rubbish from farms. After they have cleared the farms, I go ahead and call the external inspector" (In-depth Interview, Fairtrade Internal Inspector, 13.03.18, Aponapon).

Photo 8.1: Empty Agrochemical Bottles kept on a Certified Farm

Source: author's own (2018)

The picture above discloses empty agrochemical bottles left on a certified Fairtrade farmers' farm in Aponapon. This picture was taken in February, and it may imply that the farmer may keep the bottles on the farms until external farm auditing which takes place in October or November. In like manner, UTZ farmers in Subiriso behaved in the same way. The internal inspector for UTZ certification mentioned it is farmers' habit to dispose of agrochemical bottle and plastics and remove it around August or early September. According to the UTZ internal inspector, farmers are also required to rinse the agrochemical bottles three times after use; however, farmers do not do this.

FGDs with both Fairtrade and UTZ farmers also highlighted that they sometimes remove rubbish from farms and they sometimes forget to do it. However, they make sure they remove every rubbish from the farm before the external auditor arrives. Fairtrade and UTZ practices on waste

management, depict that farmers take on ad-hoc measures to adhere to farm sanitation. Other studies, such as (Asche, n.d., p. 8), also found used agrochemical bottles on cocoa farms in the Ashanti region (Photo 8.2).

Photo 8.2: Empty Agrochemical Bottle on a Cocoa Farm

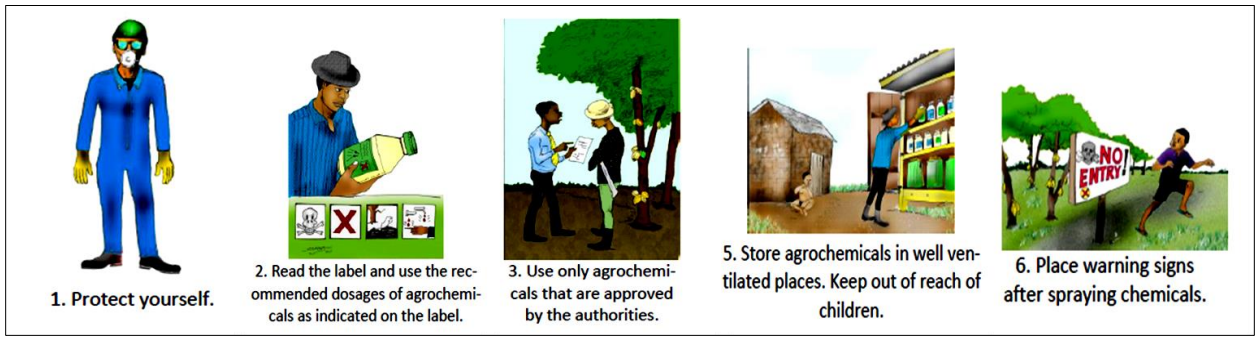
Source: (Asche, 2018, p. 8)

The name of the agrochemical in photo 8.2, is glyphosate, used as a weedicide, can be harmful when it is not correctly rinsed and disposed of. Children who come into contact with the bottle may experience skin rash or food poisoning if the container is re-used for storage of water or food. Tampe (2016) said used agrochemical bottles may be harmful to animal species as well. Owusu-Amankwah (2015), in her studies, also found that Rainforest farmers in the Ashanti region of Ghana, are unable to separate organic and inorganic rubbish as they considered this standard impossible to implement. In her studies, she found out that the waste disposal culture in the community played a role in certified farmers' attitudes toward waste disposal, and this translated into the non-adoption of farm sanitation. In like manner, this study also found that farmers in the studied communities struggled to adhere to waste management practices, and farmers may take some time to adjust to standards.

Safe Use of Agrochemical

Image 8.1 is an illustration of the recommended standards for agrochemical use. The standard for safe use of agrochemical, consist of protecting yourself during the application of chemical, using the right recommended dosage of the agrochemical, using approved agrochemical, storage of agrochemicals in well-ventilated places and placing warning signs after spraying chemicals.

Image 8.1: Standards on Safe Use and Storage of Agrochemicals



Source: (Dohmen et al., 2016, p. 129)

In FGDs and in-depth interviews, farmers noted that they wear safety clothing to protect themselves when applying chemicals. During field visits, I also saw labourers as well as farmers wearing protective clothing while spraying. Although I did not see warning signs placed on certified farms, during farm visits, one UTZ young male and one UTZ middle male did say they always put a notice after spraying chemicals on their farms. A young Fairtrade male farmer also mentioned he puts warning signs after spraying chemicals on his farms. None of the female farmers applied chemicals on their farms by themselves, as they rely on labourers or husbands to perform this activity. Although they did not mention they place warning signs after spraying chemicals, they claim they make sure labourers are well protected by ensuring labourers put on safety clothing when applying chemicals on the farms.

Farmers also noted that they safely store their agrochemicals in cupboards or shelves where children cannot reach, but in closed, less ventilated spaces. Due to poor storage of agrochemicals, Fairtrade farmers in Aponapon, as part of their joint business projects, in 2017, were building a chemical storage room where Fairtrade farmers can keep their chemicals (see Photo 8.3). Though

at the time of fieldwork, it was uncompleted, farmers envisioned that the storage room would be completed by the end of 2019.

Photo 8.3: Agrochemical Storage Room under Construction

Source: author's own (2017)

However, farmers complained that they struggle to understand how to calculate the formulae for chemical application. Because most of the farmers could not read English, they did not understand what is written on the labels. Aside from the instructions written in the English language, they also do not understand how to prepare the right dosage for spraying because of access to inadequate information. According to farmers, even though they were taught how to measure agrochemicals during training sessions, it was not demonstrated to them. A UTZ middle-aged male farmer, for instance, said: *"Because we do not have farm demonstrations, we easily forget what we learn from the classroom"* (FGD, UTZ Male Farmer, 12.10.17, Subiriso). A Fairtrade middle male aged also argued, *"Even though they teach us in the classroom, we do not understand how to apply it when we go to the farm"* (In-depth Interview, Fairtrade Male Farmer, 18.11.17, Aponapon).

These statements indicate that the wrong training approach restricts farmers' adoption of standards. Since farmers struggle to prepare the right dosage, they imply that they continue to use local knowledge to measure the chemical during spraying. Female farmers who rely on labourers also are not able to give instructions to the labourers on the proper dosage of chemicals. However, recently, some of the labourers receive training from COCOBOD on how to properly spray chemicals which may be good for farmers who rely on labourers for chemical application. Both internal inspectors for Fairtrade and UTZ certification in respective communities said, measuring

out the correct dosage is one of the biggest challenges farmers in the communities encounter. Still, they try to help when a farmer calls for their assistant. It was found that aside from certified farmers, conventional farmers also struggle to use the right dosage and application of a chemical on their farms. A middle-aged male farmer under conventional production shares his experience on this,

> "[…] For example, we were asked to buy a certain agrochemical that was known to improve yield. The COCOBOD extension agent for Aponapon mentioned this to me. I bought the agrochemical, and instead of mixing it with water and spraying it on the cocoa pods, I rather poured the chemical directly into the soil, and this cost me a lot of money. I did not know how to use the product because the extension agent only said how to use it in the classroom and not on the farm. Since I cannot also read English, I did not know what to do, and instead lost money" (In-depth Interview, Conventional Male Farmer, 18.01.18, Aponapon).

However, the internal inspector for Fairtrade also mentioned that aside from the wrong dosage of chemical application, some of the Fairtrade framers do not use approved chemicals. On this issue, other farmers producing conventional cocoa beans in both communities mentioned that they sometimes buy counterfeit chemicals because it is cheaper than the original chemical. A middle male farmer also said he does not know if what he is buying is authentic or fake, implying that channels for distributing chemicals may not be effective. As was explained in section 5.1, farmers have poor access to inputs due to loose coordination and power structures created in the distribution of inputs.

Use of Compost

Both Fairtrade and UTZ codes of conduct, encourage the use of compost on farms. During farm visits to certified and non-certified farms, it was observed that farmers widely adopted the use of cocoa pods as compost. According to farmers, they have seen significant benefits of this technology, and since it does not require extra cost, they adopt this technology. Conventional, Fairtrade as well as UTZ farmers, said, the cocoa pods, when kept around the cocoa tree for a long time, decompose and serve as manure which facilitates the yield of cocoa pods. This phenomenon denotes that the cost of technology and its optimal benefits are factors for farmers' adoption of technologies. These factors agree with the literature on factors for innovation adoption and non-adoption in value chains (Rogers, 2010). Image 8.2 is an example of decomposed cocoa pods spread around the base of a cocoa tree.

Image 8.2: Cocoa Pod Used as Compost around Cocoa Trees

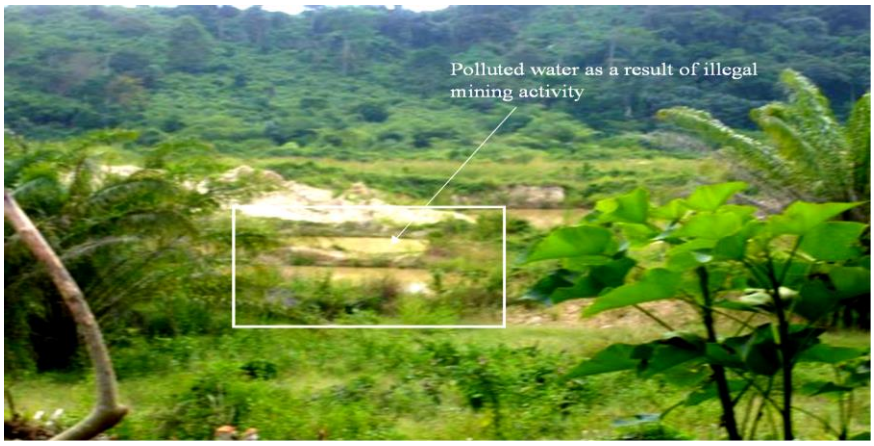
Source: author's own (2018)

Water Management

Under this standard, both UTZ and Fairtrade principles do not recommend farmers to cultivate near water bodies. According to the internal inspector for UTZ in Subiriso, none of the UTZ farms is near the Subiriso River. Farmers also mentioned they do not cultivate near water bodies. However, the situation in Aponapon is different because there are illegal mining operations within the community, and this causes a threat to the water bodies in the community. In this regard, farmers under the Fairtrade standard have been asked to avoid cultivating near any water body especially polluted water body due to its contamination and its effects on cocoa production.

During farm visits with the internal inspector for Fairtrade in the community, it was found that a Fairtrade young male farmer cultivated cocoa near polluted water. The inspected argued, *"We have been asked not to grow cocoa near a polluted water body, yet he does it"* (In-depth Interview, Fairtrade Internal Inspector, 13.03.18, Aponapon). Fairtrade standards do not explicitly indicate the distance between the water body and cocoa farm, and it does not mention how a farmer can be compensated in a situation like this since the farmer is not to be blamed for the illegal mining activity in the community, which causes water pollution.

Image 8.3: A Certified Fairtrade Farm near a Polluted Water Body



Source: author's own (2018)

8.1.2 Social Practices

Child Labour

Both interviewed Fairtrade and UTZ certified farmers mentioned that they had ceased working with their children when it concerns cocoa production activities. Farmers indicated that they fear losing their premium price if they were caught engaging their children in any child labour activities. In FGDs with middle-aged male farmers (UTZ) for instance, one of them argued: "*If we are found with children on the farms doing what they are not allowed to do, we might lose our price premium*" (FGD, UTZ Female Farmer, 9.10.17, Subiriso). Interactions with female middle farmers under UTZ suggested that even though children were not engaged in cocoa production activities, they were instead involved in household duties. Among Fairtrade farmers, a young female farmer said: *"We do not want to lose the money Mondelez give to us as premium, so we do not engage our children in child labour activities"* (FGD, Fairtrade Female Farmer, 14.02.18, Aponapon).

Photo 8.4: Children Going to School and Playing after School Hours

Source: author's own (2017)

However, the internal inspector for Fairtrade in Aponapon simply told me that *"Child labour is ongoing among Aponapon farmers"* (In-depth Interview, Fairtrade Internal Inspector, 13.03.18, Aponapon). Whereas interactions with extension officers, a technical officer for the international cocoa initiative organisation (a non-profit organisation that combats child labour in the cocoa industry), suggest that though child labour has significantly reduced in Ghana, as compared to Cote d'Ivoire, some farmers continue to engage their children in child labour activities. Box 8.1 documents my observations on engaging children in cocoa production in the studied communities. My observations did not conclude on farmers' engagement in child labour issues. However, there was one suspected child labour incidence with a non-certified farmer, which I witnessed during farm visits in Aponapon.

Box 8.1: Child Labour Practices among Fairtrade and UTZ Farmers

During my stay in Aponapon and Subiriso communities, I observed children's activities concerning cocoa production. However, in both communities, I did not find any specific child labour issues during my visits to the farms. In Aponapon, you would see children getting ready for school early in the morning around 5:30 am and by 6:30 am. Children returned home by 3:00 pm and engage in domestic duties or play around with other children. It was a common practice for farmers to send their young adult children to perform cocoa production activities on their behalf in events of sickness or for assistance. I witnessed an incident when an old male farmer sent his two sons, who were above the ages of 25 years to perform post-harvesting activities and other cocoa activities such as weeding, pruning and post-harvesting tasks during weekends or on holidays. One day, they will inherit the cocoa farms from their father, although

now they assist in cocoa production activities. However, on one occasion, around 11 am, on my return from a farm visit with two other farmers, I saw a young boy about ten years, helping his mother to spread cocoa beans on the drying mat. He did not seem tired or unhappy but, it was a weekday and during school hours, and he was at home with his younger siblings helping in cocoa production activities. One farmer I was with asked the parents, "*Why did they not go to school today?"* and the mother answered, "*They will go tomorrow*". According to child labour standards, this is an example of child labour, because the boy was under 13 years and was working during school hours. However, the parents did not seem to find this a child labour practice. According to the internal inspector for Fairtrade in the community, this is a common practice, and many farmers may be victims of child labour in cocoa production, however, would not confess.

In Subiriso if children were seen not going to school or returning from school, they were mostly seen playing. According to the internal inspector for UTZ certification in Subiriso, farmers have ceased engaging their children in cocoa production activities. A middle-aged female farmer said, "*Because of the enforcement of the law on child labour issues in the cocoa sector by the Government of Ghana, we are even afraid to involve our children in cocoa production activities*" (FGD, UTZ Female Farmer, 9.10.17, Subiriso). Subiriso is a smaller community as compared to other larger communities like Aponapon in the sector. As such, it may be easier to identify farmers who violate the child labour standards in cocoa production, as compared to Aponapon.

Source: (Field Note, February 2018)

Other studies demonstrate a mixed result among certified farmers' involvement of children in child labour duties. For instance, Owusu-Amankwah (2015), who conducted both qualitative and quantitative research among 109 children in Dwease, Kwasusu, and Aboboyaa communities in the Ashanti region depicted that Rainforest certified farmers involved their children in both hazardous and non-hazardous cocoa activities. Among children of 15 years, 17 percent used machetes for weeding, 5 percent climbed trees higher than 3meters to cut mistletoe, 2 percent worked with agrochemicals, 11 percent cut cocoa pods with a sickle during harvesting, and 28 percent broke cocoa pods with knives. Among the non-hazardous cocoa activities, children under 12 years, picked cocoa pods during harvesting, uprooted weeds and helped parents to fill nursery bags with black soil (Owusu-Amankwah, 2015, pp. 86–88).

A baseline study conducted in 2011 and a follow up study in 2014, examined the impact of UTZ certification on cocoa production among farmers participating in the UTZ-Solidaridad programme.

The study employed a mixed method to collect both quantitative and qualitative data among 385 farmers in 2012 and 353 farmers in 2015 found in the Ashanti, Eastern and Western regions of Ghana. The result of the study suggested that there was no significant improvement in child labour practice among UTZ farmers. Eight percent of UTZ certified farms involved children under the age of 18 years in hazardous activities such as pruning and pod breaking (Waarts et al., 2015, p. 6). In like manner, a study conducted in 2012 and 2017 among over 778 UTZ farmers in Ghana and Cote d'Ivoire found that there was no significant improvement in the use of child labour in hazardous activities among farmers over the 5 years.

Image 8.4: Media Report on Child Labour Activities in the Cocoa Sector

Chocolate companies sell 'certified cocoa.' But some of those farms use child labor, harm forests.

Utz, the largest cocoa certifier, found "alarming" problems at four firms responsible for auditing a large portion of the world's supply.

By **Peter Whoriskey**

Oct. 23, 2019 at 6:32 p.m. GMT+2

Source: (Whoriskey, 2019)

In other cocoa-growing countries like Cote d'Ivoire, child labour cases continue to increase. The Washington Post, an American daily newspaper, on 23rd October 2019, reported that UTZ certified cocoa farms in Ivory Coast were involved in child labour issues (see Images 8.4 and 8.5). Although the UTZ standards violate the use of under-aged children on farmers, children under 18 years were found using cutlasses and chemicals on farms (Whoriskey, 2019).

Image 8.5: Media Report on Child Labour Activities in the Cocoa Sector

Cocoa's child laborers

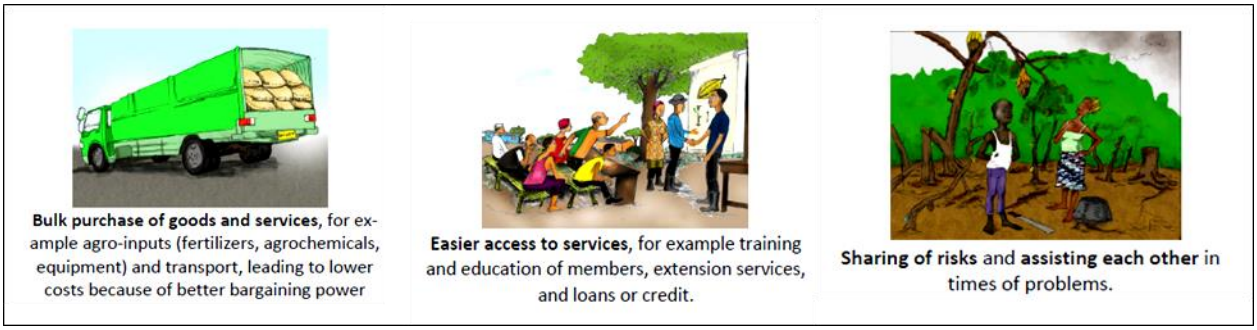
Mars, Nestlé and Hershey pledged nearly two decades ago to stop using cocoa harvested by children. Yet much of the chocolate you buy still starts with child labor.

Source: (Whoriskey & Siegel, 2019)

Farmers' Organisation for Successful Certification

Fairtrade certification encourages farmers to work as a cooperative or union. Image 8.6 visualizes examples of standards for farmers' organisation, which include saving together, bulk purchasing of inputs, and assisting each other in production practices. Given this, they require the farmers' group to work on democracy; with annual voting of the election of leaders, have a reporting system and governance structure. In addition to this, the farmer group should invest a percentage of their premium price into community projects or joint projects which benefit the entire community or group.

Image 8.6: Standards on Farmer Organisation



(Dohmen et al., 2016, p. 185)

Under these requirements, the farmers under the Amansie West District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited, in Aponapon, followed these principles. They vote annually to elect the union's president, vice president, secretary, and group representatives. The secretary writes an annual report which documents the union's activities and expenses. The union also purchase agrochemicals and sell them to farmers to have the right access to approved chemicals. Farmers in the union, for instance, also have village savings and loans systems for access to credit for farmers in need. Aside from this, they work together on the cooperatives' farm, and an example is depicted in section 8.2.1, under farmers' post-harvesting practices. Farmers also operate a plastic chair rental business and are constructing a storage facility for the safe storage of agrochemicals (see photo 8.3). The cooperative has also contributed to the community by donating plastic containers for water storage for a primary school in the community. As of 2017, they were in the process of constructing a classroom for the primary school.

The next section, documents case stories on both Fairtrade and UTZ production practices to reflect the above discussions on farmers' implementation of environmental and social standards.

8.1.3 Cases of Farmers' Environmental and Social Practices

The case stories documented below, illustrate individual Fairtrade and UTZ male and female farmers' practices on environmental and social practices.

UTZ Male Farmer

Mr Aidoo is a UTZ middle male farmer in Subiriso. He is 58 years and has been a farmer since a teenager. As a UTZ farmer, he was trained at the start of the programme in 2014 for six months. In those training, he was taught about UTZ certification, its requirements as well as good environmental, and social practices. After the training, he had to operationalize the classroom training into practice on his farm. According to him, what he has been able to implement effectively is record keeping. He can record the cost of labour, fertiliser, and chemicals to track his yield.

At the end of the cropping season, he can calculate his profits and losses and know how to plan for payment of his children's school fees and provide for the household. He has grown bananas and other forest trees to provide shade for the cocoa trees; "*COCOBOD already told us to plant trees, and the UTZ people said the same thing to us. So, I plant trees to help provide shade for the cocoa, and I can see it helps perverse water in the soil*" (In-depth Interview, UTZ Male Farmer, 17.10.17, Subiriso). His farm is not near the river of Subiriso, so that means he does not contribute to the pollution of the water. However, Mr Aidoo struggles to add waste management as an everyday cocoa production activity. He says,

> "Hmm… sometimes if I remember, I remove the rubbish from the farms. But the thing is that because I know the inspection is around September, I make sure I remove the bottles, plastic bags, and other rubbish from the farm before the inspector comes for an audit. I think I must make an extra effort towards that. The other problem I face is understanding the dosage of chemical application. Sometimes I just cannot understand the quantity of chemicals you need to spray on your farm. That part is tricky" (In-depth Interview, UTZ Male Farmer, 17.10.17, Subiriso).

Although he struggles to conform to the dosage standards, he sometimes gets help from the internal inspector for UTZ in the community. However, many times, he must rely on his local knowledge

to measure the chemical before spraying. He also wears safety clothing to avoid any health hazards as he describes this step as a first-aid criterion. Mr Aidoo has children, but they are all adults, and he does not rely on them for labour activities. He is optimistic that if UTZ provides adequate training, they will be able to capture a better understanding of the standards and their application to farming activities.

UTZ Female Farmer

Madame Abena is a UTZ middle female farmer, and she lives in Subiriso. She is 50 years and has two children. She has been a cocoa farmer since a teenager. According to her, concerning environmental practices such as safe use of agrochemicals in cocoa production, she relies on paid labourers to spray her farm. She said she trusts the labourers know what they are doing when it comes to measuring chemicals for spraying. She says *"They have been spraying for a long time. Am I the one to tell them how to do their job? They receive training from COCOBOD, so I think they know how to measure it. Those who do not even go for training have been trained on the job by peers so they can do it right"* (In-depth Interview, UTZ Female Farmer, 13.10.17, Subiriso). According to Madame Abena, she does not presently engage children in labour activities, but she used to do that before joining the certification.

> "When we started with the training, they told us that we should not take children to the farm and we should remove rubbish from the farm. My children have all matured now, and I do not rely on them. They are also busy with their own lives, but when they were children, they use to help me around on the farm, performing light duties like removing pods from the farm and helping me to ferment and dry cocoa beans. But now, the officials say said we should stop taking children to the farm" (In-depth Interview, UTZ Female Farmer, 13.10.17, Subiriso).

However, she struggles to abide by the waste management UTZ standard. According to her, she removes rubbish from the farm when it is near the inspection of farms. However, she finds it difficult to make it an everyday habit. She also struggles to record farm activities since she cannot write in English. Madame Abena has plantain plants on her farm, and she plans to grow more shade trees soon. According to her, she believes UTZ paid attention to the regular training and farm demonstrations, she would be a better UTZ farmer (In-depth Interview, UTZ Female Farmer, 13.10.17, Subiriso).

Fairtrade Female Farmer

My name is Mansah, and I am in my early 20s. I have been a farmer for about five years, and I was among the first the join the cooperative. Because Mondelez International implements Fairtrade, we follow the Fairtrade principles in farming. For instance, I keep records on my yield and cost of input such as fertiliser, weedicide and akate master. I do not support child labour, so I do not even think about it. Besides, my children are young, and I cannot take them to the farm. I know some people still take their children to the farm, but I restrain from doing that. They always announce to us the exact time the external auditor will visit us, so before he comes, I make sure to tidy up the farm.

I remove every rubbish, including plastic bags from the farm. If we do not do this, the external auditor might not grant us the certification, so I do my best to tidy the farm before he comes. They ask us to rinse the agrochemical bottle and that it is a challenge. We do not have enough water on the farms, so I am not sure we rinse the containers. I do not spray the cocoa myself. I hire labourers to do that and I ask them to throw the bottles away after using them. One thing I like about Fairtrade is the collective business and savings.

We have established our business together and make money out of it. We use 20 percent of our premium to create a business. For instance, we also have a chair renting business where we rent chairs to people. We are building a warehouse where we will keep our agrochemicals and have an office there. We also save together, and when I need money, I go for a loan. So, we work together as a cooperative and our conduct is based on transparency, democracy, accountability, and non-discrimination (In-depth Interview, Fairtrade Female Farmer, 13.11.17, Aponapon).

Fairtrade Male Farmer

Mr Yeboah is a young male farmer who is among the farmers' unions in Aponapon. Mr Yeboah is 30 years, and he has been a farmer for more than 10 years. Because of his membership in the union, he is also a Fairtrade farmer, enrolled in the Mondelez Cocoa Life Programme. According to him, Fairtrade principles are demanding and cumbersome, which makes cocoa farming more labour intensive. He says, "*My opinion is that Mondelez should increase our price premium and farmers will wholeheartedly abide by the Fairtrade principles*" (In-depth Interview, Fairtrade Male Farmer, 14.02.18, Aponapon). Despite his firm opinion, he does his best to abide by the

Fairtrade standards on good environmental and social practices. He says that he notices Fairtrade standards support good working conditions among cooperative farmers. He enjoys the benefit of being part of a renting business and owning a farm together as a union. According to Mr Yeboah, he makes sure he does not engage children in any farming activities. Since he does not have children on his own, he also encourages the community members to resist taking children to the farms and instead invest in their education. He keeps records of the yield of his cocoa, the timeline for fertiliser as well as chemical application.

Sometimes, he puts a signpost, after spraying his farm, warning farmers and other people from getting near the farm. He sometimes sprays the farm himself, and when he does this, he wears protective clothing and measures the right chemical dosage. On other occasions, he hires paid labourers to spray his farm. He also removes rubbish from his farm and rinses the bottle after use. However, he does not do this regularly. He makes sure his farm is tidy before the external auditor visits the community. He also uses cocoa pods as compost to help with the yield of cocoa pods.

He says *"I am friends with the COCOBOD extension officer to Aponapon and he taught me about using the cocoa pods as manure. I tried it, and it worked. I also told other farmers, and they practice it"* (In-depth Interview, Fairtrade Male Farmer, 14.02.18, Aponapon). Mr Yeboah says if Mondelez international should increase the price premium and provide frequent training to farmers, he thinks Fairtrade farmers will be able to abide by all the Fairtrade principles (In-depth Interview, Fairtrade Male Farmer, 14.02.18, Aponapon).

Summary of Certified Farmers' Environmental and Social Practices

The above case stories reflect farmers' adoption of some recommended practices. Table 8.2 summarizes Fairtrade and UTZ farmers' practices on environmental and social practices in Aponapon and Subiriso communities discussed above. It confirms farmers' abilities and potential to adopt certification standards as well as their struggles in adopting some practices. The discussions so far on farmers' environmental and social practices, have demonstrated mixed results. Both male and female certified farmers could follow standard principles on labour conditions and ecosystem protection. Fairtrade farmers also follow the principle of farmer organisation. However, both male and female farmers struggled to keep the principles of waste management and safe use of agrochemicals. Female farmers do not supervise the safe use of agrochemicals when they hire labourers, and female farmers do not guarantee the likelihood for

labourers to be protected. Among all the cases, both Fairtrade and UTZ male and female farmers are not able to concretely adopt all the standards under waste management and safe use of agrochemicals.

Table 8.2: Summary of Farmers' Environmental and Social Practices in Studied Communities

Standards	Farmers' Practice
Waste management - Removal of rubbish from farm - Build waste pits on farms; one for organic waste and non-organic waste	This is not an everyday practice. Farmers remove rubbish from the farm for farm inspection. Some farmers are not able to separate rubbish.
Safe use of agrochemical - Wear protective clothing or provide some for labourers - Measure the required dosage for chemical application - Rinse bottle 3x after use - Destroy the container by cutting through it - Dispose of the bottle - Place warning signs after spraying	Farmers who perform their spraying wear protective clothing and who do not rely on labourers do not provide safety clothing for them. Famers do not know how to measure the right dosage for spraying. Farmers hardly rinse chemical bottles after use. Farmers do not always cut through chemical bottles. Sometimes farmers place warning signs after spraying.
Labour conditions - Do not engage children in hazardous activities - Do not engage unaged children in cocoa production. - Children who fall between 13 and 18 years must engage in non-hazardous activities on the farm	Farmers do not encourage child labour.
Farmer organisation - Farmers' cooperative or union - Community projects	Fairtrade farmers work under the principles of a cooperative. They invest in joint projects as well.
Ecosystem protection - Growing of shade trees - Use of Compost	Farmers grow shade trees such as banana, plantain, palm and coconut trees. Farmers use cocoa pods for compost. Most farmers do not farm near a water body.
Water management - Do not cultivate near water bodies	Except for one Fairtrade farmer who cultivated near polluted water, the rest of the farmers claimed to observe proper water management practices.

Source: author's own, 2020, standards-based on (Fairtrade International, 2017; Dohmen et al., 2016; UTZ, 2015b).

8.2 Post-Harvesting Quality Enhancement Practices

Even though farmers' were aware of some of the recommended best practices for post-harvesting, in practice, they implemented different post-harvesting methods. Below is a documentation of the different post-harvesting practices employed among farmers in the Aponapon and Subiriso communities. Through in-depth interviews and FGDs, it was noted that none of the interviewed farmers was able to adhere to all the recommended best practices ultimately. The respondents were purposely selected according to the different cocoa production systems (certified and conventional), access to training, age, experience, and individual or collective farming. The aim was to find out how different farmer category implements post-harvesting practices.

8.2.1 Farmers' Practices; Case Stories

Case One; Female Farmer (UTZ)

"My name is Akosua. I am 48 years and I belong to the UTZ programme in Subiriso. Concerning post-harvesting practices, sometimes I harvest the cocoa myself, or I get my children to help me. I use a cutlass to cut off the pods from the tree. Then after harvesting the cocoa, I gather all of it on the floor and heap it. After which I take my time to break the pods with a blunt cutlass. If you do not take your time in breaking the pods, you might hurt yourself. It all comes with experience. When I break every pod, I scoop out the fresh beans from the pod and pour them into a container. Sometimes, I remove the infested beans, and I also remove the placenta from the fresh beans. After I have removed all the fresh cocoa beans, I spread banana leaves on the bare floor, and I create holes or make lines on the banana leaves by using the cutlass to cut through the leaves. I pour the fresh beans on the leaves and cover them with more banana leaves and secure them with wood or sometimes stone to help hold the heaped cocoa together. I leave it on the farm for six days. After six days, I come for the fermented cocoa beans and dry them on the raised mat. I dry it for about five days, depending on the sunlight" (In-depth Interview, UTZ Female Farmer, 12.10.17, Subiriso).

Case Two: Female Farmer (Conventional Cocoa Production)

“My name is Cynthia and I have been a cocoa farmer since I was a little girl. I have one daughter who lives with me in Subiriso. Concerning post-harvesting activities, I carry out the post-harvesting sometimes by myself or with another friend. I learned everything from my father and late husband. I do not attend any training, and I have never attended one in the past. I strictly go by what my father taught me. So, I harvest the cocoa pod with a cutlass and gather it all together for pod breaking. I also use a cutlass to break the pods and to remove cocoa beans from the pod into a large pan. Sometimes I harvest a lot of cocoa, and sometimes I harvest just a little quantity. I use the heap method in all cases. I remove the beans together with the placenta into the pan and after this, I gather all the cocoa on banana leaves. I create holes in the bases of the leaves so that the water from the fresh beans could drain during fermentation. If I want to use the fermented water later, I do not create holes in the banana leaves. I pour all the fresh beans together with the placenta on the banana leaves and cover the beans with more banana leaves. I secure the leaves together with a stick, and I leave this to ferment for four or six days. I dry the cocoa on a raised mat, and I leave it on the mat until it dries for about a week” (In-depth Interview, Conventional Female Farmer, 10.10.17, Subiriso).

Case Three: Female Farmer (Conventional Cocoa Production)

“I am 25 years and people around here call me Yaa. I am a cocoa farmer and I benefit from an NGO programme called MASO which is implemented in Subiriso. I attended MASO training and started farming last year, that is, on my farm. I have been helping my husband on his cocoa farm, and when I was a child, I use to help my parents, especially when it comes to post-harvesting activities. My husband usually harvests cocoa pods. He uses a cutlass to remove the yellowish pods and uses a sickle to remove the pods which are found on the top of the tree. As he removes the pods from the tree, I gather them together and sit down to break the pods. He helps as well sometimes. We break the pod with a cutlass and remove the beans together with the placenta from the pods. After this, I pour the fresh beans onto palm leaves. I prefer to use palm leaves because there are spaces in between the leaves, and this is much easier for the juice from fermentation to drain. I cover the heaped cocoa beans with more palm leaves and leave them to ferment for about three days. After that, I carry the fermented beans to the drying mat and let them dry. My husband stirs the cocoa beans on the mat from time to time to speed up the drying process. When it comes

to fermentation, some people use banana leaves, tarpaulin, or a mosquito net to cover the beans. Everyone has different ways of carrying out the fermentation" (In-depth Interview, Conventional Female Farmer, 14.10.17, Subiriso).

Case 4 Male Farmer (Fairtrade)

"My name is Moro, and I am 45 years. I am a certified Fairtrade farmer, and I migrated from the northern region to farm in the south. Most of the time, the northern working group carry out post-harvest activities together. When I do not go with them, I do it with my wife, and sometimes my children help us. I remove all the yellowish pods and break the pods open with a cutlass. I remove the beans with the placenta from the pod with a cutlass and pour it into a container. After this, I pour it onto banana leaves, heap it, and I cover the fresh beans with tarpaulin (polythene). Sometimes, we also use mosquito nets to cover the beans. I leave it on the farm for five days. Afterwards, I bring it home to dry it on the drying mat until it dries" (In-depth Interview, Fairtrade Male Farmer, 13.11.17, Aponapon).

Case 5: Male Farmer (Conventional Cocoa Production)

"I am Madame Akua. I started farming cocoa when I was young. Now I am 80 years. I continue to implement what my father and COCOBOD people taught us in those days. I harvest the ripped pods; when it turns yellowish, you know that it is ripped. I harvest the pods with a cutlass, and I also break the pods with a cutlass. After breaking the pods open, I remove the placenta from the beans and pour the raw cocoa beans into the banana leaves. In the past, I was using the box fermentation method, but now, I use heap fermentation. After pouring the cocoa beans on the leaves, I cover the beans with the leaves and mount sticks on them to hold the leaves together. I ferment it for six days. After fermentation, I dry the fermented cocoa beans on a raised mat. From day to day until the beans are thoroughly dried, I remove any debris from it before I pack the cocoa in a sack" (In-depth Interview, Conventional Male Farmer, 12.11.17, Aponapon).

Case 6: Cooperative (Fairtrade)

As a cooperative, the Amansie West Farmer Union, carry out pre-harvesting and post-harvesting activities together on the union's collective farm. I was invited to witness how the farmers carry out post-harvesting activities by the secretary of the Aponapon group. After five minutes of talking to him on the phone, I quickly dressed up and went ahead to the union's farm. The farm is located

on the main roadside to Aponapon village and was about 15 minutes' walk from where I lodged. I got to the farm, but there was no one there. All I could see were freshly broken pods on the ground. Image 8.7 shows the farm of the cooperative as well as freshly harvested pods on the ground. I went through the farm to see if I missed the spot they gathered for the activities, but there was no one around. I called the secretary and he told me the farmers went to the farm around 6 am and he called me around 7 am. He said I missed them because they harvested only a few cocoa pods and they were about five farmers (3 young male and two young female farmers) who carried out the activities, so they were able to do this in about 40 minutes. In the evening of the same day, I met with some of the cooperative farmers who were involved in the post-harvesting activities, and they narrated to me how they undertook the post-harvesting activities. I spoke with a young male and young female cooperative members who were part of the activity.

According to the farmers, they began with the cutting of ripped pods (yellowish), from the tree with a cutlass. Both male and female farmers engaged in this activity. After removing the ripped pods, they gathered them and sat together to break the pods with a cutlass. They scooped out the cocoa beans from the pod with their hands and cutlass as well. They removed the placenta from the beans and poured the fresh cocoa beans on banana leaves. Afterwards, they covered the fresh beans with banana leaves and secured them with sticks. According to the farmers, they intend to go back to the farm after three days to stir the beans, then after three days they will go for the beans and dry them. They only remove the beans from the drying mat if it is thoroughly dried (Observation, and In-depth Interview, Fairtrade Cooperative, 12.12.17, Aponapon).

Image 8.7: Fairtrade Model Farm and Harvested Cocoa Pods

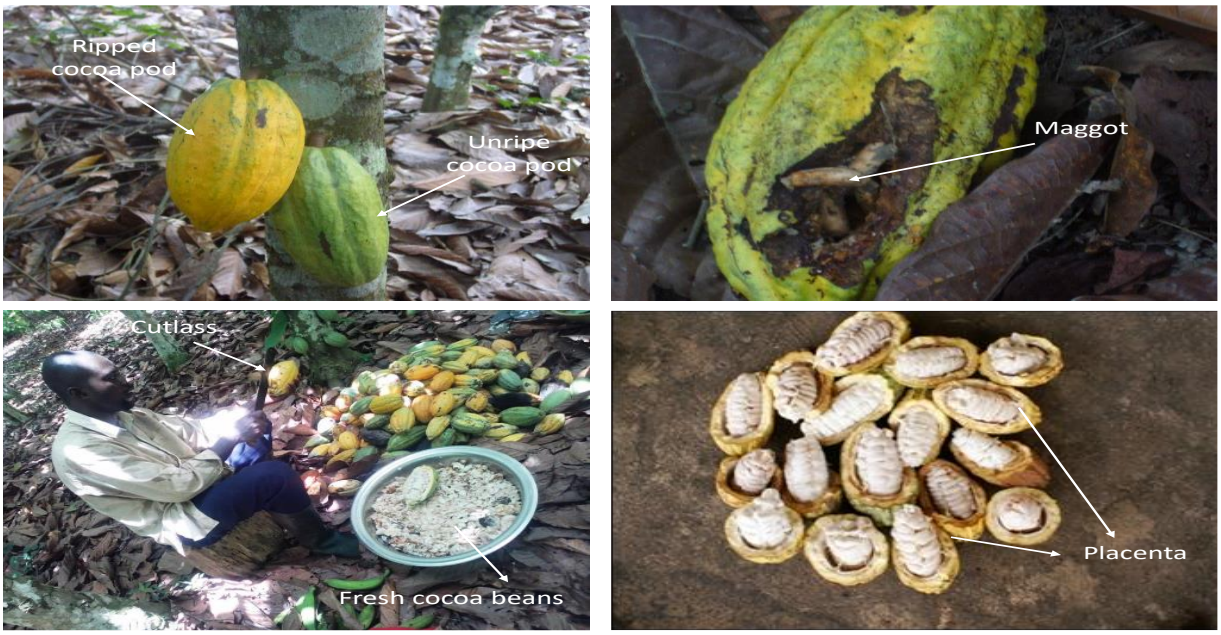
Source: author's own (2017)

Case 7: Farmer Working Group

Female farmers who usually work in groups shared some of the post-harvest practices in FGDs. According to a middle female who is a member of an informal working group, they are about five women who work together to help themselves with cocoa production activities. During post-harvesting, they harvest together and break the pods with cutlasses. After which, they scoop out the beans from the pod with their hands. They also remove the placenta from the beans and pour all the fresh beans onto banana leaves and cover it with banana leaves. Afterwards, they secure the beans with a stick and wait until six days for the cocoa beans to ferment. They do not go back to the farm to stir the beans. After this stage, they bring the cocoa beans home to dry them on a mat for about a week (FGD, Conventional Female Farmer, 15.10.17, Subiriso).

Images 8.8, 8.9 and 8.10 illustrate post-harvesting practices on pod breaking, heap fermentation and drying of cocoa beans, as well as infested cocoa pods which is attacked with maggot that cannot be harvested. Box 8.2, gives an account of drying practices in the studied communities, among farmers, purchasing clerks and at the warehouse (s) of some licensed buying companies.

Image 8.8: Stages of Cocoa Pod Harvest and the Breakage of Pods



Source: author's own (2017) and picture on placenta taken from (COCOBOD, 2016b, p. 51)

Image 8.9: Heap Fermentation Technology

Source: (COCOBOD, 2016b, pp. 52–53) Source: author's own (2017)

Image 8.10: Drying of Cocoa Beans on Raised Mat and Bare Ground

Source: author's own (2017) Source: author's own (2017)

Box 8.2: Drying Cocoa Beans in the Studied Communities

Behind or beside the houses of farmers in Aponapon and Subiriso, were raised drying mats, made of straw and mounted on a bamboo table. At least, this was the recommended post-harvesting practice almost every farmer easily adopted. I was told that the mat cost about 80 US Dollars in 2017. Farmers who did not have personal mats, either borrowed from a fellow farmer or a purchasing clerk. Farmers usually spread the fermented cocoa beans on the mat outside, for direct sunlight. In the evenings, they gather the cocoa beans together on one side of the mat and cover it with polythene and secure it with sticks and stones.

The reason for doing this is to prevent the cocoa beans from getting wet by dew or rain. In the mornings, they remove the cover and spread the cocoa beans on the mat again for sunlight. I often saw some farmers

using their hands to stir through the beans to remove debris. Sometimes, I saw farmers removing the placenta from the beans, which at this time have been dried and detached from the bean. I observed one old male farmer because I could see him from my window. He hired labourers to spread the cocoa beans on the mat in the mornings and cover it back in the evenings. They often came around 7 am and 5 pm. After some days of interacting with the man, I also participated in the drying of cocoa beans. I helped in the spreading of cocoa beans in the morning and afternoons, and I assisted in stirring them. I noticed that the more you mixed, the quicker it dried. I also noticed that it becomes easier to remove any debris at this stage from the cocoa beans. It took about a week for the old farmer's beans to adequately dry. Farmers can detect if the beans are dried by squeezing them with their fingers, and if there was no sign of moisture, they bag them up for sale.

However, on a few occasions, on my visits to the Subiriso community, I saw cocoa beans dried on polythene on the ground. I was told few farmers continue to dry cocoa beans on the bare floor. I also visited AgroEcom's district warehouse, and to my surprise, I saw cocoa beans dried on polythene on the bare floor. These were cocoa beans that were detected by a sampler from the QCC division of COCOBOD to contain a high percentage of moisture content. In such situations, the district offer is asked to re-dry the cocoa beans, but I did not expect that a district officer will violate a recommended best practice (photo 8.10).

Source: (Field Note, November 2017)

Summary of Post-Harvesting Practices

The case stories presented above illustrate examples of post-harvesting practices among individual certified and non-certified farmers, and cooperative and informal farmer group (s). Farmers in different categories implemented ad-hoc post-harvesting practices. Both certified and conventional male and female farmers, who have access to post-harvesting knowledge (cases 1, 2, 7) and no access to post-harvesting training (case 2), implemented similar post-harvesting practices. As it was discussed in section 6.1, there is limited access to post-harvesting knowledge among farmers in studied communities, thereby, reflecting in their ad-hoc practices. Among the seven case stories, farmers harvest yellowish cocoa pods, break pods within two or three days, use the heap fermentation method, remove the husk from fresh cocoa beans and dry cocoa beans on mats within five to seven days. These farmers' practices are in line with post-harvesting standards.

However, contrary to post-harvesting standards, all farmers used cutlass to break pods instead of a wooden club. Farmers in all the individual cases failed to turn cocoa beans twice during the

fermentation process. Cases two, three and four, used prohibited material (mosquito net, palm leaves and polythene) instead of banana leaves as coverage during fermentation. Whereas cases two and four did not remove the placenta from cocoa beans during the breaking of the pod. It was noticed that among the different post-harvesting stages, farmers struggled to adopt all the requirements on fermentation, which could explain the problem of purpled cocoa beans in the sector (see section 5.3). A middle-aged female farmer under convention production during FGDs argued,

> "When it comes to the implementation of fermentation, every farmer has his or her practice. Some use three days to ferment, and others use four days, others use five days. It depends on the farmer and what he or she thinks it's good for his or her cocoa" (FGD, Conventional Female Farmer, 9.10.17, Subiriso).

An extensive study has not been done on farmers' post-harvesting practices in the sector so far. However, some studies have also observed that farmers are not able to adhere to the number of fermentation days required by COCOBOD (Kolavalli & Vigneri, 2018; Laven, 2010; Quarmine, 2013). In addition to the different number of days farmers used in fermenting beans, they also created lines in the banana leaves for fermentation. Their reason was that they wanted enough air to pass through the beans during fermentation as well as for drainage purposes because the heat generation during fermentation forms a juice. However, heat is the main drive to foster the fermentation process and to create lines in the banana, instead of discouraging heat generation during fermentation. Farmers' fermentation practices imply that they have little understanding of the fermentation process and the relevance of undertaking each step into account.

Table 8.3: Post-Harvesting Stages and Relevance on Cocoa Quality

Farmers' Practice	Effect on Cocoa Bean	Physical Cocoa Standard
Pod breaking		
Non-removal of infested beans during pod breaking	Damaged beans	Insect-damaged
Scooping cocoa beans with a cutlass	Injury to the pulp	
Non-removal of placenta	Lack of heat penetration into the pulp leads to poor formation of flavour	Slaty
Fermentation		
Not according to weight	Does not facilitate the optimum fermentation process	Slaty

Other fermentation cover material	Does not facilitate optimum fermentation of beans, partial fermentation, Food contamination	Slaty, food safety
Not turning beans twice	Poor formation of flavour	Slaty
Fermentation less than six days	Purpled beans	Slaty
Drying		
Not removing debris	Presences of foreign matter	Bean wholeness
Drying less than seven days	This leads to a high amount of moisture content which may lead to mouldy beans.	Mouldy

Source: author's own (2020)

Table 8.3 depicts the implications of farmers' post-harvesting practices on the safety and quality of cocoa beans under the physical cocoa standards. According to COCOBOD (2016), the implications of adhering to some and not all the best practices, do not yield good quality cocoa beans and each best practice has a role to play in achieving quality cocoa beans (see appendix 4 and 5). For instance, to achieve good fermentation, the weight of the fresh cocoa beans determines the method to use. However, farmers in the studied community used the heap method for fermenting cocoa beans of any weight.

An in-depth interview with a post-harvesting scientist at the cocoa research institute of COCOBOD suggests that cocoa farmers must ferment between 10kg and 200kg of fresh cocoa beans which will require basket, tray, and heap fermentation methods. In my field visit observations as well, farmers harvest cocoa pods in small quantities, one which can fit one litre of a bucket. Because fermentation undergoes two stages; the anaerobic[17] and aerobic phase[18], the turning of cocoa beans twice during fermentation (1st turn should be 48hours after the start of fermentation and 48hours after 1st turn) facilitate aeration during both the anaerobic and aerobic stages. The number of days (6 days) is therefore required for a complete fermentation process. However, farmers in all cases did not turn cocoa beans during fermentation and cases 3 and 4 for instance, did not ferment cocoa

[17] "This occurs within the first two days when the pulp does not allow air circulation. Yeast and lactic acid bacteria fermentations occur in this phase. Yeast fermentation transforms pulp sugar into alcohol resulting in an increase in temperature. The increase in temperature favours the growth of lactic acid bacteria which produce lactic acid. The pulp then breaks down, drains away and air penetrates the beans" (COCOBOD, 2016b, p. 51).

[18] "This occurs from day three onwards and aeration allows strong growth of acetobacter which transform alcohol to acetic acid. Temperature then increases up to 50o C. Acetic acid penetrates the bean causing the formation of chocolate flavour precursors. At the end of fermentation the temperature reduces causing the growth of putrefaction bacteria and prolonged fermentation will result in the development of hammy, off-flavour typical of over-fermented cocoa" (COCOBOD, 2016b, p. 51).

beans for 6 days. Banana leaves are recommended as safe fermentation coverage to prevent food contamination during fermentation (COCOBOD, 2016; Ganeswari et al., 2015). However, case 4 for instance, used another material (polythene) as a cover for fermentation. Removing the placenta and husk from the cocoa beans before fermentation, allows heat penetration into the pulp during fermentation, and this facilitates the formation of chocolate flavour (COCOBOD, 2016b). In the cases presented, case 4 did not remove both the placenta and husk before fermentation. The other cases (1, 2,3,5,6, and 7) removed the placenta but not the husk.

The purpose of breaking pods with a wooden club and scooping cocoa beans with hands is to prevent injuring the pulp, which may lead to mould growth (COCOBOD, 2016). However, as illustrated in all cases, farmers used cutlass. The purpose of drying cocoa beans on the raised mat and not on the bare floor or a sheet of polythene is to prevent food contamination, whereas adequate drying of cocoa beans, prevents moisture content (COCOBOD, 2016). In all the cases discussed, farmers used raised mats for drying cocoa beans. However, box 8.2, identified a licensed buying company drying cocoa beans ready to be transported to COCOBOD's take over centre for export, on the bare ground.

8.3 Discussion; Impacts of Extension and Quality Assessment on Farmers' Practices

The section discusses the factors leading to farmers' ad-hoc environmental, social, and post-harvesting practices in the studied sector. According to the conceptual framework, the frequency of knowledge sharing and implementation of a strict quality assessment will influence the adoption of quality standards among farmers. In this regard, it was noticed that because there was inadequate knowledge sharing on environmental, social, and post-harvesting among farmers, this led to farmers' inadequate knowledge and understanding of quality enhancement practices and technologies. Therefore, farmers struggled to adequately adopt or implement good environmental, social, and post-harvesting practices during cocoa production. This also led to different environmental, social, and post-harvesting production practices, which were not consistent with the practices spelt out in the various standards. In addition, the lenient quality assessment implemented to audit farms and physical cocoa beans, also rendered farmers to be less quality conscious in cocoa production.

8.3.1 Different Production Practices

Based on the case stories on farmers' environmental, social, and post-harvesting practices presented in sections 8.1.3 and 8.2.1, there were different production practices under the various standards. For instance, post-harvesting, farmers implemented different ways of fermenting cocoa beans, which consisted of a different number of recommended days, use of prohibited fermentation covering, and creating holes in banana leaves for drainage purposes during fermentation. Farmers were also aware of the different post-harvesting practices adopted in the communities. One middle-aged female farmer under conventional production argued, "*We all have different ways of fermenting cocoa. Some use 6 days to ferment, others use 5 days to ferment and others use 3 days to ferment. We all do what we think is best for us"* (FGD, Conventional Female Farmer, 12.10.17, Subiriso). Another young female farmer under conventional production also argued, "*When it comes to the fermentation, some people use banana leaves, tarpaulin, or a mosquito net to cover the beans. Everyone has different ways of carrying out the fermentation*" (In-depth Interview, Conventional Female Farmer, 14.10.17, Subiriso).

8.3.2 Inadequate Knowledge and Information

Environmental and Social

In sections 6.1.2 and 6.2.2, it was indicated that there was inadequate knowledge sharing and a lack of participatory methods on environmental and social standards. These challenges had implications on farmers' environmental and social practices presented above in the case stories. Farmers under both certifications (Touton-PBC UTZ and Mondelez Fairtrade programmes) mentioned that because they do not receive frequent training on good environmental and social practices (which occurs once a year), they sometimes forget what they were taught in the previous year. Due to the lack of farm demonstrations on the preparation of chemical dosage and its application, they do not understand how to measure chemicals for application as was the case for both UTZ and Fairtrade farmers.

Studies that have examined the impact of certification training on farmers' practices have concluded that certification training does not improve farmers' practices on good environmental, and social practices due to the limited and irregular extension services. For instance, Tampe (2016), in her studies on the impact of Fairtrade certification, specifically on Mondelez Cocoa Life

Programme, found out that because farmers received 1.4 training per year, this resulted in low adoption of Fairtrade standards. The study conducted two surveys: one in 2009 and a follow-up survey in 2014 among almost 3000 respondents in 350 cocoa-growing communities in Ghana. The study concluded that training did not improve farmers' practices in the cocoa production process (Tampe, 2016, p. 89). In like manner, Bymolt et al. (2018), also found out that certified farmers receive inadequate training in Cote d'Ivoire and Ghana. As discussed in section 6.1.1, community facilitators and farmers on the Touton-PBC UTZ programme, received 1.6 and 1.0 training respectively on environmental and social standards annually, emphasizing inadequate knowledge sharing on the programme.

Post-Harvesting

As was explained in sections 6.1.1 and 6.2.1, farmers in the studied communities barely received extension services post-harvesting. Due to this, farmers lack adequate knowledge on how to implement these practices properly. It was also seen from the different post-harvesting practices presented in section 8.2.1 that those farmers lack the understanding of recommended post-harvesting practices. A middle-aged female farmer under conventional production spoke out in an FGD concerning the effect of lack of extension on post-harvesting.

> "We told you that the purchasing clerk does not train us on post-harvesting practices. Some of us learnt about post-harvesting practices from other farmers and families. Those of us who are old also learnt it in the past from COCOBOD. So, it is the little knowledge we have that we use. Maybe if they train us adequately on how to implement this, I think we will understand it. Sometimes, we hear on the radio that we should do this or that but how can we properly do it if they do not illustrate it?" (FGD, Conventional Female Farmer, 9.10.17, Subiriso).

Quarmine (2013), argues that farmers are unable to implement recommended post-harvesting practices because of information asymmetry and lack of scientific knowledge. Under these points, he denotes that based on his survey among 120 cocoa farmers in Suhum, Dormaa, Assin Foso and West Akropong districts, the lack of farmers' training on post-harvesting, few interactions on quality issues between LBCs, PCs and farmers as well as lack of feedback on farmers' quality practices, result in poor post-harvesting practices. Owusu-Amankwah (2015), conducted both qualitative and quantitative research among 120 farmers in Kofigyankrom and Tayikrom cocoa communities in the Ashanti region. She also found out that due to poor extension on post-harvesting, farmers are unable to produce quality cocoa.

At the end of FGDs and in-depth interactions with farmers on post-harvesting practices, a question was posed 'what can be done to improve the adoption of post-harvesting practices?' Among the suggestions farmers gave was access to frequent post-harvesting training and on-farm demonstration.

8.3.3 Poor Quality Consciousness

Environmental and Social

Aside from the problem of inadequate extension and knowledge sharing, the farm auditing process and monitoring/assessment methods employed under the UTZ and Fairtrade programmes in the studied communities had implications on farmers' quality practices. Section 7.2 argues that the auditing and monitoring measures were lenient because they granted certification to farmer groups even under farmers' non-compliances. As it was depicted in farmers' practices in section 8.1, especially on waste management and farm sanitation, farmers did not implement these standards throughout the year except it was close to the farm inspection period. This is because, the auditing process overlooks farmers' non-compliances, and this does not induce long-term quality behaviour among farmers. Aside from this, certified farmers in both communities were made aware of the auditing period every year and in this case, they were able to hide evidence of non-compliance.

It was observed that this creates low-quality consciousness among farmers since farmers only seemingly adopted good environmental, and social practices when it was close to farm auditing. For instance, throughout the above discussion, farmers repeatedly mentioned, '*We remove rubbish from the farm when it is near farm inspection'*. This acknowledges that the lack of a surprise visit argued by Alli (2004), as the best auditing technique, affects farmers' response to standards compliance. Consequently, auditing measures fail to track the actual improvement or address farmers' environmental and social practices such as child labour, chemical application, or environmental degradation. In regard, this allows for continuous and long-term non-compliance with standards among farmers. As explained in sections 8.1.1 and 8.1.3, non-compliance with chemical application and farm sanitation standards is rampant among farmers and farmers' are addicted to its non-compliance. Tampe (2016), also attests that Fairtrade farmers under the Mondelez programme implemented across the cocoa-growing communities in Ghana, do not strictly adhere to environmental standards on-farm sanitation and waste management. Likewise,

Owusu-Amankwah (2015) states that Rainforest certified farmers in the Ashanti region, struggle to adhere to waste management standards.

Post-harvesting

Because purchasing clerks accept poor-conditioned cocoa beans, negotiate for poorly conditioned beans and re-dry cocoa beans for farmers, it was observed that this led to farmers' low-quality consciousness. These practices discouraged some farmers from strictly adhering to the recommended number of days of fermentation and drying of cocoa beans as it was indicated in section 8.2.1. Discussions with farmers and observations made denoted that male and female farmers under the young aged category, were no more concerned with enhancing quality because PCs accept poor quality cocoa beans.

> "Some farmers are not concerned with fermenting and drying cocoa well. However, I properly ferment my cocoa because that is how we used to produce quality cocoa in the past. I take my time to remove debris and dry it properly. People always pass comments such as "old man, you will end up selling the cocoa to the PC, he will dry it again, or he will buy it so why waste your time" (In-depth Interview, Conventional Male Farmer, 14.02.18, Aponapon).

Drawing from the statement that *"You will end up selling the cocoa to the PC, he will dry it again, or he will buy it so why waste your time"*, notes how some young farmers have become used to weak quality control measures at the farm gate level. For instance, during FGDs farmers indicated that they do not consider quality as a criterion for selecting LBCs and purchasing clerks to sell their cocoa beans.

8.4 Conclusion

The chapter discussed farmers' practices on environmental, social and post-harvesting standards. Discussions on farmers' environmental, social, and post-harvesting practices, highlighted mixed results. Certified farmers, under Fairtrade and UTZ respectively, were able to implement standards requirements on ecosystem protection, water management, and labour conditions. Nonetheless, both Fairtrade and UTZ farmers failed to completely adhere to farm sanitation and safe use of agrochemical standards. Concerning post-harvesting standards, both certified and conventional farmers were able to implement post-harvesting standards for pod harvesting and drying of cocoa beans. However, farmers failed to thoroughly observe all the standards for breaking pods and

fermentation. Inadequate training and lenient quality assessment measures influence farmers' quality practices. Because of inadequate and lack of farm demonstrations, both certified and conventional farmers did not thoroughly understand and implement the knowledge of the various standards. Lenient quality control practices on-farm auditing and physical cocoa led to low-quality consciousness among both certified and conventional farmers in the studied communities. Based on the discussion and results presented, physical cocoa standards implemented in Aponapon and Subiriso communities by the various licensed buying companies have not adequately improved farmers' post-harvesting practices. Likewise, the results presented on Touton-PBC UTZ and Mondelez Cocoa Life Fairtrade programmes, argue that because of inadequate knowledge sharing, and lenient farm auditing practices certification has not to a large extent, improved certified farmers' environmental and social practices in Aponapon and Subiriso communities of Ghana.

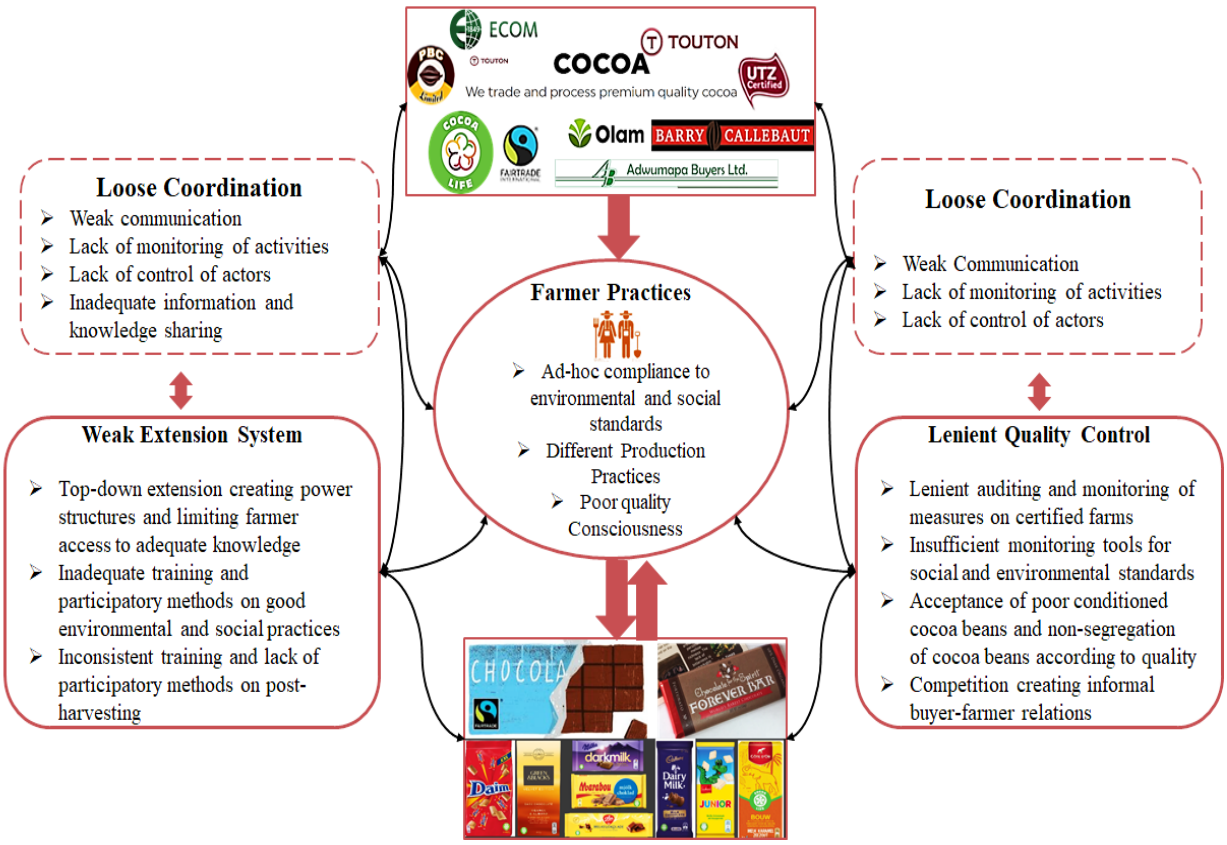
Chapter 9 Summary and Conclusion

This chapter presents the summaries, conclusion, and identification of further research on the subject area. The study set out to examine how quality standards are controlled and implemented in the cocoa-growing communities to improve quality practices in cocoa production. The study has sought to understand how knowledge on quality enhancement is shared with farmers, how this is transmitted and how it has improved or has not improved farmers' quality practices. Furthermore, the study has sought to find out how quality assessment is carried out at the farm level and during purchasing of physical cocoa beans and how it has improved or not improved quality cocoa production.

Many initiatives including third-party certification standards, industry standards, company sustainability programmes and multinational programmes, have evolved in the cocoa sector to address poor environmental, social, and post-harvesting farming practices during cocoa production. While theory on value chain governance assumes that interventions in captive and buyer value chains such as cocoa, should be coupled with high monitoring of activities, strict control of producers and frequent communication among actors to achieve results, the study found the implementation of quality standards in the cocoa sector of Ghana otherwise. Figure 9.1, illustrates the findings of the study and their interrelationship.

In sum, the results depicted in the figure, explain that the implementation of quality standards in the cocoa sector, is an issue of governance, specifically, loosely coordination of activities. Precisely, the characteristics of loosely coordinated activities concerning the implementation of quality standards in the cocoa sector, comprise weak communication among actors, inadequate information and knowledge sharing, lack of monitoring and control of activities and actors. Because quality enhancement programmes were not strictly coordinated, this affected the extension services on quality enhancement and the quality assessment of cocoa farms and physical cocoa beans. Consequently, it led to farmers' ad-hoc implementation of environmental, social, and post-harvesting standards in cocoa production.

Figure 9.1: Summary of Findings on Quality Enhancement in the Studied Communities



Source: author's own (2020)

The next section discusses specifically the findings of the study.

9.1 Summary of Findings

Overall, there is weak communication among actors including COCOBOD and its respective divisions, cocoa and chocolate companies, purchasing clerks and farmers relating to the implementation of quality standards. Concerning extension services on environmental, social, and post-harvesting standards, actors responsible for coordinating and sharing knowledge with farmers, met once a year during annual meetings. For quality assessment of certified cocoa farmers and physical cocoa beans inspection, actors coordinating activities communicated once a year. Phone communication among actors coordinating activities on quality assessment and extension on quality enhancement also occurred once or twice a year. Accordingly, Gereffi et al. (2005) has

stressed weak communication as an indicator of a loosely coordinated value chain, as also seen in the implementation of standards in the cocoa sector.

The study found out that there were an overall low knowledge sharing and inadequate extension services on quality enhancement. Factors on extension services and knowledge sharing in the studied communities include insufficient training in a cropping year, lack of participatory methods, limited farmer access to training, non-integration of informal knowledge networks, lack of incentives, and no monitoring of extension services. For example, under both UTZ-PBC and Mondelez certification programmes, there was inadequate training on environmental, and social standards, while training lacked on-farm demonstrations. Aside from these, female farmers struggled to attend the training because it was organised in the mornings when they were entangled in domestic duties. Likewise, both local and international licensed cocoa buying companies provided inconsistent extension services on post-harvesting practices. Factors on extension services and knowledge sharing in this study relate to determinants of poor agricultural extension services (Davis & Heemskerk, 2012; Farnworth & Colverson, 2015; Hanyani-Mlambo, 2002). More so, these factors confirm the literature on captive value chains as having weak knowledge exchange and information asymmetry (Gereffi & Fernandez-stark, 2016; Humphrey & Schmitz, 2012, p.1018).

Low knowledge sharing affected farmers' adoption of quality enhancement practices. For instance, both male and female certified farmers of different age categories (young, middle and old), could not adequately adopt chemical application and waste management under environmental practices. This is because farmers lacked adequate understanding from training due to lack of on-farm demonstrations and insufficient training. Also, due to a lack of on-farm demonstrations on post-harvest technologies, farmers could not correctly implement post-harvesting standards. However, both male and female certified farmers of different age categories were able to conform to standards on child labour practices as opposed to other studies which admit non-conformity to child labour practices in Cote d'Ivoire and Ghana (Owusu-Amankwah, 2015; Whoriskey, 2019; Whoriskey & Siegel, 2019). Certified farmers also conformed to the environmental practice of on-farm composting. Mixed results on the adoption and non-adoption of technologies are in broad line with research on technology adoption, (Chilemba & Ragasa, 2018; Davis et al., 2010; World

Bank, 2012), which assumes that factors including access to knowledge, and extension delivery method affect farmers' adoption behaviour.

Research on value chains has argued that liberalised markets have a weak quality control system (Kolavalli & Vigneri, 2011; Kolavalli & Vigneri, 2018; Ruben et al., 2007). Likewise, cocoa and chocolate companies implemented lenient quality control systems on environmental and social standards as well as physical quality standards. Concerning certification assessment, for instance, under the Fairtrade and UTZ farm auditing, auditing was announced and scheduled, and external auditors were biased in farm selection because they did not visit farms located far distances. Monitoring tools used in auditing farms were insufficient to identify child labour and issues of discrimination. These auditing approaches correspond with research on-farm auditing measures on certification schemes (UTZ and Fairtrade) which are known to be insufficient to combat social and environmental misconduct (Whoriskey, 2019; Whoriskey & Siegel, 2019). It also confirms the literature on indicators of weak quality control of production process standards (Alli, 2004; Bijman & Bitzer, 2016; Nadvi, 2008). Due to weak auditing and monitoring practices, UTZ and Fairtrade certified farmers' in Subiriso and Aponapon communities, could not implement waste management and sanitation as part of everyday farming activity.

Concerning the quality control measures on physical cocoa beans implemented during purchasing of cocoa beans, it was found that poor-conditioned cocoa beans were accepted, and cocoa beans were not segregated according to quality. Purchasing clerks themselves carried out post-harvesting activity (s) for farmers (example, drying of cocoa beans). Because purchasing clerks were lenient with quality control measures during purchasing of cocoa beans, farmers, especially among young male and female category, were less concerned with enhancing quality. These weak quality control measures implemented by purchasing clerks in the studied communities, confirm other research conducted on quality control in the internal marketing in the cocoa sector (Kolavalli et al., 2012; Kolavalli & Vigneri, 2018; Quarmine, 2013). Kolavalli and Vigneri (2018), and Quarmine (2013) argue, that these weak quality control measures might deepen quality deterioration in the sector.

Competition, as a characteristic of liberalised markets, was present in the internal marketing of the sector. Due to competition for farmers and cocoa beans, farm auditing and monitoring of environmental and social standards, and quality control practices during purchasing of cocoa beans, were not strictly due to the fear of losing farmers to competitors. Therefore, the study found

that lenient quality control measures were a way to keep good relations with farmers. Efforts toward rewarding farmers according to quality did not exist in the sector, and this served as a disincentive for farmers to enhance quality. Cocoa and chocolate companies in the studied communities instead were more interested in improving cocoa yield than quality. Efforts towards improving yield were prominent in the frequent rewarding of farmers based on high yields and frequent knowledge sharing on cocoa agronomics to increase productivity. Certification was also used as a means to increase yields among farmers and also retain them under sustainable value chains (Basso et al., 2012; Bymolt et al., 2018). For instance, UTZ and Fairtrade farmers in the studied communities remained in the buyers' programmes because of the price premium and other incentives they received, for producing high quantities.

Based on the findings presented, this study questions theory on the role of quality standards in value chains as a strong tool used by buyers to control producers as well as to achieve high-quality commodities (Gereffi, 2001; Kaplinsky & Morris, 2000). Contrary to this argument, the results of the study instead indicated that lenient quality control measures became a means to maintain relations with farmers. Because of this, cocoa and chocolate companies did not reject farmers' poor conditioned cocoa beans, and certification was granted to certified farmers despite ad-hoc conformity cases. The study also questions the role of certification schemes and company sustainability programmes in addressing quality and ethical issues in cocoa production. Instead, it strongly serves as a marketing tool for cocoa and chocolate companies to advertise companies' initiatives. Figure 9.1 identifies, for example, the Cocoa life-Fairtrade label, marketed on one of its chocolate brands. Although the implementation of the programme in the studied communities, did not adequately address farmers' quality practices, the significance of the label on the final product, implies otherwise. The study finds that these initiatives appear to respond to and serve consumers' demands on quality and ethical issues in the sector. However, so far, its implementation on the ground does not adequately eradicate poor quality practices during the production of cocoa beans.

Reflecting on the study's findings, the extent to which quality standards matter in the international cocoa market and cocoa production is questionable. Inferior cocoa beans produced under unsafe environmental and social conditions and poor post-harvesting handling penetrate international cocoa markets. Even though Ghana's relevance in global cocoa production as the second-largest

bulk and UTZ-Rainforest cocoa beans is undeniable, the rampant quality issues in cocoa production, as revealed in the study, indicate poor enforcement and management of quality standards. Since the partial liberalisation of the cocoa sector, the marketing board, COCOBOD, has neglected the enforcement and regulation of quality standards in the internal marketing segment to the cocoa and chocolate companies. Siding with Kolavalli and Vigneri (2018), the negligence of marketing boards in implementing quality standards in agricultural sectors deepens the deteriorating quality of commodities.

The impacts of farmers' integration into the international cocoa market and global cocoa value chain through quality standards must be questioned. Among optimal aspirations of integrating farmers into global markets and value, chains include; helping farmers capture high returns, and improving production practices and livelihoods. However, according to Tampe (2016), Fountain and Huetz-Adams (2015) and Whoriskey (2019), none of the certification and sustainability standards has been able to adequately improve the livelihoods, production practices and income of farmers in the cocoa sector. Likewise, in the Aponapon and Subiriso studied communities, farmers' integration into the global cocoa market through physical cocoa standards and certifications schemes did not adequately improve farmers' quality practices and livelihoods. This implies that producers' integration into global value chains does not mean farmers automatically escape poverty, and their production practices are improved without well-coordinated quality initiative programmes. This issue becomes even more serious in the cocoa value chain due to the direct impact of fluctuating world cocoa prices, disasters, and outbreaks of diseases that affect farmers' lives and farms. However, market policies, certification and sustainability programmes implemented in the cocoa sector fail to factor such risks into their standards. In addition, there is a lack of adequate monitoring of the actual implementation of quality standards on the ground, making its accountability and transparency in cocoa-growing communities blurry. Because of this, though quality standards and initiatives may intend to resolve issues on production practices and improve the lives of farmers, loose coordination and implementation affect standards' effectiveness and outcome.

Overall, the study concludes that poor quality cocoa production practices could not be adequately prevented and improved because there was poor coordination between internal and external actors in the cocoa value chain responsible for implementing quality cocoa standards. Due to weak

coordination between COCOBOD and licensed cocoa and chocolate companies, issues of poor monitoring of extension services and quality control measures continue to be prevalent in the studied communities. Other studies by Kolavalli and Vigneri (2018) and Quarmine (2013) also connect with this finding. In the broader context, the study identifies loose coordination of food and safety standards as an indicator that can affect the realisation of sustainable development goal twelve; responsible consumption and production. In the context of food production and consumption, agricultural value chains play a relevant role in ensuring sustainable production systems that support ecosystem well-being, reduce climate change effects, and contribute to decent livelihoods. However, a weak coordination and governance structure of food chains may impede the flow of knowledge and techniques that could ensure responsible production of food supplies and thereby restrict the achievement of development goals.

The study on quality promotion in the Aponapon and Subiriso communities of Ghana informs cocoa standard bodies and cocoa and chocolate companies on the challenges which impede the success of certification and standard schemes. The study also informs on the factors which impede the achievements of developmental goals and interventions. The study's findings also reflect the challenges of coordination and organisation of activities and among actors, which impedes the effective implementation of policies, projects, and programmes in the cocoa sector.

9.2 Future Research

The study identifies that there is a need for further research on the subject. Although the study examined quality standards implementation in the cocoa value chain, it focused on the micro and, to a little extent, meta-analysis level. Therefore, the study limited its analysis to individuals in communities and organisations. Future research could include the analysis of quality standards implementation and management at the macro level to capture a broader analysis of the subject area. The macro-level analysis could examine the political discourse surrounding quality standards development, implementation and impacts on consumption patterns, producing countries, and the sustainability of the value chain. Future research could examine the role of producing countries in ensuring cocoa beans meet international standards and how producing countries control quality. Vividly, future research can explore the power dynamics that transpire or are created in developing quality standards and enforcing standards in international market transactions.

Although this research examined producers according to gender, age, experience, and type of cocoa production system, there is a need for future research to adopt an intersectionality approach to understand different categories of producers and their characteristics. These additional categories could include labourers, ethnic groups, landowners, and farm managers. In this way, one can identify conditions underlying the success and failure of producers in implementing quality standards. An intersectionality approach will capture the multiple forms of discrimination that will better understand the unequal access to knowledge on cocoa production and quality enhancement. At the micro-analysis level, future research could explore how the gender division of labour in the cocoa sector could improve quality practices in the sector. Further research could include the impact of poor quality practices on the cocoa yield output and how this affects farmers' livelihood. Beyond examining the impacts of quality practices in cocoa production, future research could even integrate measures that can be carried out to improve the implementation of quality enhancement programmes in the cocoa sector.

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Appendix

1 Cocoa Production Systems in Ghana

Cocoa Production Systems in Ghana

Conventional cocoa production: this involves activities on pre-harvesting and post-harvesting. The pre-harvesting stages consist of the planting of cocoa seeding, application of fertilizer and chemicals, pruning, weeding, and implementing pest management. During the pre-harvesting stage, cocoa is planted in the rainy season which falls between May to July. Cocoa production begins by either establishing a nursery or direct seeding. Through nursery cultivation, the seedlings are raised in polybags for 3 to 6 months. The matured seedlings are then transplanted into the soil. Through direct seeding, fresh cocoa beans are planted directly into the soil. After planting cocoa seedlings, the plant is taken care of by watering it, pruning unwanted growth, weeding around the cocoa tree, and applying agrochemicals and fertiliser. Agroforest plants, including plantain and banana, are grown to provide shade for the cocoa plant. It takes about six months before the pod of cocoa ripen. When a cocoa pod ripens, it looks light greenish to yellowish, and it makes a hollow sound when it is tapped. Ripen cocoa pods are then harvested.

The post-harvesting activities include harvesting the cocoa pod, breaking cocoa pods, fermentation, and drying cocoa beans. *Harvesting* is carried out throughout the year during the main cropping season and the light cropping season. Pods which are ready to be harvested are greenish to yellowish. A cutlass is used in cutting pods whose branches are within reach while a sickle is attached to a long stick used to cut pods whose branches are further away. In harvesting, disease infected pods are removed (COCOBOD, 2016b; CRIG, 2010b). *Breaking of pods* is cutting pods open with a cutlass (which is blunt) or wooden clubs. Cocoa beans are removed from the pods. It is strongly recommended that farmers use wooden clubs to cut pods. Breaking pods with cutlass might lead to cocoa beans' moldiness (COCOBOD, 2016b; CRIG, 2010b). During *fermentation*, cocoa beans are heaped and covered with plantain leaves to produce heat, and this process can last up to about 6 to 7 days. There are four different fermentation methods (see table 9). Fermentation undergoes two stages; firstly, the anaerobic (sugar fermentation) occurs the first two days of fermentation and a second process called

aerobic (transformation of alcohol to acetic acid) occurs from the third day of fermentation. The second stage of fermentation is thought to cause chocolate flavour formation (COCOBOD, 2016b; CRIG, 2010b). There are two types of *drying:* sun drying and mechanical drying. Although it is highly recommended beans should be sun-dried as this aid in the completion of flavour formation. Mechanical drying may result in smoking and high acid retention in beans (COCOBOD, 2016b; CRIG, 2010b).

Organic cocoa production: It involves farming activities in pre-harvesting and post-harvesting. However, farmers rely on organic manuring such as mulching as the source of fertiliser for cocoa. Organic farming relies on the use of specific organic chemicals to enhance cocoa production. (COCOBOD, 2016b; CRIG, 2010b).

Sustainable cocoa production: It includes the pre-harvesting and post-harvesting farming activities and the adoption of social and environmental production practices during the cocoa production stages. The environmental practices include safe handling of waste, which entails not leaving rubbish on farms, protecting water bodies from chemical contamination, protecting animal species by not killing them, and safe handling agrochemicals. The social practices are meant to protect labourers by paying the required amount of hourly allowance, making sure labourers wear safety clothing, avoiding pregnant women from engaging in hard labour activities. Under sustainable cocoa production, farmers avoid child labour and slavery activities. (COCOBOD, 2016b; CRIG, 2010b).

2 Third-Party Certification Standards and Benefits to Farmers

Certification scheme	Objective/description	Benefits for farmers
Fairtrade Certification	Fairtrade certification promotes better trading terms for producers and sustainable cocoa. It addresses child labour, climate change, environment, forced labour, gender equality, human rights, and workers' rights. A set of best practices cover the issues covered in the standard. Fairtrade pays a fixed minimum price (USD 2.000) and a premium for farmers (USD 200) (Basso et al., 2012; CRIG, 2010; FTO, 2017). Fairtrade requires at least "20 percent of the minimum percentage of the total weight of composite product" (Basso et al., 2012, p. 20)	Farmers receive training on the standards' criteria. They also receive a price premium annually in addition to inputs such as agrochemicals and improved seedlings. Farmers invest a percentage of the price premium into community projects and businesses to generate income.
UTZ certification	UTZ certification aims at sustainable farming practices that increase yields, protect the environment, and improve farmers' income. UTZ so far is the largest cocoa certification which has over 465,000 cocoa farmers across 19 producing countries. UTZ focuses on productivity, climate change, a living wage, child labour, gender equality, and farmer group strengthening. UTZ does not set a fixed premium for farmers. As of 2014, UTZ declared that there should be 95 percent minimum certified cocoa content (Basso et al., 2012; CRIG, 2010; de Lange, n.d. ; UTZ and Rainforest Alliance, 2018)	Farmers receive training on the standards' criteria. They also receive a price premium annually in addition to inputs such as agrochemicals and improved seedlings.

Rainforest	Rainforest Alliance is an international non-governmental organisation whose focus is on environmental protection. Its key foci include promoting biodiversity, combating deforestation, conserving forests, climate change and improving livelihoods. Rainforest is found in over 60 countries and was found in 1987 to promote biodiversity. Rainforest alliance does not have a fixed price premium for farmers. It requires at least 30 percent of certified cocoa content to receive its seal (Basso et al., 2012; Rainforest Alliance, 2020).	Farmers receive training on the standards' criteria. They also receive a price premium annually in addition to inputs such as agrochemicals and improved seedlings.
Organic	Organic certification does not allow cocoa farming with agrochemicals and fertiliser. Farmers who produce organic cocoa receive a higher price premium compared to other certifications. The different bodies which certify organic cocoa include the United States Department of Agriculture (USDA), International Federation of Organic Agriculture Movements (IFOAM) organics international, Organic Farming Europe, and Japanese Agricultural Standard (JAS) (Basso et al., 2012; CRIG, 2010).	Farmers receive training on the standards' criteria. They receive a higher price premium annually.

Source: author's own, 2020 based on (Basso et al., 2012; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016)

3 Environmental and Social Standards

Environmental Best Practices

Among the various certifications, the environmental best practices promoted can be grouped under waste management, water management, ecosystem protection, safe handling of agrochemicals and biodiversity. These are explained below.

Water management: farmers are advised to keep some distance between farms and water bodies to prevent contamination of water bodies by runoff of agrochemicals. Farmers are advised to avoid contaminating water bodies near farms with plastic containers and bags, used agrochemical containers and any form of waste (Basso et al., 2012; COCOBOD, 2016b, pp.

69–79; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016).

Waste management: Farmers are advised not to litter farms. Farmers must dispose of waste materials, including used agrochemicals containers and plastics. Farmers are advised to recycle waste such as banana peels and harvested cocoa pods for compost (Basso et al., 2012; COCOBOD, 2016b, pp. 69–79; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016).

Safe handling of agrochemicals: farmers are advised to keep agrochemicals in a safe place to avoid the reach of children. Agrochemicals must also be kept in a ventilated and spacious room. Recommended agrochemicals are advised to be used, and any unapproved agrochemicals should be avoided. Farmers are advised to use the right agrochemical suitable for weed, pest and disease control and must also follow the prescriptions on the label. Farmers should also use the prescribed agrochemical dosage, intervals and timing of its application. Warning signs must be placed on farms after the application of agrochemicals. Farmers and labourers are supposed to wear recommended safety clothing when applying agrochemicals (Basso et al., 2012; COCOBOD, 2016b, pp. 69–79; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016).

Ecosystem protection: farmers are advised to avoid cutting forest trees to establish new farms. Farmers are advised not to either clear farms by burning. Farms must not be near conservation areas such as reserved/protected parks and forests. Farmers are advised to grow shade trees such as banana, plantain, coconut trees and other vegetation covers on farms to serve as shade to cocoa trees. Farmers are also to establish protected zones on the banks of a river, lake or other water bodies by growing trees (Basso et al., 2012; COCOBOD, 2016b, pp. 69–79; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016).

Wildlife protection: farmers are advised to avoid bush burning, and illegal hunting of wildlife species. Fertilisers, pesticides, and agrochemicals should be kept away from water bodies and any natural vegetation. Endangered species should not be hunted. Farmers are encouraged to grow trees to preserve a forest habitat (Basso et al., 2012; COCOBOD, 2016b, pp. 69–79; de

Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016).

Social Best Practices

Among the social best practices, fair treatment of workers and avoidance of child labour have been identified among the various certification schemes.

Child labour: farmers are advised to abolish child slavery of any form. Children from the ages of 13-15 may help their parents to carry out certain farm tasks among which include carrying cocoa pods during post-harvesting activities, uprooting weeds, and other forms of domestic activities which include assisting in cooking (figure 2.2). Children from the ages of 15-17 can be engaged in duties such as planting cocoa, weeding, and carrying fermented cocoa beans to the drying post (figure 2.2). When children are allowed to carry heavy loads and work for long hours in the sun, these are considered child labour. There are also worse forms of child labour which include children removing mistletoes on cocoa trees, and application of pesticides on cocoa trees. It can pose a threat to the health of children. (COCOBOD, 2016b, pp. 77–79; Fairtrade International and Fairtrade Africa, 2014).

Fair treatment of workers: farmers who employ either paid or family labourers must carry out certain working conditions for ensuring the safety and good health of labourers. Farmers must avoid working with nursing women, pregnant women, disabled or people with chronic diseases of any form and children below 14 years. Farmers should provide safety clothing (boots, gloves, nose cover) for labourers to protect them from accidents. Farmers are also advised to provide handwashing facilities, clean toilets, and drinking water for labourers. Farmers are supposed to educate labourers on the proper use of agrochemicals and pesticides (Basso et al., 2012; COCOBOD, 2016b, pp. 69–79; de Lange, n.d.; Fairtrade International and Fairtrade Africa, 2014; FTO, 2017; Rainforest Alliance, 2012; UTZ, 2016)

4 Physical Cocoa Standards

There are two main physical cocoa trading bodies in the cocoa industry, which have developed quality standards for trading cocoa beans. These include the Federation of Cocoa Commerce (FCC) and the Cocoa Merchant Association (CMA). Cocoa producing countries trade using the

FCC or CMA contract (End & Dand, 2015). Cocoa-producing countries who trade using the FCCs contract, conform to the standards by signing the FCC contract spelt out in the FCCs trading terms. For that matter, Ghana trades cocoa based on the FCC trading contract. It has formulated quality control standards in the sector, including post-harvesting standards using the FCC's standards. In like manner, producing countries that trade using the CMA conform to the trading body's quality standards. The International Standards Office (ISO), an international standards body, have also developed quality standards on cocoa and seeks to harmonise the quality standards developed by the two trading organisations.

Components of Physical Cocoa Bean Quality

Slaty Standard

Slaty cocoa is unfermented or partial fermented cocoa beans and such cocoa beans cannot be exported. Partially fermented cocoa beans turn purple colour, and both unfermented and partial fermented cocoa beans produce bitterness and astringency in chocolate flavour. Cocoa beans which are accepted for exports, fall under the required slaty standard range for Grade I, II and sub-standard respectively (End & Dand, 2015, p. 17). A cut bean test or performing a sensory test (biting into dried cocoa beans to look at the colour and to taste the bean), can detect slaty or purple cocoa beans. Proper fermentation can only be achieved during the farming stages of cocoa production when farmers adopt best practices post-harvesting. Poorly fermented cocoa beans cannot be reconditioned.

Mouldy Standard

Mouldy beans are cocoa beans that have mould growth and are caused as a result of over-fermented cocoa beans as well as inadequate drying of cocoa beans. Mould growth could also occur during the storage of cocoa beans at the warehouse level when cocoa beans are not stored in an airy room. To detect mouldy cocoa beans, a cut bean test is carried out to detect mould growth. This is done before cocoa beans are exported (End & Dand, 2015, p. 15; Wood & Lass, 1985). Mouldy cocoa beans can occur during the post-harvesting (fermentation and drying stages) as well as the storage stages (farmer or warehouse level).

Insect-Damaged, Germinated or Flat

Insect-damaged: Cocoa beans that have live or dead insects cannot be traded. Cocoa beans which are also damaged by insects cannot be traded. A cut bean test is also performed to detect an insect-damaged cocoa bean. It can occur during the pre-harvesting stages when pesticides were not applied to cocoa plants and pods as well as during the warehouse level when cocoa beans were not fumigated against rodents and insects.

Insect-germinated: "A cocoa bean, the shell of which has been pierced, slit or broken by the growth of the seed germ" (Wood & Lass, 1985, p. 601). It occurs due to the lack of application of pesticides during pre-harvesting stages, as well as during harvesting stages when insect-germinated beans are not removed and thrown away. It can also occur at the warehouse level where cocoa beans are not fumigated against rodents and insects.

Flat bean: cocoa bean which has no nib and cannot be classified as a whole cocoa bean. It is also an immature cocoa bean. Cocoa pods that do not fully ripen can produce flat beans. This can also be caused by a disease. Proper agronomic practices during pre-harvest stages can prevent flat beans (End & Dand, 2015, p. 33).

5 Post-Harvesting Best Practices

Technology	**Best Practice**
Harvesting	Harvest pods are either yellowish or almost yellowish. Do not wait for pods to be over ripped. Diseased pods should be removed and thrown away. "Extreme care should be taken during harvesting to ensure that the cushions carrying the flowers and fruits are not damaged" (COCOBOD, 2016b, p. 50).
Breaking of Pods	Farmers are recommended to break open pods within two to three days after harvesting. It is recommended to use a wooden club to cut pods open, as this will not damage the beans and will preserve the bean size. The placenta and husk should be removed, as well as infected beans (diseased, germinated and black) (COCOBOD, 2016, p. 51).
<u>Fermentation</u> *Heap fermentation*	Turning: it is highly recommended beans should be turned twice in the fermentation stage (48 hours at the start of fermentation and 48 hours after the first turn). It is highly recommended fermentation should be done in six days. Over fermentation will contribute to an off-flavour. The quantity of harvested beans requires different fermentation methods.

 *Basket fermentation*  *Box fermentation*  *Tray fermentation* 	A Heap fermentation 300 kg to 2 tonnes of cocoa beans is recommended for this method. Banana leaves are spread in a circular form on bare ground (it is carried out on the farms) and cocoa beans are heaped on the leaves. They are then covered with banana leaves and kept intact with logs. B Basket fermentation About 10 to 150kg of beans is required for this method. Banana leaves are used to line the basket, and the beans are poured into the lined basket. More leaves are used as coverage and logs are used to secure the covering (COCOBOD, 2016, p. 53). C Box fermentation Beans are poured into a wooden structure with a size of (1.2*1.2*1.2 m). There are holes at the bottom to allow for drainage. The boxes are in tiers to allow for easy turning. Banana leaves are used as coverage with wooden logs to secure beans. 1000kg of beans is recommended for this method (COCOBOD, 2016, p. 53). D Tray fermentation A 90kg wet beans with a wooden tray size of 1.2*0.9*.01 m is required for this method. The bottom of the tray is laid with reapers. About six trays filled with wet beans and covered with banana leaves are mounted over each other with a tray at the bottom for drainage and aeration. This method does not require turning, and fermented is completed within three to five days (COCOBOD, 2016, p. 53).
Drying	Beans should be sun-dried on raised wooden mats and stirred thoroughly for even dryness. It should be done the same day after fermentation. It should be dried between 5 to 7 days.

Source: author's own, 2020 based on (COCOBOD, 2016b; CRIG, 2010b) and pictures based taken from (COCOBOD, 2016b, pp. 52–53)

6 Information Background to Certification and Sustainability Standards in the Studied Communities

Mondelez Fairtrade Cocoa Life Programme in Aponapon Community

About 3428 farmers belong to a farmers' union called Amansie West District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited. In the Aponapon community, 54 farmers (36 male and 18 female) belong to the farmer's union. Farmers under this union are enrolled in an

International Confectionery Company called Mondelez International. Mondelez implements its sustainability programme called Cocoa Life, which implements Fairtrade standards. Mondelez International has 37 different brands that manufacture chocolate, biscuit and cookies, gum and candy, beverages, and meals. There are ten (10) chocolate companies under the brand, and nine (9) of them support the cocoa life sustainability programme. These companies market their chocolate and confectionery using the cocoa life-Fairtrade label. The cocoa life programme adopts Fairtrade standards and aims to promote sustainable cocoa production. The cocoa life programme is implemented in six cocoa-producing countries (Ghana, Côte d'Ivoire, Indonesia, India, the Dominican Republic, and Brazil). In Ghana, it works with 38,417 farmers across 447 cocoa communities. The programme has an internal monitoring system, certification extension and training and a farm inspection and monitoring system. The Mondelez office in Accra manages the internal monitoring system together with the secretariat of the farmers' union. There are extension officers from Mondelez who train farmers on good practices on environmental and social practices, as well as cocoa agronomics. Every year, a farm inspection and monitoring exercise is carried out to audit farms for compliance with Fairtrade standards. Mondelez invites an external auditor from FLOCERT to carry out this exercise.

Touton-PBC UTZ Programme in Subiriso Community

In collaboration with Touton S.A, the licensed buying company, PBC, a French-owned multinational agricultural trader and processer, implement the UTZ certification programme under Touton's sustainable sourcing programme. Touton has established its processing facility in Tema, Ghana, contributing 10.90 percent of primary processing in the country. Touton trades in coffee, vanilla, natural ingredients as well as cocoa. On cocoa, the company trades and processes cocoa beans, into cocoa liquor and cocoa butter. The UTZ programme began in 2010, however, in Subiriso, the programme commenced in 2014. The PBC is responsible for running the certification programme with its farmers in selected districts of the Ashanti, and Brong Ahafo regions and directly supplies Touton with UTZ certified cocoa beans. The programme also collaborates with Solidaridad, an international NGO responsible for the administration of the project. The internal monitoring system of the programme is managed by the Touton administration. The programme's components include a training and coaching model, a farm inspection and monitoring system, and a rural service centre established at the district levels

called Akuafo Yiedie Fie. The training and coaching model provides necessary extension services on sustainable cocoa production, including good environmental and social practices. The farm inspection and monitoring system, audits farms every year in September, ensuring farmers comply with the standards. The rural service centre provides farming services (pruning, spraying, and rehabilitation, weeding, and budding) to farmers at a fee, and farmers can also buy agrochemicals from there. In Subiriso, there are 60 farmers (42 male and 18 female farmers) enrolled on the PBC-Touton UTZ programme.

7 The Internal Marketing of Cocoa Beans

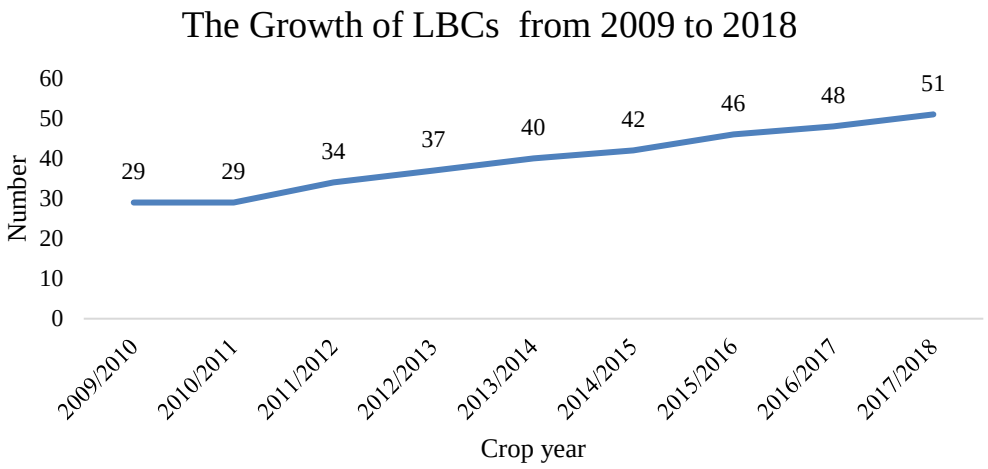
Since 1992, the internal marketing of cocoa beans has been liberalised, and LBCs are responsible for purchasing cocoa beans from farmers in every cocoa growing community. LBCs supply cocoa beans to CMC at the various take-over centres and CMC cover the cost of transportation. CMC gives LBCs seed money, and the seed money is on the "basis of cocoa delivered in the previous year. The funds were given on the assumption that the LBCs would be able to recycle the seed funds 2.2 times within the 33-week main crop season. In essence, the amount is determined by multiplying expected bean delivery by the declared producer price and dividing by 2.2" (Kolavalli & Vigneri, 2017, p. 37).

Who are the LBCs?

Both local and international companies compete among themselves to purchase cocoa beans. Most of the LBCs are Ghanaian owned companies, and some are owned by international agro traders and processers (Olam, Cargill, Barry Callebaut, and Armajaro, now called AgroEcom). The international buying companies either set up a local licensed buying company or buy an existing LBC operating in the sector. For instance, in 2015, an international processing company, Barry Callebaut acquired a local LBC. It maintained the name of the local LBC and has already gained momentum in the purchasing business in the sector. The local LBC operates in the various cocoa communities and has a strong purchasing network of over "10,000 farmers supplying to them, 600 purchasing clerks, spread over 34 cocoa districts" (Barry Callebaut, 2015). Olam International, an international trader and processer 2017, set up an LBC and is active in almost all the cocoa-growing communities (Joy FM, 2015). Some of the LBCs belong

to farmer associations. Some of these include Kuapa Kooko Ltd and Yayra Glova Ltd. Yayra Glova Ltd is the only buyer of organic cocoa in Ghana.

Over the years, the number of LBCs engaged in purchasing cocoa beans keeps growing (see Figure 8). Among the LBCs, PBC has remained the largest buyer of cocoa. After it was dismantled in the early 1990s, it was allowed to buy cocoa beans and maintained its buying centres built in all the cocoa-growing communities in the country. Therefore, it continued to secure a large number of previous farmers' clients. In the 2015/16 cropping year, PBC was the leading buyer of cocoa beans with a market share of 30.88 percent. While two international traders namely, Armajaro and Olam, were the second and third leading buyers with a market share of 13. 43 percent and 11.79 percent respectively (COCOBOD, 2016a, p. x).



Source: (COCOBOD, 2017)

In every growing community, LBCs have set up buying centres and employ a district officer who has the responsibility to secure cocoa beans in an assigned cocoa district and manage PCs under him or her. The district officers are recruited based on experience in purchasing cocoa, or agricultural commodities, sometimes education, as well as the wealth of the candidate, may be considered. District officers also employ one or more purchasing clerks to purchase cocoa beans from farmers in every community and pay them on commission. The commission purchasing clerks receive equivalent to the value of a kilogramme of cocoa. The price may alter depending on cocoa price. Purchasing clerks are sometimes recommended by local leaders or are recruited through interviews. The level of purchasing experience in cocoa or other produce, farmer status

and property as collateral is considered. Annually, a purchasing clerk can procure 250 bags (64kg). They receive a cash advance to purchase 50 bags (64kg) at a time (Shashi Kolavalli & Vigneri, 2017, p. 62). Because PCs may run into debts, some purchasing clerks in a cocoa district, have formed associations and contribute a monthly fee which is used to cover debts.

The role of a purchasing clerk is a sensitive one in the purchasing business. He performs the extension role in the community he operates in and is expected to share post-harvesting technologies with farmers every cropping season. PCs who belong to LBCs implementing certification schemes, also are expected to transfer best practices on social and environmental standards. He is expected to carry out crude quality inspection of cocoa beans at the point of sales (to check for moisture content, traces of poor fermentation, moldiness, germination and bean wholeness). PCs who supply inferior quality beans can be traced and may be sanctioned by an LBC.

Cocoa beans are purchased throughout the year. However, the major cropping season which falls between October to February is the busiest cocoa sales. Since purchasing clerks reside within the community, farmers carry their cocoa in sacks to the buying centre of an LBC to sell their cocoa. Purchasing clerks weigh the cocoa to check the quantity and sometimes sample some of the cocoa beans to check if cocoa beans are well dried, fermented and is free from debris or insects. Farmers instantly receive a cash payment for their cocoa after the purchasing clerk records details of farmers' quantity in a farmer accounting book and a farmers' book both provided by the LBC.

8 Net-Mapping Guiding Questions

Objective:
To identify the linkages between the various actors in the sector who promote quality standards
To examine the power relations among the different actors
To map the flow of knowledge enhancing quality standards in the sector

Target Group: Producers, Trainers

Equipment Needed:
Large sheets of paper for drawing the power network maps
Colourful actor cards
Felt pens to link the various actors

Guiding Questions

Linkages between various actors	Who are the actors you work with? How does each of them contribute to your work? Which actors do you communicate/ have meetings with often? Which of the actors do you work least with? Are you aware of other actors in the sector that you do not work directly with?
Power network	Which of the actors has more influence on your work? Which of them do you feel contributes more to the growth of your work? Which of them makes more decisions on your work? Which of them do you consult before making decisions on work? Which of the actors do you rely on for resources to work?
Flow of Knowledge	What are the various channels you receive information from? Which of these actors do you receive training/knowledge/advice from? Which of the actors do you advice or share knowledge with? Which of them gives you information to help in your work? Which of them do you rely on for information?

9 Socio-Characteristics of Farmers under FGD Categorisation

Communities	**Aponapon**		**Subiriso**		
Characteristics	*Conventional*	*Fairtrade*	*Conventional*	*UTZ*	**Total**
Age					
Young (20 to 40 years)	3	10	4	5	19
Middle aged (40 to 60 years)	5	5	4	2	21
Old (60 to 80 years)	5	-	1	5	9
elderly (80 to 100 years)	2	-	1	-	3
Sum	15	15	10	12	52
Gender/sex					
Male	7	11	4	8	30
Female	8	4	6	4	22

Sum	15	15	10	12	52
Marital status					
No	1	-	2	-	3
Yes	14	15	8	12	49
Leadership					
No	13	14	9	11	47
Yes	2	1	1	1	5
Sum	15	15	10	12	52
Ethnic					
Twi	15	12	2	3	32
Fante	-	-	8	9	17
Mamprusi		3	-	-	3
Sum	15	15	10	12	52
Education					
None	5	5	4	4	18
Basic (primary)	5	5	3	5	18
Secondary (high school)	5	4	3	2	14
Tertiary (polytechnic, o-level, university)	-	1	-	1	2
Sum	15	15	10	12	52

Source: author's own (2018)

10 In-Depth Interview Participants and Characteristics of Respondents

	Respondents
Age	
20-30	17
31-64	41
65+	6
Sum	64
Gender	
Male	43
Female	21
Sum	64
Education	
None	20
Basic	14
Secondary	10
Tertiary	20
Sum	64
Actor	
Farmer	25
Purchasing clerk	6

Community facilitator	3
Extension agent	5
Scientist (CRIG)	5
Technical officer (COCOBOD)	8
Quality control sampler	1
District officer (LBC)	2
Local elder	2
Labourer	3
Cooperative leader	4
Sum	64
Total	**64**

Source: author's own (2018)

11 Key Informants from Organisations

Organisation	Place/location
COCOBOD	
CHED division of COCOBOD	Accra, Kumasi, New Edubiase
QCC division of COCOBOD	Tema
CRIG division of COCOBOD	Tafo
SPD division of COCOBOD	Fumso
NGO	
World Cocoa Foundation	Accra
Solidaridad	Accra, New Edubiase
Cocoa and Chocolate Company	
Processing companies	New Edubiase, Berlin
LBCs	Accra, New Edubiase
Certification Body	
Fairtrade	Accra, Berlin
Input Services Organisation	
ARM Agrochemical Organisation	Berlin
Cooperatives	
Kookopa Farmers' Cooperative	Antrakrom
Amansie West District (CCP) Cooperative Cocoa Farmers and Marketing Union Limited	Kumasi, Mankraso

Source: author's own (2018)