COCOA IN GHANA:
SHAPING THE SUCCESS OF
AN ECONOMY

Shashi Kolavalli* & Marcella Vigneri**

...Ghana grew rich on cocoa. ...The cocoa industry was the creation of local farmers and their families who responded to the world demand for a new cash crop. There were no plantations and no foreign capital. It was the Ghanaian cocoa farmer who was the rural entrepreneur throughout the southern and central forest country and who made the economy what it was and is. Austin (1978)
**Introduction**

No other country comes to mind more than Ghana when one speaks of cocoa. And Ghana cannot be thought of without reference to its cocoa sector, which offers livelihoods for over 700,000 farmers in the southern tropical belt of the country. It continues to be one of Ghana’s main exports and has been central to its debates on development, reforms and poverty alleviation strategies since independence in 1957. Having emerged as a leading producer in the world, Ghana experienced a major decline in production in the 1960s-70s, with a near collapse of the sector in the early 1980s. Production steadily recovered in the mid 1980s after the introduction of economy wide reforms. The 1990s marked the beginning of a revival with production nearly doubling between 2001 and 2003.

This case study examines the evolution of the cocoa sector in Ghana primarily to understand the factors that have contributed to the success and to look for any lessons for fostering agricultural transformation. The paper is organized into four sections: observable achievements in the sector, key drivers of success, sustainability and challenges for the future of cocoa in Ghana, and the lessons to be learned from Ghana’s experience.

**Observable achievements**

Cocoa in Ghana has not been an unmitigated success. It has gone through cycles – as has the country’s economy – influenced by and influencing policies, but these ups and downs offer interesting lessons. This section overviews four noticeable achievements: Ghana’s emergence as one of the leading producers of cocoa; the reputation that the country has built as a producer of high quality cocoa; cocoa’s role in reducing poverty, particularly in recent years; and the technical changes taking place in its production.

2.1 **Emergence as a leading producer**

Since its introduction in the late 19th century, the evolution of cocoa has followed major expansions and contractions. Ruf (1995) suggests that cycles are intrinsic to cocoa production because cocoa is influenced by environmental factors such as availability of forest land, ecological factors such as deforestation, disease outbreaks and geographic shift in production, and economic and social forces such as migration.

Four distinct phases can be identified in the development of cocoa in Ghana: introduction and exponential growth (1988 to 1937); stagnation followed by a brief but rapid growth following Ghana’s independence (1938 to 1964); near collapse of the sector (1965 to 1982); and the recovery and expansion (1983 to date) starting with the introduction of the ERP (Economic Recovery Programme) as shown in Figure 2.1. In this section, we examine these phases in cocoa production and the associated conditions in detail to provide a basis for discussion on factors that have contributed to the success of this sector.
Exponential growth (1988 to 1937). Cocoa was introduced in the southern region of the Gold Coast by commercial farmers from the Eastern districts of Akuapem and Krobo, where the production and trade of palm-oil and rubber were the main economic activities. By the mid nineteenth century, large numbers of farmers from both these areas moved west towards the adjacent Akyem to purchase mostly unused and unoccupied forest land for cocoa cultivation from the local chiefs, largely through the cash generated by palm oil cultivation and rubber trading (Hill, 1963).

The conditions that pushed these farmers to migrate and buy land for cocoa are well documented: a fall in the world price of palm-oil after 1885, which pushed farmers to search for alternative export crops; a boom in rubber exports in 1890, which provided the capital for the purchase of new land; increasing population pressure in the Akuapem area that encouraged the commercial farmers to go further afield in search for alternative export agriculture; and the establishment of European produce-buying companies on the west African coast ready to trade the new crop, although producers themselves had to evacuate cocoa from the farms to the ports (Hill, op. cit.; Amanor, 2010; Gunnarsson, 1978). As cocoa establishment also required large investments in labor, a system of small plots gifts was also developed to attract workers from other areas.

In the 1920s when cocoa cultivation was already well established in the area, a second wave of laborers from Akyem began to migrate to the region, but with insufficient money to buy land. The sharecropping system known as abusa in which laborers are paid a third of the harvested cocoa came into existence.
This was also the time which saw the formation of a rural class of smallholders (Konings, 1986). In many of the new settlements, cocoa was also taken up by local peasant farmers operating on a small-scale. In parallel, the 1920s also saw a large influx of long distant migrants from the Upper Volta region, Niger and Mali, who were attracted by the generous remuneration that cocoa labor offered in southern Ghana. These migrants settled in the region either as abusa tenants or as annual contract laborers. This process led to three social classes among those involved in cocoa production: capitalist farmers, peasantry, and labor.

The growing population of cocoa farmers also reinvested its profits in expanding cocoa production in the western end of Ghana’s forest zone, rapidly shifting the production frontier into Ashanti and Brong Ahafo regions, and consolidating Ghana as the leading world producer between 1910 and 1914. With the rapid expansion of the road and rail network 1920 onwards and with the organization of cocoa marketing by Ghanaian middlemen, the earnings from cocoa accounted for 84 percent of the country’s total exports by 1927: by the mid 1930s, production had reached 300,000 tons.

**Stagnation and growth post-independence (1938 to early 1964).** The period between the two wars marked a slowdown in cocoa production that lasted until 1945 caused by decreasing demand in the industrial war period and growing difficulties in transport (Gunnarsson, op. cit.). Outbreaks of pests and diseases, and swollen shoot virus in particular, aggravated the situation in the early 1940s. As a result, cultivation further expanded in the western Brong Ahafo frontier, where output expansion compensated for the decline in the Eastern Region (Amanor, 2010). Production picked up again during the second half of the 1940s, with the centre of gravity of production now in Brong Ahafo and in Sefwi district of the Western region. In 1947 the colonial government established the Cocoa Marketing Board (CMB), giving it monopoly over the purchase of beans, replacing the network of private agents, brokers, traders and middlemen who had controlled internal marketing until then. From 1957 to 1964, exports grew steadily and production reached an unprecedented level of 430,000 tons despite the significant decline in world prices between 1960 and 1962.

**The downturn (1964 to 1982).** The collapse of the world price of cocoa in 1965 triggered the downturn. Government’s printing of money to compensate for loss of revenues was inflationary (Stryker, 1990). Real producer prices dropped consistently through the 1960s, particularly following the introduction of an exchange rate policy that led to the heavy overvaluation of the currency. By 1983, market exchange rates were nearly 44 times that of official rates. Along the western border cocoa was smuggled across the densely forested border to Côte d’Ivoire, where it fetched much higher prices (Bulir, 2005, estimates that up to 20 percent of the harvest was smuggled to Cote d’Ivoire between the late 1970’s and the early 1980s). An ageing tree stock and the continued spread of disease made investment in cocoa unattractive: cocoa farmers in old areas now found that production prices barely covered their production costs and increasingly turned from cocoa to food production (Amanor, 2005). Production reached an all times low of 159,000 tonnes in 1982/83, a mere 17 share of world production, down from the 36 percent in 1964/65.
These changes took place against an increasing world supply of cocoa from new production areas such as Indonesia and Malaysia and from expansion in Cote d’Ivoire and Brazil. By the early 1970s, Ghana had also lost its cheap labour supply from Burkina Faso and Cote d’Ivoire, as migrant farmers became reluctant to work in the old cocoa areas that had become less productive because of various pests (Amanor, 2005). Instead, they were attracted to the neighbouring Ivorian regions, where frontier land was available and government policies granted access to land at favourable terms to migrants.

The recovery and second expansion phase (1983 to 2008). The recovery began with the implementation of ERP in 1983, which included a special programme to revive the cocoa sector (the Cocoa Rehabilitation Project). The policy changes included increasing the farm gate prices paid to Ghanaian farmers relative to that paid in neighbouring countries (which minimized the incentive to smuggle), and a devaluation of currency which reduced the size of the implicit taxation of farmers.

As part of the ERP reforms, farmers were compensated for replanting trees infected with cocoa swollen shoot virus (CSSV). This encouraged a substantial rehabilitation, with a large number of farms replanting with higher yielding cocoa tree varieties developed by the Cocoa Research Institute of Ghana (CRIG). Production rebounded to 400,000 tons by 1995/6 and productivity increased from 210 to 404 Kg/ha. An important reform also took place in 1992, when Cocobod (as CMB was renamed in 1984) entrusted the internal procurement of cocoa to six private licensed companies (commonly known as Licensed Buying Companies or LBCs) and by 1995 reduced its staff by 90 percent.

Production growth became more pronounced from 2001 onwards, possibly driven by a combination of unprecedented world prices and a set of interventions rolled out by the Cocobod to improve farming practices: mass spraying programs, high tech subsidy packages to promote the adoption of higher and more frequent applications of fertilizer (Vigneri and Santos, 2008), and an increasing share of the international prices passed on to producers.

2.2 Reputation for high quality cocoa

The characteristics that make up for quality in cocoa include the size of beans, moisture and fat content and fat quality. These determine the quality of cocoa butter and cocoa liquor, the two ingredients that add texture, aroma, color and flavor to chocolate. Quality is obtained through appropriate fermentation of seeds and storage and evacuation practices.

Ghana sells most of its cocoa production, over 90 percent of which is of grade 1, ahead of the harvest season through forward contracts. Selling the crop up to a year in advance allows the marketing board to fix in advance the price it can offer to farmers for the entire crop year.

Cocoa, like many other commodities, is often differentiated by country of origin, and this in turn is associated with a reputation based on average quality. The reputation, a national public good, enables the country to earn premiums in the global market. Ghana receives a price premium for its cocoa in the world market for its slightly higher fat content, lower levels of debris which gives higher butter yields,
and the lower level of bean defects, which generate a liquor flavor preferred by some end users. In addition to these attributes, the reputation of the Cocoa Marketing Company (the government division in charge of all exports) in ensuring the consistency and reliability of shipments and documents has played a central role in establishing the country’s reputation for high quality beans (Agrisystems, 1997). Gilbert (2009), using trade NYSE-LIFFE cocoa market information, suggests that the country gets a premium of 3 to 5 percent relative to Cote d’Ivoire, currently the largest world producer of cocoa (Table 2.1).

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<td>Unit value</td>
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<td>1988 – 1991</td>
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<td>1992 – 2002</td>
<td>-3.00%</td>
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<td>2003 – 2008</td>
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<td>1988 – 2008</td>
<td>-3.30%</td>
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*Source:* Adapted from Gilbert (2009).

The value that international firms place on Ghana’s cocoa is also reflected by the investments international firms have made on processing facilities in the country. Ghana’s export earnings from processed products have tripled between 1991 and 2004 from $32 million to $105 million1 (see Figure A.1). However, because of the limited conditions under which semi processed cocoa can be transported effectively (Fold, 2002), it is not clear whether local value adding will be sufficiently profitable for international companies to expand their operations in the country. So far, the sense that one gets from informal discussion with the private sector is that the net benefits from processing locally may not be all that significant, particularly because the government allows only a limited quantity of lower quality beans produced to be used for local processing, which has resulted in considerable underutilization of existing capacity in the country.

### 2.3 Increased share of f.o.b. prices going to farmers

Agricultural exports continue to be the single most important source of foreign exchange for the majority of countries in Sub-Saharan Africa (Gilbert, 2009). After independence, governments’ in virtually every country in Africa with a major export crop intervened through state-owned marketing boards or ‘Caisse de stabilization’ to tax farmers directly and indirectly. In addition, export crop producers were taxed indirectly through overvalued exchange rates. Ghana is no exception.

The share of the f.o.b. price received by cocoa farmers in Ghana is increasing to nearly 80 percent after having gone below 20 percent prior to economic reforms – when the share sunk to about 10 per cent.

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1 Historically Ghana has had its own state owned processing plant, the Cocoa Processing Company (CMC). CMC used to run at low capacity in both its grindings and chocolate plants, but in 2009 it more than doubled its yearly processing capacity after completing a five-year rehabilitation and expansion program.
between 1975 and 1981. By 1987/88 real producer prices in Ghana had increased threefold compared to a few years back in 1983/84, largely a result of Cocobod’s new policy of to pay higher prices to the farmers, and to respond to the pressure to reduce its costs (Brooks et al., 2007). Figure 2.2 shows the share paid to producers, the share retained by Cocobod (which is shown as direct taxation), and the share of indirect taxation imposed by overvalued exchange rate.

**Figure 2.2: Ghana: Farm-gate Prices, Direct Taxation and Exchange Rate Taxation (1960 – 2008)**

The indirect taxation is measured by the difference between world prices converted using the official exchange rate, and world prices converted at the market exchange rate. The share retained by Cocobod shown as direct taxation includes marketing costs and export duty imposed by government, with export duty being close to 25 percent in recent years.

The share received by farmers does not corresponded with global prices. For example, between 1971 and 1983, this share declined sharply while prices were rising globally. This was also the period of acute currency overvaluation which further eroded farmers’ real producer prices. Similarly, in the mid 1990s, the producers’ share of world prices increased in proportion while prices were falling globally.

### 2.4 Cocoa has contributed to poverty reduction

Ghana has had a good record of poverty reduction since the 1983 Economic Recovery Programme. More recently since 2001, it has registered a remarkable economic performance, with growth averaging over 5 percent since 2001 and reaching 6 percent in 2005–06. This, coupled with the effects of greater access to education, health services, and land ownership (World Bank, 2008), has contributed to the near halving of the national poverty rate since the beginning of the 1990s, from 51.7 percent in 1991/92 to 28.5 percent in 2005/06; a total decline of 23.3 percentage points over 14 years (Breisinger et al., 2008).
While poverty has reduced in rural areas, the incidence and severity of poverty continue to be high in the rural areas of the three Northern regions (GPRS, 2003). In the Southern forest belt where cocoa is produced, aggregate figures suggest that through the 1990s cocoa farming households and those engaged in mining, timber (the other predominantly export oriented activities) and other commercial activities experienced improvements in their living conditions compared to food crop farmers (McKay, 2003). Poverty reduction among cocoa farmers is clear. Surveys conducted in 1991, 1999 and 2005 indicate that poverty among cocoa producing households has diminished to 23.9 percent in 2005, down from 60.1 percent at the beginning of the nineties.

Since 2001, a significant share of the country’s agricultural productivity gains were generated by the export crop, with cocoa accounting for 10 percent of total crop and livestock production values (World Bank, 2007a) and contributing to 28 percent of agricultural growth in 2006 - up from 19 per cent in 2001.

2.5 Technical change in the sector

Over time cocoa farmers have changed the way they accessed land and labor in response to the changing production conditions of a constantly moving cocoa frontier. When both land and labor were abundant - until the early 1940s - the larger migrant farmers were able to attract rural workers to establish new farms by selling out small plots of land, otherwise drawing labor from family members to establish and maintain new farms. By the second half of the 1960s when land became scarce, sharecropping arrangements increasingly replaced land sales. When the cost of hiring waged workers became too high, alternative forms of labor have been used: mostly a variety of sharecropping arrangements (with both migrants and family members) and – to a lesser extent – informal labor groups known as *nnoboa* (cfr. Berry, 1993; Blowfield, 1993; Vigneri et al., 2004; and Amanor, 2010).

From 1990 onwards three noticeable changes have taken place in the technology of production (Bohaene, 1999; Edwin et al, 2003; Gockowski and Sonwa 2007; Teal et al., 2006; Vigneri et al., 2004; Vigneri, 2008): increased use of fertilizers; the adoption of hybrid cocoa varieties, and greater control of pests and diseased trees.

2.5.1 Increased use of fertilizer

Fertilizer use has increased significantly since the 1990s, particularly in the last decade. Comparable surveys of cocoa farmers in the three main regions of cocoa production (Vigneri, 2008) show that between 1991 and 2003 input use has changed from a situation where fewer than 10 percent of farmers were applying virtually no fertilizer to one where almost 50 percent of farmers were applying over five 50 Kilo bags of fertilizer (Table 2.2).

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<td>320</td>
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**Fertiliser (50kg bags)**

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<td>0.28</td>
<td>0.10</td>
<td>0.35</td>
<td>4.17</td>
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<tr>
<td>(Adoption rate %)</td>
<td>(13%)</td>
<td>(10%)</td>
<td>(5%)</td>
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In 1997/98, the quantity of fertilizer used decreased but the proportion of farmers applying fertilizer increased, possibly from liberalization of input markets in 1996/97 which eliminated the subsidies but improved private distribution (Teal and Vigneri, 2004).

### 2.5.2 Adoption of improved varieties

Hybrid cocoa varieties (called Series 2) were introduced in 1984 though the government’s Cocoa Rehabilitation Project (CRP). This variety outperforms the older “Amazons” and “Amelonado” by producing more pods per tree and coming to bear fruits in three years compared to at least five years for the older varieties. But hybrid cocoa trees perform only under optimal weather conditions and when complementary farming practices such as the application of chemical inputs, the adoption of new planting procedures, pruning and spraying are carried out. Farmers also need to make more harvest rounds at the beginning and at the end of the season, something they are reluctant to do on a regular basis, especially where it conflicts with other farming or trading activities (Bohaene, 1999; Bloomfield and Lass, 1992).

Despite the improved husbandry that needs to go with hybrid cocoa trees, farmers have increasingly adopted them. In the late 1980s only 10 percent of cocoa grown in Ghana was of the high yielding type Nyanteng (1993). By 2002, 57 percent of farmers from the three main areas of production were growing hybrid trees (Vigneri 2005). Traditional varieties may have disappeared entirely from all fields planted after 1995 (Edwin and Masters 2005). Using purposely collected survey data from 2002, these authors also show that the new tree varieties yield approximately twice as much cocoa per ha as similar-aged fields planted with traditional trees.

### 2.5.3 Greater control of pests
The control of disease and pests, swollen shoot virus and capsid in particular, also has improved significantly. In 2001 Cocobod initiated a mass spraying programme. The evidence available from a survey conducted in 2002 shows that farmers linked their yield improvements to the effects of the free mass spraying received. Steedman (2003) reports this to be the case for 93 percent of farmers surveyed in 2002. Similarly, the cocoa farmers panel referred to above for the crop years 2002 and 2004 suggests that nearly all farms were sprayed in 2003/04, when producers reported an average of over 4 spraying applications during the crop year, of which 46 percent were carried out by the government (Vigneri, 2005).

The effect of these improved practices has been an increase in productivity of about 30 percent which brought back the productivity to the levels achieved in 1980s (Fig 2.3). Productivity was stagnant until the late 1980s, with production being largely related to area harvested. The first big jump in productivity occurred in 1980s (corresponding to the year of the Cocoa Rehabilitation Program rolled out under the ERP) and the second more recently with improved practices. The association between production and area harvested is still strong. The FAO data suggest that between 2003 and 2004 the area under cocoa cultivation went up by as much 500,000 ha.

**Figure 2.3: Production, Area Cultivated, Yields (1961 – 2008)**

Source: FAOSTAT
What can explain the success?

A number of factors have contributed to this success: a favorable price regime, both in terms of the f.o.b. share passed on to producers and the real price received by farmers, improved marketing through partial liberalization, and Cocobod’s interventions to raise cocoa productivity.

3.1 Favorable prices

World cocoa prices have steadily increased from 1990 onwards, with the exception of 1998-2000 and 2003-2006. This, combined with a higher share of the price being passed on to farmers, has offered farmers increasing real producer prices (Figure 3.1). Small-scale cocoa producers in Ghana have responded positively to these price incentives, a finding extensively documented in the literature with a variety of models estimating the sensitivity of production supply to farm gate prices (cfr. Bulir, 1998; Hattink, 1998; and Vigneri, 2005 among others).

But has cocoa production become more profitable over time? Although strictly comparable data are not available, informed inference on the returns on cocoa farms can be made using the information from two rural surveys conducted in 1996 (Agrisystems, 1997) and in 2006 (Barrientos et al., 2008). Cocoa, which usually is the larger earner in cocoa producing households accounting for over 67 percent of the revenues, has not become more profitable to the farmer over time. Our calculations suggest that in 2006 net cocoa profits on bearing farms were actually 6 percent lower than those obtained in 1996.
3.2 The liberalization of internal cocoa marketing

Although Cocobod has gone through extensive reforms over time, it continues to control Ghana’s exports, the internal organisation of trade, and all smallholders’ affairs. In 1992, it ended its control over all domestic purchases by allowing a number of private licensed companies to take over from its former purchasing agency, the Producing Buying Company (PBC), the procurement and transportation of the crop from the farms at a minimum price specified by the board. This partial liberalization appears to have benefitted the growers.

Zeitlin (2006) finds a positive correlation between the concentration of licensed buying companies (LBCs) at the village level and production. But the direction of causality is not clear, as buyers are also likely to locate themselves where large quantities are available for purchase. While the Cocobod sets the floor price that needs to be paid to growers, the buying companies are free to pay higher prices, but there appears to be little or no price competition between LBCs.

Even in the absence of price competition, farmers have benefitted. Payments to farmers have become more reliable, greatly reducing the element of corruption and cheating which characterized the contractual negotiations under the previous system (when the state owned Purchasing Buying Company was the only buyer). While LBCs may not compete on prices, they offer occasional price bonuses, subsidized inputs or credit extensions to attract them (Laven 2007).

The new buying system also seems to put more money in the hands of growers (Vigneri and Santos, 2008). All the LBCs buy cocoa against cash throughout the year, which seems to give cash constrained farmers the working capital to buy labour and other inputs throughout the year.

3.3 Cocoa Board investments to increase productivity

Cocobod has always been involved in the supply of inputs and has in recent years made some specific efforts that may have had significant impact on productivity particularly under a price regime that offers significant incentives to growers. Until 1993, inputs were supplied at subsidized prices (Shepherd and Farolfi, 1999), but they often failed to reach the remote areas of cocoa production. In 1996 after the subsidies were withdrawn distribution by private sector may have improved to make inputs accessible to growers.

In 2001, the Cocoa National Disease and Pest Control Committee (CODAPEC) was established to develop strategies to control capsid and black pod through a nationally coordinated spray-program. In this the Cocobod, through a network of regional offices, undertakes spraying of all cocoa fields at no cost to the producers. How much of this is funded by the cocoa revenues and whether any of it is subsidized by the government is not clear. Cocobod claims that the scheme has had a positive impact on national cocoa production, specifically during the 2003/04 and 2005/06 cocoa seasons. As noted, the program appears to have significantly improved plant protection, encouraging farmers to undertake additional spraying applications.
In 2002/03, Cocobod rolled out the “Cocoa High-tech” program designed to encourage farmers to apply a minimum of two bags of fertilizer per acre. It supplied fertilizers on credit, but the program collapsed because of farmers’ poor repayment rate. Since 2006, the High-tech program has been repackaged into what is known as the Cocoa Abrabopa Association (CAA), a privately sponsored initiative which provides a package of inputs – fertilizer, insecticide, and fungicide – to groups of farmers on seasonal credit. Under CAA farmers make an initial cash deposit to receive a package of inputs and advice on its use. Grower participation in this scheme is increasing. The program initially targeted about 1500 farmers in 2006; by 2007 it involved about 7000 farmers organized in 425 groups across all cocoa growing regions, and in the 2008 season it registered over 10,000 members.

Additionally, Cocobod supports research. It continues to supply planting material which has been instrumental in gradually phasing out older tree varieties. Cocobod also has been (and continues to be) involved in the construction and maintenance of feeder roads to buying centers. This role is crucial in facilitating crop transport and to ensure that the uniform producer pricing policy is not undermined by excessive operating costs in relatively inaccessible areas.
3.4 Cocobod role in maintaining quality

Quality is obtained largely through fermentation that can alter bean quality dramatically, particularly in the development of cocoa liquor flavor. The practices to obtain beans with what is known as classical ‘West African’ type flavor involves leaving the beans in a heap under banana leaves for about six days, with manual turning and drying in the sun. Drying beans slowly on raised platforms is very important for flavor development as it decreases the acidity level in the beans. Quality is also maintained by rapid collection of properly fermented and dried beans from smallholders, followed by their prompt shipment to avoid moisture buildup, mould and free fatty acids problems that can rapidly deteriorate the quality of the beans.

The practices described above were observed in all West African cocoa producing countries until the state marketing boards were dismantled during the structural adjustment reforms of 1980s. These affected the costs and marketing margins in the cocoa trade and changed radically the quality control systems enforced in the whole region (Fold, 2001; Gilbert, 2009). Ghana has been an exception because quality maintenance continues to be Cocobod’s mandate even after its restructuring. This seems to be important because neither economic liberalization nor the surge in the power and mobility of transnational capital into production areas in the developing world has diminished the relevance of its national institutions and of its national reputation (Fold and Ponte, 2008).

Sustainability of Ghana cocoa

Ghana’s cocoa sector faces a number of challenges: productivity levels are lower than in is other countries; the quality advantage may disappear over the years; cocoa needs to remain competitive as cocoa households change; and the environmental impact of current farming practices will soon constraint further production expansion. On the other hand, Ghana has been strategic in taking advantage of niche markets.

4.1 Productivity and competitiveness

The current gap between observed and achievable yields lies somewhere between 50 to 80 percent, depending on different practices adopted by farmers (e.g. thin shading with or without fertilizer application). Gockowski (2007) suggests that Ghana yields are particularly low compared to its leading competitors: Cote d’Ivoire and Indonesia.

Notwithstanding the technical changes that have occurred, there is still a large productivity gap that needs to be filled to remain competitive, although we do not have comparable costs of production from different countries (Figure 4.1). Whether technologies that are attractive to farmers exist is not clear. For example, farmers may not have much incentive to apply fertilizers to even hybrid trees as the returns to fertilizer applied to mature these trees may not be any higher than those achieved on traditional varieties (Edwin and Masters 2005).
But, at least on experimental farms, the application of fertilizers on young trees can triple yields (Gockowski and Sonwa, 2007). Although the number of farmers participating in the Cocoa Abrabopa Association is increasing, a recent evaluation suggests that drop out from the program was close to 40 percent despite participants’ ability to increase their production by 20 percent (Opoku et al., 2009). The authors suggest that such a high dropout outcome may result from the high variability in the expected returns from fertilizer applications.

Low level of replanting is an additional threat to sustainability. Farmers may find it more economical to expand than replant old and diseased trees (Vigneri, 2005; Ruf, 2001). The labor requirements may be higher because it takes twice as long to clear an old farm as it is to clear new forest land (Masdar, 1997). Additionally, cocoa expansion is regarded as both an investment and a means to establish land ownership. This is an important point where the prevailing land tenure system in Ghana greatly affects farmers’ investment decisions (Awanyo, L. 1998; Quisumbing, A. R., et al. 2001, Sjaastad and Bromley, 1997). Given that migrants and sharecroppers represent an increasing share of the cocoa farming population, this implies that for many it easier to acquire permanent land rights by expanding into new
uncultivated land, where land ownership is established by clearing land and planting new trees (Amanor, 2010; Berry, 2009; Takane, 2002).²

4.2 Will the quality advantage endure?
Although at present Ghanaian cocoa consistently attracts a price premium for its quality, this may erode because of technological advances in processing. It is now technically feasible for processors to compensate for quality variations by substituting different origins and users, and this has lessened their dependence on traditional origin parameters. Moreover, although some processors admit the advantages of continuing to source cocoa beans from Ghana for its reliable quality, their willingness to pay a premium for the quality attributes may weaken over time (Agrisystems, 1997; Fold, 2001, op. cit.). On the other hand, the current quality control processes in Ghana guarantee some minimum parameters that are especially important to large industry players like Cadburys (which is known to use exclusively Ghanaian cocoa beans in all UK retailed chocolate products). Cocobod’s divisions in charge of quality controls (the Quality Control Division and the Cocoa Marketing Company) have a “triple A” rating among international financial organizations as they guarantee the fast evacuation of the crop by providing all the logistical support for its international customers (Shepherd and Farolfi, 1997).

4.3 Cocoa competitiveness on farm
Cocoa is a mixed crop system in which other crops may be consumed or sold. Intercropping with plantain and cocoyam provides early returns when cocoa trees are still young. Research conducted in the 1970s and in the 1990s consistently report that almost all cocoa farmers grew alternative crops for subsistence and sale; mostly roots and tubers but also a variety of cereals and vegetables (Rourke, 1974; Masdar, 1997).

Both sets of studies also suggest that many farmers often shift to producing other crops independent of cocoa (e.g. mixed plantain and cocoyam, mixed maize and cassava, and oil palm intercropped with maize and cassava) on a scale greater than that needed to satisfy subsistence needs. The reasons for focusing on other crops are many: they may offer greater continuity of income throughout the year; perceived higher returns relative to coco, especially when significant problems with the rehabilitation of the existing cocoa tree stock exist.

More recent research has questioned the viability of cocoa on small farms. A 2001 survey conducted by the Sustainable Tree Crop Programme (STCP) in all four cocoa producing countries in West African, showed that the top 25 percent of households (ranked by the amount of cocoa produced) had on average costs of production four times lower and yields nearly four times greater than the bottom 25 percent, and that a significant share of smaller cocoa farms incurred losses (Gockowski, 2007). The study recommends the adoption of urgent policies to differentiate between larger and more efficient

² In Ghana, the distinction between land ownership and usufruct rights over what grows on land has traditionally shaped smallholders' investment choices.
producers and poorer marginal ones as a necessary step for the cocoa sector to remain competitive and efficient.

They recommend targeting production innovations to the larger producers through the strategic distribution of improved planting material (hybrid pods) in the most densely populated regions of the cocoa belt. This could result in the replanting of up to 24,000 ha of land, and integrating this intervention with the expansion of fertilizer use would achieve productivity gains in excess of 50 percent. A different set of policies should instead help the less efficient cocoa producers to exit the sector or to support their transition to alternative production systems. One option for these less efficient farmers would be the conversion from a no-shade cocoa system to a partial-shade cocoa system with cocoa and non-cocoa trees intercropped to producers can augment their incomes from the sale of forest products.

4.4 Environmental impact of current farming practices

A closely related issue is the environmental impact of existing farming practices. Since its introduction in West Africa, cocoa has been the major cause of land use change in the high forest zone of the region, where it has replaced agriculture that included fallowing to maintain fertility (Gockowski and Sonwa, 2007).

The progressive adoption of new varieties decoupled from recommended farming practices has come at a considerable cost in terms of deforestation and biodiversity loss. While clearing land for cocoa production inevitably implies some loss of forest cover, degradation has accelerated in recent years through the introduction and progressive replacement of the traditional shade-dependent and tolerant ‘Tetteh Quarshie’ variety with the new open-field hybrid one, which— unlike traditional trees that still need on average about 30 to 40 percent crown cover— grows in full sun conditions. In nearly three quarters of the area in Ghana shade is light (Table 3.2).

<table>
<thead>
<tr>
<th>Region</th>
<th>None to light</th>
<th>Medium to heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashanti</td>
<td>0.52</td>
<td>0.47</td>
</tr>
<tr>
<td>Brong Ahafo</td>
<td>0.52</td>
<td>0.47</td>
</tr>
<tr>
<td>Eastern</td>
<td>0.50</td>
<td>0.49</td>
</tr>
<tr>
<td>Western</td>
<td>0.70</td>
<td>0.21</td>
</tr>
<tr>
<td>Ghana</td>
<td><strong>0.72</strong></td>
<td><strong>0.29</strong></td>
</tr>
</tbody>
</table>

**Table 4.2 Shade levels in the cocoa belt of Ghana**

*Source: Adapted from STCP baseline survey, 2001/2002 (Gockowski and Sonwa, 2007)*

Farmers have a strong preference for full sun systems because of the higher short-term profitability which is linked to their much shorter growing cycle (Obiri et al., 2007). However, in full sun systems the damage from capsid attacks tends to be higher than in shaded systems, and carbon stores are reduced
by half contrary to the higher carbon sequestration potential of the traditional shaded cocoa systems (Norris, 2008).

The best possible environmental alternative to the current one would be a mixed agroforestry system where the forest is selectively thinned and fruit tree species with economic value - such as oil palm, avocado and citrus - are left to grow next to cocoa trees, providing shade in addition to food and cash for the farming household (Gockowski and Sonwa, 2007). This practice, which is found in forest abundant southern Cameroon, could offer farmers up to 23 percent of total cash revenues from fruits and timber product species but is rarely practiced in Ghana. The remaining biodiversity hotspots in the country are located in remote areas of the Western region where the profitable marketing of agroforestry products would not be easy. Moreover, past logging practices in which concessionaires harvested in a way that destroyed cocoa farms with no compensation for producers have discouraged the retention of these valuable trees on cocoa fields (Obiri et al., 2007).

4.5 Ghana’s competitive role in a changing global market for cocoa

Ghana is well positioned to expand its position in high-value markets, with Cocobod proving to be responsive to the changing trends in the international markets. The chocolate industry has been expanding into secondary markets such as Fair Trade (FT) in the late 1980s, and more recently into organic certification. These largely remain niche markets because of their limited capacity for expansion - estimated in 2000 at 2.6 percent of world cocoa bean trade (Abbott, 2002). However, these markets offer strategic opportunities for countries to build competitiveness.

Ghana has already made considerable progress with Fair Trade cocoa with the establishment, in 1993, of a farmers’ based cooperative (Kuapa Kokoo), which operates as one of the private licensed buying companies. Its share in the domestic market is now estimated to be around 10 percent of total purchases, and a panel survey of famers spanning from 2002 to 2006, shows this to be farmers’ second preferred outlet for selling beans (Vigneri and Santos, 2008). Within Cocobod, a special channel exists for FT cocoa sourced and exported from Kuapa, though the system traces FT cocoa back to the cooperative (rather than to the individual farmer). The social premium earned on Fair Trade exports (which in 2000 was reported to be of $150/ton, Abbott (2002)) goes into a trust fund that sponsors development projects in cocoa communities.

Certification for organic production on the other hand involves the utilization of specific production methods. The introduction of certification has therefore also required some adaptation in the Cocobod system, both in terms of ensuring traceability to certified individual producers, and in terms of the necessity to pay a differential price for organically certified cocoa beans. It has not been until very recently (late 2009) that the Cocoa Abrabopa Association has became the first cocoa farmers’ association in Ghana to obtain a certification for organic production (by ‘UTZ CERTIFIED’) with over 500 cocoa farmers successfully meeting the required standards. This confirms Gibbon’s argument (2009) that certified organic farming is a realistic and profitable option only for either large-scale commercial
operators, or in the context of privately financed and coordinated contract farming schemes or where organic production is organized under the umbrella of a producers’ association (such as the CAA).

**Lessons**

The two key lessons that emerge from Ghana’s cocoa experience relate to macro management and the role that the State needs to play. The need for appropriate policies, exchange rate policies in particular, is evident from the effect that an overvalued exchange rate has had on Ghana’s cocoa production in the mid-eighties. Of greater interest is the role that the private sector can potentially play in improving the efficiency of marketing and in passing on a greater share of the f.o.b. price to farmers. The sector has been only partially liberalized in Ghana with the government or the Cocobod being fully in control of exports. As noted, Cocobod plays a strong role in maintaining quality. Under pressure to liberalize, Cocobod has managed to pass on a larger share of the world price to farmers --- still less than the share in fully liberalized countries – by cutting down on its costs. But would the country be better if there were full liberalization? The evidence seems to suggest otherwise.

Drawing on experiences from four countries in West Africa, Gilbert (2009) suggests four criteria to address this question: the level of competition achieved on both the export and import side of producing countries, the ability to sustain quality standards, the share of the f.o.b. price passed on to the farmers as an indication of the degree of state taxation, and the extent of producer prices stabilization achieved for countries which have heavily depended on one commodity.

The evidence from West African cocoa producing countries suggests that almost everywhere external trade has been taken over by large multinationals rather than by African companies. The uniqueness of Ghana’s high quality cocoa is imputed to its national supply system: not only the careful fermentation and drying processes carried on the farm, but also the well-established system of inspections and quality controls, the standardization, grading and sealing maintained by QCD throughout the chain right up to the export collection points.

As for the share of the f.o.b. price passed on to the farmers, although in countries such as Cameroon and Nigeria this proportion is higher, Ghana’s government has made concrete efforts in the recent past to take similar steps.

Finally, in relation to the price stabilization objective, Ghana has clearly been successful in reducing farmers’ exposure to price variability during the crop year through its practice of forward sales. This, combined with the more stable inflation rate of the last decade, has de facto acted as an insurance mechanism against the variability in the world price of the commodity.
The pressures on the government to liberalize have been obviously instrumental in leading Cocobod to improve its operations. The key question is what level of liberalization would be appropriate. The experience of the Ghana cocoa sector would suggest that perhaps a gradual learning-oriented approach to liberalization may be appropriate particularly if production is undertaken primarily by smallholders.
Reference Readings


Berry, S., (1993), *No condition is permanent: the social dynamics of agrarian change in sub-Saharan Africa* University of Wisconsin Press, Madison; London.


Ghana Cocoa Marketing Board, C.M.B. newsletter, various issues.


ANNEX

FIGURE A.1: SHARE OF PROCESSED COCOA PRODUCTS IN TOTAL COCOA EXPORTS IN WEST AFRICA: 1990 – 2007

Source: FAOSTAT. Cocoa processed products include cocoa butter and cocoa paste.