mapping sustainable production in ghanaian cocoa

Report to Cadbury

Institute of Development Studies
and the University of Ghana

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Disclaimer

This report presents findings from an independent study commissioned by Cadbury Schweppes, carried out jointly by researchers from the Institute of Development Studies, University of Sussex and the Department of Agricultural Economics and Agribusiness, University of Ghana. The authors alone are responsible for all information and views expressed in this report, which do not represent Cadbury.

foreword

Foreword by Dr Stephanie Barrientos and Professor Kwadwo Asenso-Okyere

Ghana is renowned for the quality of its cocoa production and the crop plays a major role in the economy in terms of employment, incomes and foreign exchange earnings. However, Ghana's cocoa producers face many opportunities and challenges in sustaining their position in a changing global market. This report presents the findings of independent research carried out for Cadbury. It aims to enhance understanding of the position of Ghana's cocoa farmers and their communities with respect to their livelihood in the context of a dynamic chocolate value chain. We hope the report contributes to addressing the future sustainability of cocoa production in Ghana and provides evidence for improving the livelihoods of the farmers.

One of the key findings of the study is that, due to several reasons, productivity in cocoa farming is low, and declines as the farmers get older. Yet many of the youth, on whom viability of the sector depends, do not aspire to take up cocoa farming as a vocation and they look for better opportunities elsewhere. Cocoa farming needs support if it is to modernise, improve productivity, enhance incomes and reputation sufficiently to attract and retain the educated youth to ensure a sustainable future.

Chocolate manufacturers play a central role in the chocolate value chain given their central commercial position. The research team welcomes the Cadbury Cocoa Partnership as an important contribution to future sustainability of the sector. Involving partners across the value chain in supporting cocoa farmers and their communities helps to create a more inclusive and broad approach to addressing the challenges facing Ghana's cocoa farmers. Extending such an initiative across cocoa producing countries helps in promoting cocoa farmers and their communities globally.

Foreword by David Croft, Conformance and Sustainability Director, Cadbury

This research by the Institute of Development Studies and the University of Ghana has provided a better understanding of the needs of cocoa farmers and their communities in Ghana. We incorporated the report's findings into our thinking as we established the Cadbury Cocoa Partnership (CCP) – an investment programme in Ghana, worth £30 million over a ten-year period aiming to transform the lives and livelihoods of more than half a million cocoa farmers. The CCP is part of £45 million global cocoa investment programme, covering India, Indonesia and the Caribbean. We believe this new type of social and business investment model, led from the grass roots, will create conditions to enable Ghanaian cocoa farmers to increase their productivity, improve their income and improve life in cocoa farming communities through community centred development.

Community empowerment is at the heart of our programme. With our partners in Ghana we are helping cocoa farming communities to set their vision and action plan for the future, and then to deliver that vision. Programmes will include providing microfinance to farmers, education and enterprise programmes, and delivering training and technical support for more efficient cocoa farming, in addition to developing new income streams for rural communities from new crops such as mangoes or peppers, or even snail and fish farming. We will also continue existing programmes such as 'Well a Day', which will have built over 850 wells by the end of 2008. We believe that the CCP will help Ghana meet its Millennium Development Goals and its goal of reaching middle income status by 2015. More importantly, it will make a real difference in rural communities, to farmers and their families, helping support their sustainable future.

Our sincere thanks to Stephanie Barrientos, the Institute of Development Studies and the University of Ghana for providing this thorough independent input into establishing our programme.

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executive summary

"The aim of the study was to examine the factors that make up sustainable production for cocoa farmers in Ghana, focusing on the socio-economic dimensions of sustainability."

Cocoa plays a key role in the development of Ghanaian economy. Growth in cocoa output can contribute to overall economic prosperity and reduction of poverty. There are now an estimated 720,000 cocoa farmers, but they have low productivity, and are highly vulnerable to poverty. To support sustainable expansion of the cocoa sector, Ghana needs to position itself in a chocolate confectionery industry that has undergone a significant process of change during the past decade.

The Ghana Cocoa Board (COCOBOD) has played a pivotal role in positioning Ghana within the global market, and ensuring the quality of its cocoa exports. However, the Ghanaian cocoa sector faces a number of challenges, both internal and external, that need to be addressed to ensure the future sustainability of its production and position in the global cocoa-chocolate market.

This is a brief summary of key findings from an independent research study carried out by a team from the Institute of Development Studies, University of Sussex and the Department of Agricultural Economics and Agribusiness, University of Ghana. The study was commissioned by Cadbury , but all information and views in the report are those of the authors alone. The research is based on a case study, which is not statistically representative of the whole sector, but aims to contribute to a better understanding of the challenges to enhancing sustainable cocoa production in the context of a changing global chocolate-confectionery market.

The aim of the study was to examine the factors that make up sustainable production for cocoa farmers in Ghana, focusing on the socio-economic dimensions of sustainability. The study mapped the value chain linking chocolate manufacturers and processors to cocoa farmers in Ghana in order to assess:

- The criteria for sustainable production from the perspective of cocoa farmers.
- The incomes and social support currently going to cocoa farmers and the gap between current and sustainable production, suggesting factors that would enhance farmer livelihoods and contribute towards sustainable production.
- How chocolate manufacturers can support Ghana's cocoa value chain, to assess the contributions they can make to improve sustainable production for small producers in Ghana.

The research combined two analytical approaches: (a) value chain mapping, which traces linkages from production through to final consumption of a good, including initial inputs, production, distribution, manufacturing, retailing and consumption; and (b) sustainable production and livelihood approaches, which examine incomes, productive capacity and wider wellbeing now and in the future in the context of the wider social and institutional environment in which production takes place.

Consumer markets

Consumer markets for chocolate confectionery have also been rapidly changing. Markets are now more differentiated, with some consumers focusing on price, but others becoming more sensitive to factors such as quality and social and environmental processes of production for which they are prepared to pay a premium. Three market segments are emerging: (i) high-quality 'niche' chocolate (including single origin, Fairtrade and organics); (ii) mainstream quality chocolate; and (iii) bulk low-value chocolate. Aggregate growth in chocolate confectionery has averaged 2-3% per annum over the past decade. However, growth in the high-quality niche end of the market has been much higher, for example an average 23% annual growth rate in Fairtrade cocoa, albeit from a low base. Manufacturers and processors within the cocoa-chocolate value chain are having to be increasingly responsive to trends in this differentiated consumer market. This presents challenges for cocoa producers who need to respond to the requirements of processors and manufacturers.

Across the global cocoa-chocolate value chain, changes in the chocolate confectionery manufacture segment appear out of balance with those at the cocoa production end of the chain. There has been a growing concentration amongst manufacturers and processors, with a sharp decline in the number of specialised traders. Ten chocolate manufacturing companies now account for 43% of global sales. Manufacturers and processors have developed strategies to expand higher value activities, particularly in relation to the high-value niche and mainstream quality segments of the market. They have become attuned to growing consumer concerns with social and environmental issues. Many companies have introduced corporate social responsibility (CSR) initiatives, both in response to adverse media pressure (such as over the use of child labour in West Africa), and increasing challenges to the future sustainability of the cocoa sector. There is increasing demand from manufacturers for the sustained availability of high-quality cocoa that is produced in accordance with international social and environmental standards.

Production

In contrast production remains characterised by small-scale farming in many countries, particularly West Africa. In most producer countries dismantling of marketing boards under economic liberalisation has increased fragmentation within the sector. New supplier countries have expanded production, particularly in Asia. Over the past decade there has been a secular decline in prices, with average world market prices for cocoa 13% lower in 2005/6 than in 1993/4. The share of final price of an average UK bar of milk chocolate going to cocoa farmers is an estimated 4%. There has also been a decline in overall quality of cocoa beans, through short-cutting of more costly production methods. This runs counter to the increased demand for high quality cocoa beans.

Ghana has not been immune from international trends. However, it has benefited from the continued role of the Ghana Cocoa Board (COCOBOD), despite pressure to fully liberalise the sector in the 1980s and later. COCOBOD has provided support to farmers and coordinated the marketing of Ghanaian cocoa on international markets. This has helped to maintain the quality of Ghanaian cocoa which earns an international price premium. More importantly, Ghana's high quality cocoa has meant that it has been able to sell more of its cocoa than other producer countries on forward markets (up to 70%). Crucially, this enables domestic producer prices to be set in a manner which protects farmers from seasonal volatility in the markets. Ghana is in a position to expand within the mainstream quality segment of the cocoa market. It is an important exporter of Fairtrade cocoa (through Kuapa Kokoo Ltd) and has potential to expand origin and organic cocoa production – niche markets where the highest premia can be earned.

However despite this, Ghana faces significant challenges in maintaining the future sustainability of its cocoa production. Annual production of cocoa is well below its potential capacity, with productivity (output per hectare) at 40% of its estimated potential. It has an ageing farmer population, and faces an exodus of youth from the sector. The challenges it faces are both internal and external, in the context of a transforming global chocolate value chain. These include:

(i) Production challenges – expanding production and productivity to sustain farmer income and export growth whilst maintaining quality.

(ii) Social challenges — meeting the ongoing expectations of farmers and their communities that currently suggest cocoa farming will not be a choice for future generations. This has been fuelled by rural-urban migration, the communications revolution and rising socio-economic expectations. This is coupled with greater social awareness by consumers in external markets leading to an increasing market expectation that cocoa is farmed without the worst forms of child labour, and a rapid growth in the demand for fair-trade and organic chocolate:

(iii) Reputation challenge – ensuring that Ghana sustains its high reputation in the cocoa industry in the face of mounting competitive and social challenges and is able to promote itself as a progressive producer.

Mapping Sustainable Production in Ghanaian Cocoa Executive summary

“ The Government has identified agriculture, and cocoa in particular, as having the potential to make an important contribution to economic growth, and to Ghana meeting its goals for poverty reduction. ”

Ghana case study

A case study was undertaken to assess the sustainability of cocoa production in the context of the changing global value chain. The study was undertaken in six communities across three regions: Ashanti, Western South and Eastern Regions. The case study was based on a survey of 217 farmers, focus group discussions (45 owner-operators and caretaker operators, 12 youth and 12 women), 24 life histories and key informant interviews with actors in each community and throughout the cocoa value chain. This was not a statistically representative sample, but provided an insight into current and future challenges facing cocoa producers.

The study highlighted a socio-economic profile of cocoa farmers as an ageing population (average age 51 years in this study) of whom 46 per cent are migrants, with a high reliance on caretaker farmers. Cocoa production is labour-intensive, but at farm level there is a shortage of hired labour in the sector, along with increased labour costs. Most farm labourers tend to be men and sometimes some of them are also farm operators who might need extra money to meet some recurrent expenditure.

The high cost of labour and high cost of inputs have contributed to many farmers failing to adopt improved practices and maintain their farms as well as they might. There is a low ratio of hybrid trees to traditional trees on cocoa farms, and low use of nursery cultivated hybrid seedlings. Until recently, many farmers did not weed around their farms three times a year, they scarcely sprayed their cocoa trees against capsid and black pod diseases and they left mistletoes to grow on the trees.

The result of neglect is a low cocoa yield. Cocoa yields of less than 400 kg per hectare compares with an optimistic view that yields in Ghana could potentially increase to 1000 kg per hectare. Ghana clearly has potential to expand its position as a supplier within the mainstream (and potentially the upper niche) segments of the chocolate industry.

The Government has identified agriculture, and cocoa in particular, as having the potential to make an important contribution to economic growth, and to Ghana meeting its goals for poverty reduction. However, cocoa households surveyed in this study were found to have an estimated mean per capita daily income from cocoa alone of US$0.42, and a mean per capita daily income from cocoa and all other sources of US$0.63. The results imply that in the cocoa growing areas sampled for this case study, members of farm households depend on cocoa for two thirds of their income and on average earn less than US$1.00 per day per capita overall.

If poverty amongst cocoa farmers is to be addressed, and good-quality cocoa produced on a sustainable basis over the long term, agricultural productivity and incomes need to rise.This is a systemic challenge which faces all parties in the chain, particularly those in Ghana. It means paying systematic attention to variety and choice, cultivation patterns and fertiliser and pesticide inputs to improve land productivity, and some forms of mechanisation to increase labour productivity on a sustained basis. Farmers face particular production constraints in relation to access to finance and lack of credit, access to hybrid seeds and seedlings, information on fertilisers, an adequate spraying programme, and provision of extension services. Market access can be constrained by lack of transport, poor roads, lack of communication, and poor information flows. This is a particular problem for farmers in smaller or more remote locations.

In terms of social amenities, farmers and caretakers would like to have the same amenities as those in the towns and cities. Many farming communities would like to have electricity and good drinking water (at least a hand-dug well or borehole with a pump), places of convenience, schools and health facilities. For smaller communities, priority for social amenities tended to be roads, schools and clinics; and very basic needs such as potable water and public toilet facilities were highly ranked. Larger communities tend to have these basic amenities but need improvements, such as new pipes to ensure a regular flow of water; or rehabilitation and extensions of existing school buildings. A need for formal employment opportunities came up frequently.

These findings pose major problems for the future viability of cocoa farming in Ghana. The study examined the perceptions for the future and the aspirations of cocoa farmers. The majority said that cocoa farming as an occupation had not met their expectations, and many were doubtful that they could achieve their life goals through cocoa farming alone (although this varied by region and size of community). The older farmers believed that cocoa was their

“If these new systems of cocoa production can be explored and supported, cocoa will continue to feature in people’s aspirations, and will continue to promote local and national development.”

best option, but not for their children. The study found that there are significant differences in productivity by age of farmers, with older farmers producing lower yields per acre than younger farmers. The profile of an ageing farmer population and lack of interest in cocoa farming by youth presents a major challenge to increasing growth and ensuring the future sustainability of the cocoa sector.

The study noted the importance of attracting youth and reducing the average age of farmers. Young and more educated persons were found to work on farms that were more productive than those of older farmers, and were more likely to introduce innovative production methods. Attracting and retaining young farmers into the sector is thus essential for the long-term sustainability and growth of the cocoa sector.

Many farmers interviewed did not want their children to work in the cocoa sector, and young people with some education were likely to leave cocoa for better paid work elsewhere. When focus groups members were asked why cocoa farming was such an undesirable vocation for their children, they answered that it was low-status work with little prospects, and that it was dangerous and backbreaking work without commensurate rewards.

The young people interviewed suggested they would be willing to undertake cocoa farming if conditions were better than those endured by their parents. Cocoa prices and profitability of cocoa production would also have to increase. An improvement in the support currently given farmers, and a recognition of their contributions, would help young people think more highly about cocoa farming, and be at least willing to consider it as a livelihood activity.

The study yielded evidence that young people do not completely discount cocoa farming, but that their preferred model is of a commercialised enterprise that does not require as much physical labour, and does not have to be a full-time occupation. If these new systems of cocoa production can be explored and supported, cocoa will continue to feature in people’s aspirations, and will continue to promote local and national development.

A workshop held with key stakeholders identified key issues that need addressing. The following is a brief summary of the issues highlighted:

Credit and Finance:

- Enhanced credit facilities and Rural Banking infrastructure

Production:

- More farmer education and access to fertiliser.
- Extended programme of mass production and distribution of cocoa hybrid seeds and seedlings to ensure availability to farmers, with continued research to develop these.
- Further investigation of the effectiveness of the mass-spraying programme and further evaluation of how to improve its implementation.
- A comprehensive study of extension services. Re-establishing Farmer Training Centres to enhance farmer participation, and facilitate adoption of innovations to improve productivity and meet international quality standards.
- Support and better information to enhance crop diversification by cocoa farmers.

Labour and Land:

- More efficient use of labour through changing production methods and a reduction in the element of drudgery.
- Support for multistakeholder initiatives involving politicians and civil society organisations that work with farmers to address the use of child labour.
- In Ghana, a land reform project is currently underway. The issue of cocoa farm land should be given specific attention to see how systems of land tenure can open up access to land for cocoa farming.

Market Access:

- Enhance market access through improvements to roads, transport and communication systems in cocoa-growing regions.

“Crucial factors are the need to raise the productivity of cocoa farming, enhance social provision in cocoa communities, and attract the youth who are essential for future innovation and sustainability of production.”

Community Based Organisation:

- Sensitisation of farmers about benefits of collaboration, and enhanced support for community-based organisations.

Social Provision:

- Better provision of schools and teacher incentives in cocoa-growing areas. Review and extension of COCOBOD Scholarship programme.
- Better provision of health clinics, incentives for health workers and access to health insurance for farmers in cocoa regions.
- Extend provision of an affordable housing scheme to low-income farmers.

Global Value Chain:

- Review of the role of Licensed Buying Companies (LBCs), supply chain logistics and payment systems by LBCs to cocoa farmers.
- Support and advice to farmers and producer groups wishing to pursue origin, organic and Fairtrade cocoa, and ensure benefits are passed back to farmers.
- CSR funds could be made available to support innovations and capacity-building that enhances productivity, market access and social provision in cocoa communities.

Making Farming a ‘real job’:

- Government, COCOBOD, LBCs, farmer organisations and chocolate manufacturers should work together to formulate a plan to introduce youth to cocoa farming.

Paradigm Shift:

- Extending public-private partnerships along the value chain, involving all those actors able to make a positive contribution to enhancing sustainable production.

A more integrated approach involving all value chain actors, based on public-private collaboration, is needed. This includes cocoa processors, chocolate manufacturers, national government and relevant Ministries, COCOBOD, Licensed Buying Companies, District Assemblies, Community-based Organisations, farmer associations and civil society organisations. It needs to ensure participation by farmers (especially younger farmers) in order to achieve sustainability of cocoa production, expand Ghanaian cocoa exports on world markets, and advance the contribution of cocoa production to Ghanaian economic development.

Conclusion

In conclusion, significant changes are taking place within the cocoa-chocolate value chain. But there is currently an imbalance between the manufacturing and processing end compared to the cocoa production end of the chain. Manufacturers and processors are comparatively well positioned at the high-value consumer end of the chain. Whereas cocoa producers have faced declining prices and quality, low share of final price, as well as increasing market concern in relation to social and environmental practices. Consumer demand for higher quality chocolate is likely to continue – which manufacturers, processors and producers have a joint interest in meeting.

Ghana has the potential to expand within the quality segment of the value chain, and COCOBOD to negotiate on behalf of farmers in international fora. However, it faces significant challenges in modernising the cocoa sector. Crucial factors are the need to raise the productivity of cocoa farming, enhance social provision in cocoa communities, and attract the youth who are essential for future innovation and sustainability of production.

In a differentiated consumer market, Ghana needs to find routes within the chocolate-cocoa value chain, so that farmers can engage in ‘higher value’ cocoa production that generate larger revenues. This can be done by: Firstly, enhancing the profile of Ghanaian cocoa within the mainstream quality market (for example a higher premium for ensuring international social and environmental standards are met). Secondly, further expanding within the high-value niche segment of the market (particularly through the support of certification and expansion of Fairtrade, organic and origin cocoa). Thirdly, raising the profile of Ghanaian cocoa and chocolate of Ghanaian-origin as coming from a dynamic and progressive sector, both amongst producers and consumers. All actors within the value chain have a joint interest in supporting the provision of commercial incentives that attract young and innovative cocoa farmers, enhancing the sustainability of Ghanaian cocoa production and the future expansion of the quality chocolate market.

1. overview of project

1.1 Introduction

Ghana is the second largest exporter of cocoa in the world after Cote d'Ivoire. It has a reputation for producing some of the highest-quality cocoa anywhere. Cocoa plays a key role in the development of Ghanaian economy. It is the second largest export out of Ghana, with export earnings of US$1,187.4 million in 2006 from cocoa (SGER 2006). The significant growth in cocoa output in recent years is contributing to the reduction of poverty in Ghana, and helping the country to achieve its Millennium Development Goals (MDGs) (Coulombe and Wodon 2007). To maintain this momentum, Ghana needs to sustain and expand its position within world cocoa markets.

However, there are a number of long-term challenges facing the Ghanaian cocoa sector. Prominent amongst these are:

Sustainability of production: Questions over the sustainability of cocoa production. This is required both to maintain output of the current consistent high quality, and to ensure farmers and their households a decent livelihood enabling them to continue farming effectively in the medium-to-long term. A particular challenge for the future is the low level of interest expressed by many young Ghanaians from cocoa-growing areas in becoming cocoa farmers.

Social standards: European and North American consumers are requiring rising social and environmental standards. These include attainment of internationally recognised labour standards (including elimination of the worst forms of child labour) and ensuring fairer participation by farmers in the cocoa value chain.

The history of Cadbury[1] is steeped in a philanthropic tradition. The firm has a long history of sourcing cocoa from Ghana dating back to the early 1900s. It played an important part in the original development of the cocoa sector in the country. Cadbury sources all its cocoa for the UK market from Ghana and this accounts for approximately 15% of Ghana's total cocoa exports. Ghana is seen as the main source of supply because its cocoa is of high quality, ensuring the flavour of Cadbury's chocolate. Cadbury is actively engaged in corporate social responsibility (CSR) initiatives in the cocoa and confectionery sectors. It has a long record of providing social support to cocoa farmers and their communities in Ghana (Cadbury Schweppes CSR Report 2006). Its aim is to support the Ghanaian cocoa sector to attain sustainable production and meet the social standards increasingly demanded in northern markets.

Both the Ghanaian cocoa industry and Cadbury have a strong interest in promoting the development of a cocoa sector able to produce high-quality and differentiated cocoa. There are therefore mutual benefits to both parties in pursuing shared objectives of enhancing sustainable production.

1 In this report Cadbury will be referred to as Cadbury Schweppes or shortened to Cadbury.

“ The focus of this study was to map the global value chain linking chocolate manufacturers and processors to cocoa producers in Ghana... ”

1.2 Aims and objectives

This report presents findings from an independent study commissioned by Cadbury Schweppes, carried out jointly by researchers from the Institute of Development Studies, University of Sussex and the Department of Agricultural Economics and Agribusiness, University of Ghana.[2]

The aim of the report is to examine the factors that make up sustainable production for cocoa farmers in Ghana, with a focus on the socio-economic dimensions of sustainability. Other studies have examined the institutional; economic, technical and environmental dimensions of the cocoa sector in more depth.[3] The focus of this study was to map the global value chain linking chocolate manufacturers and processors to cocoa producers in Ghana in order to assess:

- The criteria for sustainable production from the perspective of cocoa farmers.
- The incomes and social support currently going to cocoa farmers and the gap between current and sustainable production, suggesting factors that would enhance farmer livelihoods and contribute towards sustainable production.
- How chocolate manufacturers can support Ghana's cocoa value chain, to ascertain how they can help improve sustainable production for small producers in Ghana.

This study mapped the global value chain (with a focus on Cadbury chocolate and the UK market) in order to provide a holistic view of the position of Ghanaian cocoa farmers within the contemporary chocolate-confectionery sector. It is based on a case study, which is not statistically representative of the whole sector, but provides in-depth examination of the challenges to ensuring the sustainability of cocoa production. This provides the basis for recommendations relevant to both Cadbury Schweppes, and the wider industry, to help support the attainment of sustainable production and accepted social standards in Ghanaian cocoa.

1.3 Analytical framework

There is no single conceptual framework that allows us to capture all dimensions of this study. We therefore drew on a combination of approaches:

i. Global value chain analysis

ii. Sustainable production/livelihoods

These approaches combined facilitate analysis of the relationships between the global chocolate industry, the national-level cocoa sector within Ghana, and district/farm-level production of cocoa. Combined with a mapping of the different actors involved in the global cocoa value chain to Ghana, it helped to assess interventions that could support the attainment of sustainable production and social standards.

1.3.1 Global value chain analysis

Value chain analysis traces all the linkages in the production process through to final consumption of a commodity, including initial inputs, production, distribution, manufacturing, retailing and consumption. It is premised on the perspective that these activities are increasingly undertaken by interconnected commercial actors, rather than through more remote market operations. Global buyers are able to exert increasing governance of value chains through their dominant commercial position, without formal ownership of production or distribution.[4]

Value chain analysis can be extended to include the wider socio-economic actors linked to a chain, including government, trade bodies, trade unions, and civil society organisations.

Value chain analysis is an important component of this investigative process, and provides three key insights:

1. By mapping the accretion of value added through the chain, it provides a tool for assessing the changes and interventions necessary to provide sustainable incomes to Ghanaian cocoa farmers.

2 The authors alone are responsible for all information and views expressed in this report, which do not represent Cadbury.

3 See for example: Coulombe and Wodon 2007; NRI (2004); STCP (2005); Shepherd and Onumah (1997); Teal, Zeitlin and Maamah (2006).

4 For a fuller discussion of Global Value Chain analysis see: Gereffi and Kaplinsky eds. (2001) and Kaplinsky and Morris (2001).

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2. Producing high-quality cocoa requires interaction between chain participants and a drive to systemic efficiency and quality standards. These inter-linkages can be revealed through analysis of the value chain.
3. It facilitates assessment of the forms of chain governance required to meet these aspirations – including standard-setting, provision of extension services, decisions affecting incorporation of suppliers, and so on.

1.3.2 Sustainable production/livelihoods

Mapping the value chain through to producer level helps to capture the diverse ways in which cocoa production affects livelihoods of cocoa growers, and those further along the value chain, notably input suppliers, as well as so-called multiplier (or knock-on) effects through cocoa growers' communities and local economies.

At its broadest, sustainable livelihoods are based on sustainable development 'that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This definition has been adopted by the International Cocoa Organization (ICCO) Council, drawing on the Brundtland Commission in 1987. ICCO believes its members should be working collectively towards a world cocoa economy that is 'economically viable, ecologically sound and socially acceptable' (ICCO CB/11/2 2007).

At a more specific level, a sustainable production/livelihoods approach[5] involves:

- Resources: how people combine physical, natural, financial, human and social capital in their livelihood strategies;
- Institutions: organisations and social relations mediating access to those resources;
- Strategies: the choice of production and livelihood strategies;
- Context: variables such as trends, shocks, the broader economic and political factors that affect cocoa production and distribution.

The value of using a sustainable production/livelihoods lens is that it is comprehensive enough to allow us to develop a checklist of important issues for cocoa farmers and sketch out the way they link to each other. It recognises that different strategies may be pursued simultaneously, including on- and off-farm work. Livelihood outcomes include:

- Greater income and wellbeing
- Reduced vulnerability to poverty
- Improved security
- More sustainable use of natural resource base

1.3.3 Linking value chain and sustainable livelihoods

Combined, these approaches draw attention to core influences and processes, emphasising multiple interactions between the various factors affecting livelihoods. Importantly, the approach allows us to examine how policies, institutions and environments interact to shape choice of strategies, which in turn shape outcomes and feedback into the asset base. It helps assess which actors (commercial, governmental and social) can help enhance sustainable production/livelihoods, and what interventions are likely to be more effective.

The value chain and sustainable livelihood approaches can be linked by: (a) highlighting farmer livelihoods as central to the long-term sustainability of the value chain itself; (b) exploring how commercial inter-linkages within the value chain could better enhance the sustainability of production; and (c) exploring how different governmental, commercial and social actors linked to the chain could better support farmers.[6]

5 See for example: Scoones (1998), Ellis (2000).

6 Note: The Ghanaian currency was re-denominated by a factor of 10,000 in July 2007. The research for this study was carried out prior to re-denomination, and this report has used the old Cedi throughout.

2. context and trends in cocoa sector

> “ ...there is a growing consumer demand that brands should provide broader assurance of product quality that also satisfies health, environmental and social concerns. ”

2.1 Consumer trends

Growth in demand for cocoa as measured by grindings of cocoa beans grew by an average 2–3% in the period 1996/7 to 2005/6, rising from 2.7 to 3.4 million tonnes in that period (ICCO MC/6/4 2006), and is expected to grow at an average rate of 2.4% during the 2006/7 and 2010/11 seasons (ICCO MC/9/3 2007). Cocoa butter, liquor and powder are used as ingredients in chocolate confectionery, food and drinks (as well as in personal care products and cosmetics on a small scale). In this study we have focused on chocolate confectionery alone.

The total consumption of chocolate confectionery was estimated to be 5,299,000 tonnes in 2004, with 29% consumed in the US and 10.5% in the UK (ICCO website June 2007, www.icco.org). The chocolate market is highly competitive globally, and companies are constantly striving for product innovation and novelty to differentiate themselves and their products. They are also compelled to respond to a market that is changing, and becoming increasingly differentiated. It is possible to identify three market segments:

(i) **High-quality ‘niche’ chocolate:** Within Japan, North America and Europe, demographic changes are taking place through the ageing of the population, smaller household composition with a higher adult ratio, and rising income inequality. Some consumers are becoming more health-conscious, and have greater access to information through the internet and long-haul travel about the origins of the food they buy. The ‘niche’ end of the chocolate market is expanding at a faster rate than average growth of consumption. For example, ‘fine or flavour’ grades with a known origin were estimated to have grown by a third from 60,000 tonnes in 2000/1 to 80,000 tonnes in 2004/5. This figure is much higher (estimated 30,000 tonnes) when organic and Fairtrade chocolates are included (industry source).

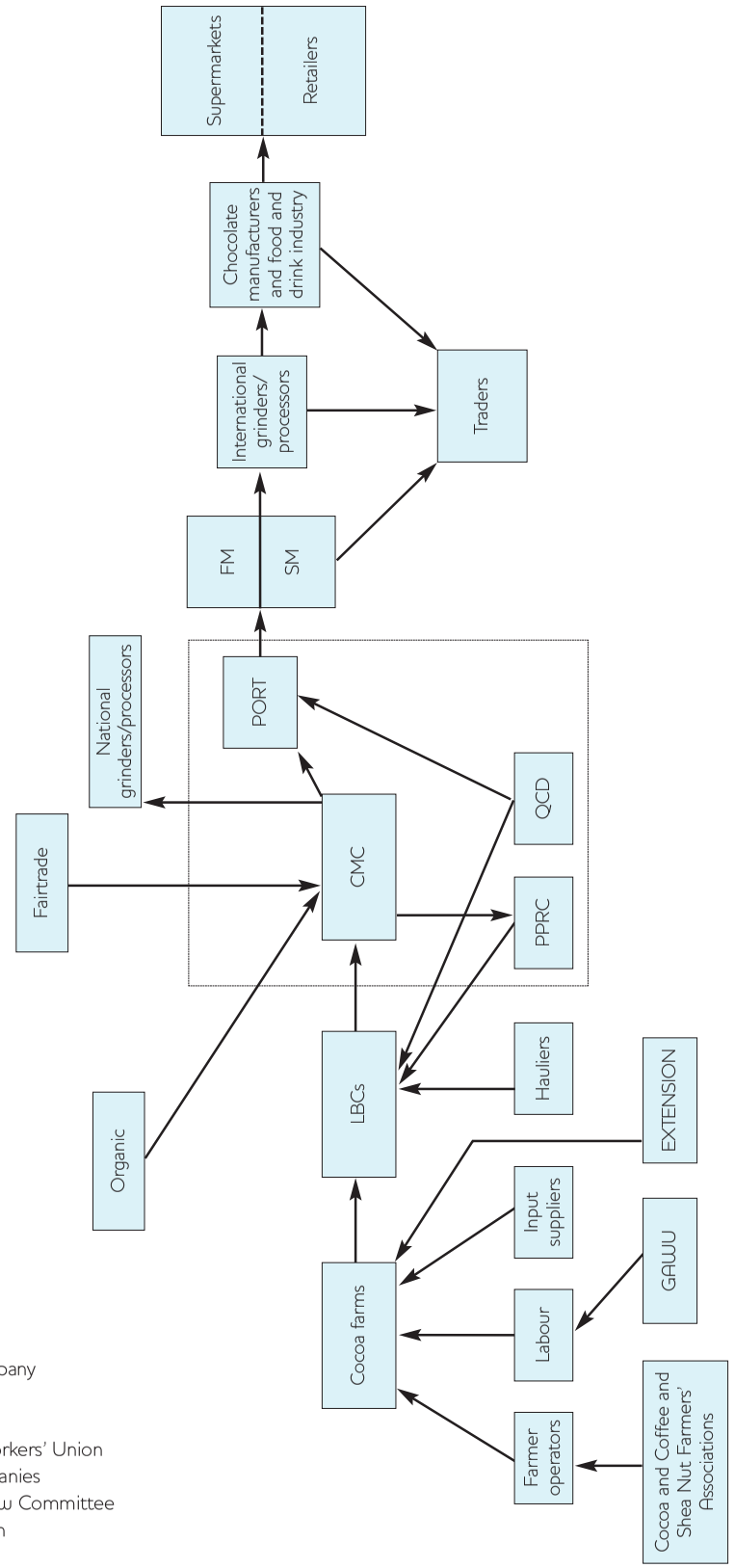
(ii) **Mainstream-quality chocolate:** Below these niches, there is a growing consumer demand that brands should provide broader assurance of product quality that also satisfies health, environmental and social concerns.

(iii) **Bulk low-value chocolate:** At the other end of the spectrum there has been a growing volume market for cheaper lower-quality chocolate, both in Northern markets, but particularly in some developing countries such as China, India and Brazil. These tend to be cocoa powder-based, manufactured with low-cost non-cocoa fats (Fold 2002, 2005). There is also some evidence that the shell of cocoa beans (normally regarded as a waste product whose presence is legally controlled in many markets) is being used in some low-value products.

2.2 Global value chain in chocolate and confectionery

The global cocoa value chain has undergone a rapid process of centralisation and integration over the past two decades. Most notable developments have been increased concentration and control at the retail end by supermarkets, and growing concentration amongst manufacturers and processors (grinders or processors), with a sharp decline in the number of specialised traders. This has contributed to increased integration of the cocoa value chain, which is depicted in Figure 2.1.

Figure 2.1: Simplified overview of Ghana cocoa value chain



Key:

CMC	Cocoa Marketing Company
COCOBOD	Ghana Cocoa Board
FM	Forward market
GAWU	Ghana Agricultural Workers' Union
LBCs	Licensed Buying Companies
PPRC	Purchasing Price Review Committee
QCD	Quality Control Division
SM	Spot market

At the retail end of the chocolate value chain, there has been an increasing concentration of and dominance by supermarkets. This is part of a general trend in global supermarket expansion, where companies such as Wal-Mart, Carrefour, Ahold and Tesco are now amongst the largest global multiple retailers. The trend to increased concentration in supermarket outlets has been pronounced in the UK where four supermarkets (Tesco, Asda–Wal-Mart, Sainsbury's and Morrisons) now have 74% of the multiple grocery market. In the chocolate confectionery sector there has been a growth in supermarket 'own-brand' labelled lines alongside those of traditional chocolate-manufacturing brands. Supermarkets are now key commercial players at the retail end, selling approximately 55% of all chocolate confectionery retailed in Great Britain (trade source).

Supermarkets work through centralised distribution systems, in which they exercise increasing control over their suppliers in relation to price, promotional costs and marketing. Supermarkets are demanding traceability in their value chains to ensure food hygiene and quality standards are met, as well as standards relating to environmental and social issues (Vorley 2004). But there has been increasing criticism from civil society organisations (non-governmental organisations [NGOs] and trade unions) that the commercial pressures supermarkets exert on suppliers in relation to price, costs and ordering have had adverse effects on smaller producers and workers at the lower end of the value chain (Acona 2004; ActionAid 2005).

Concentration is also occurring on the manufacturing side of the industry. The top ten manufacturers account for 43% of world sales in 2005 (ICCO MC/10/6 2007). These companies included Nestlé, Ferrero, Cadbury Schweppes, Mars, Hershey, Kraft Foods. Each company sells a range of brands, targeted at different sections of the consumer market. Increasingly in Europe their products are retailed through supermarkets, as they have come to dominate the food retail sector. A declining number of manufacturers, but including Cadbury Schweppes, are involved in some markets in both the processing (grinding) of cocoa beans as well as the production of chocolate. However there has been a trend to increasing outsourcing of processing to specialised processors by manufacturers (Fold 2002, 2005). Barry Callebaut is particularly prominent in this, mostly producing chocolate for moulding by the branded manufacturers such as Nestlé, Hershey and Cadbury, as well as supplying to food groups such as Kraft, Kellogg and Unilever (Financial Times 19/7/07).

Over the past two decades, there has been a notable consolidation of the cocoa-processing industry. Four firms – Archer Daniels Midland (ADM), Cargill, Barry Callebaut, and Blommer – accounted for 42% of the market in 2003/4. Processors in particular have increased their upstream integration in many cocoa-producing countries. This has been more predominant where liberalisation led to the decline of state marketing boards in Anglophone countries and stabilisation funds in francophone countries. It has been less predominant in Ghana where the Ghana Cocoa Board (COCOBOD) retains control of the sector. Armajaro and Olam are the only two international trading houses currently licensed to operate as buyers within Ghana. Grinding is also geographically concentrated. The Netherlands, US and Cote d'Ivoire account for 50% of total global capacity (Kaplinsky 2004; Fold 2002, 2005). The local cocoa-grinding capacity in Ghana is increasing as ADM and Cargill bring plants on stream to join the 60,000 tonne-capacity plant operated by Barry Callebaut and the other smaller locally owned operations.

At the same time, the number of specialised cocoa traders, who used to maintain cocoa beans and products as a traded commodity on both the forward and spot markets, has declined. The number of specialised traders fell significantly from the 50 who operated in 1980, with some traders having expanded into grinding (predominantly ADM, Cargill and later Armajaro). Consolidation in the cocoa-processing industry, combined with developments in chain logistics (bulk transportation, information technology and communications) and liberalisation within producer countries, has allowed companies to reduce the size of cocoa stock they hold. As a result there has been a reduction in the amount of cocoa bought through forward purchases, with cocoa becoming more predominantly a spot market operation (ICCO MC/9/2 2007).

Processors thus provide a more centralised and integrated link between manufacturing and production within the cocoa value chain. The contemporary cocoa chain has been described as featuring 'bi-polar governance'. One pole is composed of the concentrated group of processors, who increasingly have operations in both producing and consuming countries.

The second pole is composed of the large chocolate manufactures, although their operations along the chain are much more limited. (Kaplinsky 2004; Fold 2002). Integration potentially facilitates responsiveness to changing consumer trends at the retail end of the cocoa-chocolate value chain, but may disadvantage cocoa producers in some countries.

2.3 Cocoa production

In contrast to the process of consolidation and integration amongst cocoa processors and chocolate manufacturers, production remains characterised by small-scale farming in many countries, particularly West Africa. In most producer countries (with the exception of Ghana) dismantling of marketing boards under liberalisation has increased fragmentation within the sector.

The three largest cocoa-producing countries are Cote d'Ivoire, Ghana and Indonesia, accounting for approximately 75% of total production. Cote d'Ivoire was the largest producer, exporting 46% of the world total and Ghana ranked second, exporting 17% of the total in 2004/5 (ICCO MC/9/2 2007). In both countries the cocoa sector is characterised by small-scale farming. In Ghana there were estimated to be approximately 720,000 farmers in 2007 (COCOBOD source), with an average productive cocoa area per household of approximately 5 acres (or 2 hectares). Indonesia is characterised by larger-scale farming. Over the past five years, there has been an increase in production from smaller exporters in Latin America and Asia.

Table 2.1: Net export of cocoa by top 5 countries, annual average 2000–5

Country	Tonnes 000s	%
Cote d'Ivoire	1294.69	46.15
Ghana	485.18	17.29
Indonesia	407.29	14.52
Nigeria	177.07	6.3
Cameroon	150.77	5.37
World Total	2805	100

Source: ICCO MC/9/2 2007

During the post-Second World War period, the traditional cocoa-producing countries had marketing boards or stabilisation funds that controlled or supported the cocoa export sector. In the 1980/90s, under pressure from the International Monetary Fund (IMF) and World Bank, many countries dismantled their boards and liberalised the cocoa sector. Ghana was the exception, with liberalisation only in the domestic market under the Ghana Cocoa Marketing Board (Shepherd and Onumah 1997).

Following liberalisation, farmer prices in most countries have thus been set by international markets. This has had two impacts. On the one hand it has meant that farmers have been able to obtain a greater share in the free-on-board (fob) price (although some countries have set high levels of tax on cocoa growers). However, the period since the mid-1980s, saw a downward trend in world prices, reaching a trough in the late 1990s. Although there was a partial recovery after 2000/1 (see Figure 2.2), in real terms average world market prices for cocoa were 13% lower in 2005/6 than in 1993/4 (ICCO MC/9/2 2007). On the other hand, without protection, farmers have been subject to greater price fluctuations, reflecting changes in international cocoa prices and variations in international values of domestic currency (ICCO MC/6/4 2006). In Ghana, COCOBOD has been able to protect farmers from annual seasonal price volatility, and ensure a price higher than the prevailing international average, but prices have been subject to annual variations and international trends.

Mapping Sustainable Production in Ghanaian Cocoa Context and trends in cocoa sector

"...Ghanaian cocoa has been able to command a premium of up to US$200 – 250 per tonne over the prevailing international cocoa price..."

Two explanations have been put forward for the secular decline in prices:

(i) oversupply fuelled by liberalisation and the entry of new producing countries (particularly in Asia);

(ii) increasing concentration of ownership and control at the downstream end of the chain counter posed with decreasing concentration and increased liberalisation at the upstream growing end. In this commercial environment, increases in consumer prices have not been passed onto producers (Kaplinsky 2004; Morisset 1998).

Looking at the total cocoa-chocolate value chain, estimates indicate that cocoa farmers' share of the cost of a typical UK bar of milk chocolate in 2004 was approximately 4%[7]. Gilbert (2007) estimated that the processor/manufacturer costs and profit accounted for 43%, the retail costs and margin 24%, with other costs and tax accounting for the difference[8]. Lass (2004) estimated the manufacturing, packaging and distribution share at 36% and the retail costs and margin at 32%.

The relative share differential partly relates to costs, but it has been argued by some NGOs there is an imbalance within the chain between manufacturers/processors and cocoa farmers (Oxfam 2002). Firstly, cocoa is a traded commodity with price determined by demand and supply on forward/spot markets. But global demand is generated by an increasingly concentrated number of processors and manufacturers who are in a strong commercial position to buy at favourable prices. Supply has become more competitive through liberalisation in producer countries, and more countries have moved into the sector. With increasing supply, this market context has worked to depress prices. Secondly, processors and manufacturers operating at the consumer end of the market have been better positioned to understand and adapt to changing consumer requirements than producers, and develop strategies to expand higher value activities.

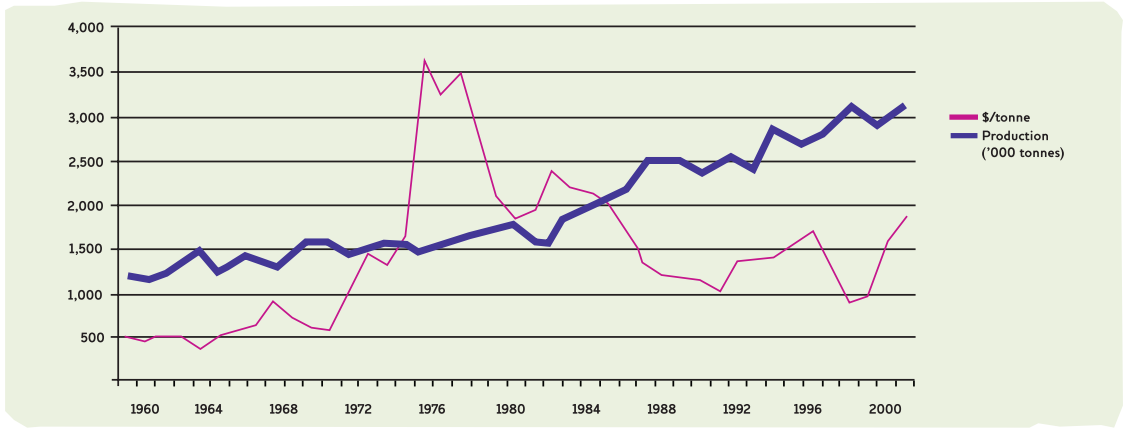
A challenge for the cocoa sector post-liberalisation has been complaints from importers and users about declining quality (with the exception of Ghanaian cocoa). This decline has partly resulted from the loss of marketing boards who previously oversaw quality in most producer countries, and declining price. In the face of lower margins, farmers are more likely to rush the fermentation and drying process in order to speed up sale and reduce turn-around time, leading to bean deliveries of mixed quality that thus lowers the quality of the final cocoa beans. It is also a result of innovation in storage and transport, increasing the use of 'flat' storage systems that are more cost-efficient than sacks. Processors are then unable to separate higher-quality beans, and so are only willing to pay an average price for mixed-quality beans.

Ghana has been in a much better position than most cocoa producing countries to resist this trend, mainly due to the role played by COCOBOD in ensuring quality standards of final exports are maintained. This has provided a small price advantage, and Ghanaian cocoa has been able to command a premium of up to US$200 – 250 per tonne over the prevailing international cocoa price (depending on market conditions). But, more importantly for sustainable incomes, as a result of higher quality standards and contract integrity (i.e. trust between buyers and sellers), Ghana is able to sell a larger percentage of its cocoa on forward markets, thus achieving a higher price by selling forward and enhancing price stability during the year. Other countries have only been able to maintain quality cocoa coming from specified origin producers, such as fine and organic cocoa, who individually command a higher price.

7 Estimates of the cocoa farmer share in an indicative cost break down of a bar of UK milk chocolate for 2004 are the following: Gilbert (2007) 3.5% and Lass (2004) 4.3% (assuming 73% of the total cocoa fob price goes to farmers).

8 Gilbert (2007) is critical of value chain analysis for treating the value chain as a fixed cake. He argues that developments in the producer and retail markets are largely unconnected because of the role of 'terminal markets', and ascribes relative shares to cost differentials. He develops this in refutation of an argument by civil society organisations (Oxfam 2002) that emphasises the adverse effects on farmer prices of the increasingly dominant role of multinational processors and manufacturers.

Figure 2.2: Cocoa production and daily price ('000 tonnes and $/tonne)



Source: Kaplinsky 2004, Calculated from ICCO Quarterly Bulletin of Cocoa Statistics

"Global demand for cocoa is on average expanding at approximately 2-3% per annum..."

As a result of these trends, there is an intensified dual quality in cocoa production between: (i) higher-quality cocoa based on origin and better production which commands a price premium as well as greater price stability; and (ii) lower-quality cocoa, with mixed quality of beans, based on lower cost and lower price (Fold 2005). This dual-quality production helps to service the differentiated consumer market discussed above, based on high-quality niche, mainstream-quality and bulk low-value chocolate.

However, there is a particular challenge for the niche and mainstream-quality ranges. Global demand for cocoa is on average expanding at approximately 2–3% per annum, with growth being sustained by increased production of lower-quality beans. The rate of growth in demand, however, is much higher in the high-quality niche and mainstream-quality segments of the market. Therefore a potential disequilibrium is emerging in the supply and demand of quality cocoa beans. Ghana is in an unrivalled position to help fill this gap, but has to ensure that it can expand its production of high-quality cocoa to do so.

2.4 Social dimensions of cocoa production

There has been a strong rise in consumer awareness of the socio-economic conditions of cocoa production since 2000/1. This has partly arisen in the context of changing consumer demographics and tastes discussed above. It has also partly been fuelled by civil society pressure on branded manufacturers. Concentration within the value chain has exposed larger brand names to intensified reputation risk if adverse media publicity highlights poor practices. Given a highly competitive and integrated chocolate confectionery sector, where small shifts in market share can affect stock price, larger and branded chocolate manufacturers are increasingly aware of the need to ensure at least minimum social and environmental standards are observed within their value chains. This has underpinned a rapid increase in CSR initiatives amongst confectionery manufacturers, and across the industry.

2.4.1 Child labour

A prominent issue was the exposure of the use of child labour in West Africa in the UK in 2000 and US media in 2001 (particularly Cote d'Ivoire). This included allegations of the use of forced and bonded child labour and of children engaged in hazardous work. According to the International Labour Organisation (ILO), child labour refers to work that (i) is mentally, physically, socially and morally dangerous and harmful to children; and (ii) interferes with their schooling by depriving them of the opportunity to attend school, by obliging them to leave school prematurely, or by requiring them to attempt to combine school attendance with excessively long and heavy work.[9] The worst forms of child labour (WFCL) as defined by ILO Convention 182 include: all forms of slavery or practices similar to slavery (the sale and trafficking of children, debt bondage and serfdom, forced or compulsory labour including recruitment for use in armed conflict); the use or offering of a child for prostitution and/or pornography, or illicit activities including the production and trafficking of drugs; as well as

9 The definition of Child Labour is derived from the United Nations Convention on the Rights of the Child, ILO Convention 138 and 182, and the Ghana Children's Act 1998 (Act 560). It is all work that is harmful and hazardous to a child's health, safety and development; taking into account the age of the child, the conditions under which the work takes place, and the time at which the work is done (Asuming-Brempong et al. 2006).

work which when performed is likely to harm the health, safety or morals of the child (as determined by national authorities). In effect, whereas all activities in which the child might be involved (including those activities useful for the child's total development such as normal household chores or light work on a family cocoa farm at the weekends when attending school) may be classified as child work, not all forms of child work fall into the category classified as child labour.

Media exposure of the use of child labour in West African cocoa farming prompted the Harkin-Engel Protocol in the US (Tulane University 2007). This was agreed under the threat to introduce legislation to force the labelling of bars of chocolate in the US as being slave-free. A number of initiatives have since been set up in the cocoa sector to address the issue of child labour. These include the International Cocoa Initiative (ICI), which provides the basis for cooperation between the global chocolate industry, concerned politicians, members of the labour movement and key civil society actors engaged in the fight against child labour. Its mission is to oversee and sustain efforts to eliminate the worst forms of child labour and forced labour in the growing and processing of cocoa beans and their derivative products (www.cocoainitiative.org). Within Ghana, the Ministry of Manpower, Youth and Employment has developed a National Plan for the Elimination of Child Labour and is playing a key role in a collaborative programme with COCOBOD and the industry on addressing labour issues – particularly child labour and forced adult labour – in Ghana's cocoa production. This involves especially the commitment to design and implement 'standards of public certification' in the cocoa sector of Ghana. It has been decided that work under Ghana's National Plan will be started with actions in the cocoa sector.

Monitoring and certification of labour standards including the use of child labour have proved challenging in large-scale manufacturing industries. Achieving this is a particular challenge in the cocoa sector where production is dominated by small-scale farming, with a long tradition in the use of family labour. Some observers believe that downward pressures on cocoa prices, and the rising cost of labour, contribute to the use of unpaid family labour (including children).

2.4.2 Fairtrade and organic chocolate

An increasing number of consumers have expressed concern for the conditions faced by farmers and their communities through the rapid growth of sales of organic and Fairtrade-certified chocolate. Both schemes set standards for production and distribution, but also provide a price premium to participating producers. Other certification schemes also exist, with less strict certification conditions, such as Rainforest Alliance. Whilst they are starting from a low base, in Europe and the US there has been a rapid growth in Fairtrade and organic chocolate, in contrast to slower growth in the conventional cocoa/chocolate market.

Definitions of organic production vary, but a general definition in the Codex Alimentarius is that 'organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity'. Organic cocoa is approximately 0.5% of total world production, but its sales revenue increased from US$171 million in 2002 to US$304 million in 2005. Implementing organic production and certification involves costs, but also commands a higher price than conventional cocoa. The organic price premium averaged US$100 per tonne (2003/4) and US$275 per tonne in 2004/5, but could be higher for some origins with small volumes (ICCO EX130/10 2006). During 2006-7 the premium for organic cocoa has on occasion gone as high as US$1,800 per tonne (industry source).

All organic cocoa production has to be certified, and the cocoa traceable back to the individual farm. Approximately 10% of certified organic cocoa beans are also Fairtrade-certified. The company Green & Black's, acquired by Cadbury Schweppes in 2005, is the UK's leading organic chocolate maker. It sources its cocoa from Belize and the Dominican Republic, and in 2004 it had a turnover of £22.4 million (a growth rate of 69%). Ghana has not until recently been an exporter of organic cocoa, although a small organic programme was being developed in 2006/7. This is still at an early stage, and requires the introduction of systems of traceability back to the individual farmer, which have not until recently been used in Ghana.

“ Fairtrade has been defined as a trading partnership, based on dialogue, transparency and respect that seeks greater equity in international trade. ”

Fairtrade has been defined as a trading partnership, based on dialogue, transparency and respect that seeks greater equity in international trade. By working with well organised co-operatives, it contributes to sustainable development by offering better trading conditions to, and securing the rights of, disadvantaged producers and workers – especially in the South' (FINE 2001)[10]

To acquire the Fairtrade Labelling Organisation (FLO) Fairtrade label, producers have to be certified as meeting FLO standards, which include free and fair co-operative elections, and ILO Conventions on conditions of work (including the use of child labour). Fairtrade guarantees producers a minimum price, plus a premium above market price if it rises over the minimum. Fairtrade-certified cocoa commands a price premium of US$150 per tonne, and is sold at a minimum price of US$1,750 per tonne including the premium (ICCO CB/5/CRP.1 2005). The premium helps to maintain farmer prices, and has to be used to provide a social fund for community investment.

Table 2.2: Price premia in global cocoa markets (2007)

	Premium (US$ per tonne)	Main producers	Share of global cocoa market
Quality	200-250	Ghana	17%
Organic	1,800	Belize Dominican Republic Tanzania	0.5%
Fairtrade	150	Dominican Republic Ghana	0.1%

Fairtrade-labelled cocoa only represents approximately 0.2% of world cocoa. But it is also experiencing high rates of growth, with an annual average growth of 23% between 1996–2006 (ICCO MC/9/2 2007; ICCO MC/10/6 2007), in contrast to 2–3% in the conventional market. In 2005 the UK was the largest buyer in quantity purchased (2,238 tonnes) with Fairtrade cocoa representing 1.02% of market share of its cocoa consumption. The two largest exporters of Fairtrade cocoa are the Dominican Republic sourced from CONACADO (49% of total) and Ghana (45% of total) sourced from Kuapa Kokoo. Some European supermarkets have adopted 'own-brand' Fairtrade chocolate lines,[11] particularly in the UK, which are sold alongside specialised Fairtrade branded lines, and conventional branded chocolate ranges (Barrientos and Dolan 2006). In summary (see Table 2.2) there are a variety of price premia available to cocoa producers.

The ICCO is developing a programme of 'Supply Chain Management for Total Quality Cocoa'. This includes all aspects of physical quality as well as ethical and environmental aspects of production (ICCO EX/130/9 2007). This raises issues of how to ensure quality standards are observed, and the need for traceability of cocoa to its origin to guarantee that total quality criteria have been met. Whilst standards and traceability are used in Fairtrade and organic production, they are only beginning to be considered within the mainstream conventional cocoa sector.

Larger-volume chocolate manufacturers have so far not gone down the Fairtrade-certified route, although some now sell organic and organic Fairtrade chocolate (including Green & Black's owned by Cadbury Schweppes). However, the trend towards more socially and environmentally aware consumption in the middle and upper segments of the chocolate market has promoted the advance of corporate social responsibility amongst some larger-volume chocolate manufacturers. Commercially they are vulnerable to the risk of adverse publicity due to poor social conditions in producing countries. Greater concentration and integration within the cocoa value chain has facilitated their ability to target positive support on the farmers or producer countries that supply them. A number of large chocolate manufacturers now report on their CSR initiatives, and participate in industry and multi-stakeholder alliances such as the International Cocoa Initiative (ICI) and the Sustainable Tree Crops Programme (STCP). Some are individually pursuing initiatives to support cocoa farmers in sourcing countries. A key challenge is how they can do this in a way that is effective in promoting longer-term sustainability of cocoa farmers that both ensures product quality required by the mainstream quality segment of the consumer market, and meets social and environmental standards.

10 FINE brings together the following umbrella organisations: Fairtrade Labelling Organisations International (FLO); International Federation for Alternative Trade (IFAT); Network of European World Shops (NEWS!); European Fair Trade Association (EFTA). The FINE definition of fair trade was accessed from the British Association for Fair Trade Shops (BAFTS) website, www.bafts.org.uk/fair-trade/fine.htm, on 26.08.03.

11 'Own-brand' are sold under the name of the retailing supermarket, rather than the manufacturer.

3. cadbury value chain

“ The functioning of the cocoa value chain within Ghana, and percentage of fob (free on board) price going to cocoa farmers is overseen by COCOBOD... ”

3.1 Company profile

Cadbury is one of the oldest and largest chocolate confectionery manufacturers. It is a multi-national company based in the UK serving a global market. Cadbury first opened in Birmingham selling cocoa and chocolate in 1824. It later merged with Schweppes in 1969. The company employs 50,000 employees globally, and had reported sales of UK £7.4 billion in 2006 (Cadbury Schweppes 2006b). It incorporates a number of well-known brands (including Cadbury, Halls and Bassetts). Cadbury sources a portion of its chocolate from specialist manufacturers such as Barry Callebaut, but also undertakes processing itself. Its global value chain is composed of some 40,000 direct suppliers, and 130 factories spread across the world. Chocolate is only 40% of total business, and beverages another 40%.

Cadbury is positioned within the mainstream-quality chocolate segment of the consumer market. In the UK and other Commonwealth countries it differentiates itself from other brands through the specific flavour and quality of its chocolate. Sourcing all its cocoa beans for these markets from Ghana helps to ensure quality. The company started sourcing from Ghana (then known as the Gold Coast) in 1908, and developed a long standing commercial relationship with the country. Today, Ghana remains a key source of cocoa supply for the company.

Cadbury purchases most of its cocoa from Ghana through cocoa traders, but a small amount is purchased directly from the Cocoa Marketing Company (CMC) by Cadbury. The price Cadbury pays for its Ghanaian cocoa is thus primarily determined by the prevailing price on the day of purchase, and this would include the normal premium for quality commanded by COCOBOD. Cadbury benefits from Ghana's ability to maintain the quality of its cocoa, and resist the downward trend in quality experienced in other producer countries after liberalisation. It is rewarded for the premium it pays by occupying the mainstream-quality range of the consumer market (with an appropriate retail price). Cadbury thus has a strong interest in supporting Ghana's position as a high-quality cocoa producer in the future. It could be adversely affected by a potential disequilibrium in the supply of and demand for quality beans.

3.2 Cadbury value chain

During the process of restructuring within the chocolate confectionery sector globally, Cadbury has to date maintained a fairly high level of integration in the UK market of the component activities of processing and manufacturing. Once cocoa beans arrive in the UK directly from Ghana, Cadbury roasts, grinds and processes the beans at its plant in Wales for transfer to the milk processing plant and then onwards to its chocolate manufacturing and moulding plants, from which it is distributed directly to wholesalers and supermarkets. Cadbury thus controls the links in its value chain from COCOBOD through to the retail sector.

Cadbury's Dairy Milk (CDM) is one of Cadbury Schweppes' main product lines. A CDM bar normally retails in supermarkets at £0.40 for a 40 gram bar (£1.69 for a large bar). It contains 23% cocoa sourced from Ghana, and is a key product, providing market position for Cadbury Schweppes. As indicated above, the price received by cocoa farmers in Ghana is governed by international price trends and a premium for the quality of Ghanaian cocoa. Whilst large, Cadbury is only one commercial player within the international market. The functioning of the cocoa value chain within Ghana, and percentage of fob (free on board) price going to cocoa farmers is overseen by COCOBOD, and will be discussed in detail in the next section. Further examination is required to gain a holistic assessment of the longer-term sustainability of quality cocoa sourced from Ghana, and the potential contribution of chocolate manufacturers and processors.

3.3 Corporate social responsibility

Cadbury as a company has an embedded tradition of corporate philanthropy and producer support, dating back to its Quaker origins. It was founded to sell chocolate as an alternative to alcohol, and originally established a socially sustainable town for its workers at its Bournville site near Birmingham. Cadbury produces a regular CSR report, and is one of the few FTSE 100 companies listed on the London Stock Exchange to have a main board committee overseeing CSR (The Observer, 24.06.07). Building on its philanthropic tradition, Cadbury has a CSR programme within Ghana, which provides support for farmers and the wider cocoa sector. This includes:

- **Well-building programme:** 'Ghana for the Source' is a well-building programme, run since September 2000 with Kuapa Kokoo. Cadbury provides donations to a Trust Fund run by Kuapa, which oversees the building of wells within villages. It started working with WaterAid (London-based NGO) in 2004. The company, together with a number of employee initiatives and some individual donations, had provided £600,000 to the project by 2006, with further expansion planned.
- **Farmers' newspaper:** 'The Cocoa Farmers' Newspaper' was established by Cadbury Schweppes in 2005. It had been recognised that there was a problem within the sector of poor information flows to farmers about good production practices. The concept behind the newspaper is to provide information pictorially, in cartoons which are easily understood by farmers of all literacy levels. The aim is to produce the paper twice a year, before the main crop and mid-crop. Each department of the Cocoa Research Institute of Ghana (CRIG) – the main cocoa research institute – was allocated two pages to provide information on a topic and its activities. The first print in 2006 was 70,000 copies (1 per 9 farmers). The newspaper was funded by Cadbury, supplemented by advertising revenue and small contributions from some licensed buying companies (LBCs) who were acknowledged in the publication.

Earthshare

Cadbury also runs the Earthshare programme with Earthwatch, which is a 3-year research programme on the biodiversity on various types of cocoa farms. Cadbury's international staff members are able to apply to visit the programme for two weeks at a time to participate in the research programme. Cadbury also supports a research and development programme in Ghana through a trust fund created by the late John Cadbury. This supports research on various topics to improve cocoa production in Ghana.

Cadbury participates in a number of other sector initiatives, including the cocoa research activities of BCCCA, the International Cocoa Initiative (ICI) programme working to address child labour and the Sustainable Tree Crop Programme (STCP), and Cadbury aims to continue developing its support for the Ghana cocoa sector.

As we have seen above, Ghana is an important source of quality cocoa for Cadbury, and helps to distinguish it as a brand in the mainstream-quality segment of the chocolate market. As demand for quality cocoa increases, Ghana could face a number of challenges in increasing its output, and maintaining the sustainability of its quality cocoa. Cadbury is in a position to support the Ghanaian cocoa sector in enhancing its longer-term economic, social and environmental sustainability. This study was commissioned to better inform that process.

4. ghana cocoa value chain

4.1 COCOBOD

Cocoa is the second largest export commodity of Ghana after gold, accounting for 32.2% of export earnings and 9.5% of GDP in 2006. Where inputs in cocoa production are locally sourced, and because of the labour intensity of cocoa production, its importance to the economy is probably much greater than these summary figures suggest. Cocoa provides important support for the economic and social development of the rural sector, and plays a key role in the economic growth of the country. In the early 1990s, Ghana underwent a process of economic liberalisation under the auspices of the World Bank and IMF. However, it resisted calls for total liberalisation and dismantling of its Cocoa Marketing Board (COCOBOD), and undertook a process of partial reform from June 1993 which affected only domestic marketing and some efficiency gains by the disposal of a number of non-core assets of COCOBOD. Because of the economic importance of cocoa, COCOBOD comes under the Ministry of Finance rather than the Ministry of Food and Agriculture.

"Cocoa provides important support for the economic and social development of the rural sector, and plays a key role in the economic growth of the country."

Partial liberalisation of the cocoa sector in 1993 led to a move away from the previous unitary purchasing system under the Produce Buying Company (PBC), which lost its position as the sole buying company. It was replaced by licensed buying companies (LBCs), which were granted licences and overseen by COCOBOD. COCOBOD continues to play a pivotal role in linking approximately 720,000 small-scale cocoa farmers within Ghana[12] to export markets abroad through its subsidiary, the Cocoa Marketing Company (CMC). Figure 2.1 depicts the current cocoa value chain within Ghana and its integration into the global chocolate market.

COCOBOD controls quality assurance and retains the functions of a single marketing company in its export role. It has played a key role in ensuring Ghanaian cocoa is able to command a price premium for quality on the international market. But it needs to be responsive to both internal challenges facing the cocoa sector, and to changing external market conditions in order to maintain Ghana's position as a quality cocoa exporter.

4.2 Price and exports

Table 4.1 Ghana cocoa production, exports, prices and payments 1999–2004

	1990/00	2001/02	2003/04
Production	**(in 000 metric tons)**		
Main Crop (Oct-May)	400	321	669
Mid-crop (June-Oct)	30	18	68
Total production	430	339	737
Export (beans)	365	232	642
	(in cedis per tonne)		
Producer price (main)	2,250,000	4,384,000	9,000,000
Producer price (light)	2,428,080	6,200,000	9,000,000
	(in millions of cedis)		
Farmer payments	985,665	1,454,316	6,632,775
Export receipts	1,404,226	2,713,663	8,744,512
Ratio of farmer payments to export receipts	66%	67%	69%

Source: IMF 2005

12 Industry sources generally cite 500,000 plus cocoa farmers. In 2007 a COCOBOD source indicated that their latest figures were higher at approximately 720,000 cocoa farmers.

"The proportion of the fob price going to farmers has been increased over the years..."

By 2005/6 the producer price paid by COCOBOD remained at just over 9,000,000 cedis per tonne, and the fob price paid to farmers had increased to 73% (industry sources). This amount is put aside before other actors in the market get their share based on their business costs. The government takes the residual. The proportion of the fob price going to farmers has been increased over the years from a low of 40% in 1983, when many farmers replaced cocoa trees with other more profitable crops. If the actual fob price falls below the projected price, the government absorbs the difference. When the actual price turns out to be above the projected price then there is a windfall, and a bonus payment is given to farmers at the end of the year. All initial and bonus payments are distributed by the LBCs, to those farmers who were paid by cheque by the individual LBCs.

Most processors and manufacturers of cocoa prefer beans of a similar size, as they are easier for processing. In Ghana, there are two crops. The main crop runs from October to May and the light crop runs from May to August. Light crop beans are smaller than the main crop beans. COCOBOD categorises bean size according to weight (see Box 4.1). The main crop, with beans weighing 1 gram or more, constitutes 95%, other crops 5% of production. The light crop, which has a lower percentage fat content, is sold through special contracts, mainly to local processors. Domestic cocoa processors are able to negotiate a lower price than that of exported cocoa.

Box 4.1: COCOBOD bean size categories

Main crop	beans weighing 1 gram each	100 beans = 100 grams
Light crop	beans weighing <1 gram each	101 – 120beans = 100 grams
Small beans	beans weighing <1 gram each	121 – 130 beans = 100 grams
Type 4 beans	beans weighing <1 gram each	131 – 150 beans = 100 grams
Remnants		150+ beans = 100 grams

COCOBOD is sending an increasing amount of cocoa in bulk shipments (not bags) to designated buyers. The key buyers that ship cocoa in bulk are ADM, Cadbury and Cargill. Bulk shipment is cheaper than bags, can be loaded and unloaded mechanically (using a large vacuum-type machine that deposits beans and collects them from the hold of a ship). This greatly reduces labour costs, but the beans have to be of an assured high quality before being loaded to ensure arrival in a similar good condition.

4.3 Licensed buying companies

A degree of competition has been introduced through the LBC system, with the aim of increasing efficiency in the value chain. Initially six LBCs, including PBC, were given licences. By 1997 this had increased to 19 LBCs, with 10 of them buying substantial quantities of cocoa. In 2006 there were 24 LBCs, with 16–18 estimated to be active. These included two international companies, Olam (which is Singapore-based) and Armajaro, a cocoa trading house based in the UK. Kuapa Kokoo is the only producers' cooperative operating as an LBC, and is also the only Fairtrade-accredited LBC operating in Ghana. COSMARC (Cocoa Sector Marketing Committee) recommends LBCs for licensing to COCOBOD, monitors their performance and recommends either renewal or withdrawal of licences.

Cocoa is purchased by LBCs under the auspices of COCOBOD. The Board raises money either internally or offshore for the purchase of cocoa. In 2005/2006, US$550 million were raised (at an interest rate of 0.5% above LIBOR) from an international consortium of banks for cocoa purchases; and for 2006/2007 US$810 million has been raised for that purpose (COCOBOD Research Department). The monies are leant to the LBCs, at interest rates lower than the prevailing Ghana commercial rate, to pay farmers who sell their cocoa to them.

Cocoa farmers sell their cocoa to one of the LBCs operating in their area. The LBCs buy the cocoa at the local society buying sheds at village level, where the cocoa is weighed.

The cocoa is then moved to the larger District level sheds of LBCs, where the Quality Control Division (QCD) tests and seals the beans in sacks. The LBC is then responsible for organising the haulage of the cocoa to one of three Takeover Points (Kasse, Tema or Takoradi). After arrival, CMC pays the LBC.

The LBC retains its margin, which has been reduced over the years from 13% to 8%. Given they operate on tight margins, LBCs do not normally pay a premium over and above the minimum price, even though that was one of the objectives of the liberalisation of the internal marketing of cocoa. However they may give a number of inducements to attract and retain farmers, such as credit facilities, extension services or gifts (such as boots or equipment). Nevertheless, some LBCs try to pay a bonus at the end of year to farmers in addition to any bonus paid by COCOBOD. Armajaro, which is an international company, can pay because of its higher efficiency and different financing structure. Kuapa Kokoo can pay a premium because of its Fairtrade advantage. It also provides community support (such as wells) because of its connection to Fairtrade and the CSR activities of companies such as Cadbury Schweppes. PBC, which continues to be the largest LBC, has an obligation to buy everywhere and so buys from some of the more remote cocoa growing areas. It offers support to farmers including the repair of roads and bridges, provision of water and electricity poles. The LBCs are reliant on fast turnaround and cost efficiency to ensure their margins are realised; those unable to achieve this are likely to experience financial pressure.

LBCs face a number of constraints:

- Turnaround time to COCOBOD: LBCs face delays between buying cocoa from farmers and delivery to CMC. There were complaints from within the sector that COCOBOD would not allow cocoa into the Takeover Points until there was warehouse space available for storage (in some cases this led to days of queuing by hauliers). COCOBOD used to pay demurrage for delays, but stopped this in 2002. This slowed down turnaround, and increased costs to LBCs and hauliers. The time between purchase of cocoa and time of surrender should be six weeks but it often took much longer.
- Cost of financing: COCOBOD advances seed money to LBCs for purchases. The money is obtained with a guarantee which also comes at a cost – increasing the cost of financing. Borrowing from the commercial banks would cost LBCs 21% plus other costs so COCOBOD provides the lowest cost of financing at 19%. However, it could take up to 12 weeks to get money from CMC after surrendering cocoa at the Takeover Point. LBCs say that almost half of the margin could go on interest payments.

COCOBOD requires 250,000 tons of warehouse space for efficient handling of cocoa at the ports. The current inadequate warehouse space is posing a major constraint which COCOBOD is trying to address. The Board has put up a 50,000-tonne capacity warehouse at Tema and it has plans to put up a 100,000-tonne capacity warehouse at Takoradi. In the meantime, LBCs often use vehicles as mobile warehouses waiting to get their cocoa into the port.

4.4 Quality assurance

COCOBOD oversees quality assurance through its Quality Control Division (QCD). QCD is involved in pre-buying activities, particularly training LBC staff and increasing awareness amongst farmers regarding quality issues. A separate section of COCOBOD used to be involved in the provision of extension services, but this role was passed over to the Ministry of Food and Agriculture (see next section). LBCs do initial quality checks when farmers deliver fermented and dried cocoa beans to them. LBCs can clean beans to remove bad beans and waste which raises the standard.[13] Once LBCs are ready, they put in an application to QCD for a quality check. The QCD district officers do the next check, determine grades and then seal the bags. The cocoa is then ready for transport to one of the three Takeover Points. Here QCD does a further sample quality check prior to taking over control of the beans for storage and shipping. There are no foreign quality control officers in Ghana; the EU and US rely on QCD to do it. The CMC arranges shipment and documentation, and passes cocoa beans direct to the shipping agents. The first foreign quality control, if required, takes place at the destination.

13. Cocoa waste has to be confirmed by QCD as waste. After reconditioning, approximately 0.1% of beans go out as waste. They are sent to four private companies that deal with cocoa waste, and the waste channel continues outside the COCOBOD system.

Ghana mainly exports Grade 1 beans. Whilst there used to be only two grades, quality problems with purple beans (discussed below) led to the introduction by QCD two years ago of a multiple grade system.

The maintenance of quality cocoa exports has been one of the key advantages of Ghanaian cocoa in international markets. Quality attracts the price premium, and allows Ghana to sell more of its cocoa forward thus providing greater export stability and information on the likely revenue expected. On this basis COCOBOD is able to set the minimum producer price, protecting farmers from seasonal volatility.

Table 4.2: COCOBOD grading system

Grade	Specification (i.e.% purple bean allowed)	Estimated % of exports, all beans including with PB	Estimated % of exports without PB
Grade 1	Up to 20% PB allowed	1%	95%
Grade 2	21–30% PB allowed	55%	3%
Grade 2 dot	31–45% PB allowed	38%	1%
Grade 3	46% plus PB		

Note: PB = purple bean discussed in section 4.6 below.

Source: QCD Division, COCOBOD

One means of ensuring quality is through traceability. This exists in many other export crops, particularly fresh produce such as pineapples and mangos. Traceability has come about following liberalisation as larger monopsony buyers seek to enforce private sector standards over the produce they source (Dolan and Humphrey 2004; Kaplinsky and Morris 2001). Traceability should ideally allow specified producers to be supported to meet designated standards, and receive a premium for the additional value added to the product as a result. However, in reality, the costs of traceability have generally been passed down the chain to producers.[14] This has been facilitated by the increased concentration and dominance of retailers and branded manufacturers within global food and agricultural value chains, who are able to dictate terms to their suppliers.

Traceability has not generally been used in cocoa production, except for designated lines of certified cocoa (organics, Fairtrade and single origin). There is a possibility this could change in the near future. ICCO has recently introduced a traceability pilot in Cote d'Ivoire to help combat declining cocoa quality, and support farmers to improve their production methods.[15]

COCOBOD has effectively long had a system internally which could be used for traceability. On every bag of cocoa beans sealed by QCD, there is a tag which identifies the village/society, purchasing clerk/LBC, or QCD Officer who passed the bag as being of acceptable quality, and the week of the season in which that cocoa was graded by QCD. COCOBOD knows via the society list of farmers virtually the individual farm where a bag was sourced. Up until now COCOBOD has kept this information to itself, with data contained on the identification tag kept at the Ghana end, and not shared with the buyers. Although buyers can see the tag, the information has no meaning for them.

However, this is changing. Some buyers are beginning to request traceability back to the grower and COCOBOD has had to respond to changes in the global market. In 2007, it engaged in a pilot project with Armajaro Ghana, which also involved Cadbury Schweppes. The pilot specified 1,500 tonnes to be passed through the chain on a traceability basis from the growers who initially sold to Armajaro Ghana through to the ultimate users. This cocoa is being warehoused separately to keep it away from other cocoa beans, and to ensure it can be traced back from the end user to the farms of origin.

The idea in the long run is that it would be possible to insert a bar code on the bags when they are packed, so they can be scanned, with all the information contained in the bar code easily transferable for computerised monitoring. CMC is charging Armajaro Ghana and other participating companies an extra premium per tonne to cover the costs of providing traceability. Two-thirds of the premium is being passed back to the farmers involved (with a small deduction by the LBC), with COCOBOD retaining a portion to cover the costs of keeping the cocoa separately. If there are any problems/defects in the cocoa, in principle they can be traced back to the farmer. The premium will give the farmers an additional sum, even though as part of the pilot they have not committed to extra expense in cultivating their cocoa. The Japanese buyers of cocoa seem to be particularly interested in the concept of traceability. The pilot was initiated in early 2007, with plans to review it later in the year.

14 Traceability and meeting higher standards does not always lead to a premium, a point of contention in other sectors, but it can, e.g. in organic certification.

15 It should be noted that the overall quality of Cote d'Ivoire cocoa is lower than that of Ghana, and its cocoa market has now been fully liberalised.

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> **"COCOBOD thus needs to consider what system of incentives will be required to achieve the traceablilty back to the grower..."**

COCOBOD's aim at this stage is to establish whether it is workable logistically, and estimate the costs involved. In the long term it could be used to support and demonstrate that quality standards are met by designated farmers, allowing Ghana to take advantage of additional price premia in global markets. On the other hand, if other countries move rapidly to improve quality, ensured through traceability, and/or introduce organic and Fairtrade standards, then Ghana might need to implement traceability in order to avoid slipping into lower-price segments of the cocoa market. COCOBOD thus needs to consider what system of incentives will be required to achieve the traceability back to the grower which might become a requirement in the future. For example, it might be possible to introduce a multi-price system, in which producers of higher-quality cocoa (or perhaps conforming to other criteria) received a 'super grade' premium for meeting certain standards, using traceability as a means of identifying those farmers (industry source).

In contrast to other commodities/countries, where the costs of traceability have been passed down the value chain to fragmented suppliers, COCOBOD is in a good position to negotiate with big buyers, and capture some of the gains of improving quality (in both product and process standards) and implementing traceability. Therefore COCOBOD could buck the trend towards downward pressure. However, this would represent a significant shift away from the principle of unitary pricing for all cocoa sold to COCOBOD, irrelevant of individual quality and grade of cocoa. But it would help a more nuanced targeting of differentiated international markets for Ghanaian cocoa, particularly the high-growth upper niche and mainstream-quality segments of Northern consumer markets.

4.5 Fairtrade and organic cocoa

Ghana has long been an exporter of Fairtrade cocoa, through Kuapa Kokoo Ltd. (KKL), which is both an LBC and a producer cooperative. Kuapa Kokoo purchases 7–10% of total output through 1,632 societies with about 45,000 farmer members. KKL has 24 society development officers, union members who are paid on a commission basis. Kuapa provides farmers with support, information, extension services and a credit union and is the only Fairtrade-certified Licensed Buying Company in Ghana. In addition, Kuapa Kokoo is a part-owner of the UK Fairtrade chocolate company Divine, and is also the sole source of cocoa for the Co-operative Supermarket own-brand Fairtrade chocolate range (Barrientos and Smith 2007).

Within the COCOBOD system, a separate channel and warehouse has been designated for Fairtrade cocoa exported by Kuapa, to separate it out from conventional cocoa. Fairtrade cocoa is only traced back to Kuapa as a producer cooperative, not to individual farmers. In 2003/4 Kuapa sold 1,800 tonnes of Fairtrade cocoa, representing approximately 3% of its total deliveries to CMC. All Kuapa Kokoo societies are able to benefit from the Fairtrade social premium (Tiffen et al. 2004). As discussed above, Fairtrade cocoa fetches a US$150 a tonne social premium and the minimum price should not be less than $1600. The social premium earned on Fairtrade exports goes into a Trust Fund for the provision of social amenities. The benefits from the social premium go to the producer cooperative as a whole, and all societies can apply to the Trust Fund for social support.

In addition to its involvement in Fairtrade, the Kuapa Kokoo Trust Fund also participates in other externally funded development projects. This includes the Cadbury 'Ghana for the Source' well-building programme. By early 2006 this programme had supported the construction of 375 wells through Kuapa Kokoo (Cadbury Schweppes 2006). KKL also has a Women's project, funded through World Vision.

Ghana has not until very recently expanded into the organic market. In 2006/7, a small amount of organic cocoa was exported through a company based in Accra called Agro-Eco, using development funds provided by the Rabobank Foundation. They are working in alliance with PBC. They only exported 27 tonnes of cocoa in 2006/7 sourced from Akumadan in the Ashanti Region. Organic certification involves higher costs to the producer, who

> “The introduction of organic cocoa is thus another move towards greater nuanced targeting of international markets to meet changing consumer trends.”

nevertheless gains from the higher price premium. Unlike Fairtrade, where traceability is currently only required to the certified producer cooperative, organic cocoa requires traceability to the certified individual producer and payment of a differential individual producer price (or premium). Introducing organic cocoa has thus required adaptation of the COCOBOD system, both in terms of ensuring traceability to certified individual producers, and the payment of a differential price. The introduction of organic cocoa is thus another move towards greater nuanced targeting of international markets to meet changing consumer trends.

4.6 External challenges

As consumer markets for chocolate confectionery become more diversified between niche, middle- and low-range bulk cocoa beans, quality allows Ghana to be positioned in the mainstream-quality and niche ends, where growth is higher and rewards can be greater. However, in a rapidly changing international market Ghana faces a number of challenges in sustaining its position. These challenges include:

- Production challenges: expanding production and productivity to meet export growth whilst maintaining quality.

The quality of its cocoa allows Ghana to be positioned in the middle and upper ranges of the market. However, it needs to expand output if it is to meet expanding demand and maintain cocoa as a key source of export earnings. Currently it faces a significant production constraint. The availability of land in which there is sufficient forest canopy cover is limited, and therefore extending production areas is not a real option, unless farmers could be encouraged to replant once-used cocoa lands, preferably with a hybrid variety. However, productivity in the Ghanaian cocoa sector is low compared to other countries. Average cocoa yields in Ghana are currently estimated at 400 kg per hectare, and it is thought that this could be increased to 1,000 kg per hectare. Therefore it should be possible to increase output substantially to meet demand. The key is to do this in a way that ensures quality, sustainable production and meets the aspirations of current and future farmers.

- Quality challenges: ensuring quality levels required by external markets are maintained in the face of counter pressures.

Maintaining quality in the face of a changing commercial environment represents a significant challenge. Three years ago COCOBOD received increasing complaints from buyers over purple beans. This occurs when there is an insufficient fermentation period of the harvested beans. Purple bean is not classified as a ‘defect’ in terms of the purchase contract between CMC and its buyers, but higher numbers of purple beans increases the sourness note in the final chocolate, and more sugar may be needed to compensate, making it undesirable to cocoa processors and manufacturers. Farmers and LBCs attribute declining fermentation to low prices and tight margins. QCD is providing information and education to farmers to increase awareness of the issue, and the need to address it. If farmers ferment properly that would reduce the levels of purple beans. Introducing systems of traceability could help to address this, but only if costs are not transferred to farmers and they receive incentives to ensure quality.

> “Average cocoa yields in Ghana are currently estimated at 400 kg per hectare, and it is thought that this could be increased to 1,000 kg per hectare.”

- Social challenges: meeting the social requirements of external consumers for cocoa that is produced without the worst forms of child labour or the use of forced labour; and filling niche demand for Fairtrade and organic cocoa.

Within the past decade Ghana has been affected by the growing concern amongst cocoa-consuming countries, cocoa buyers and international organisations about labour standards within farming and the unacceptable use of child labour in cocoa-producing countries. The signing of the Harkin-Engel Protocol in 2001 called for governments of cocoa-producing countries to establish a certification programme that would document the state of child labour in their cocoa-growing areas. In response, Ghana’s Ministry of Manpower, Youth and Employment (MMYE) prepared the National Plan for the Elimination of Child Labour in Cocoa and in April 2007 published a report of a pilot study made available on COCOBOD’s website and has initiated studies to identify sources, types and periods of labour needs in Ghana’s cocoa production.

> “As producer cooperatives in other countries have found to their cost, only one single press exposé of poor practice can damage the reputation of their producers as a whole.”

Ghana has also long been at the forefront of Fairtrade exports in West Africa through Kuapa Kokoo. However, Ghana has not until very recently begun to move into organic production. It could also better promote quality Ghanaian cocoa within the Origin segment of the niche market. These are avenues COCOBOD could be developing further if it is to better position itself in the rapidly growing niche market.

- Reputation challenge: ensuring that Ghana sustains its high reputation in the cocoa industry in the face of the combination of mounting competitive and social challenges.

Insofar as a price premium exists in substantial volumes, Ghana is the lead producer of high-quality cocoa in the world. It accounts for 17% of global trade and most of this is for a higher-quality product. But, as in the case of many other food products, the final market is fragmenting rapidly, with a growing number of niche segments, which yield higher margins. These niche markets are characterised by two major attributes. In the first case, they are very demanding of standards and this requires traceability, almost always to the individual crop of an individual farm. Second, as Starbucks has found to its cost in the coffee industry, the extent to which standards are being met is subject to public scrutiny and sometimes poorly investigated ‘rush journalism’. Hence producers are required to rigorously determine and implement standards throughout the value chain. This creates greater vulnerability, and even Fairtrade producers are vulnerable to exposure in the press for poor practices (The Guardian 10/05/07; Financial Times 10/06/07). Therefore, even socially progressive producer cooperatives which aspire to high standards are potentially vulnerable if they are unable to ensure traceability to the farm level. As producer cooperatives in other countries have found to their cost, only one single press exposé of poor practice can damage the reputation of their producers as a whole.

Ghana has not until very recently begun to move into organic production. It could also better promote quality Ghanaian cocoa within the Origin segment of the niche market. These are avenues COCOBOD needs to develop further if it is to better position itself in the rapidly growing niche market. The highest premia are for cocoa that combine fair-trade and organic certification, and are identifiable by origin, all of which Ghana is well positioned to exploit.

> “Ghana is well positioned to meet both the quality and the social requirements of the upper niche and mainstream-quality range of the chocolate confectionery market.”

Ghana is therefore responding to changes in external markets, even though this may cause tensions within the system operated since the single-channel marketing board was established. Ghana is well positioned to meet both the quality and social requirements of the upper niche and mainstream-quality range of the chocolate confectionery market. But to do so COCOBOD may have to adapt its existing system, such as ensuring greater traceability and multiple pricing (or bonuses) paid according to quality or assurance on standards in the production process. It also faces significant internal challenges in ensuring the longer-term sustainability of its production to meet export growth in the future. The challenges of production/productivity of Ghanaian cocoa farmers are now explored in greater depth in the next section.

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> “Under the abusa system where the caretaker assumes responsibility for a farm already established, the owner takes two parts and the caretaker takes one part of the output sold.”

We have examined the external context and global value chain in which cocoa is exported from Ghana. In this section mapping is taken down to the producer level. The aim is to examine the factors that constitute sustainable production for cocoa farmers in Ghana to help assess:

- criteria for sustainable production from the perspective of cocoa farmers
- incomes and social support currently going to cocoa farmers and the gap between current and sustainable production

5.1 Overview of cocoa production within Ghana

COCOBOD has demarcated the cocoa-growing areas in Ghana into 7 “cocoa regions” (Eastern, Ashanti, Brong-Ahafo, Central, Volta, Western North and Western South) comprising 67 “cocoa districts”. This is more for convenience of its operations than for any economic reasons. However, it is worth noting the historical antecedents of the cocoa regions. Cocoa production began in the Eastern Region, moved to the Ashanti Region, then to Brong-Ahafo Region, on to the Central and Volta Regions and later to the Western Region. The cocoa regions and districts may not necessarily coincide with the national administrative regions and districts of the country. Cocoa production in Ghana is confined more to the forest belt of the country where the vegetation has relatively high humidity and rainfall is adequate. Cocoa cultivation is a smallholder enterprise involving about 720,000 farmers.

The Western Region is seen as the last frontier for cocoa in Ghana because the soils there are not suitable for long-term cocoa production. Initially the virgin forests guaranteed high yields, but over time yields have declined and farmers have been striving to move to new forest lands. The move to the Western Region is therefore seen as unsustainable.

Cocoa farm ownership should be differentiated from cocoa farm operation. The farm owner may not necessarily be the farm operator. A cocoa farm may be operated by the owner (male or female) of the farm or a caretaker (usually male) who works on behalf of the owner. The owner-farmers may be indigenes or migrants in the cocoa-producing area, who use family land or purchase land from local chiefs or individuals to cultivate cocoa.

Even though a few women farmers purchase land on their own to cultivate cocoa, most of them initially work together with their spouses to cultivate the cocoa farms, and at maturity they are given their own portions to operate. Women may also own cocoa farms through inheritance. Caretakers, on the other hand, are usually migrant farmers (even though some indigenes are also caretakers) who contract matured cocoa farms to operate them on behalf of the farm owners under well-defined terms, which may be abusa, or abunu systems.

Cocoa farm owners usually engage caretakers because of old age or ownership of multiple farms or engagement in non-farm activities and they do the supervision. The caretakers stay on the farm, most of the time with their families. Under the abusa system where the caretaker assumes responsibility for a farm already established, the owner takes two parts and the caretaker takes one part of the output sold. Usually there are no formal contracts signed; most contracts are made orally (traditional) with witnesses and the offering of drinks. Mostly, the duration and quality of the contract depends on the character of the caretaker, and the relationship he develops with the farm owner. Under the abusa system, both the caretaker and the farm owner do the farm work, although the farm owner’s input may be very limited. The owner mostly undertakes supervision, while the caretaker does the weeding, plucking of pods, pod-breaking and fermentation, etc.

“ The aim in this project was to capture a picture of production where no CSR initiatives were undertaken in order to assess prevailing conditions under which cocoa farmers normally produce... ”

Farm inputs are expected to be supplied by the owner of the farm. Drying is usually done on the farm at the dwelling place (hamlet) of the caretaker, and when the beans are dry the sale is supervised by the farm owner.

The abunu system is mainly practised when a new area of forest is to be developed into a farm. Compensation under the abunu system is provided after the farm has been well established and harvesting has commenced. The farm is then divided into two between the land owner and the caretaker. In a few cases the farm is never divided and the two parties share produce or revenue from the farm. The latter practice offers no security to the caretaker and his family since he cannot pass on any portion of the farm to his heirs upon death or they may be disputed when the original owner of the farm dies and a relative succeeds him. The abunu contract also sometimes depends on the area and produce/type of crop. When a cocoa farm is being established, food crops like plantains, cocoyams and yams are planted to provide food for the farm family and also to raise some income before the cocoa trees start yielding fruits. The food crops are divided between the caretaker and the owner of the farm in an abusa arrangement, even though the cocoa may be under an abunu arrangement. Indeed, many caretakers who do not initially have the capital to invest in a new cocoa farm (buy land and cultivate) can eventually own a cocoa farm through the abunu system.

5.2 Case study methodology

5.2.1 Sampling procedure

The sample frame for the survey used a purposive and multi-stage sampling procedure to select cocoa regions, and then random sampling to select districts within the cocoa-growing regions, and finally farm households.

The seven cocoa regions in Ghana (Ashanti, Brong-Ahafo, Central, Eastern, Volta, Western North and Western South) were classified in terms of production levels as (a) high, (b) medium, and (c) low, and then three of them purposively selected. By cluster, the Western North and Western South are high-production regions; the Ashanti and Brong-Ahafo Regions are medium-production areas, and the Eastern and Central Regions are low-production areas. The Volta Region was not considered because of its low level of cocoa production. An initial demographic analysis undertaken by the team from the University of Ghana found that Brong-Ahafo and Ashanti Regions could be considered as homogeneous, and the Ashanti Region was selected for study. The Eastern and Central Regions were also found to be broadly similar and the Eastern Region was selected for study. Of the two high cocoa-growing regions, Western North and Western South, Western South was selected for study on the basis of its relatively better road infrastructure and therefore accessibility to markets compared to the Western North. Following the selection, the three cocoa-growing areas in Ghana sampled were:

Region 1 Western South

Region 2 Ashanti

Region 3 Eastern

Using similar cocoa production-based indicators (high and low outputs) as well as good road access to markets within each of the selected regions, two districts each were selected per region. The selection of the communities within the districts was random but guided by the fact that some communities have received support from Cadbury CSR and community support activities. These communities, which have either (a) a well provided by Cadbury, or (b) a link to ICI pilot projects relating to child labour, or both, were eliminated from the sample. The aim in this project was to capture a picture of production where no CSR initiatives were undertaken in order to assess prevailing conditions under which cocoa farmers normally produce (although in future a separate comparative study could then examine the differences in communities that have benefited from CSR). Again, the selection of the communities was guided by a listing of LBCs who source their purchases from these communities and have a listing of them and a list of farmers who sell to these LBCs. The major LBCs were the Produce Buying Company (PBC) which buys about 40% of Ghana's cocoa annually, and Kuapa Kokoo, whose annual purchase is about 10% per annum.

5.2.2 Study areas

Following the sampling procedure explained above, a total of 12 communities were selected for field data collection, which was conducted during the months of October and November 2006. The sampled districts and communities are summarised in Table 5.1.

Table 5.1: Sampled cocoa districts and communities for field data collection

Region	Districts	Communities
Ashanti	1. New Edubiase	Menang Tonkoase II
	2. Agona Mampong	Bodomase Wiamoase
Western South	1. Dunkwa	Kyekyewere Nsuaem
	2. Manso Amenfi	Subreho Aku-Nkwanta
Eastern	1. Akim Oda	Mofram Asene
	2. Akim Tafo	Maase Nankese

5.2.3 Sample size

Within each community, the target was 50 randomly selected farm operator households, making a total of 100 farm operator households per district. The farm operator households comprised a mix of owner and caretaker farmers, and the person interviewed was the head of that household. Within each community, 10 farm workers were randomly selected and interviewed, for a total of 60 farm workers. There were no targets set for the number of children to be interviewed, as they were not a major focus of the research. The target and actual sample size for the research is indicated in Table 5.2. It should be noted that this study was not able to capture a large enough number of respondents to be a statistically representative sample of the cocoa sector, which would have required a larger project.

Table 5.2: Target and actual returns of respondents

Cocoa region	Cocoa district selected	Household (farm operator)		Adult workers		Children	
		Target	Actual	Target	Actual	Target	Actual
Ashantil	New Edubiase	50	37	10	9		10
	Agona Mampong	50	37	10	8		9
	District Total	**100**	**74**	**20**	**17**		**19**
Eastern	Akim Oda	50	29	10	7		10
	Akim Tafo	50	39	10	12		10
	District Total	**100**	**68**	**20**	**19**		**20**
Western South	Dunkwa 50	41	10	13		11	
	Manso Amendfi	50	34	10	12		11
	District Total	**100**	**75**	**20**	**25**		**22**
	Grand Total	**300**	**217**	**60**	**61**		**61**

5.2.4 Research instruments

Data for the study were collected from both primary and secondary sources. Two main instruments for data collection were used in this research. The first instrument was a structured household survey that comprised (a) a farm operator household survey, (b) an adult farm labourer (worker) survey, and (c) a child labour survey. The second instrument was qualitative and involved (a) focus group discussions (FGDs) including key informant interviews, (b) in-depth interviews of selected household members, and (c) oral life histories.

Different questionnaires were developed, pre-tested, reviewed and finalised for the data collection exercise, including:

1. Farm operator questionnaire
2. Child questionnaire
3. Adult worker questionnaire
4. Community questionnaire (key informants)
5. Focus group discussion guide
6. Oral life history guide

The team of researchers undertook initial reconnaissance/preparatory visits to all the selected districts and communities before the start of the field exercise. Enumerators were recruited from Graduate/Research Assistants from the University of Ghana and trained for the field exercise. The enumerators, together with the team of researchers, administered the questionnaires in each of the communities.

In each community there were six FGDs structured as follows:

Owner operators (male and female)	Aged 40+	(one group)
Owner operators (male and female)	Aged 25–39	(one group)
Caretaker operators	Aged 40+	(one group)
Caretaker operators	Aged 25–39	(one group)
Women owner operators only		(one group)
Youth (male and female)		(one group)

Hence there were a total of 12 FGDs with women, 12 FGDs with the youth, and 45 FGDs with owner operators and caretaker operators. The key informants of each community were engaged in a discussion to answer the community questionnaire, so there were 12 such interviews. There were a total of 24 life histories or 4 per district.

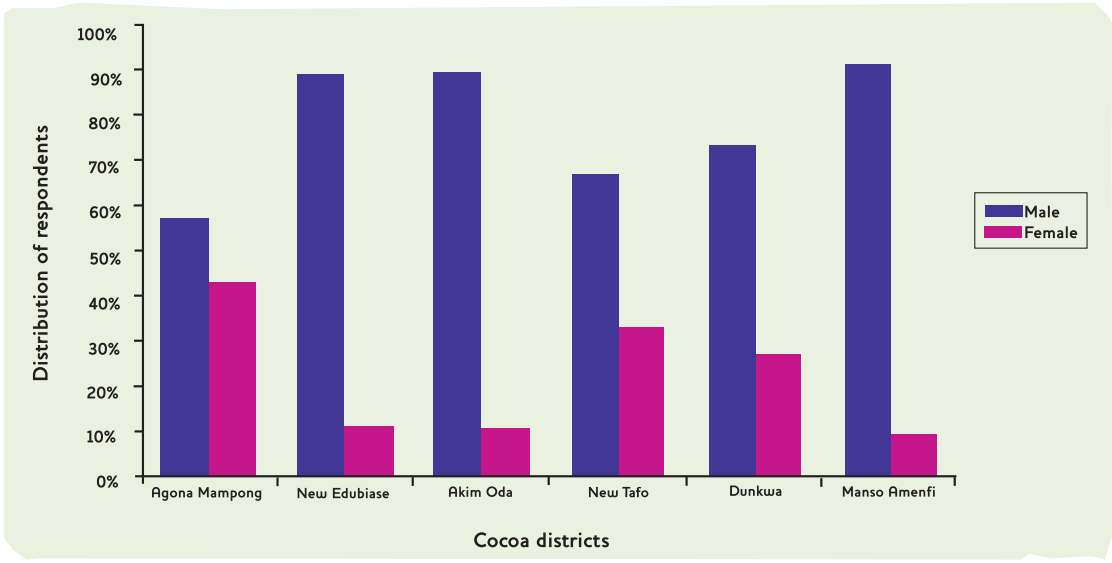
The key informant interviews, focus group discussions and life history accounts were recorded on audio tape recorder, which were later, transcribed and analysed.

5.3 Profile of study districts/communities

5.3.1 Socio-economic profile

The cocoa farm household questionnaire had responses from a total of 217 owner operators and caretaker operators.[16] The mean age for all respondents was 51 years. However, the mean age for males (50 years) was relatively lower than that for the females (55 years).

Figure 5.1: Distribution of respondents by sex and cocoa district



Within the study, 77% of the respondents were male, 23% female. The distribution of the sexes by cocoa district is shown in Figure 5.1. The largest proportion of women respondents was 43% in the Agona Mampong district, followed by New Tafo district with 33%. The lowest proportion of women representation is in the Manso Amenfi district in the Western South cocoa region with 9%. Most of the respondents (79%) were married.

“It was found that most (75%) had basic (primary and junior secondary school) education.”

Examining the educational levels of the respondents, it was found that most (75%) had basic (primary and junior secondary school) education. This was followed by respondents with no formal education (13%). The proportion of respondents who had post-basic (secondary, vocational or tertiary level) education was 12% (Table 5.3).

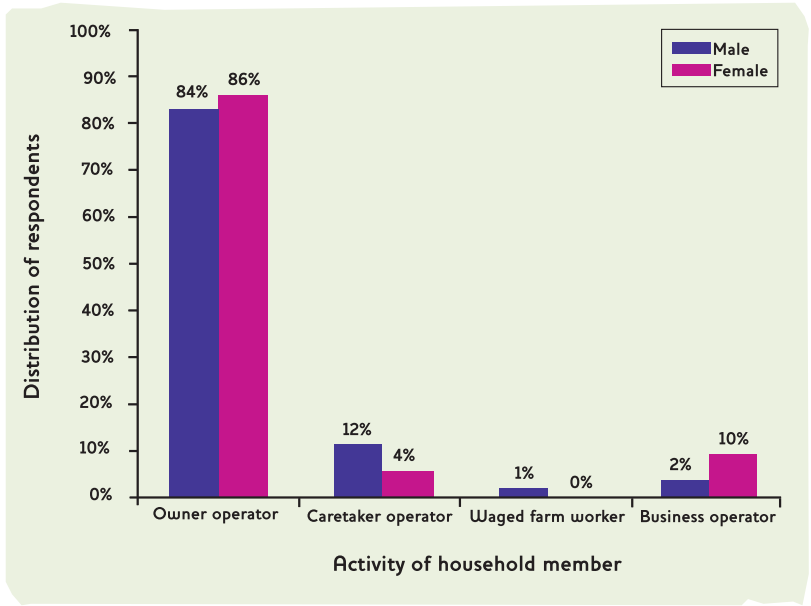
Table 5.3: Educational level of household head

Educational attainment	Frequency	%
Basic	162	74.7
Post-basic	25	11.5
Uneducated	28	12.9
Artisan	1	0.5
Total	216	99.6
Missing System	1	0.4
Total	217	100.0

16 All statistics are calculated based on data availability, so sample size will vary. Observations may be 'lost' due to missing data or because a particular question was not relevant to the respondent.

Of the 215 respondents who indicated their main activity, 86% were owner operators with only 10% being caretaker operators (Figure 5.2). There were slightly more female than male owner operators, while there were more male caretaker operators (12%) than female caretaker operators (4%). The proportion of waged farm workers was only 1% of the respondents.

Figure 5.2: Distribution of main occupational activity of respondents by sex



By cocoa district, more than 75% of respondents in all the districts visited were owner operators. The largest proportion of owner operators in the sample was in the Akim Oda district (93%), while the lowest was 75%, in the Agona Mampong district. The highest proportion (18%) of caretaker operators in the sample was in the Manso Amenfi district.

The average household size of the respondents was seven (7). The maximum household size in the sample was eighteen (18) and the minimum, one (1). The modal household size for both owner and caretaker operators was 4–6. The maximum household size (18) occurred with the owner operators. Comparatively there were more household members in owner-operated households than in caretaker operator households. Table 5.4a summarises the household size by main activity of head of household and by cocoa region and Table 5.4b summarises it by cocoa district.

Table 5.4a: Distribution of household size by cocoa region

	Household size by ranges (persons)				
Region	**1–3**	**4–6**	**7–9**	**10 and above**	**Total**
Ashanti	10 (13.5%)	33 (44.6%)	25 (33.8%)	6 (8.1%)	74 (100.0%)
Eastern	15 (22.1%)	25 (36.8%)	17 (25.0%)	11 (16.2%)	68 (100.0%)
Western	9 (12.0%)	31 (41.3%)	21 (28.0%)	14 (18.7%)	75 (100.0%)
Total	**34 (15.7%)**	**89 (41.0%)**	**63 (29.0%)**	**31 (14.3%)**	**217(100.0%)**

Table 5.4b: Distribution of household size by cocoa district

	Household size in ranges				
District	**1–3**	**4–6**	**7–9**	**>10**	**Total**
Agona Mampong	5 (13.5%)	21 (56.8%)	7 (18.9%)	4 (10.8%)	37 (100.0%)
New Edubiase	5 (13.5%)	12 (32.4%)	18 (48.6%)	2 (5.4%)	37 (100.0%)
Akim Oda	6 (20.7%)	13 (44.8%)	5 (17.2%)	5 (17.2%)	29 (100.0%)
New Tafo	9 (23.1%)	12 (30.8%)	12 (30.8%)	6 (15.4%)	39 (100.0%)
Dunkwa	5 (12.2%)	17 (41.5%)	11 (26.8%)	8 (19.5%)	41 (100.0%)
Manso Amenfi	4 (11.8%)	14 (41.2%)	10 (29.4%)	6 (17.6%)	34 (100.0%)
Total	**34 (15.7%)**	**89 (41.0%)**	**63 (29.0%)**	**31 (14.3%)**	**217 (100.0%)**

The study helped to highlight the migration status of cocoa farmers. Figure 5.3 summarises the aggregate characteristics of the respondents in terms of their migration status. In general, the proportion of migrants (46%) compares favourably with that of indigenes (54%). About 36% of the respondents had migrated from outside the region in which they currently reside.

Figure 5.3: Migration status of respondents (summary statistics)

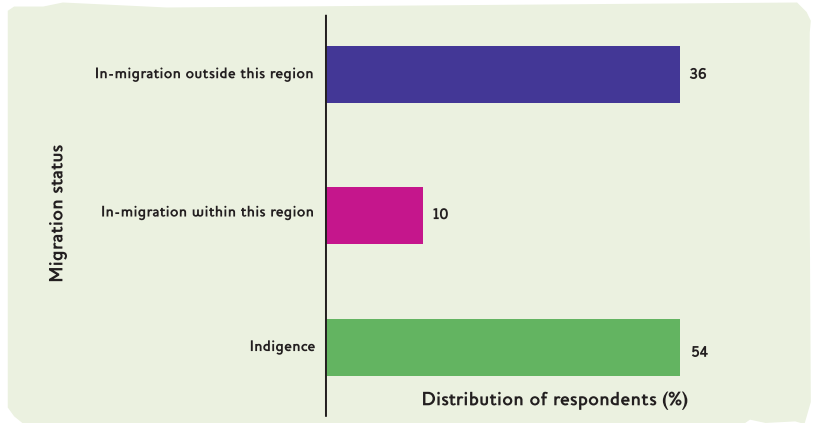
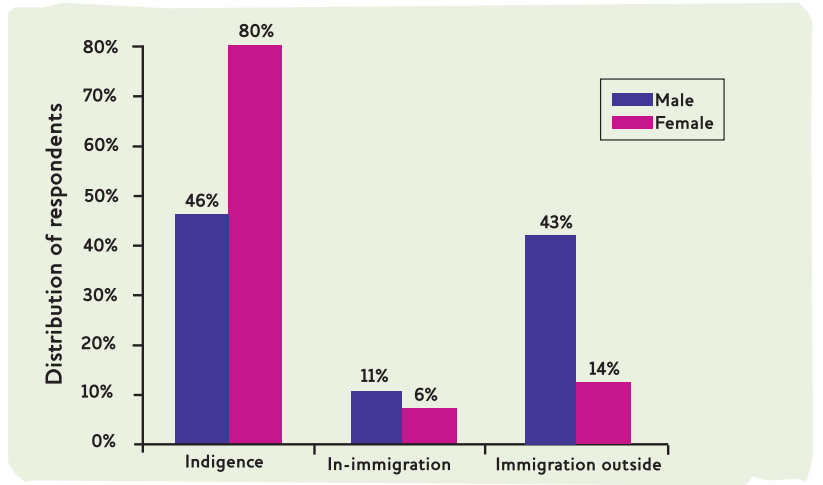


Figure 5.4 presents the sex distribution of respondents by migration status. Of the male respondents, 54% had migrated from somewhere else to their present locations, compared with 20% of females. This is not unexpected since males tend to move more often from one place to another to work.

Figure 5.4: Migration status of respondents by sex



5.4 Production/productivity and income of cocoa farmers in the study area

Cocoa farmers derive the major part of their income from the cocoa farm. Therefore the livelihood of the household of the cocoa farmer largely depends upon how well his or her cocoa farm is doing. In this section, information is provided on the size of cocoa farms, production levels, land and labour productivity and incomes of the cocoa farm operators interviewed. First, some indicators of cocoa farmer wellbeing (welfare) and cocoa production performance in the sampled data are discussed. Cocoa farmer performance indicators include net income from cocoa (or net total household income including cocoa) and farm productivity and welfare indicators of total household expenditures or the per capita household expenditures. This is followed by an analysis of the factors that underpin the wellbeing and performance of the cocoa farmers.

Table 5.5: Cocoa farm size by district (acres)[17]

	Farm size by ranges (acres)					
District	**1.0–3.0**	**3.01–6.0**	**6.01–9.0**	**9.01–12.0**	**12.0**	**Total**
Agona Mampong	9 (25.0%)	16 (44.4%)	6 (16.7%)	2 (5.6%)	3 (8.3%)	36 (100.0%)
New Edubiase	3 (8.6%)	11 (31.4%)	7 (20.0%)	5 (14.3%)	9 (25.7%)	35 (100.0%)
Akim Oda	3 (11.1%)	8 (29.6%)	6 (22.2%)	2 (7.4%)	8 (29.6%)	27 (100.0%)
New Tafo	3 (7.9%)	13 (34.2%)	8 (21.1%)	2 (5.3%)	12 (31.6%)	38 (100.0%)
Dunkwa	4 (9.8%)	9 (22.0%)	8 (19.5%)	5 (12.2%)	15 (36.6%)	41 (100.0%)
Manso Amenfi	4 (12.9%)	7 (22.6%)	4 (12.9%)	4 (12.9%)	12 (38.7%)	31 (100.0%)
Total	**26 (12.5%)**	**64 (30.8%)**	**39 (18.8%)**	**20 (9.6%)**	**59 (28.4%)**	**208 (100.0%)**

There were two clusters of farm size in the sample – those of 3–6 acres (1.4-2.7 ha), which typifies the smallholder nature of Ghanaian cocoa farming, and those of more than 12 acres (5.5 ha), representing larger types of farm. However, in the Western Region (Dunkwa and Manso Amenfi) where availability of land had been better than in other regions most of the farms were more than 12 acres in size (Table 5.5). The small farm sizes in Ghana may be due to cocoa establishment arrangements where sometimes the farm is split into two between the land-owner and the caretaker. Another reason is the inheritance system where a farm may be bequeathed to siblings and they decide to share and operate farms separately.

Table 5.6: Cocoa output by district, 2005/06 season

	Cocoa output (bag of 62.5 kg)					
District	**1.0**	**1.01–2.0**	**2.01–3.0**	**3.01–4.0**	**>4.00**	**Total**
Agona Mampong	10 (34.5%)	7 (24.1%)	6 (20.7%)	3 (10.3%)	3 (10.3%)	29 (100.0%)
New Edubiase	8 (29.6%)	9 (33.3%)	7 (25.9%)	2 (7.4%)	1 (3.7%)	27 (100.0%)
Akim Oda	10 (45.5%)	8 (36.4%)	4 (18.2%)	0 (.0%)	0 (.0%)	22 (100.0%)
New Tafo	13 (52.0%)	7 (28.0%)	4 (16.0%)	1 (4.0%)	0 (.0%)	25 (100.0%)
Dunkwa	8 (25.0%)	12 (37.5%)	6 (18.8%)	3 (9.4%)	3 (9.4%)	32 (100.0%)
Manso Amenfi	2 (7.1%)	12 (42.9%)	7 (25.0%)	4 (14.3%)	3(10.7%)	28 (100.0%)
Total	**51 (31.3%)**	**55 (33.7%)**	**34 (20.9%)**	**13(8.0%)**	**10 (6.1%)**	**163(100.0%)**

About one-quarter of the farms in the surveyed area registered cocoa output of less than 6 bags, 23.2% had 5–10 bags, 12.8% had 10–15 bags, and 15.2% had 15–20 bags during the 2005/2006 seasons. As a result of relatively good yields or large size of farms in the Western Region, another quarter of the farms had yields of more than 20 bags (Table 5.6).

> “About one-quarter of the farms in the surveyed area registered cocoa output of less than 6 bags, 23.2% had 5-10 bags, 12.8% had 10-15 bags, and 15.2% had 15-20 bags during the 2005/2006 seasons.”

17 Note: 2.2 acres = 1 hectare

Table 5.7: Cocoa land productivity by district (no. of 62.5 kg bags of dry cocoa beans harvested per acre), 2005/2006 season

	Land Productivity (62.5 kg bags of dry cocoa beans per acre)					Total
District	**<1.0**	**1.01–2.0**	**2.01–3.0**	**3.01–4.0**	**>4.00**	
Agona Mampong	10 (34.5%)	7 (24.1%)	6 (20.7%)	3 (10.3%)	3 (10.3%)	29 (100.0%)
New Edubiase	8 (29.6%)	9 (33.3%)	7 (25.9%)	2 (7.4%)	1 (3.7%)	27 (100.0%)
Akim Oda	10 (45.5%)	8 (36.4%)	4 (18.2%)	0 (.0%)	0 (.0%)	22 (100.0%)
New Tafo	13 (52.0%)	7 (28.0%)	4 (16.0%)	1 (4.0%)	0 (.0%)	25 (100.0%)
Dunkwa	8 (25.0%)	12 (37.5%)	6 (18.8%)	3 (9.4%)	3 (9.4%)	32 (100.0%)
Manso Amenfi	2 (7.1%)	12 (42.9%)	7 (25.0%)	4 (14.3%)	3(10.7%)	28 (100.0%)
Total	**51 (31.3%)**	**55 (33.7%)**	**34 (20.9%)**	**13(8.0%)**	**10 (6.1%)**	**163(100.0%)**

> “Land productivity was found to be low in the surveyed area.”

Land productivity was found to be low in the surveyed area. About 30% of the cocoa farm operators obtained yields of not more than one bag per acre or 137.5 kg per hectare, which is far below the national average of 350–400 kg per hectare.

Table 5.8: Summary statistics of cocoa income variables, million Cedis

	N[18]	Min	Max	Mean	Std. Dev.
Total income from cocoa 05/06 season (Million Cedis)	197	0.2	62.944	7734	9.589
Per capita income from cocoa 05/06 season (million Cedis/person)	197	0.022	31.472	1.395	2.595
Owner operator income from total household cocoa income 05/06 season (Million Cedis)	163	0.5	55	7740	9.202
Caretaker Operator income from total cocoa income 05/06 season (Million cedis)	51	0.2	29.67	4.917	5.462
Total household income from all sources including cocoa (million Cedis)	197	0.25	65.344	11.462	10.867

18 Data were collected from 217 respondents. Following data cleaning the sample decreased to 197 across the six districts.

Table 5.8 summarises total and per capita cocoa incomes across the sample, in million cedis. Using an average end-of-period exchange rate of cedis 9,200 to US$1, the mean total income from cocoa per day per household (365 days in a year) is approximately US$2.30. On a per capita basis, the mean income per capita per day from cocoa is estimated as US$0.42. The mean total household income (cocoa and all other sources) per day per household is US$3.41, with a mean per capita daily income of US$0.63 (see Table 5.9). In all the cocoa-growing areas sampled for this case study, members of the farm households earn less than US$1.00 per day per person and so can be classified as being poor in terms of the target set by the Millennium Development Goals.

Net of production costs, there are differences across cocoa districts in total household incomes, per capita net income from cocoa, net total income including cocoa, and in the proportion of total incomes coming from cocoa. As shown in Table 5.9, farmers in Dunkwa have the highest proportion of income coming from cocoa, at just over three-quarters (76.5%), compared with New Tafo where farmers on average get about 58.7 per cent of their income from cocoa. New Tafo farmers also have on average the lowest mean per capita income per day at just US$0.33. This contrasts with farmers in Agona Mampong who have a similar profile in terms of the relative importance of cocoa in their livelihoods portfolio, but whose per capita incomes from cocoa are the highest at 0.56 cents (and overall household incomes of US$0.84 per capita per day are also higher than the other regions).

Table 5.9: Summary statistics of cocoa income variables per district

District	Number of Households	Percentage share of cocoa income in total household income (mean proportion)	Mean total household income (million cedis)	Mean income from cocoa (million cedis)	Mean Household size	Mean per capita household income per day (US$, per person per day)**	Mean per capita income from cocoa per day (US$, per person per day)**
Agona Mampong	34	58.9	11.67	7.01	6.09	0.84	0.56
New Edubiase	35	59.8	11.13	6.33	5.94	0.64	0.36
Akim Oda	27	67.3	10.84	7.02	6.56	0.62	0.34
New Tafo	30	58.7	7.45	5.08	6.73	0.44	0.33
Dunkwa	37	76.5	14.73	10.96	7.14	0.67	0.47
Manso Amenfi	34	74.9	12.07	9.30	6.79	0.55	0.41
All Districts	197	66.2	11.46	7.73	6.54	0.63	0.42

** The average exchange rate used is cedi 9200 per 1USD.

Across the board, **cocoa farming is the most important livelihood activity in the sample in terms of proportion of income, accounting for 66% of household income** across all districts (Table 5.10). The next important livelihoods activities are either growing other crops or off-farm incomes, which jointly account for 26% of household income across all districts. Wage labour and remittances only account for 6% of household income across all regions. However, as shown in Table 5.10 there are clear variations in the different sources of household income depending on location.

Table 5.10: Different sources of household income

		Percentage of income from each income source								
District	Number of households	Cocoa	Other crops	Animals	Off-farm	Wage labour	Remitt-ances	Other Transfers	Savings	Rent
Agona Mampong	34	58.9	12.5	0	23.2	3.3	2.1	0	0	0
New Edubiase	35	59.8	19.5	4.20	11.8	4.1	0.3	0	0.3	0
Akim Oda	27	67.3	12.9	0.32	8.29	5.7	4.9	0	0	0.6
New Tafo	30	58.7	10.6	0	18.1	2.2	9.2	1.2	0	0
Dunkwa	37	76.5	4.8	0.62	14.1	0.5	0.7	2.0	0	0.8
Manso Amenfi	34	74.9	9.2	0.49	9.8	5.6	0	0	0	0
All Districts	197	66.2	11.5	0.99	14.3	3.5	2.6	0.6	0.06	0.2

“There is gender inequality in cocoa livelihoods that needs to be tackled.”

The income distribution of men and women indicates that there is gender inequality in cocoa livelihoods that needs to be tackled (Table 5.11). Whereas 33.0% of the men surveyed earned a total of less than six million cedis from their cocoa farm in the 2005/2006 seasons, the comparable figure for women was 50%. At the higher income level, 26% of the men earned a total cocoa income of more than 16 million cedis, compared with only 11% of women.

Table 5.11: Total income from cocoa by sex, 2005/06 season

	Total income from cocoa 05/06 season (ranges in million cedis)									
Sex	0.5–2.0	2.01–4.0	4.01–6.0	6.01–8.0	8.01–10.0	10.01–12.0	12.01–14.0	14.01–16.0	>16.0	Total
Male	7 (4.6%)	21 (13.8%)	22 (14.5%)	16 (10.5%)	17 (11.2%)	11 (7.2%)	12 (7.9%)	7 (4.6%)	39 (25.7%)	152 (100.0%)
Female	10 (22.2%)	9 (20.0%)	3 (6.7%)	6 (13.3%)	8 (17.8%)	3 (6.7%)	0 (.0%)	1 (2.2%)	5 (11.1%)	45 (100.0%)
Total	17 (8.6%)	30 (15.2%)	25 (12.7%)	22 (11.2%)	25 (12.7%)	14 (7.1%)	12 (6.1%)	8 (4.1%)	44 (22.3%)	197 (100.0%)

“We can therefore conclude that cocoa farming alone cannot sustain the farmers, unless something is done to improve yields and farm-holdings so that earnings from cocoa go up.”

Heads of households were asked to state how much they spend on various categories of cost including food (in cash and in kind), accommodation, clothing, water, energy, transport, healthcare, education of children, remittances, donations, household appliances and telephone. Table 5.12 summarises the expenditure by major activity of head of households.[19] With expenditures for most respondents going beyond 20 million cedis per annum, it is difficult to see how many people balance their budgets if there are no other sources of income. We can therefore conclude that cocoa farming alone cannot sustain the farmers, unless something is done to improve yields and farm-holdings so that earnings from cocoa go up.

19 Numbers reporting in each category vary following data cleaning.

Table 5.12: Total annual household expenditure by activity of head of household (million cedis)

Total yearly household expenditure range: (million cedis)	Main activity of head of household					Total
	Owner operator	Caretaker operator	Waged farm worker	Business operator	Unemployed	
5.00	4 (80.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (100.0%)
5.01–10.0	12 (92.3%)	0 (0.0%)	0 (0.0%)	1 (7.7%)	0 (0.0%)	13 (100.0%)
10.01–15.0	31 (79.5%)	6 (15.4%)	1 (2.6%)	0 (0.0%)	1 (2.6%)	39 (100.0%)
15.01–20.0	41 (83.7%)	4 (8.2%)	1 (2.0%)	3 (6.1%)	0 (0.0%)	49 (100.0%)
20.01–25.0	30 (81.1%)	4 (10.8%)	0 (0.0%)	3 (8.1%)	0 (0.0%)	37 (100.0%)
>25.0	59 (86.8%)	7 (10.3%)	0 (0.0%)	2 (2.9%)	0 (0.0%)	68 (100.0%)
Total	**177 (83.9%)**	**22 (10.4%)**	**2 (0.9%)**	**9 (4.3%)**	**1 (0.5%)**	**211(100.0%)**

It is important to continue to support research into high-yielding cocoa varieties and improved practices and more effective strategies for dissemination and adoption of innovations. Input supplies should be available at the right time and affordable by the farmers. Whatever the case may be, cocoa farming alone may not be enough to provide a decent livelihood and so other ways of complementing farm activities and some off-farm activities may have to be devised. Such activities may have to be linked to markets and so investment in road infrastructure becomes very important in the rural areas.

5.5 Analysis of factors affecting cocoa production performance

In section 5.4, the production/productivity profile of the sampled cocoa districts was discussed. In particular, there are significant differences in farm productivity and incomes among the cocoa farms in the sampled districts. In this section, factors that affect cocoa production performance in the sampled districts are summarised and analysed. These include the price paid by LBCs on behalf of COCOBOD per 62.5 kg bag, cost of inputs into cocoa production, credit availability and agricultural extension service provision. In the next section, the magnitude of the effects of these factors on performance and welfare indicators are presented.

5.5.1 Cocoa output price and cost of factor inputs

As previously indicated, producer price is announced by the COCOBOD every cocoa season. This price is a floor (minimum) price for purchasing cocoa. However the licensed buying companies are free to add any incentives they wish. In some isolated cases, cocoa is purchased at a price lower than the minimum guaranteed price when farmers need money. This practice often occurs during the off-season when purchasing has closed but farmers need money for some transactions. Table 5.13 summarises descriptive statistics of price indicators in the cocoa survey. The maximum cocoa price per bag (62.5 kg) in the sample was Â562,844.8 in the 2005/2006 cocoa season, when the study was carried out. The minimum price indicated per bag was Â500,000. Most of the farmers received the minimum guaranteed price of Â562,500 per bag during the 2005/06 season.

Table 5.13: Summary statistics of producer price of cocoa in the surveyed area

	N	Min.	Max.	Mean	Mode	Std. Dev.
Price per bag (Cedis)	160	500,000.0	562,844.8	561,845.0	562,500.0	8,928.3
Premium from the LBC (Cedis/bag)	2	2,000.0	5,000.0	3,500.0	2,000.0	2,121.3
Cash bonus from LBC (Cedis/bag)	55	3,500.0	840,000.0	136,991.0	150,000.0	156,365.0
Cost per unit of seed pod (Cedis)	26	100.0	20,000.0	1,303.8	200.0	3,932.2
Cost per unit of seedlings (Cedis)	16	500.0	1,000.0	862.5	1,000.0	221.7
Cost per unit of insecticide (Cedis/can)	91	20,000.0	300,000.0	73,692.0	70,000.0	40,169.3
Cost per unit of fungicide (Cedis/can)	53	2,000.0	65,000.0	9,849.1	10,000.0	9,327.7
Cost per unit of fertiliser (Cedis/bag)	36	120,000.0	550,000.0	229,500.0	230,000.0	63,469.9
Daily wage for casual labour for weeding (Cedis)	36	12,000.0	80,000.0	30,722.0	25,000.0	12,260.5

Unlike producer price, which does not differ so much across production areas, the costs of inputs for cocoa production (seed pods, seedlings, insecticides, fungicides and fertilisers) differed markedly in the districts surveyed. The difference in input costs may be due to differences in the types and characteristics of the inputs.

One major input into cocoa production is labour. Due to scarcity of labour in the rural areas, farm labour costs are quite high, and often higher than the minimum wage announced by the government. As Table 5.13 shows, the average daily wage for weeding on a cocoa farm was c31,000, although most people paid c25,000. These rates, which included provision of lunch, were higher than the official minimum wage of c19,500. High farm labour costs are therefore a major problem facing farmers and can deter them from carrying out optimal husbandry practices on their farms.

5.5.2 Producer price

With respect to the producer price of cocoa for the 2005/2006 cocoa season, and from the perspective of farmers, the increase in cocoa prices announced in October 2006 was not significant enough to make an impact on their livelihoods. During the focus group discussions, many of the participants opined that their earnings from the sale of cocoa were not commensurate with the effort put into its production, and the returns were not adequate to make a good living. In some cases, women thought it actually made their lives worse because it had an adverse effect on farmers' purchasing power. Any time other traders heard that the price of cocoa had been increased, they would also increase the prices of consumer items. (This was especially true of farmers living in more remote villages, who depended on one or two bigger towns for the bulk of their trade.)

The women FGD participants were even upset with the increase of about 3% in the producer price announced in October 2006. Many of them said the government should not even have announced any increase at all. Some of them said it was an insult to them and that it demonstrated that farmers did not matter. Incidentally, the announcement of the producer price of cocoa came about when secondary school teachers were on strike and they were demanding an increase in pay of more than 100%. A farmer asked, 'Is it because we farmers cannot go on strike that is why the government treats us like that? This price increase was an insult'.

“ ...there had been considerable improvement in the price over the last 10 years or so. ”

Although farmers seemed to be unhappy about the producer price, there had been considerable improvement in the price over the last 10 years or so. The producer price of cocoa in nominal terms moved from 2.5 million cedis per tonne in 2000 to 9.0 million cedis per tonne in 2004 and to 9.150 million cedis in 2006/07, an increase of about 260% in 4 years.[20] In terms of proportion of fob price of cocoa paid to farmers as determined by COCOBOD, the producer price was 73% of the fob price in 2004 and 70% in 2005 as compared with 42% in 1995.

The producer price of cocoa is announced at the beginning of the main season and it is used throughout the season irrespective of world market conditions and any price fluctuations that ensue. To compensate farmers for any gains that would result from exchange rate depreciation or increase in the total fob sales revenue received, COCOBOD introduced a bonus which is paid at the end of the cocoa season on each bag/kg of cocoa sold in that season. When there are adverse world market conditions the farmers are not penalised and the government absorbs the losses. Farmers have built this bonus into their expectations and they get disappointed when a bonus is not announced. During the survey farmers complained that they were not happy that a bonus had not been paid for the past two years. Although a bonus was announced with the price increase in October 2006, many farmers were not sure they would get it. The actual bonus payment process is one of the problems with paying for cocoa purchased with cash, rather than by cheque and use of the farmers' passbooks. Many of the LBCs do not use passbooks to record sales of farmers so when the time comes to pay a bonus there are no records to refer back to.

In the youth FGD, they were also of the opinion that cocoa prices were too low. When they were asked to suggest price ranges they believed would be fairer to farmers, the young men quoted higher figures than the young women.

5.5.3 Credit provision

Financing is important for an enterprising cocoa sector. Apart from purchasing inputs, credit has been used by farmers to support their households during the off-season when they cannot sell cocoa. The need for credit and/or loans was a theme in ten of the twelve focus groups. As with the women's groups, the youth stated that credits and loans would greatly improve farmers' production of cocoa as it enables the purchase of agricultural inputs and tools such as pesticides, fertilisers, and cutlasses.

Before liberalising domestic purchasing of cocoa, the Produce Buying Company could make cash advances to cocoa farmers and these were deducted when cocoa was sold. With multiple buyers it has become difficult to operate a loan scheme by the LBCs because of the possibility of 'dribbling'. Through this practice a farmer who had obtained a loan from one buying agent would clandestinely take his/her cocoa to another buying agent in the community or even to another community to sell. The creditor agent would therefore not be able to receive repayment for the loan advanced. However in an era of keen competition in cocoa purchasing advancing credit is one way of obtaining the allegiance of cocoa farmers for the sale of their produce. Therefore some buying clerks have advanced small loans to those farmers they trust to come back to them.

One good thing about cocoa production is that many people are willing to lend money to cocoa farmers in the confident expectation of being repaid once the cocoa has been sold. However, loans from moneylenders tend to carry high interest rates (100% or more). It was reassuring to creditors that even if the farmer did not pay back the loan, the farm, which was usually used as collateral, could be sold to recoup the loan. Some farmers who were unable to make the repayment have lost their farms through such loans. In general, about 70% of the owner operators and 78% of caretaker operators reported that they would be able to borrow money if they needed to (Table 5.14).

20 Note: The exchange rate current at the time was 1 US$ = 9,200 cedis.

Table 5.14: Access to credit by main activity of head of household

Activity of HoH	If you needed to borrow some money would you be able to?		Total
	Yes	No	
Owner operator	124 (68.8%)	56 (31.2%)	180 (100%)
Caretaker operator	17 (77.3%)	5 (22.7%)	22 (100%)
Waged farm worker	2 (100%)	0 (0.0%)	2 (100%)
Business operator	7 (77.8%)	2 (22.2%)	9 (100%)
Total	150 (70.4%)	63 (29.6%)	213 (100%)

The extent of access to credit, either in kind or as cash, for the production process in the surveyed area is presented in Table 5.15. Some farmers indicated that they did receive credit in the form of inputs (mainly fertilisers) and cash through their LBCs. The practice, however, does not appear to be widespread as the number of respondents who benefited is rather small compared to the total sample.

In Table 5.16, LBC purchasing clerks are ranked as the major source of credit for both owner and caretaker operators. Importantly, formal banks feature prominently in the possible sources of access to credit by both owner operators and caretaker operators. Borrowing from farm owners by caretaker operators ranked low among the possible sources. Susu schemes and Solidarity associations[21] were less prominent as possible sources of credit.

In relative terms female respondents indicated that the banks and financial institutions were more likely to lend to them (Table 5.17). This however contrasts with the men who saw the LBCs as their best possible source of credit. Again Susu schemes and Solidarity were discounted as possible sources to borrow from.

Table 5.15: Summary statistics of credit from LBC

	Yes	Min. Amount	Max. Amount	Mean Amount	Std. Deviation
Do you receive input credit from the first LBC you sell your cocoa to? (Cedis)	22	180,000	5,280,000	1,629,090	1,256,510
Do you receive cash credit from the LBC you sell your cocoa to? (Cedis)	21	65,000	1,750,000	424,000	404,533

21 Susu schemes are informal savings and loan associations to which members contribute an agreed fixed sum of money on a periodic basis as savings. They can then from time to time obtain loans of fractions of their total savings. Solidarity associations vary in form but each has a specific objective, such as a funeral association which assists members financially when a bereavement is suffered.

Table 5.16: Sources of potential credit by main activity of respondent

Source of borrowing	Main activity of respondent				Total of owner and caretaker operators	Total number of respondents
	Owner operator		Caretaker operator			
	Yes	No	Yes	No		
Moneylender	9 (8.0%)	104 (92%)	2 (14%)	12 (86%)	127	135
Owner operator	3 (3%)	113 (97%)	2 (13%)	13 (87%)	131	139
Friend	26 (22%)	92 (78%)	3 (20%)	12 (80%)	133	140
Relative	10 (9%)	106 (91%)	1 (7%)	13 (93%)	130	138
Someone in community	12 (11%)	102 (89%)	2 (14%)	12 (86%)	128	136
Bank or financial inst.	36 (31%)	79 (69%)	2 (14%)	12 (86%)	129	137
Credit union	11 (10%)	104 (90%)	2 (13%)	13 (87%)	130	138
Solidarity association	2 (2%)	112 (98%)	0	14 (100%)	128	136
Susu scheme	0	114 100%)	0	14 (100%)	128	136
LBC purchasing clerk	41 (35%)	75 (65%)	6 (43%)	8 (57%)	130	137

Table 5.17: Source of potential credit by sex of respondent

Source of borrowing	Sex				Total number of respondents
	Male		Female		
	Yes	No	Yes	No	
Moneylender	8 (7%)	105 (93%)	3 (13%)	20 (87%)	136
Owner operator	4 (3%)	112 (97%)	1 (4%)	23 (96%)	140
Friend	28 (24%)	88 (76%)	5 (20%)	20 (80%)	141
Relative	9 (8%)	106 (92%)	3 (13%)	21 (86%)	139
Someone in the community	14 (12%)	100 (88%)	1 (4%)	22 (96%)	137
Bank or financial inst.	33 (29%)	81 (71%)	8 (33%)	16 (67%)	138
Credit union	11 (10%)	104 (90%)	3 (13%)	21 (87%)	139
Solidarity association	3 (3%)	111 (97%)	0	23 (100%)	137
Susu scheme	0	114(100%)	0	23 (100%)	137
LBC purchasing clerk	41 (35%)	75 (65%)	6 (27%)	16 (73%)	138

5.5.4 Agricultural extension services

"...only 21.2% could confirm that an extension officer visited them during season."

In Ghana, agricultural extension delivery is mainly a public sector activity. COCOBOD used to have its own extension service through its Cocoa Services Division. Under pressure from the World Bank, the Government of Ghana decided to combine cocoa extension and general agricultural extension under a unified extension service in 2001. This unification has caused two problems: expertise and numbers. During the unification exercise many COCOBOD extension staff did not join the Ministry of Food and Agriculture (MOFA) Extension Service, and those who were in MOFA and those who were newly recruited did not receive adequate training in cocoa production techniques. Cocoa extension has therefore fallen short of what is needed to bring knowledge and innovation to the farmers to increase productivity. This may be one of the reasons why productivity is very low in Ghana's cocoa sector.

Table 5.18 summarises responses from cocoa operator households about visits from an extension officer during the 2005/2006 seasons. Out of the sample of 217 respondents, only 21.2% could confirm that an extension officer visited them during season. Of those who were visited, about 45% received only one visit from an extension officer during the season.

Table 5.18: Visits by extension officer

Response	Frequency	%
Yes	46	21.2
No	149	68.7
Total	195	89.9
Missing system	22	10.1
Total	217	100.0

"The most significant factors that influenced net income from cocoa in the 2005/2006 cocoa season were productivity, access to extension services and the age of the cocoa farmer."

5.6 Performance and welfare indicators

In section 5.3.2, indicators of cocoa farmer performance and welfare were discussed. Cocoa farmer socio-economic characteristics, farmer location (market access) and cocoa production indicators (productivity, production costs, cooperation, access to extension, access to credit, labour availability and cost, among others) affect farmer performance (net income from cocoa (or net total household income including cocoa) either per capita or per unit farm area) and welfare (per capita household expenditures).

Appendix 1 presents estimated equations that in aggregate attempt to explain factors that could account for changes in the performance indicator of net income from cocoa and the welfare indicator of per capita household expenditures in the sampled cocoa districts.

The most significant factors that influenced net income from cocoa in the 2005/2006 cocoa season were productivity, access to extension services and the age of the cocoa farmer. Other factors such as being a member of a farmer collective, access to input market and access to credit were not significant. Being a member of a farmer collective and having access to the input market impacts positively on the performance indicator. This implies that cocoa farmers could increase their incomes from cocoa significantly if they belonged to an effective farmer collective, and were able to use the leverage provided by cooperatives to source farm inputs.

In terms of the significant estimated coefficients, the estimated sign on the coefficient on age-squared implies that as the cocoa farmer grows older, income from cocoa falls. The land productivity variable exhibits an approximate unit elasticity coefficient. This implies that when productivity increases by one percentage point, this could translate into a one-percentage point increase in income from cocoa, providing other factors remain constant. Lack of access to extension services in cocoa negatively affects farmer performance. For the welfare indicator of per capita household expenditures, access to credit and per capita income from sources other than cocoa were the main explanatory variables.

In summary, in the analysis of the performance and welfare indicators for the 2005/2006 cocoa season for the sampled cocoa districts, there were differences in performance indicators such as net income from cocoa per acre and productivity, as well as the welfare indicator of per capita household expenditures by location. The cocoa districts in Western South Region with relatively more concentrated and larger cocoa farms, fared rather better on these performance indicators than the districts in the Eastern Region (the cocoa districts with older cocoa farms). The performance indicators were largely explained by factors such as productivity, age of the farmer and access to extension services. The welfare indicator was largely explained by access to credit and sources of income other than cocoa.

Access to productivity-enhancing facilities appeared to be a key factor in increasing cocoa farm incomes. Access to extension services and input markets are paramount. Again these findings stress the importance of research, extension and access to inputs in cocoa production. Amongst other considerations, the provision of roads to connect these cocoa communities to market towns and centres requires attention. An effective organisation of the farmers could help to both enhance their social capital and increase their incomes.

6. Key findings and discussion of findings from the case study

The survey analyses indicate that there are significant differences in cocoa productivity by cocoa district. Similarly, there are significant differences in income per capita. The districts in the Western South Region, which are the new cocoa frontiers in the country, tend to have larger per capita incomes. Net incomes from cocoa are largely determined by productivity and extension service provision. On the other hand, the older cocoa districts in the Eastern Region have the largest production costs per acre relative to the other sampled districts. The analyses also indicate that expenditures on food, healthcare and transportation rank highest in the welfare indicator.

6.1 Wider perspectives from the cocoa sector

To support the survey results and focus group discussions, key informant interviews were conducted with people knowledgeable about Ghanaian cocoa. Although virgin land for cocoa cultivation is difficult to obtain, with determination it is possible to get secondary forest in the cocoa-growing areas.

“The high cost of farm labour coupled with the high cost of inputs has deterred many farmers from adopting improved practices and maintaining farms well.”

The small cocoa farm sizes in Ghana are more a result of the inheritance system than shortage of land. Most people that wish to can obtain large tracts of land for cocoa and develop it as time goes on. These farms could be large but in the end they may be split up due to operational arrangements, or to form gifts to a spouse or family member, or through inheritance on death. Therefore as cocoa farms become older they may have multiple owners operating various parts of them.

Cocoa production is labour-intensive. In the past, a farm was operated by the farm operator with his family (wife and children). That was why many landowners preferred to give their farms to male caretakers so that they would operate the farm with their wife and children. To increase the farm labour supply some of the caretakers took one or more wives as the farm size increased. The practice of using family members in cocoa production is dying out alongside both the growing awareness of the need to send children to school and the costs of maintaining more than one wife. The study of child labour in cocoa production in Ghana found the incidence of the worst forms of child labour to be very low (Asuming-Brempong et al. 2007).

Traditionally, the other source of farm labour was solidarity work where individual farm operators form a group in which members offer each other mutual assistance with farm duties (nnoboa scheme). However, this is becoming unattractive because of cheating by some people who fail to reciprocate assistance given by others. Since enough family labour is no longer available and the nnoboa scheme has virtually faded out, farm operators have had to resort to hired labour from the community. This has created a scarcity of farm labour and increased the rural farm wage which in many areas is much higher than the minimum wage announced by the government (when the minimum wage was about 19,500 cedis per day the rural farm wage was 25,000–40,000 per day depending on locality). As a result some farm operators from time to time offer themselves as farm labourers on other people’s farms in return for wages to supplement their incomes.

The high cost of farm labour coupled with the high cost of inputs has deterred many farmers from adopting improved practices and maintaining farms well. The low ratio of hybrid trees to traditional trees on cocoa farms is a case in point. Many farmers do not weed around their farms three times a year, they scarcely spray their cocoa trees against the capsid pest and black pod disease, and they leave mistletoe to grow on the trees. The result of this neglect is a low yield of cocoa in Ghana. Cocoa yields of less than 400 kg per hectare compare unfavourably with other cocoa-producing countries. However, there are managers in COCOBOD who believe that yields in Ghana could go up to 1000 kg per hectare as a result of policies and programmes being implemented by the Board.

“ ...many farmers still plant the old variety from seeds obtained from pods from their farms. ”

The Seed Production Unit of COCOBOD was created to produce hybrid cocoa seeds and seedlings for farmers. Farmers are being encouraged to replant their old farms, or at least plant new farms, with these hybrid varieties. Despite the programme many farmers still plant the old variety from seeds obtained from pods from their farms. This is poor practice, but many farmers do not know that and some of those who do know claim they continue to plant seeds from old pods because they cannot afford the hybrid pods, or to create and manage the necessary nurseries and/or transport the seedlings to their farms. Some farmers who tried to buy hybrid pods from COCOBOD complained that sometimes they had to make several trips to the office before they were able to obtain the pods, so often they gave up and went back to the old practice of using pods from their farms. Some farmers reportedly do not use hybrid seedlings because of the cost and inconvenience of getting them, creating and managing a nursery and the labour involved in conveying them to the field and then planting them.

The Hi-Tech programme involves the use of improved techniques including the application of fertiliser to cocoa farms.[22] Farmers have become aware of the benefits of fertiliser but low incomes mean that many of them cannot afford to buy and apply fertiliser. The government has therefore supplied fertiliser to farmers on credit through the licensed buying companies (LBCs) on a pilot basis. Six bags of fertiliser were to be applied to two acres of the farm for demonstration purposes. Some of the farmers did not follow the recommended guidelines and applied the fertiliser to the whole farm and therefore did not realise the anticipated yield. The inadequate cocoa extension service may be one reason why farmers did not apply the fertiliser properly and therefore did not get good results. They were obviously disappointed. Since the results were poor, many farmers failed to repay the cost of fertiliser supplied to the LBCs. Even those who obtained good results considered the money as government largesse not requiring repayment. The scheme fell into jeopardy as it could not be sustained. Some key informants suggested that repayment for fertiliser from poor farmers should be spread over three years. A lot more education is needed on the application of fertiliser to make it effective.

The other programme introduced by the government to resuscitate the cocoa sector was a mass spraying exercise. In this scheme, communities form farm-spraying gangs and get insecticide and fungicide from COCOBOD and arrange to spray the farms in their community in rotation. COCOBOD pays members of the gang. As good as the programme is, its realisation has run into difficulties in some communities. Instead of the recommended six sprayings per year, and the promise that each farmer will receive two sprayings, some farmers have been lucky to get one. Generally praised by the farmers as a useful scheme, favouritism and corruption appear to have bedevilled the scheme in some communities and COCOBOD has to monitor it closely. Some farmers complained that the gangs never reached their farms; others complained of having to pay the gangs. As a result, some of the frustrated farmers suggested that the spraying gangs should be disbanded and that the insecticide and fungicide should be given directly to the farmers to use themselves. To make self-spraying feasible some farmers and community leaders suggested that COCOBOD should give spraying machines to the community leaders (society presidents) for use by farmers on rotation.

The competition posed by the liberalised domestic cocoa market sometimes affects the quality of cocoa and it requires attention from COCOBOD if Ghana is to continue to produce the quality cocoa it is known for. When buying clerks approach hard-up cocoa farmers with money, the farmers are tempted to offer cocoa for sale that has not had sufficient time to dry properly. As a result, in 2005, some farmers sold purple beans (caused by inadequate fermentation of the beans) to the LBCs who then had difficulty selling them on to the Cocoa Marketing Company because such cocoa would be rejected by overseas customers or purchased at a discount. In addition, the LBCs have not been able to pay a differential price to cocoa farmers, only the producer price announced by the government. It is therefore important to evaluate the benefits of the liberalisation of the internal marketing of cocoa carried out in Ghana after 1993.

22 The ‘high technology’ of cocoa production (Cocoa HI TECH) is a holistic approach to sustainable cocoa production in which all the recommended technologies (fertiliser, improved hybrid seeds/seedlings, pesticide control routines, farm maintenance regime, planting in rows, etc) by CRIG are contained in a single package. It is defined as sustainable cocoa production by which the farmer increases and maintains productivity, through soil fertility maintenance at levels that are economically viable, ecologically sound and culturally acceptable using efficient management of resources.

Mapping Sustainable Production in Ghanaian Cocoa Case study key findings

6.2 Enabling environment and farmer participation

In this section, other economy-wide factors that constrain cocoa farmers are discussed. These factors emanate from focus group discussions conducted across the sampled cocoa districts. They include: the local marketing of cocoa (i.e. local cocoa purchasing by LBCs); the lack of any strong farmer associations at the community level; perception of the responsibilities of government and related agencies working to enhance productivity and access to farm inputs.

6.2.1 Marketing: LBCs and payments

At the time of the survey there were 23 LBCs licensed to buy cocoa in the cocoa-growing areas. One of the conditions for getting a licence to buy cocoa is to be able to operate in at least two of the six cocoa regions (as defined by COCOBOD). LBCs were also required to buy at least 2,000 tonnes of cocoa in a cocoa season. LBCs are paid an operating margin which is a percentage of the fob price of cocoa. During the 2005/2006 cocoa season the margin was 8.52% (COCOBOD Research Department). In their quest to make profits, fierce competition has been arisen among the LBCs. Some of them entice the producers with small gifts at the end of the season. Apart from Kuapa Kokoo, which pays a little more because they are a not-for-profit organisation and get a premium from Fairtrade, none of the LBCs paid anything more than the guaranteed minimum price. Many people have questioned the advantage of having several buying companies if there cannot be differential prices. However, one sure advantage of multiple buyers is that the farmer has a choice if he/she feels cheated by any one particular LBC.

Actual or suspected cheating was reported by many focus group members. There was a general belief that the purchasing clerks adjust the weighing scales to cheat the farmers. It became known that when cocoa was weighed at two different buying centres, the weights came out differently. There were reports of cheating to the extent of 2–10 kilograms per bag of cocoa sold. Although the weight of a bag of cocoa should be 62.5 kg, farmers reported bags being weighed at more than 67 kg with two kilograms being generally accepted as representing the weight of the jute sack.

Farmers expressed serious resentment and sometimes hostility towards purchasing clerks for their perceived dishonest dealings with them. A woman discussant said sardonically, ‘It is no wonder that a purchasing clerk who has never set foot on a cocoa farm can easily build a house that a farmer can never dream of’.

Farmers complained that the fixed weight weighing stone, which was supposed to be used to calibrate the weighing scale, was absent at the buying centres. When asked why farmers did not report the apparent cheating by purchasing clerks to their bosses, they said that when the bosses came on inspection they were bribed, so no adverse reports were made and the status quo remained.

Another problem farmers and caretakers complained about were delays in payment for cocoa sold. Farmers claimed it could take anywhere between two weeks and several months to be paid. Women focus group discussants said that sometimes the LBCs attempted to put the blame on the government for not releasing funds early enough, but they remained suspicious that the LBCs were likely just holding on to the funds.

Cocoa is supposed to be paid for with an Akuafo cheque, which is to be cashed at a nominated Rural Bank. However, increasingly, buying companies are paying for cocoa with cash. This has happened because many farmers prefer cash to the cheque to avoid many visits and long waits at the Rural Banks to cash cheques. This becomes inconvenient and expensive for farmers who only sell small quantities of cocoa. There were reports of farmers making 3–4 trips to cash cheques of less than one million cedis. Some farmers were disgusted that some of the bank clerks took bribes from them before they would cash their cheques, therefore devaluing the already small amount they had gone to collect. Sometimes there were also delays in receiving cash from the purchasing clerks who did not use the Akuafo cheque. Some of the purchasing clerks paid for the cocoa in instalments and the farmers complained that it ‘spoilt’ their money since they could not make investments, or plan or budget with this mode of payment. If the farmers received payment in bulk, they could pay major debts or make some larger expenditure. When the monies were given to them piecemeal, it was difficult to save it or to use it for significant purchases, so then it tended

to be spent on everyday expenses and was essentially 'wasted' as far as they were concerned. Women farmers who had similar concerns also added that payment by instalment often led to unnecessary expenditures that 'wasted' money with which they could otherwise have done something useful. Those who had borrowed money during the production season could not pay back in such piecemeal payments and they risked losing their farms if they had used them as collateral.

As to whether farmers preferred the Akuafo cheque system to paying cash, opinion was divided, with many of them choosing cash, especially with low sales volumes. Those who preferred payment by cheque said the reason was that they got the whole amount as long as the bank clerks did not deduct anything. Some farmers also said that with the cheque system one was forced to have a bank account and develop a culture of saving, and if the account was operated properly one could potentially obtain a bank loan to purchase inputs or to pay for some farm services or other investment.

6.2.2 Responsibility of government

A difference between the youth and the women's focus groups was the ability of the former group to look beyond the government in assigning blame and responsibility for action. Unlike the women's groups for whom the central government was the main agent of change in the cocoa industry, the youth were able to identify various organisations (or at least different departments of the government) that they believed should act on their recommendations. For instance, while the responsibility for providing most social amenities still fell on government, the youth were able to talk about the responsibility of the Electricity Company to better manage power so cocoa-producing areas would be provided with electricity, or the need for the District Assembly to garner loans for farmers. In addition, the youth were not reticent about putting the blame on farmers themselves for bad practices or negligent acts such as failing to weed their farms properly, not spraying adequately or regularly, or not sourcing good seeds/seedlings for their farms.

Appeals for assistance were mostly directed at the state. Although a number of other agents and service providers came up for critique (for example LBCs, agriculture extension officers, and private store-owners who sold farming equipment at high prices), when it came to the question of who should act to correct these circumstances, the state was invariably identified as the primary agent. The women recommended variously that the government intervene directly by making provision for equipment, facilities and services, or by mediating in transactions between farmers and private persons/companies involved in the cocoa trade.[23]

The youth were more likely than the women to note the importance of the agricultural extension services, but they also stated that the service had grossly neglected its responsibilities to farmers.

6.2.3 Membership of associations

Social capital in the form of membership in an organisation or association is important for farmers. Farmers' complaints about unfair dealings by the LBCs, among others, could be minimised with strong cocoa farmer associations in the districts. However, membership in associations of the respondents was very limited. These are summarised in Tables 6.1 to 6.4.

In Ghana, there is an umbrella Cocoa, Coffee and Sheanut Farmers Association. However, in Table 6.1, only 1.5% of the valid respondents indicated they were members of the association. With specific reference to a named cocoa farmer's cooperative (Kuapa Kokoo), 19% of the respondents belonged to the named association (Table 6.2).

Table 6.1: Are you a member of the Cocoa, Coffee and Sheanut Farmers' Association*?

Responses	Frequency	Valid%	Cumulative %
Yes	3	1.5	1.5
No	202	98.5	100.0
Total	205	100.0	

* Ghana Cocoa, Coffee, Sheanut Farmers Association

23 The focus on the state was even more noteworthy given that the research team purposefully emphasised that the study was not being conducted at the behest of the government. Perhaps cocoa has so long been perceived to be the preserve of the government – which is the buyer of cocoa, the arbiter of prices, and the source of important material and other inputs – that farmers find it difficult to imagine the roles of other players in the cocoa value chain beyond their locales, and especially beyond the shores of Ghana.

Table 6.2: Are you a member of Kuapa Kokoo Ltd (KKL)?

Responses	Frequency	Valid%	Cumulative%
Yes	39	19.0	19.0
No	166	81.0	100.0
Total	205	100.0	

Membership of other cocoa societies at village level operated by LBCs was relatively high. About 59% of the respondents indicated they were members (Table 6.3). Memberships of local producer associations relating to other agricultural produce (not cocoa) were almost non-existent with only 2% of the respondents indicating they belonged to such associations (Table 6.4).

Table 6.3: Are you a member of any other cocoa farmers' associations operated by LBCs?

Responses	Frequency	Valid%	Cumulative%
Yes	120	58.5	58.5
No	85	41.5	100.0
Total	205	100.0	

Table 6.4: Are you a member of a local producers' association* (non cocoa)?

Responses	Frequency	Valid %	Cumulative%
Yes	4	2.0	2.0
No	201	98.0	100.0
Total	205	100.0	

* Any association represented at the local/district level

6.3 Farmers' perspectives on production

6.3.1 Cultivation

Farmers weed around their farms about three times a year when the trees are young and the leaf canopy has not yet formed. To avoid the physical labour involved in weeding or the cost of hiring labour, some farmers, particularly the women, have resorted to the application of herbicides. During the expansion of cocoa in the Eastern and Ashanti Regions, free labour was provided by the cocoa extension service of the Ministry of Agriculture for weeding and replanting of old cocoa farms.[24] Some of the farm operators advocated that the service be brought back since it was becoming difficult to meet the cost of controlling the weeds on their farms. Farmers have to be educated about the proper use of herbicides so that they can benefit fully from them without introducing any serious side effects.

There are two ways of planting the cocoa. The traditional way is to sow the seeds at stake after removing them from the pod, washing and drying them (atodwe). The seeds are planted haphazardly and are later thinned by cutting off some of the sprouted seedlings. The other method, which is supposed to be better, is to raise the seeds as seedlings in a nursery and transplant them in the field in rows. Those who plant by the stake or atodwe may use either their own selections of traditional cultivars of Amelonado or Amazon, but those who raise or buy seedlings invariably plant hybrid cocoa. Some hybrid seeds too are planted by atodwe.

In all the communities visited, only a small number of farmers plant seedlings. Farmers claim that the advantage in the atodwe is that it does not require as much labour for raising the seedlings, for the seedling transportation or for planting and weed control. However, many farmers did not take into consideration the labour demands and tree yields of the two methods when choosing one or the other. This is one area that requires farmer education for the adoption of the right method. Many farmers who did atodwe obtained the seeds

24 During the rehabilitation/resuscitation of cocoa in the Eastern Region, seedlings and labour were supplied free of charge in the replanting exercise as a result of the ageing cocoa trees and partly as a result of those destroyed by pests and diseases such as the cocoa swollen shoot disease.

from the trees on their farms. It was disappointing that the farmers did not know that it was less than optimal practice to use pods from their farm. Farmer education is needed here too.

Some of the focus group discussants who would have adopted the seedling method complained about the high price of 1000 cedis (about US10 cents) per seedling and about the unavailability of the seedlings at the district COCOBOD offices. Those who tried to raise their seedlings did so in plastic sachets (used to contain drinking water) because of the price of the larger recommended polyethylene bags and the difficulty in getting them. Seedlings struggle to grow in these inappropriate containers. A few young entrepreneurial farmers raise seedlings (both those of high quality obtained form COCOBOD and unknown quality obtained from farmer's own selections) to sell to other farmers in the community. The reason the older farmers gave for not using seedlings is the weight and bulk of the seedlings in their polythene bags and therefore the real difficulty of getting them to the farm.

6.3.2 Land availability and fertility

"...farmers reported that they were producing half the amount of cocoa they expect to produce..."

On average, farmers reported that they were producing half the amount of cocoa they expect to produce, given the size of their farms. However, some communities appeared to be doing better than others in terms of their total output and, therefore, their ability to make a living from cocoa. Regardless of current levels of production, however, all the cocoa farmers expressed a desire to increase their productivity (yields) by obtaining crucial farm inputs such as insecticides and fertilisers.

The youth were more likely than other farmers to be concerned about a perceived scarcity (and infertility) of land. This was one major reason offered by some young people for their inability or unwillingness to go into cocoa farming.[25] Partly as a result of the perception that good land was scarce, young people were more likely than adult farmers to stress the need to use fertiliser to enhance the fertility of available land.[26] Cocoa farmers linked the importance of fertiliser to land infertility or unavailability; that is, fertiliser application was expected to increase yields on infertile land or optimise the utility of small parcels of land. Adoption of fertiliser seems to be higher among the younger farmers than the older farmers and also higher among male than female farmers.

fertiliser application has been the most recent introduction to agronomic practices on cocoa farms in Ghana. The COCOBOD Hi-Tech programme, described in section 6.1, introduced fertiliser to farmers through a credit scheme administered by the licensed buying companies (LBCs). Farmers who applied the fertiliser correctly realised its potency in higher yields the following year. Two focus group discussants testified as follows:

G1: After applying the fertiliser I was able to harvest cocoa the whole year and that boosted my income tremendously.

G2: The phenomenal yield of my cocoa trees after applying fertiliser resulted in some of the trees falling down; the branches could not carry the several pods that came on the trees.

However, as pointed out earlier, despite these success stories, the programme has been beset by problems and its sustainability is in jeopardy. In addition to the problems already discussed, some of the farmers complained about lack of availability of fertiliser at the appropriate times in the farming season. For instance, some farmers said that fertiliser was supplied to them by the LBCs after the rains had stopped. Some operators complained that the fertiliser created too many weeds. However, upon probing it was found that some of the farmers weren't aware of the correct dosage of fertiliser.

6.3.3 Opening of cocoa purchasing

COCOBOD specifies a period during which the purchasing of cocoa takes place (with the 'Opening of the Cocoa Season'), with the Main crop season running from October to June and the mid crop running from July to September. There is a minimum of a two week break between the buying periods and the seasons to allow for returns (1 week) and delivery (1 week) to COCOBOD. Both the length of the buying periods and the breaks can change from season to season to reflect the profile of the current crop and the availability of larger Main crop beans. This brings undue hardships to farmers who may need money and have cocoa but are not permitted to sell it. This problem should be looked at by COCOBOD since farmers are able to harvest hybrid cocoa all year round with the adoption of fertiliser. Could cocoa be purchased all year round so that farmers didn't have to wait for their cocoa beans to dry, or sell their cocoa at a discount to a purchasing clerk with a bit of money?

25 In two focus groups, the youth said land was unavailable, but in a separate discussion, their elders claimed land was there for the asking. It is difficult, therefore, to know how much of the young people's claims about scarcity of land was simply a misperception or a rationalisation of their decision not to farm, and how much was reality.

26 The differential emphasis on fertiliser application may also indicate a generational difference, with young people generally being more open to the use of new technology and/or being unwilling to expend as much physical labour as their elders.

6.3.4 Spraying against pests and diseases

Farmers stressed the importance of spraying against pests and diseases. The major pests of cocoa are mistletoe, CSSV, capsid (insect), and black pod (fungus). Pruning or cutting down mistletoe has proved a big challenge to farmers. Since many women farmers do not have the long-handled pruning knives and they cannot climb the trees, they have to hire labour to do it for them at a high cost. On occasions, children and adults are expected to climb the cocoa trees to remove mistletoes.

Spraying was also an expense that some farmers were unwilling or unable to meet. As a result, yields were declining so COCOBOD introduced mass spraying of cocoa trees, which was financed from the fob price of cocoa. In other words, farmers indirectly pay for the mass spraying exercise. People are hired and given spraying machines, insecticide/fungicide and fuel to execute the mass spraying, which they do working in 'gangs'. Farmers are supposed to weed around their farms and provide water before the gang enters the farm. In theory, then, the arrangement does not call for any direct expenditure on the part of the farmer.

Spraying cocoa trees (and the chemical inputs for that exercise) was mentioned as one of the major factors in determining production levels, and was a priority for all the focus groups. However, this programme was beset with problems. Farmers complained about the way the sprayers did their work. One focus discussant said, 'They race through the farm as if someone is chasing them and point the machines everywhere except at the cocoa tree'.

Some of the farmers did not get their farms sprayed at all during the year. Others had it done just once a year, instead of the recommended four times. Again, instead of spraying against capsid and black pod during the year, one or the other might be done and the farmer would not be told which. Farmers also complained about the timing of the spraying; that it was not done at the right time to be effective. In some communities the farmer had to pay 20,000 cedis (approximately US$2) for food or provide food for the gang members before the farm was sprayed even though COCOBOD paid these people for their services. Some communities had levied 5,000 cedis per farm sprayed and put this aside to maintain the spraying machines. Only one community in the Ashanti Region, Bedomase, reported that enough fuel was supplied to the spraying gangs for the operations. The improved situation at Bedomase was due to the involvement of the District Assembly in the exercise. In all the other communities the fuel ran out and then farmers would have to purchase their own fuel before their farms were sprayed. Apart from the cost involved this was a dangerous practice since the least carelessness on the part of farmers who kept petrol could have set their houses on fire. Due to the inequity in the scheme, one community sold the fuel provided by COCOBOD and made the farmers buy fuel for spraying their farms. The revenue realised from the sale of fuel was put into a fund, which was used to maintain the spraying machines.

In all, the consensus was that the exercise was poorly managed. While farmers acknowledged that the volume of work might be too much for the number of sprayers available, most of them stated that the major challenge with the spraying exercise was that the sprayers lacked commitment to their work and acted corruptly. There were also suspicions that the spraying gangs sold off some consignments of chemicals for profit because the spraying mix was sometimes so diluted as to be ineffective.

Most farmers suggested that the spraying exercise could be improved through better organisation and supervision of the hired sprayers. Some opined that the state-sponsored spraying was so ineffective, it would be better if it was cancelled and individual farmers assisted to undertake spraying of their farms. In that case, the government would first of all need to give back to farmers the deductions on cocoa earnings it channelled into the spraying exercise, and in addition provide the chemicals at a discount. It was suggested that the spraying machines could be rented out to farmers at reasonable rates. As an alternative to renting, it was suggested that farmers could own spraying machines. This ownership could be communal or personal; in either case, the machines could be given free to farmers, or at least offered at discounted prices and/or on credit.

6.4 Production constraints

6.4.1 Financial/capital constraints

When it came to financial/capital constraints, the cocoa farmers said the most important input for successful farming was capital. One needed money to hire labour for the arduous physical activities of weeding, pruning and harvesting; money was needed to buy land to expand one's farm; and money was needed for other inputs.[27] Thus the availability and provision of capital was paramount in cocoa farmers' production activities.

6.4.2 Labour constraints

Labour is a major factor of production of cocoa in Ghana. The farm operator can engage a person on a daily basis ('by-day') to carry out specific assignments and pay him a daily wage or piecemeal (that is, by activity). A farm labourer can also be engaged long-term (usually annually) and taken care of by the farm owner in terms of housing, food, clothing and healthcare, as well as given an agreed sum of money at the end of his term. The annual labourer (who is invariably a male) may be assisted in his work by his wife and children if they stay with him on the farm.

It is, however, becoming increasingly difficult to find hired labour for farming activities. The situation is not as acute in the larger communities where people who do not have farms are willing to undertake by-day jobs from time to time. In the small communities most people operate a farm and so there is not a pool of farm labourers for farmers to draw on.

The problem with farm labour is also its cost. The farmers recognised that the maintenance of their farms through regular weeding and pruning was imperative, but they also frequently stated that they lacked the physical capacity required for this. (This was even more of a problem for female farmers.) At the same time, they frequently did not have money to hire labour to weed for them (the higher labour wage relative to the minimum daily wage has already been indicated). This tended to limit the size of farms, productivity and total output.

Nnoboa or solidarity farm work used to be one reliable source of labour in the past but the practice is dying out gradually since sometimes the reciprocity principle does not work and one party feels cheated. Through nnoboa a farm operator can get assistance to carry out a major labour-intensive farm operation with the expectation that s/he will reciprocate. This was a way for many caretakers to avoid finding money to pay for labour for weeding, sometimes for harvesting and for the breaking of pods harvested.

Children of farm operators also provide assistance on the farm. When farmers were asked whether some of the children who assisted them did not attend school they stressed the importance of schooling and reiterated that all the children were registered to attend school and that they helped on the farm on holidays and at weekends. Although many farmers claimed their children under 15 years of age did not undertake hazardous work, there were instances when children who were interviewed said they were able to break open cocoa pods with cutlasses or they would fetch water for mixing with chemicals when spraying was taking place. Some children even mentioned that they had climbed cocoa trees to prune mistletoe.

6.4.3 Lack of equipment

Cocoa farmers mentioned the need for basic equipment such as machetes, long-handled pruning knives (for removing mistletoe) and Wellington boots.

The activity of pruning to control mistletoe was a particular challenge for the aging cocoa farmer. The majority of farmers said they lacked the long-handled pruning knives so they were compelled to hire labourers to climb the trees to cut away the mistletoe. The option of hiring labour has its own disadvantages: first, there is the cost involved; secondly, there is the danger to the labourer for which the farmer might be liable (people have been known to fall and hurt themselves); and finally, there is the risk of the labourers damaging trees and the budding cocoa pods when they climb the trees to prune them.

27 In a few focus groups, it was difficult to move the discussion forward because some participants were adamant that all their needs were summed up by their lack of cash and did not see the point of further discussion.

6.5 Income and livelihood diversification

6.5.1 Price

In a simple regression of cocoa output on nominal and real producer prices using data presented in Appendix 1 Table 1, it was found that farmers respond positively and significantly to prices as indicated in equations (1) and (2), with their t-statistics in parentheses.

(1) Output1 = 284291 + 0.0356 *Nominal Price
(13.928) (6.938)

Elasticity of output with respect to nominal price = 0.2377

(2) Output2 = 112721 + 10.8296* Real Price
(1.5109) (3.6738)

Elasticity of output with respect to real price = 0.6977

In quantifying the response in terms of elasticity, it was found that a 10% increase in nominal price would lead to about a 2.4% increase in output, whereas a 10% increase in real price would lead to about a 7% increase in output, implying that farmers respond more to real prices than nominal prices.

> "Demand for cocoa can be stimulated by encouraging local demand..."

Increasing the price of cocoa as a way of sustaining production came out very strongly in the discussions with farmers, women, caretakers and youth. However, the producer price of cocoa depends on the fob price of cocoa and the exchange rate of the Ghanaian currency. With a stable exchange rate the producer price largely depends on the fob price whose level is a function of the international cocoa demand and supply situation. Demand for cocoa can be stimulated by encouraging local demand; for example by locally advertising the health properties of flavolin, which is found in cocoa and is known to contain large amounts of antioxidants which are good for maintaining a healthy cardiovascular system. Such advertisements in Ghana have boosted demand for powdered cocoa and drinking cocoa in the country and the same strategy can be used internationally to increase demand.

6.5.2 Lack of income diversity

Women respondents were particularly concerned about income diversity. They perceived cocoa farming as a good source of income, but not adequate to sustain their livelihoods because of its seasonal nature, and because women tend to lack the resources of land, capital and physical strength to make cocoa farming their sole source of earnings. In addition to cocoa farming, the women cultivated other crops and/or engaged in trade.[28] Finding supplementary income was imperative for the women, given the seasonal nature of cocoa. In the absence of any other avenues for earning income, both male and female farmers in the migrant communities hired themselves out as labourers on other cocoa farms.

> "Finding supplementary income was imperative for the women..."

Engagement in other non-farming activities was presented by some women as an important strategy for ensuring one's future and aspirations, given that their earnings from cocoa were inadequate.

Cocoa farmers expected that cocoa would be of some help to them in enhancing their livelihoods, and for some, it had afforded them a better standard of living than they would otherwise have had. On the other hand, there was the general feeling that the gains from cocoa were much less than they could be. Across the board, the impression given was that cocoa yield (productivity) had gone down steadily over the years. This state of affairs was put down to the decreasing fertility of land, the age (and low yield) of cocoa trees, the expense of inputs, and the waning attention of the government and Ministry of Agriculture to the circumstances of cocoa farming and cocoa farmers.

28 This finding coincides with research that suggests that people who are situated in uncertain economies tend to garner small benefits from a number of different activities (Berry 1989). The attempt to diversify incomes is a strategy for male farmers also, but may be more important for women because they are less likely than men to have the resources to make cocoa farming a viable and substantive means of earning a living.

6.6 Social amenities

6.6.1 Electricity

Due to the government's rural electrification programme, electricity was available in many of the communities the research team visited, and those who did not have it had been promised it.

6.6.2 Water

Safe water in the form of ground water from boreholes was also available in most of the communities visited due to the efforts of the Water and Sanitation Department of the Ministry of Works, Housing and Water Resources and NGOs like Catholic Relief Services and World Vision. The water was available from public standpipes where women and children collected it for household use. This source of water saved women and children long walks to get water from streams and wells. Thus another priority for farmers was for access to potable water (either pipe or borehole) and these were both seen as basic necessities.

6.6.3 Sanitation

Toilets were available in most of the communities but these were situated in public places and only a few households had them in their houses. There were instances of people going to the 'bush', especially in the smaller communities.

6.6.4 Transport

> "Farmers were convinced that good roads would radically transform their lives and their respective communities."

For the majority of the communities visited, the number one social amenity needed was good roads. Roads, transport costs and public transport have an impact on cocoa and non-cocoa activities and on market access, accessibility of services and other facilities.

All the communities surveyed had at least one road that passed through the town/village centre, but with differing degrees of paving. While towns such as Wiamoase, Maase, Asene and Nankese had at least one bitumen-paved road running through the town centre, in smaller settlements like Subreho, Hiamankwa/Aku-Nkwanta, Menang and Nsuaem the roads were barely passable. The focus groups indicated the need for better roads – where 'better' could mean that the road would be, at worst, levelled with gravel or, ideally, paved with bitumen. Farmers were convinced that good roads would radically transform their lives and their respective communities.

- First, it would decrease their transport expenditure. If the roads were better, more taxis and other forms of public transport would be willing to travel to those villages, which are now considered remote, reducing fares.[29]
- As a consequence, farmers' earnings from the sale of cocoa and other farm produce would increase, because they would save money on transporting goods to the market.
- Better roads would also mean that the LBCs would be able to pick up cocoa more easily. In the towns of Menang and Wiamoase, for instance, the cocoa farmers said that their farms were so far into the bush, that they had to expend tremendous physical effort or spend money to hire people to carry the cocoa to the roadside where the cocoa trucks could then pick them up. Bags of cocoa had been known to deteriorate in quality because they have been left too long in the open.
- Good roads would also allow farmers to engage in other forms of trade. For instance, the women in Nsuaem suggested that, were their roads better, travellers would be willing to make their way through their town, which would then boost their trading activities.
- Services and goods would be more accessible on better roads. The main concern here was for health facilities. Short of having a clinic built in their towns, farmers were concerned that they should be able to get to the nearest clinic in good time, especially in emergencies. Given the present state of some roads, this was a problem.[30]

6.6.5 Education

Better education-related infrastructure and facilities for children in the communities ranged from renovation of a run-down primary school building, to the establishment of new secondary and tertiary educational institutions. As part of the implementation of the Free Compulsory Universal Basic Education (FCUBE) policy by the Government of Ghana, many

29 In Subreho, the community had tried their best to organise communal labour to fill in the potholes and to construct makeshift bridges across the deep gullies in the road. There was a single truck which came by once on a week, on market day, to transport people to the nearest large town and trading post. People piled into the back of the open truck, goods and all, for the journey of several miles. On the other hand, we saw many people walking to Manso, rather than take the truck, which was expensive at 8,000 cedis return, made only a few trips once a week, and was always overloaded. In another small village, Hiamankwa/Aku-Nkwanta, a queue had formed by the rough road, as people waited for a taxi to come by so they could take their weekend trips to funerals, or to visit family. During the day we spent there, perhaps three cars came by. Once, a fight nearly broke out as men and women jostled for a place inside the taxi.

30 The women gave horrific accounts of incidences where women in labour had to walk or be carried on the back of bicycles down dangerously potholed roads in the middle of the night.

> "School-related items were mentioned as the top priority social amenity need..."

school buildings have been constructed. This was evident even in the remotest cocoa-growing communities visited during the survey. Even deep in a cluster of cocoa farms in Subreho in the Western Region, a school from class one to junior secondary school (JSS) 3 was available for the children to attend. The problem with such rural schools is the availability of teachers, the quality of the teaching and the teacher's commitment to the work. In Subreho, all the primary school classes had teachers but the JSS, which was supposed to have subject teachers, did not have any for many of the subjects on the curriculum. When the research team visited the area three teachers were absent from school that day. Most of the teachers also had cocoa farms but the research team did not spend enough time in the area to see if part of the child's school day was spent working on the teacher's cocoa farm or if the schoolchildren were asked to carry out some activities on the farms of the teachers. Despite the availability of infrastructure for basic schools, many communities clamoured for avenues to secondary education since they wanted their children to move beyond basic education.

School-related items were mentioned as the top priority social amenity need in 8 of the 12 focus group discussions and included:

School infrastructure and supplies: School buildings in some of the smaller communities that had been built with communal labour were not of good quality to begin with, and some had become run down. The communities wanted the government to repair these school buildings (e.g. replace broken-down walls, put in doors and windows, repair roofing, etc.). In addition, most of the schools were without adequate furniture and basic textbooks.

A necessary element of school infrastructure was housing for teachers. The farmers recognised that some communities were not attractive postings for teachers. The least that could be done to make teachers comfortable and more likely to stay at their post would be to provide them with fairly decent housing (i.e. cement buildings with proper doors and window fixtures and furniture).

Additional schools: In the towns that already had primary and, perhaps junior secondary school, the next step was to have a senior secondary school (SSS) sited in the town and beyond that a tertiary-level institution such as a vocational training college. For instance, Maase and Asene in the Eastern Region are both fairly large towns with basic social services such as pipe-borne water, electricity, a clinic, and a primary school and JSS. In the focus groups in the two towns, the farmers wanted a public SSS and a public library.

Scholarship for school children: The farmers mentioned bad administration of the COCOBOD scholarship scheme as an obstacle to their children getting good education. The scholarships are supposed to go to cocoa-farming families, but the farmers believed that they were instead diverted to the private cocoa buyers and the children of influential people who had nothing to do with cocoa. They suggested that the programme should be better managed so that scholarships go to legitimate recipients, and so that their own children could also have the opportunity for better lives. COCOBOD reported that in 2006 as much as 15 billion cedis was allocated to the scholarship scheme and so it is expected that many cocoa farmers' children should benefit from it.

6.6.6 Health Service (Health personnel, clinic and access)

After education, the next most important social amenity was health facilities. Most of the small communities did not have access to health facilities. In such cases they had to attend to their healthcare in nearby towns, which could be more than 10 kilometres away. When there is no clinic and the road is bad, like Subreho in the Western Region and Mofram in the Eastern Region, then healthcare becomes a big challenge since people who are sick have to be carried on bicycles or on the backs of other people to reach the nearest health facility.

The focus groups that were most vocal in the demand for healthcare were the smaller settlements that had no clinics (these are Mofram, Menang, Nsuaem, Subreho, and Aku-Nkwanta/Hiamankwa). The farmers described the ordeal of getting access to healthcare in another town; especially if one was unlucky enough to be taken sick at night, it could be more dangerous to try to seek help, given the sorry state of the roads in these areas.

Various levels of health service were requested. For the settlements like Subreho, farmers wanted a nurse or a doctor to be resident in town, as a first step. The next step would be an actual building that would house a clinic and living quarters for the health workers. For farmers in Nankese who had both these facilities, their request was for subsidised healthcare for cocoa farmers.

6.6.7 Marketplace

The desire for a marketplace is related to the motivation to diversify income. According to women who traded in agricultural goods or other consumer items, a dedicated market space in the community could boost trade. The markets should be built by the (local) government since it would require a larger investment than the women felt the community could afford, if it was to be built properly with roofing sheets and cemented floors.

6.6.8 Housing

Men tended to be more ambitious than women in relation to housing. Owning a house is very important for men since they take it as a responsibility to provide accommodation for their wife/wives and children. The aim of most of the migrant farmers was to be able to build a house in their home towns even though they might live in a ramshackle building in the community where the farm is situated.

6.7 Satisfaction with social amenities

It is here that we see the most noticeable small town/big town divide: The types of amenities listed and the priority given to each were related to the size and relative level of development of the town. In smaller communities, the priority social amenities tended to be roads, schools and clinics. Very basic needs such as potable water and public toilet facilities were also ranked highly. Larger communities had these basic amenities but need improvements, such as a regular flow of water, vocational college, etc.

The level of satisfaction of the focus group discussants with the availability of social services is summarised in Table 6.5.

Table 6.5: Satisfaction of farmers and caretakers with social services (average score)

Community	Cocoa district	Owner farmers	Caretakers		
		25–40 years	40+ years	25–40 years	40+ years
Moffram					
Asene	Akim Oda	2.00	2.31		2.45
Maase		3.00	2.37	2.00	
Nankese	Akim Tafo	2.00	1.38		1.83
Menang		1.57		1.00	
Tonkoase II	New Edubiase	2.57	2.43	1.22	1.56
Kyekyewere		1.22	2.11		
Nsuaem	Dunkwa	1.33	1.75		2.11
Subriho		1.00	1.00	1.00	
Aku-Nkwanta	Manso Amenfi	1.88	1.00		2.14
Bedomase	Agona			3.00	2.67
Wiamoase	Mampong	1.73	2.63		
	Average	**1.83**	**1.89**	**1.64**	**2.13**

Scale: 4 = highly satisfied; 1 = lowly satisfied

“ The common denominator for women in all three regions was the desire for better educational facilities for the children in the communities. ”

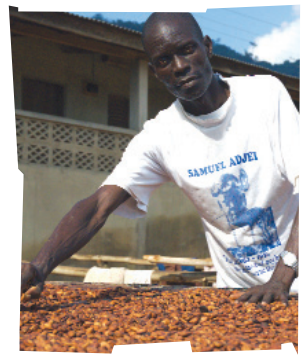
- Smaller settlements: For smaller settlements, very basic needs such as potable water and public toilet facilities were ranked high. For the smaller communities such as Moffram in the Eastern Region, Subreho and Aku-Nkwanta in the Western Region, and Menang in the Ashanti Region, the priority social amenities tended to be roads, schools and clinics.
- Larger towns: For bigger towns, in addition to improvement of existing basic facilities (for example, getting more water sourced through pipes), a need for formal employment opportunities were mentioned. For the larger communities which had these basic amenities, the youth recommended improvement of those facilities; for example, the young people in Asene wanted not just the presence of pipes, but a regular flow of water; and those in Wiamoase wanted a vocational college to be built alongside the JSS and SSS schools. In addition, the issue of formal work (‘company work’) was important for the youth in the bigger towns.

The common denominator for women in all three regions was the desire for better educational facilities for the children in the communities.

6.8 Youth employment

Some farmers, particularly the youth and women, complained that there was no source of employment beyond farming. The need for formal employment (termed ‘company work’ or ‘government work’) was commonly articulated in the bigger cocoa towns such as Asene, Maase, Nankese, and Bedomase. The women wanted industries, factories and offices to be set up that would take up unskilled, semi-skilled and white-collar workers. The Nankese focus group, drawing from the experience of some of its participants who were attached to the extension service, suggested that the Ministry of Agriculture and COCOBOD could be sources of employment. As in times past, COCOBOD could engage farmers to act as agricultural extension officers. The desire for formal employment was related to the desire for income diversity that women often addressed through petty trading and cultivation of other crops. However, formal employment has features and advantages that distinguish it from farming and trading. In the first place, while the women talked about agricultural activities and trading in terms of their own occupation, the need for formal employment was for the benefit of their children and other young people.[31] Secondly, the farmers considered formal employment to be a substitute for cocoa farming, not a complement to it.

31 A beneficial side effect of the presence of formal employment in the towns would be an increase in purchasing power, so that women traders would be able to sell more merchandise and earn more money.



7. the future of cocoa: farmer and youth aspirations

A major issue in cocoa production is the advanced age of farmers and the uncertainty about who will replace them. In this section, we explore the aspirations of cocoa farmers, and how these affect the sustainability of cocoa production. We highlight the aspirations of young people, since their goals and actions will largely determine the future of cocoa cultivation in Ghana.

7.1 Farmers' aspirations

In the survey, farmers were asked to list the challenges to cocoa farming that impact on their ability and their incentive to produce cocoa. Table 7.1 ranks the problems faced by the cocoa farmer respondents in the survey areas. The topmost problems identified were the high costs of inputs and equipment, black pod disease that can cause the loss of the pods, and the capsid pest that can destroy the cocoa trees. Inadequate funding and too much drudgery in cocoa farming were also mentioned, although these ranked lowest.

Table 7.1: Problems faced in cocoa farming

Problems	Frequency	Rank
High cost of inputs and equipment	16	1
Black pod/capsids and certain insects destroy a lot of my pods and/or my cocoa trees	16	1
Mistletoe causes great decline in output	5	3
Low soil fertility	3	4
Some LBCs don't pay instant cash (delayed payment) and this causes a lot of frustration	3	4
There is too much drudgery involved in cocoa farming	2	6
Inadequate funding for production	2	6

Note: This was an open-ended question hence other answers had a frequency of 1

Table 7.2 reports the aspirations of cocoa farmers in the survey.

Aspirations	Frequency	Rank
I want to get more money from my farm in order to take care of my family (including children's education and well being)	25	1
I want to observe appropriate cultural practices to increase yield	9	2
I want to build a house	3	3
I want to increase yield (productivity)	3	3
To increase security of my household income	2	4

Respondents indicated that their aspiration was to gain more income from their cocoa-farming activities, either through deriving higher yields from their existing farms or from expanding the size of their farms. This aspiration was linked with a desire to take better care of their families. In fact, the goal of providing for their children and other dependents was the highest-ranked aspiration among survey respondents. Practically, this translated into providing for children's material needs and giving them formal education so they would acquire a profession, or learn marketable skills through informal training.

Kwadwo, a 46-year-old itinerant trader, moved to Tonkoase in the Ashanti Region to work on his family's cocoa farm. In addition to wanting to secure the farm for his younger siblings and for posterity, he hoped that, within the next few years, he would have enough money to pay for a private school for his children. He said:

However much I can get out of cocoa farming will determine how far I can help my children to advance (in school, in life). Because I myself did not get a chance to continue my education ... but right now, education is very important. In the past ... I would gather all my children and dump them here (to farm with me), but that's not how we do things any more. (Individual life history)

In addition to education and training, parents wanted to leave children a tangible inheritance, usually in the form of a house. Aspirations in this direction were not too elaborate – typically, farmers desired to put up a set of two rooms on a small compound.

The aspiration to care for children evidenced by the survey results was amplified in the focus groups. In the women's group, in particular, participants universally stated that their primary goal for cultivating cocoa, and for any other economic activity they undertook, was to invest in their children's future. Women's hopes were overwhelmingly invested in the next generation, so much so that they seemed to erase themselves out of the future. In at least two separate focus groups, women made statements to the effect that their own wellbeing did not matter; what mattered was that their children and grandchildren should be better off. As one focus group participant stated:

My life is over and all the toil I am going through is for my children and grandchildren to be better off than I have been. (Individual life history)

Some parents explicitly tied their personal wellbeing to their hopes for their children – if their children succeeded in life, then their own lots would be made easier. Afua, 34 years old and a part-time cocoa farmer, made this statement:

I want God to give me strength so I can look after my kids until they are established in life. Maybe when they finish school, they can get a really good job, you know? (Individual life history)

7.2 Youth aspirations

Youth aspirations were quite diverse, and the role of farming in their life plans likewise varied. Unlike the adult respondents who were mostly farmers, the youth had diverse backgrounds, educational levels, and experiences of life outside their villages. One category included youth with little or no formal education who were full-time caretakers and aspired to own farms. These full-time farmers were very few, and were present in only two focus groups in the migrant cocoa settlements of Subreho and Aku-Nkwanta/Hiamankwa. The second category was made up of those young people who had been educated above primary level. In this category, there was a further divide between those who had terminated their formal education at the basic level (that is, at junior secondary school) and planned to enter or had already entered various trades, and those students who expected to pursue their education to or beyond senior secondary school (SSS).

It was evident that young people prized education as much as their parents did. Almost all the children currently in school stated that they wanted to continue their education and obtain salaried work. These young people aspired to be nurses and teachers, and one young girl in a small village wanted to become, in her words, 'a Kofi Annan'. Those young people who had left school and had not had the opportunity to obtain formal education wanted

"...while there are examples of successful male farmers, there were fewer examples of successful female farmers."

to learn a trade, with car mechanics, sewing and hairdressing being the most popular options. Some of these people were farming temporarily in order to earn money to finance their apprenticeships. In this respect, cocoa farming was a stepping stone to doing something else.

There was also a clear gender divide, in that it was mostly the young men who talked about farming as an occupation or as a means to some other end. There were a few young women who had cocoa farms, but the majority of the girls did not own nor did they aspire to own farms or to produce cocoa as a supplementary livelihood activity. This gender divide may stem from the different models that girls and boys have access to: while there are examples of successful male farmers, there were fewer examples of successful female farmers.[32]

7.3 Role of cocoa farming in fulfilling aspirations

Cocoa held varying degrees of importance within people's life plans. In the survey of 217 adult cocoa farmers, the perception of cocoa farming as an occupation was generally positive. Respondents said that cocoa farming was 'a lucrative venture', 'a lifelong investment', 'source of income security' and a 'source of collateral'. (To a lesser extent, respondents also said that farming was 'tedious', unrewarding and increasingly tenuous as land for farming becomes more and more scarce.)

Some farmers use income from cocoa to finance major investment expenditures such as homes, or as capital for re-investment in their farms. Agya Asante, a retired agricultural extension officer with the Ministry of Agriculture, is an example of someone who has acquired properties through cocoa. Taking the advice of a friend who encouraged him to start cocoa farming as a means of securing his retirement, Agya Asante used his savings and his wages from occasional work as a farm labourer to buy six plots of land which he put in the care of caretakers, on a sharecropping basis. With the profits from his farms, he put his younger siblings through school, and also managed to put up two houses in his hometown.

Most respondents in the survey, focus groups and in the life history interviews had less impressive returns on their investment in cocoa than Agya Asante. They did believe cocoa would go some way to helping them fulfil their aspirations (cocoa farming was their livelihood, after all, and for some, it had afforded them a better standard of living than they would otherwise have had). On the other hand, there was still the feeling that the gains from cocoa were much less than they could be, and not adequate to meet the resources they needed to enable them achieve their life goals. One woman said:

... farming doesn't really help us. My husband and I, we have a farm – we have a large farm, but it doesn't help us much. It helps only a little. (Women's focus group)

Individuals in the focus group discussions were asked to indicate, on a scale of one to four, how far they had come in reaching their expectations. The results presented in Table 7.3 make it clear that, on the whole, farmers perceived themselves to have achieved little in their cocoa-farming careers.

32 In the personal life history accounts, there were two women – in their late 20s and early 30s – who stated explicitly that their mothers were an inspiration in their own efforts at cultivating cocoa. However, their youthful aspirations had not been to become cocoa farmers. Like the youth we interviewed, they had had different dreams (of going to school, getting a job). When these did not pan out and they were compelled to take up farming, they said they drew strength from the examples of their mothers who had raised families on cocoa.

Table 7.3: Accomplishments of farmers and caretakers in cocoa farming (average score)

Cocoa district	Community	Farmers		Caretakers	
		25–40 years	40+ years	25–40 years	40+ years
	Moffram				
Akim Oda	Asene	2.00	1.36		2.38
	Maase	1.67	2.00		
Akim Tafo	Nankese	2.13	1.75		2.00
New Edubiase	Menang	2.00		1.25	
Edubiase	Tonkoase II	1.38	2.25	1.11	1.56
	Kyekyewere	1.89	2.89		2.38
Dunkwa	Nsuaem	1.50	3.00		
	Subriho	2.17	1.50		
Manso	Aku-				
Amenfi	Nkwanta	2.30	1.75		
Agona	Bedomase		2.75		
Mampong	Wiamoase	2.70	1.63		
Average		2.17	2.09	1.18	2.08

Scale: 4 = highly satisfied; 1 = lowly satisfied

Given farmers' perception of their earnings from cocoa as being inadequate, they looked to other non-farming activities to help them secure their livelihoods and to their achieve aspirations. Many of the farmers interviewed (and particularly the women) tended to engage in multiple income-generating activities. Some had more than one cocoa farm or cultivated other crops besides cocoa, in which case the cocoa farm usually provided bulk income at specific times of the year, while earnings from the other farms covered food, house keeping and other expenses. In the absence of any other avenues for earning income, both male and female farmers in the migrant communities hired themselves out as labourers on other people's farms. In addition, women tended to engage in petty trading.[33]

However, even with the multiplicity of livelihood activities, many people still spoke of cocoa as a good foundational livelihood activity and also as social insurance. Cocoa was seen as a long-term investment, and even as an inheritance for future generations. Lydia recounted how she and her husband had started out growing a food crop, and then switched to cocoa:

We have to grow an inheritance crop on the land. Tomato is not inheritance – it can't take you too far. But cocoa will always be there. Even after you're gone, it will be property for the children left behind. (Individual life history)

In sum, the majority of farmers said they had not met the expectations with which they had entered the occupation of cocoa farming, and many were doubtful that they could ever achieve their life goals through cocoa farming. (It must be noted that within this general dissatisfaction, there was still some variation: for instance, the level of satisfaction with earnings from cocoa was relatively higher in the larger cocoa producing towns of the Eastern Region than in the smaller migrant communities of the Western Region.) The older farmers still believed that cocoa was their best option, but not for their children.

33 Research has found that people who are situated in uncertain economies tend to garner small benefits from a number of different activities (Berry, 1989). Therefore, the attempt to diversify incomes is true also for male farmers but may be a more salient strategy for women because they are less likely than men to have the resources to make cocoa farming a more viable and substantive means of earning a living.

7.4 Future sustainability of cocoa

There were mixed perceptions about the sustainability of cocoa farming. On the one hand some respondents could not imagine that cocoa could ever disappear; it had been a feature of the lives of their grandparents, and had survived for many decades. Their identities as farmers, individually and as communities, were tied to cocoa farming. However, when it came to the more personal question of whether they would want their children to be involved in cocoa, a majority of survey respondents indicated that they would not. When the same question was put to the focus groups, the answer was an even more emphatic 'no'. When asked why she would not encourage her children to farm, one focus group discussant asked rhetorically:

Why would the children make a choice to go into cocoa farming when they see how I am suffering and the little I get from the farm? (Individual life history)

Table 7.4 ranks reasons why survey respondents did not think of cocoa farming as a preferred option for their children. Low aspiration, low esteem and too much drudgery are ranked in order of importance as key reasons. Cocoa farming being dangerous work and the children not being interested are some of the lower ranked reasons.

Table 7.4: Reasons why respondents did not want their children to go into cocoa farming

REASONS	Frequency	Rank
Low esteem	28	1
Low aspirations	27	2
Too much drudgery	22	3
Low income	20	4
Scarcity of land	12	5
Dangerous work	5	6
I want my children to be highly educated	5	6
My children are not interested in farming at all	3	8

When focus groups members were asked why cocoa farming was such an undesirable vocation for their children, the answers paralleled the survey results: that it was low-status work with little prospects; that it was dangerous and backbreaking work without commensurate rewards.

Kwame, formerly a businessman living and working in the capital Accra, had made the move to Menang at age 50 to take up farming. He said that his expectations had been met, and that he still had further ambitions centred around cocoa farming. First, he wanted to see his children established in life and secondly, he planned to put up a few small buildings that he could bequeath to his children. Despite his success at farming, Kwame said he would discourage his wife and grandchildren from joining him in Menang. Asking his children to come to the village and to farm, he said, would compromise their futures.

Some parents were more flexible in regards to cocoa farming as a future occupation for their children. Yet, even in those instances, the idea of farming was clearly a second choice. Parents would prefer their children to attain higher educational levels so that they could secure salaried employment. If it turned out that the child was resistant to this idea, or if the child was not 'good' enough in school, or if his parents could not afford to continue his education, then cocoa farming would be the fallback option.

One theme coming out of the focus groups was that the value of cocoa farming as a livelihood activity has changed over recent years and this was the primary reason parents did not want to encourage their children to go into that occupation. There was a time, people said, when cocoa meant a good life. People recounted stories of men and women who had, in the past, grown rich from cocoa farming, putting up magnificent houses and sending their children to the best schools; in fact, there were whole towns that were established with cocoa money in the Ashanti and Eastern Regions. Such stories, it seemed, have become less and less common, for example:

In times past, when our grandparents farmed cocoa, they could think of it as property and an inheritance; they sent their children to school, they built houses. That's not true these days. (Women's focus group)

The general perception of adults and young people alike was that cocoa yields (production per unit area of land) had gone down steadily over the years, a trend which would continue. The perceived decline in cocoa production in the future was put down to decreasing soil fertility, age of cocoa trees, and the rising cost of inputs. Another reason proffered was the decreasing availability of land, which parents believed would limit their children's opportunities in cocoa farming, for example:

There's no land left, so if you insist on dragging your children to the cocoa farm, teaching them to farm, then you're compromising their future. There will come a time when they won't be able to even find land enough to plant cassava, much less cocoa. There's just no land. (Individual life history)

One of the most frequently articulated causes of the decline in the importance of cocoa was the waning attention of the government to cocoa farming and cocoa farmers. There was a perception, strongly expressed, that the government just did not care about farmers, and it cared even less about small-scale farmers and female farmers as sub-groups:

We farmers, we don't count, we don't count at all. Nobody has any regard to us. In this country, farmers especially women, village women. We just don't count. (Women's focus group)

Agya Asante was representative of those who offered this argument. Despite the returns he himself had reaped from cocoa farming, the 81-year-old veteran farmer Asante did not hold out much hope for the future of cocoa farming. As he saw it, the current generation of youth are not too interested in that line of work, and no wonder, 'There's no work as thankless as cocoa farming', he said. Agya Asante placed the blame for this squarely on the shoulders of the government.

Respondents in the study tied the sustainability of cocoa farming to the condition that the government increases its commitment to recognising the contributions of cocoa farmers to the nation, and thereby raising their stature in society. It was suggested that this attention could be demonstrated by responding to the various recommendations farmers made regarding production inputs, marketing and social provisioning.

Stephen, a 41-year-old farm owner with 10 acres of cocoa farm land, expressed his dismay at not receiving the aid he expected from the government. Stephen said the challenge of cocoa farming was that, at some point, the physical strength and material resources needed to keep up the farm would be more than a farmer could handle. Given the scale of his own farm operation, he would expect the state to offer him some support such as credit facilities or farming equipment, so he could maintain or even expand his farm. None of this help was forthcoming. He wanted the government to recognise that farming is a difficult but potentially profitable venture for the individual and for the nation, which should be given the support necessary.

Respondents contrasted the relative neglect of farmers currently with what pertained in the past. In the Eastern region communities with a long history of cocoa farming, farmers recounted how COCOBOD had been assiduous in supervising farms, providing labour, and giving support to farmers. Through its programmes, it demonstrated a strong interest in the cultivation of cocoa, which motivated farmers. Many wanted a return to those times when cocoa production attracted the attention of policymakers and being a cocoa farmer was held in high esteem in society.

Table 7.5 reports cocoa farmer households' views on what should change in cocoa farming to make cocoa farming attractive to the youth. The item ranked foremost was provision of credit for inputs, and second was an increase in the producer price of cocoa. Other suggestions included the supply of equipment and facilities such as Wellington boots, machetes and spraying machines. The farmers recommended that young people be given general education and more specific training about both the importance of cocoa and best practices in the sector.

Table 7.5: Views of how cocoa farming could change to become more attractive to youth

Views of how cocoa farming could change	Frequency	Rank
Provide credit on inputs for those farmers who cannot afford to buy them outright	57	1
Government should increase the producer price of cocoa	24	2
Supply farmers with equipment and implements, e.g. Wellington boots, sprayers, etc	14	3
Government should provide easily accessible loans	12	4
Provide easily accessible loans for farmers to purchase inputs	9	5
Provide easily accessible loans for farmers to purchase inputs and hire labour	6	6
Educate the general public especially the youth, about the benefits of cocoa farming	6	6
More extension officers should be employed to teach young cocoa farmers	5	8
Continue with the mass spraying exercise	5	8
Subsidise the cost of inputs by pricing controls	5	8
Subsidise the cost of equipment/tools/machinery by pricing controls	3	11
Provide scholarships for children of cocoa farmers	3	11

7.5 Youth perceptions of the future of cocoa

One noteworthy finding centred on the ways in which young people positioned farming in their plans for the future. Given that cocoa farming seemed to diminish in importance as an occupation the more education or skill sets young people acquired, one would expect that farming would disappear entirely from the life plans of young people who hoped to attain higher levels of education. That was clearly the expectation that parents held for their children. In general, the youth did subscribe to the same perceptions their parents held about the superiority of a profession or a trade over farming. It was surprising then that discussions with the youth revealed that, whereas their parents thought that salaried employment would replace farming, the young people did not always see these occupations as being mutually exclusive.

When adults said that they would prefer that their children did not become cocoa farmers, they were in effect expressing their opposition to their children becoming small-scale, often struggling, cocoa farmers like themselves. However, the young people had an alternative model of cocoa farming as a large-scale, capital-intensive and more profitable venture. In this model, they could practise their profession or trade in the city, and hire a manager or caretaker for their farms in the village – farms they would have bought themselves or inherited from their parents. The young people pointed out that this more commercialised form of cocoa farming was only feasible with a large capital outlay. (Not surprisingly, therefore, this idea of commercial farming was articulated as a realistic future plan only by those young people who expected to have professions, trades and other avenues to salaried employment that would bring them 'good money', part of which they could then channel into farming.)

Clement, 21 years old, exemplified this paradigm shift in his own aspirations. Clement works as a mason, and plans to start a cocoa farm alongside that trade. As a first step, he might have to enter into a lease agreement with a landowner, or act as a caretaker for a cocoa farm. Through this he would earn money to buy his own land. He does not anticipate that he would have a problem holding two occupations; if he needed to be away on a building project for short durations, he would have his father or someone else look after the farm. However, Clement says he would not want his children to be cocoa farmers; he would prefer them to attain a high level of education and acquire a good job that would earn them enough money to obviate the need to farm. Instead, they would have the legacy of their father's farm, and they could hire someone to manage it.

In general, the attitude of the young people to farming was mixed; they acknowledged the role of cocoa in contributing to the livelihoods of their families, and in their upkeep and education. When it came to the role of cocoa farming in their own future, some saw it as a viable way of earning a living, but the majority did not. However, the majority also stated that, if the conditions of cocoa farmers were to improve significantly, then they would be willing to go into cocoa farming – if not as a full-time occupation, then as a complement to whatever other vocations or lines of work they pursued.

8. Key issues for sustainable cocoa production

The previous sections synthesise key findings from research carried out along the global cocoa-chocolate value chain and through an in-depth study of cocoa farmers within Ghana. Part of the research process subsequently involved a workshop held in Accra with 34 invited stakeholders from the cocoa sector. Participants came from a range of organisations including: COCOBOD, Government Ministries, industry associations, non-government organisations, international donors, Cadbury and researchers. This section synthesises key issues raised at the workshop, and identifies approaches to tackling each issue, along with potential stakeholders who could play an important role. The workshop provided an important opportunity for frank discussion of the long term challenges to sustainable production facing the cocoa sector, and the need for integrated strategies involving multiple stakeholders both within Ghana and the wider global value chain.

8.1 Income and poverty

The government has identified agriculture, and the production of cocoa in particular, as having the potential to make an important contribution to economic growth and to Ghana meeting the Millennium Development Goals. However, this study found that there is still a long way to go before sustainable poverty reduction is achieved for all cocoa farmers. Households surveyed in this study were found to have an estimated mean per capita daily income from cocoa alone of US$0.42, and a mean per capita daily income from cocoa and all other sources of US$0.63. However, there are variations by district. New Tafo farmers have on average the lowest mean per capita income per day at just US$0.33. This contrasts with farmers in Agona Mampong who have a similar profile in terms of the relative importance of cocoa in their livelihoods portfolio, but whose per capita incomes from cocoa are the highest at 0.56 cents (and where overall household incomes of US$0.84 per capita per day are also higher than the other regions).

"Enhancing incomes and the sustainability of cocoa production requires simultaneously addressing a number of issues, and the involvement of a number of actors within the cocoa value chain."

Enhancing incomes and the sustainability of cocoa production requires simultaneously addressing a number of issues, and the involvement of a number of actors within the cocoa value chain. The key issues identified by this study are considered below.

8.2 Credit and finance

Issue:

Lack of adequate access to finance and credit has become a major problem for cocoa farmers. Before liberalising the domestic purchasing of cocoa, the Produce Buying Company could make cash advances to cocoa farmers on the basis of future cocoa sales. With multiple LBCs it has become difficult to operate a similar loan scheme because of the risk of farmers selling to another LBC. Cocoa farmers do not see Rural Banks as friendly institutions and are therefore wary of approaching them for loans. On their part, banks are reluctant to provide credit to farmers who save very little with formal financial institutions. Many farmers who want cash have resorted to the informal credit market and moneylenders in the communities who charge high interest rates and demand a cocoa farm, a house or some other valuable asset as collateral. Some farmers who were unable to make repayments have lost their farms through such loans.

Proposals:

- One approach is to develop credit unions and solidarity saving/credit schemes like 'susu' in the communities. Where farmers collectively join a scheme, they are more likely to perceive it as a friendly institution, and group pressure can be applied when an individual farmer is at risk of defaulting on repayments.

- COCOBOD is helping to develop the banking infrastructure and is exploring ways of encouraging farmers to open bank accounts. Farmers cannot always physically reach banks so financial systems need to be extended to villages thus giving farmers access to these facilities. Some actors believe that farmers can operate effectively in collectives and that therefore the government should support farmer groups in developing systems for accessing financial services.
- The view was expressed that the issue of credit for, and indebtedness of, farmers is bigger than the cocoa industry alone. Government needs to look at the total financial services within the country in order to promote institutional credit. The rural banks should be made to undertake the intermediation for which they were established, i.e. to service the financial needs of rural people.

Key actors to involve:
Banking sector; government; COCOBOD; Licensed Buying Companies

8.3 Production

Low levels of productivity are still a significant obstacle to achieving sustainable cocoa production. The cocoa sector on average obtains 350–400 kilograms per hectare (less in the areas surveyed for this case study) as compared with rates of 1000 kilograms per hectare and over in some cocoa-producing countries. The ability to expand output through extending the area of land used in cocoa production is constrained because of the scarcity of suitable land. Therefore raising productivity on existing land, or re-establishing (replanting) cocoa on once used cocoa lands is crucial to attaining longer-term growth and sustainability of production in the cocoa sector. However, there are a number of challenges in achieving this.

8.3.1 fertiliser

Issue:
There have been problems in the adoption of fertiliser. Many farmers complained that it was expensive and beyond their means. Many of the farmers who applied fertiliser did not apply it in the recommended dosages. This rendered the fertiliser ineffective and further discouraged farmers. Adoption of fertiliser seems to be higher among younger farmers and also higher among male than female farmers.

Proposals:

There needs to be more farmer education as part of the promotion exercise, with a focus on reaching older and female farmers. Sustainable credit facilities should be instituted to allow many more farmers to get access to fertiliser. The bonus paid by COCOBOD to farmers after the season could be given out just after the season closes, which is when fertiliser application is recommended. This will require an effective cocoa, or general, extension service that currently does not exist in Ghana (see below).

Key actors to involve:
COCOBOD, MOFA, government, fertiliser companies

8.3.2 Hybrid cocoa seeds and seedlings

Issue:

The use of hybrid seeds and seedlings is central to the improvement of productivity on cocoa farms. The Seed Production Unit of COCOBOD produces hybrid cocoa seeds and seedlings for farmers. Farmers are encouraged to replant the cocoa on their old farms with the hybrid varieties or at least plant the hybrid variety on new farms. Many farmers still plant the old variety from seeds obtained from pods or seedlings from their farms. Many farmers do not understand that this is bad practice from a genetic, and productivity, point of view. Many farmers also claim they cannot afford to buy the hybrid pods. Some farmers who attempted to buy hybrid pods or seedlings complained they had to travel long distances and make several trips to obtain them.

Proposals:

- Expand a programme of mass production and distribution of cocoa hybrid seeds and seedlings to ensure availability to all farmers engaged in new plantings. There is the need to expand the locations of seed gardens at district level and explore whether the private sector (for example LBCs) could play a role in the delivery of hybrid seeds and seedlings alongside COCOBOD.
- The hybrid pods need to also be produced to be ripe at the time of the starting of the rainy season. This will require specific measures (such as irrigation of the parent plants) to get the pods to ripen at the correct time for planting.
- A programme to subsidise hybrid pods and seedlings could be extended. Even though this could be costly initially, the expected outcome of higher yields from new plantings in the next 20 to 30 years strongly favours such a policy.
- There is a continued need for cocoa research to provide even better planting material and new techniques for controlling the many pests and diseases of cocoa in Ghana in an efficient and cost effective manner.

Key actors to involve:
COCOBOD, MOFA, Seed Production Unit of COCOBOD, private sector

8.3.3 Spraying

Issue:

The consensus among farmers was that the government's mass spraying exercise was a good idea but poorly managed. The problems listed by farmers included infrequency or irregularity of spraying, improper procedure in mixing the chemicals and in spraying, and corruption (where sprayers demanded money from farmers). Most of the women recommended better organisation and supervision of the hired sprayers. Some farm operators were of the opinion that it would be better if state-sponsored spraying was replaced by a scheme to assist individual farmers to undertake spraying of their farms. A number of actors queried whether it would be better to give a higher fob price to farmers in order to enable them to do their own spraying than to have the government fund an inefficiently implemented exercise. COCOBOD was concerned that individual farmer spraying could compromise disease control and quality assurance and/or might exceed minimum residue levels required by cocoa buyers.

Proposals:

- Further investigation of the effectiveness of the mass spraying programme is needed. This is a challenging programme to deliver, and further evaluation would help to clarify how and by whom it could be most effectively carried out.
- Explore possibility of supervision of spraying programmes by extension staff.

Key actors to involve:
COCOBOD

8.3.4 Extension services

Issue:

The operation of dedicated extension services for cocoa farmers by the Cocoa Services Division of COCOBOD was curtailed in 2001. The government made it part of a unified agricultural extension service under the Ministry of Food and Agriculture. Many farmers complained that extension officers do not visit them and they do not get introduced to innovations in cocoa production. Maintaining quality is the preserve of COCOBOD. But farmers do not always receive adequate information in regard to chemical use, fermentation and storage conditions. Nor do they always understand the consequences of not following best practice guidelines. Some COCOBOD officials recognised the current ineffectiveness of cocoa extension services, and the need for improvement of services to farmers. Some actors in the cocoa value chain questioned whether reverting to the old extension system would be adequate, and whether a new approach was required to enhance knowledge and innovation and access to them. The plan to rehabilitate Farmer Training Centres throughout the cocoa-growing areas is a welcome development and can facilitate farmer training and advisory services.

Proposals:

- A comprehensive study of the state of extension services to cocoa farmers, which will then inform the authorities on how to adopt best practices in extension services (if not already undertaken).
- Farmer Training Centres could be re-established to enhance farmer participation, and to facilitate the adoption of innovations to improve productivity and meet international quality standards. The centres could allow an integrated approach to supporting advancement within the cocoa sector.

Key actors to involve:
MOFA, COCOBOD, civil society organisations

8.3.5 Crop diversification

Issue:

Income from cocoa farming alone is currently insufficient to keep cocoa farming households out of poverty. Dependency on cocoa farming can expose farmers to shocks in the face of disease or decline in cocoa prices on the world market. Market opportunities (local and regional) need to be identified to enhance earned incomes from diversified production. Diversification can be in relation to (a) non-cocoa agricultural crops, (b) animal husbandry, and (c) non-agricultural activities. Diversification improves food security, and reduces exposure to shocks, as well as improving income sources.

Proposals:

- Farmers can be provided with advice on the ratio of land to keep with a canopy for tree crop production, strategies for diversification and market opportunities available. This could be provided through agricultural advisory services (that extend beyond cocoa extension services).
- Civil society initiatives and community-based organisations could help to support the piloting of such diversification strategies.
- Other recommended initiatives include: infrastructure development such as irrigation to promote year-round production of high-value crops; road construction to enhance market opportunities for farm produce; and agro-processing to promote value addition.

Key actors to involve: COCOBOD, MOFA, civil society organisations, community-based organisations

8.4 Labour and land

8.4.1 Labour

Issue:

Labour is a major factor of production in cocoa farming. The cost of labour is high, with wages well above the minimum. Labour is becoming increasingly difficult to find for farming activities. Rural/urban migration has taken people away from cocoa communities and the past availability of migrant seasonal labourers has subsided. The situation is more acute in the small cocoa communities where most people operate farms themselves, and there is not a pool of farm labourers available who can be drawn on when the need arises. Inadequate labour availability to meet production needs is one aspect underlying the use of child labour on family farms, a practice that adversely affects children's health and education. There is a need to modernise farming practices and introduce labour-saving devices to ensure sustainable cocoa production and reduce the arduous nature of the work.

Proposals:

- Application of modern farm tools and methods that can substitute for some of the farm labour. For example, the use of long handled pruners or small power tillers, that could be used to carry cocoa and inputs instead of using scarce farm labour or children.
- More efficient use of labour through changing production methods, e.g. planting in rows.
- Support for multi-stakeholder initiatives involving politicians and civil society organisations that work with farmers to address the use of child labour.

Key actors to involve: COCOBOD, Ministry of Education, Ministry of Manpower, chocolate manufacturers, civil society organisations

8.4.2 Land

Issue:

The problem of access to land for cocoa farming and the possibility of obtaining large tracts of land for plantation-type farms should be carefully examined. In the past people who wanted to obtain land for cocoa production have been able to do so. This is why most of the cocoa farmers in the Western South Region are migrants (about 64%).The share cropping arrangements available in many of the cocoa growing areas allowed landless persons to have access to land and eventually to own part of the land through the abunu arrangement where the farm is divided into two between the landowner and the farm operator. In some places outright purchase of land was allowed, although, in some communities, only usufructuary rights were available. For instance, in the Eastern Region outright sale of land is not permitted. Even under an abunu arrangement the operator and the landlord continue to share produce until the trees are dead, at which time the land reverts to the landlord. It therefore becomes important for the operator to ensure that old cocoa trees are replanted so that the farm can continue to bear pods. Women tend to be at a disadvantage when it comes to access to land for cocoa production. Many of the women in focus group discussions complained about the unwillingness of male landlords to give land to them either for purchase or for an abunu arrangement. Caretaking arrangements are usually with men, except for a few mothers and grandmothers who allow their daughters or granddaughters to take care of their farms

Proposal:

If cocoa farms are to be enlarged as a means of expanding output (as a complement to raising productivity) then contiguous land will be needed and that requires land reforms.

One major change that will have to take place will be on the issue of access to land. Adult respondents in the focus group discussions and life history interviews opined that land for cocoa farming would become scarce, and many of the young people in the focus groups, rightly or wrongly, believed that, even at present, it would be difficult for them to acquire land for a farming venture.

The land situation is one that many developing countries are tackling. In Ghana, a land reform project is currently underway to look at how best to reform land administration in a way that will aid development. The issue of cocoa farm land should be given specific attention to see how a two-pronged approach of privatising land and strengthening the traditional systems of land tenure can open up access for cocoa farming. Privatisation may help those persons who do not traditionally have access to land, such as the 21-year-old man who wants to start a cocoa farm on land belonging to his father's family, but who is afraid that it might be taken away from him without warning, since he does not have recognised rights to the land. On the other hand, access to family lands, for some respondents, is an incentive to start farming. This was true in the case of some farmers who started cocoa production only because family lands were available to them. However, even for some youth who had access to family land, some expressed the fear that if they cultivated family land they could be displaced by other family members once their cocoa farms were well established, and so these young persons said they would rather find land through some other arrangement. The inheritance system can also lead to fragmentation of land when heirs to a cocoa farm want to split up the farm. These challenges of customary land tenure are what the land reform project can help to address.

Key actors to involve:
Government; District Assemblies; community-based organisations

8.5 Market access

Issue:

Market access is a problem for many farmers, particularly those in smaller or more remote locations. Constraints relate to lack of transport, poor roads, lack of communication, and poor information flows. Enhancing infrastructure in the cocoa regions is an important prerequisite for both raising productivity and efficiency of delivery in cocoa production, and developing alternative crops and diversified production activities. Greater focus is therefore needed on improving links of farmers to markets.

Proposals:

- Take steps to provide markets for non-cocoa products in line with the objectives of the Comprehensive Africa Agriculture Development Programme (CAADP).
- Government and private sector programmes to improve roads and transport in cocoa-growing regions, and ensure that roads in these areas link to the main feeder and trunk roads that provide access to more distant markets.
- Expand access to market information and communication systems (e.g. mobile phones which have experienced a rapid rate of growth in Africa). Farmer cooperation can support the sharing and spreading of information.
- Provision of finance to support market expansion.

Key actors to involve:

COCOBOD, private sector (commercial firms and cocoa buyers), government (Ministry of Transport and Ministry of Communications), trade negotiators, banks, District Assemblies

8.6 Community-based organisation

Issue:

Some key actors in the cocoa sector believe that a critical issue is weak organisation of farmers at the community level. Farmers often do not know where to access services, or where to go for support and local service providers lack resources. Only one LBC is a producer organisation (Kuapa Kokoo). The Cocoa, Coffee and Sheanut Farmers' Association does not always meet the aspirations of many farmers and some farmers do not count themselves as members. A better way of organising farmers and enhancing community-based institutions at a community level would help to articulate concerns of farmers, and spread knowledge on how and where to access support services. The right approach would also seek to support community-based institutions that can articulate farmer demands.

Proposals:

- Farmers need to be sensitised about the benefits of coming together. However, it matters who initiates these actions; when the state organises farmers it creates dependency. A pilot programme involving civil society actors that uses participatory methods to involve farmers in developing production techniques, and links these to social improvements (such as reduction in use of child labour) has shown promising results. A more integrated approach could make a big difference at the community level.
- Pragmatically, resources will need to be made available if community-based organisations are to be sustainable.
- Different models and approaches can be tested to assess what works best and can be scaled up.

Key actors to involve:
Producer organisations, Cocoa, Coffee and Sheanut Farmers' Association, civil society organisations

8.7 Social amenities

In terms of social amenities, farmers and caretakers would like to have the same amenities as those in the towns and cities. They would like to have a good road connecting their community to the nearest trunk road so that they can get access to markets to sell their produce and buy inputs for their operations. Many farming communities would like to have electricity and good drinking water (at least a hand-dug well or borehole with a pump), public toilets, schools and health facilities. For smaller communities, the priorities for social amenities tended to be roads, schools and clinics but their very basic needs such as potable water and public toilet facilities were highly ranked. Larger communities tend to have these basic amenities but need improvements, such as new pipes to ensure a regular flow of water, or rehabilitation and extensions of existing school buildings. A need for formal employment opportunities came up frequently in focus groups.

8.7.1 Education

Education is a key priority for farmers. All the farmers interviewed indicated that they would like their children to have at least basic and secondary education. Currently, provision of or access to education within cocoa-growing areas is inadequate. Many communities lack school facilities and textbooks, and also teachers, who often do not want to work in rural communities. Primary education is free, but farmers struggle to find resources for uniforms and books for their children to attend school, or to find the fees and related costs to support the children in secondary school. COCOBOD runs a scholarship programme for the brighter children of cocoa farmers. However, farmers complained that poor administration and favouritism created obstacles for deserving children from cocoa farming families, or diverted funds to children of non-farming families. From the 2007/2008 academic year new entrants into senior secondary school will be staying in school for four years, implying that COCOBOD has to increase the scholarship fund to accommodate this.

This and other studies have shown that the provision of adequate education is important to the social sustainability of farming communities. Farmers need better literacy and numeracy to absorb information and knowledge, update their production practices and understand wider health and social issues (such as HIV/Aids). For cocoa farming to be sustainable, it is important to improve the standard of education in the communities.

Proposals:

- Better provision of schools and of school equipment in cocoa-growing areas.
- Incentives for teachers to work in more remote cocoa-growing communities (such as pay increments or access to land for cultivation).
- Review and extension of COCOBOD scholarship programme to ensure it reaches children of cocoa farmers.
- Support through corporate social responsibility activities of cocoa buyers and users could help provide education facilities and teacher incentives.

Key actors to involve:
COCOBOD, Ministry of Education, District Assemblies, cocoa buyers and chocolate manufacturers

8.7.2 Health

Issue:

Health was also ranked highly as an important issue amongst farmers. Remote cocoa-growing areas do not have clinics and so the sick are sometimes carried on the back of young men or on bicycles to nearby clinics. Delays in conveying sick persons to clinics sometimes result in death. Clinics in rural areas often lack adequate equipment or trained health staff. Some people are not able to access healthcare because of the 'cash and carry' policy in healthcare delivery, in the absence of health insurance.

Proposals:

- Health workers should be given extra incentives for staying in rural areas.
- Consideration should be given to supporting the enrolment of cocoa farmers in the Ghana Health Insurance Scheme.

- Support for health clinics could be provided through corporate social responsibility activities of cocoa buyers.

Key actors to involve:
COCOBOD, Ministry of Health, private health providers and insurance companies, cocoa buyers

8.7.3 Housing

Issue:

Poor housing has been an issue for cocoa-farming communities. Cocoa farmers often aspire to live a good life which includes ownership of a good house built of sandcrete blocks with aluminium or aluzinc roofing sheets. COCOBOD has donated to a fund to establish a housing programme for farmers. The housing scheme is being undertaken by Department of Rural Housing. Cocoa farmers able to afford the cost of a house can apply to the fund for a loan. Farmers in many communities have taken advantage of this scheme, but some migrants would prefer to build in their home town rather than where they work.

Proposals:

- Extend provision of an affordable housing scheme to low-income farmers.
- Allow migrant farmers to decide the location of construction of their house.

Key actors to involve:
COCOBOD, Department of Rural Housing, private housing companies, banks

8.8 Global value chain

Concentration within the global value chain, and liberalisation of parts of the chain within Ghana, mean that COCOBOD and farmer organisations alone are unlikely to be able to meet the challenges faced by the cocoa sector. A more holistic approach involving all value chain actors is needed to fully achieve sustainability of cocoa production, ensure the position of Ghanaian cocoa on world markets, and advance the contribution of cocoa production to Ghanaian economic development.

8.8.1 Licensed buying companies and purchasing of cocoa

Issue:

LBCs are in a prime position to interface with farmers, and are the main contact point for farmers in the value chain. But LBCs argue that the resources at their disposal are constrained by the international price of cocoa, their share of fob, bottlenecks in the cocoa delivery system, and the time it takes to access payments from COCOBOD. It can take weeks between an LBC buying cocoa and delivering it to COCOBOD for payment to be made. Delays also cause problems for hauliers. During this period COCOBOD charges interest on monies provided, and LBCs often have to take out overdrafts from banks, increasing costs and reducing their profitability, and hence their ability to help farmers. COCOBOD argues that some LBCs take advantage of loopholes in the system and the need for scrutiny to prevent these misdemeanours causes delays.

Again, competition by LBCs to buy cocoa from farmers has sometimes led to inadequate fermentation of cocoa by farmers with serious consequences for quality. Farmers also complained about cheating by some buying clerks during weighing of cocoa. Although a bag of cocoa is supposed to weigh 62.5 kilograms with an additional 2 kilograms to account for the weight of the jute storage bag, there were occasions when a bag of cocoa weighed far in excess of 64.5 kilograms. Some farmers were of the opinion that the weighing scales are sometimes adjusted by the buying clerks to cheat the farmers and thus that the annual accuracy checks of all LBC cocoa scales were ineffective.

Cocoa is supposed to be paid for with Akuafo cheques. Due to the difficulties of cashing the cheques at Rural Banks, many farmers demand cash for payment when they sell their cocoa. As LBCs are competing for cocoa to buy, they are willing to pay farmers in cash, but this hinders the cultivation of a bank savings culture among farmers, and this in turn makes it difficult for farmers to access credit in the formal financial system. LBCs also complain about the carrying of large amounts of cash by buying clerks, some of whom have absconded with the money.

There has been no full review of the role of LBCs in the value chain since the internal liberalisation of marketing was instituted, and such a review could explore ways of improving supply logistics, such as increased automation of the payments system.

Proposals:

- Review of supply chain logistics and payment systems to LBCs to speed up delivery of cocoa and the resulting payments system.
- Review of the role of LBCs, whether the appropriate numbers of firms are being licensed, and how the support they provide for farmers can be enhanced.
- The LBCs should have a monitoring mechanism in place to check malpractices by buying clerks at the society level.
- The Akuafo cheque system has to be studied by COCOBOD and streamlined with the rural banks to ensure prompt payment of cocoa farmers.

Key actors to involve:
COCOBOD, licensed buying companies, banks, Ministry of Finance

8.8.2 Niche/high-value markets

Issue:

Cocoa-producing countries face many challenges on the international market, including changing consumer demands, falling or variable price, and declining quality of cocoa beans. COCOBOD has played an important role in sustaining the quality and price premium of Ghanaian cocoa, and smoothing seasonal price variations by setting annual minimum price paid to farmers. But COCOBOD needs to be responsive to changing trends in international markets, and ensure Ghana's position in various corners of the cocoa market. In the mainstream-quality market, where Ghanaian cocoa is well positioned, there needs to be greater observance of bean quality, minimum residue levels and social concerns (such as child labour). In the high-value niche market, where Ghana has the potential to grow, there is further potential for the expansion of unique or single origin, Fairtrade and organic cocoa.

Addressing these challenges involves innovation and implementation of systems to assure enhanced bean quality, meet buyer demands for traceability (particularly in niche markets), and return higher premiums to farmers or producer groups that opt to sell Fairtrade or organic cocoa. Particular challenges include: lack of information to farmers about the different market options outside Ghana; the costs of acquiring and sustaining the capacity and meeting the inspection fees of Fairtrade and organic certification; the costs and logistics of implementing systems of traceability that are efficient and do not cause undue delays in delivery. Addressing social issues such as child labour is a wider socio-economic challenge than the cocoa sector alone can address and should be considered as part of the National Plan to Eliminate Child Labour – recently produced by the Ministry of Manpower and Youth Employment. The costs of accessing niche markets are often borne by farmers and producer groups that have limited resources to meet them. Niche markets are not a panacea for all cocoa producers. However, all actors in the value chain could work collaboratively to support those farmers wishing to access niche markets, and spread some of the benefits of niche markets into the mainstream market where a wider number of small producers are located.

As Ghana's cocoa production increases, steps should be taken to increase and promote the expansion of local and regional markets for cocoa products as cocoa is such a good foodstuff. Value addition to beans to produce cocoa powder, cocoa butter and cocoa liquor may bring in higher returns to the cocoa sector within Ghana. Ghana could also participate in the returns from value addition through external investment in cocoa processing and manufacturing along the value chain in international markets.

Proposals:

- Provide support and advice to farmers and producer groups wishing to pursue origin, organic and Fairtrade cocoa could be provided by COCOBOD working with other actors in the value chain, including buyers and relevant civil society organisations.
- COCOBOD and buyers purchasing cocoa destined for niche markets need to ensure that adequate price premiums and financial incentives are passed back to participating farmers and producer groups, and outweigh their cost of participation. As a marketing

board, COCOBOD is in a good position to negotiate preferential terms for farmers with relevant agencies and international buyers.

- COCOBOD needs to develop efficient and cost-effective systems of traceability where buyers require them, and that support the export of cocoa destined for niche markets.
- Larger chocolate processors and manufacturers could make support funds available through their corporate social responsibility activities to help small producers build their capacity to access higher-value niche markets.
- A favourable investment climate should be promoted for cocoa-processing plants to be established in Ghana or to facilitate Ghanaian investment further along the cocoa value chain.

Key actors to involve:
COCOBOD, civil society organisations, Fairtrade and organic organisations, cocoa processors and manufacturers

8.8.3 Stimulation of demand

Issue:

For sustainable growth of the sector, it is important that new consumers are brought in to increase demand. This can be done through expansion in new markets, enhanced marketing of chocolate and finding new niche avenues within existing markets. New consumer markets are opening up through growth within a number of developing countries, including within Africa, but most notably China and India.

Proposal:

- Cocoa producers should advertise the health properties of cocoa, such as the benefits of drinking cocoa to maintain the cardiovascular system. Such promotional activities can stimulate demand in emerging markets like China and boost the price of cocoa.
- Cocoa based drinks could be included as part of the primary school feeding programme in Ghana.

Key actors to involve:
COCOBOD, Cocoa Producers Alliance, chocolate manufacturers

8.8.4 Corporate social responsibility (CSR)

Issue:

Chocolate processors and manufacturers are increasingly engaging in corporate social responsibility activities and multi-stakeholder initiatives that support the cocoa sector. As the cocoa value chain has become more concentrated, the linkages between cocoa producers, LBCs, COCOBOD, processors and manufacturers are becoming more direct. CSR activities have already been undertaken, such as the well-building programme supported by Cadbury Schweppes. Further initiatives could help meet changing consumer demands in relation to quality, social responsibility and reputation. Pilot programmes on social issues such as child labour and raising productivity should be linked in order to enhance the sustainability of production. There is the further issue of how best to bring knowledge and innovation to farmers in a way that enhances their understanding of the cocoa value chain, and motivates them to produce cocoa for external markets that is both of high quality and socially responsible – the concept of total quality.

The development of public-private partnerships between COCOBOD and other actors in the cocoa chain could make an important contribution to a process of change and innovation needed to equip the Ghanaian cocoa sector to meet external challenges and changing market trends. Encouraging the participation of farmers, producer groups and farmer representatives in designing strategies would help make them more effective and responsive to actual farmer needs.

Proposals:

- CSR funds could be made available to support innovations and capacity-building, such as the establishment of new seed gardens, negotiation of lower bulk fertiliser and pesticide prices, farmer training and advisory services, and research and development.

- CSR grants could be provided to enhance market access, such as transport (e.g. village bicycles), communication (e.g. mobile phone booths) and energy (e.g. solar panels).
- CSR initiatives could support social activities within cocoa-growing areas such as funding teacher pay incentives for working in cocoa villages, supporting the extension of the COCOBOD scholarship fund, helping to equip health clinics.

Key actors to involve:
COCOBOD, cocoa processors and chocolate manufacturers, farmer organisations, representatives and producer groups, relevant NGOs and civil society organisations, relevant government ministries.

8.9 Making cocoa farming 'a real job'

Issue:

The average age of cocoa farmers in this study was 55 years. Many farmers interviewed did not want their children to work in the cocoa sector, and young people with some education were more likely to leave cocoa for better remunerated work elsewhere. The study found that the aspirations of young people (and their parents) include education, salaried employment, a life of relative comfort in an urban setting, and the relative status associated with a non-farming profession. These are aspirations that were, for many respondents, not compatible with cocoa farming which provides irregular income, involves living in a rural area with inadequate social amenities, and receives little recognition from the society or from the government.

On the other hand, when young and educated people were involved in cocoa production, they were found to be more productive than older farmers, and more likely to introduce innovative production methods. Attracting and retaining young farmers into the sector is thus essential for the long-term sustainability and growth of the cocoa sector. The young people themselves suggested ways for this to happen – they said they were willing to undertake cocoa farming if it would be under better conditions than those under which their parents labour. Profitability of cocoa production would also have to increase. In the past the government has passed on an increasing proportion of the fob price of cocoa to farmers and currently they receive about 72% of it, but young people would like to see still higher producer prices. As the producer price is improved attention must also be placed on increases in productivity. An improvement in the support currently given farmers, and a recognition of their contributions, would help young people regard cocoa farming more favourably, and might encourage them to at least consider it as a livelihood activity.

Proposals:

- The Ministry of Manpower and Youth Employment is currently running a National Youth Employment Programme, which has a Module on Agribusiness. This provides an opportunity for young workers to be informed about the potential within the cocoa value chain.
- Government, COCOBOD, LBCs, farmer organisations and chocolate manufacturers should work together to formulate a plan to introduce youth to cocoa farming. The government must be willing to invest in youth, test different approaches and generate new farmer incentives for engaging in cocoa production.
- Youth perception of the importance of cocoa needs to be enhanced through the demonstration of greater commitment to cocoa farmers by national government and chocolate processors and manufacturers within the global value chain.

Key actors to involve:
Government, relevant ministries, COCOBOD, cocoa processors and chocolate manufacturers

8.10 Paradigm shift

Issue:

Our study yielded evidence that young people do not completely discount cocoa farming, but that their preferred model is of a commercialised enterprise that does not require as much physical labour, and does not have, or perhaps should not be, a full-time occupation. If these new systems of cocoa production can be explored and supported, cocoa will continue to be part of people's aspirations, and will continue to promote local and national development. The point was made strongly at the stakeholders' consultation workshop by a number of participants that, given low rewards and the consequent difficulty of attracting youth into cocoa farming, a paradigm shift is needed to attain the longer-term sustainability of cocoa production.

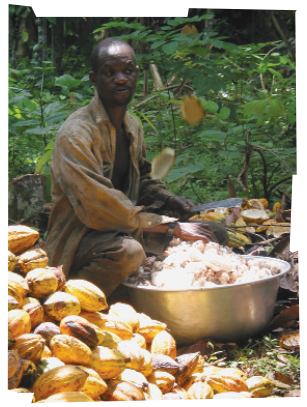
An example was provided in the workshop of a shift in approach in the horticulture sector. In that sector a model is being tested that identifies how small farmers can manage every stage of the value chain to maximise yields, control costs, enhance post-harvest processing and marketing. Here, better educated youth are beginning to move into the sector because they see the benefits from selling and receiving dollar payments. Another model was cited from the oil palm sector, where outgrowers cultivate oil palm and sell fresh fruit bunches to a factory for processing, which in turn provides most of the inputs and advisory services needed by the farmers. Although the dynamics are different, it may be possible to draw lessons for the cocoa sector, and so encourage youth to take a greater interest in it.

It might not be relevant to go back to previous cocoa models but rather develop new models. It may be that the future of cocoa would involve fewer cocoa farmers with higher yields per hectare who can manage according to new formulas, and really make a better living. This would require supporting some farmers to pursue alternative occupations. But it could create new opportunities in the cocoa-growing areas and help to enhance sustainability of the sector. The challenge is how to generate a paradigm shift.

Proposals:

- Identifying key issues and making integrated changes on a number of fronts, as discussed above, with the aim of upgrading the contribution and rewards of production within the cocoa value chain.
- Adapting and piloting holistic models from other agricultural sectors which could be developed with the active participation of younger farmers in the cocoa sector.
- Extending public-private partnerships along the value chain, involving all those actors able to make a positive contribution to enhancing sustainable production.

Key actors to involve:
Government, COCOBOD, relevant ministries, relevant value chain actors, district associations, civil society organisations



9. concluding remarks

This study has examined rapid changes in the chocolate confectionery sector over the past decade. Consumers have become increasingly discerning, markets have become more differentiated, and significant growth has taken place at the high-value niche end of the market. The whole cocoa-chocolate value chain needs to adapt to a more nuanced consumer focus. However, there is currently an imbalance within the cocoa-chocolate chain between manufacturers and processors at one end and cocoa producers and farmers at the other.

Processors and manufacturers have been better able to understand and adapt to changing consumer requirements. They have developed strategies to expand higher value activities, particularly in relation to the high-value niche and mainstream quality segments of the market where social and environmental concerns are growing. Whilst there has been an increased concentration amongst processors and manufacturers, in most cocoa producing countries economic liberalisation and deregulation of marketing boards has increased fragmentation of supply. Cocoa producers have seen a secular decline in cocoa prices, farmers have been less able to sustain good farming practices, and a decline in overall quality of cocoa beans produced has taken place. They have also been at risk of exposure for poor social and environmental practices (particularly in relation to the worst forms of child labour). This is putting pressure on processors and manufacturers, as uncertainty over the sustainability of cocoa production could put the future supply of quality cocoa at risk.

Ghana is not immune from these trends. But the maintenance of COCOBOD as a cocoa marketing board against international pressure for deregulation in the 1980s has provided farmers with some protection from market volatility. COCOBOD has provided farmer support, helped to maintain the quality of Ghanaian cocoa, which earns a price premium on international markets. However, this study has highlighted that despite this support, the Ghanaian cocoa sector faces serious challenges, both internal and external, which will need to be addressed if the future sustainability of the Ghanaian cocoa sector is to be ensured.

Internally, the current production of cocoa is well below its potential (an estimated 40% of maximum output), with low productivity and farmers facing many constraints. The current incomes generated from cocoa alone are insufficient to support many farmers and their families. On average farmers surveyed in this case study were found to be earning a daily income from cocoa estimated at US$0.42, and a mean per capita daily income from cocoa and all other sources of US$0.63, which is below the US$1 per day poverty line. Cocoa farming is for many an occupation of last resort. In the case of youth, who are increasingly exposed through advance in communication and travel to the potential of a better life elsewhere, this is leading to an exodus out of cocoa farming altogether. An ageing farmer population will be less able to innovate or raise productivity and growth in the future.

This report has highlighted constraints faced by farmers, and discussed a number of strategies to address these. Key issues are better access to finance, new production methods, availability of better planting material, enhanced market access, better infrastructure and provision of social amenities. COCOBOD and other stakeholders within the cocoa sector are beginning to address these issues. But in a rapidly changing cocoa-chocolate market, modernisation and ensuring the future sustainability of cocoa production cannot be addressed within Ghana alone, it needs to be addressed in the context of the wider value chain.

Externally, Ghana needs to be attuned to the changing dynamics of the chocolate confectionery market, with increasing focus on differentiated consumer segments. Whilst cocoa prices reflect the global supply and demand balance, cocoa producers currently have a low share of the total cost chain, relative to processors, manufacturers and retailers, whose size and concentration puts them in a strong market position. A key challenge is how to raise cocoa farmer incomes and share of value, without stimulating oversupply and depressing cocoa prices. The recent discovery of oil in Ghana could in future add to pressure on the cocoa sector through exchange rate movements, raising incomes in alternative activities and intensifying labour shortages.

In a differentiated consumer market, routes need to be found through better positioning within the chocolate-cocoa value chain, so that farmers can produce 'higher value' beans that generate larger revenues. Higher value relates not only to enhancing the tangible quality of the cocoa as a physical commodity, but also less tangible qualities such as better social and environmental processes through which production takes place, for which some consumers are prepared to pay more. Ghana is already situated within the mainstream quality segment of the market, and has a foothold in the higher value niche market. But if these segments of the market continue to grow at current rates, it is imperative that it extends its position within them to secure the higher revenues that will help generate the future sustainability of its cocoa production.

Sustainable production requires not only increasing output, but also raising the profile of Ghanaian cocoa as part of a dynamic international sector that attracts younger and innovative farmers. COCOBOD has a key role in addressing the technical issues needed to raise productivity and improve product quality. COCOBOD, Government, farmers organisations and civil society organisations all have a role in helping to enhance the social and environmental processes of production and attaining accepted international standards (including addressing the use of child labour). Processors and manufacturers also have a role by supporting and rewarding the attainment of better quality and good social and environmental practices, for example by enhancing the quality premium paid to reflect rising standards.

Information could then be provided to farmers about the commercial benefits they can reap through enhancing quality and supporting Ghana's position within international markets. COCOBOD could work with processors and manufacturers to advance promotion of Ghanaian-origin chocolate in consumer markets. Consumers could be better provided with information that highlights the social and environmental benefits of buying Ghanaian-origin cocoa and chocolate. This would help to raise consumer awareness of Ghana as a high value producer, even in the mainstream quality market. All actors in the value chain need to work in a more integrated way to benefit both sustainable cocoa production, and a chocolate confectionery sector that is seen to promote the well-being of farmers as well as consumers.

appendices

Appendix 1: An empirical analysis of performance and welfare indicators among the sampled cocoa farm households

The framework

The field data collected enables a test of the following two sets of hypotheses, that:

a) Performance = f (productivity, location, market access (to farm inputs), production costs, cooperation, extension, access to credit)

b) Welfare = f (productivity, location, market access (to farm inputs), production costs, cooperation, extension, access to credit)

where, **performance** indicators are measured as either:

- Net income from cocoa (gross income from cocoa net of cost of production)
- Net income from cocoa (gross income from cocoa net of cost of production) per acre per annum
- Net income from cocoa (gross income from cocoa net of cost of production) per capita per annum,

or

- Net total household income (gross income including cocoa net of cost of production)
- Net total household income (gross income including cocoa net of cost of production) per acre per annum
- Net total household income (gross income including cocoa net of cost of production) per capita per annum

and

a **welfare** indicator as per capita household expenditures per annum.

The explanatory/independent variables are measured as

- Productivity – cocoa output in bags (62.5 kg)/acre/annum
- Location — a dummy variable to denote each of the six (6) cocoa districts separately
- Market access – a dummy to denote access to input market: 1 if farmer indicated YES to using market for inputs, zero otherwise
- Production costs – computed as either total cocoa operating costs per annum or total cocoa operating costs per acre per annum in units of currency
- Cooperation – a dummy = 1 if farmer is a member of any group and zero otherwise
- Extension – a dummy = 1 if farmer indicates visit by an extension officer, zero otherwise
- Access to credit – a dummy = 1 if farmer is able to borrow money if he/she needed to borrow

The estimated equations are:

Performance = $\beta_0 + \beta_1$ productivity + β_2 location + β_3 market access (to farm inputs)

+ b4 production costs + b5 cooperation + b6 extension + b7 access to credit + U0 (1)

Welfare = $\sigma_0 + \sigma_1$ productivity + σ_2 location + σ_3 market access (to farm inputs)

+ σ_4 production costs + σ_5 cooperation + σ_6 extension + σ_7 access to credit + $U_{i\,(2)}$

where β_i and σ_i are estimated parameters and the U_i's obey the classical normal regression assumptions. From equation (1) for example, it is hypothesised that performance, as measured by, say, net income from cocoa per acre, is influenced positively by productivity ($\beta_i > 0$). The a priori expectations are therefore:

$\beta_1 > 0$, $\beta_3 > 0$, $\beta_4 > \beta_0$, $\beta_5 > 0$, $\beta_6 > 0$, $\beta_7 > 0$
$\sigma_1 > 0$, $\sigma_3 > 0$, $\sigma_4 < 0$, $\sigma_5 > 0$, $\sigma_6 > 0$, $\sigma_7 > 0$

The estimated parameters are validated using the student's t-statistic. The coefficients β_2 and σ_2 for location are ambiguous in the performance and welfare functions. However, differences in performance and welfare indicators are estimated separately using the following regression analysis

$Yi = \beta_0 + \beta_1$ Location2 + β_2 Location3 + β_3 Location4 + β_4 Location5 + β_5 Location6 (3)

where Yi is the performance or welfare indicator. Since the location variables are measured as dummy variables, the intercept term (_0) serves as the reference location point with respect to the indicator being measured. The other estimated coefficients are interpreted as the difference in the indicator between the reference location and that location. The location of reference in this analysis is the location with the largest/highest measured indicator. Significance differences are measured by the significance in the computed t-statistics.

The analysis

In Table 1 column 2 (Regression 1), the estimated coefficients for the performance indicator of net income from cocoa are presented. The estimated coefficients in column 3 (Regression 2) test the inclusion of the variable value of total income from other sources other than cocoa, rather than the per capita value of the total income from sources other than cocoa in Regression 1.

Appendix Table 1:
Analysis of performance and welfare indicators in the sampled cocoa districts

Performance indicator: net income from cocoa (lnNYCOCO)Welfare indicator: per capita household expenditures (lnPCAPEXP)

Explanatory Variable	Performance indicator: net income from cocoa (lnNYCOCO)		Welfare indicator: per capita household expenditures (lnPCAPEXP)
	Regression (1): estimated coefficient	Regression (2): estimated coefficient	Regression: estimated coefficient
Constant	-30.72891	-27.34881	6.572629*
Land productivity (log)	0.943511***	0.918436***	--
Input market access (dummy)	0.294070	0.266693	-0.025725
Access to extension (dummy)	-1.814145**	-1.812246**	--
Age (log)	23.06436*	20.79620*	0.372760
Age^2 (log)	-3.009373*	-2.710560*	--
Gender (dummy: F=0, M=1)			-0.094657
Member of cooperative (Dummy)	0.901457	0.863725	--
Access to credit (dummy)	-0.201035	-0.168043	0.873527**
Value of total income from sources other than cocoa (log)		0.173322	--
Per capita income from sources other than cocoa (log)	0.127241		0.259416**
Dunkwa (dummy)	1.316361**	1.379557**	--
Total cost of production per acre (log)			0.066637
Net income from cocoa per acre (log)			0.169743
Sample size	32	32	29
Adj R2	0.538217	0.547369	0.259230
F-Statistic	5.014561***	5.165384***	2.399790***

*** Significant at 1% ** Significant at 5% * Significant at 10%

Access to productivity-enhancing variables appears key in increasing cocoa farm incomes. Access to extension services and input markets are paramount. Provision of roads to connect these cocoa communities to market towns and centres needs attention. An effective organisation of the farmers could help enhance their social capital and help increase their incomes.

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