



# Development Progress



## Ghana's sustained agricultural growth: Putting underused resources to work

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## List of abbreviations

<b>AfDB</b>	African Development Bank
<b>CEPA</b>	Centre for Policy Analysis
<b>CIDA</b>	Canadian International Development Agency
<b>COCOBOD</b>	Ghana Cocoa Marketing Board
<b>ERP</b>	Economic Recovery Programme
<b>FAO</b>	Food and Agriculture Organization
<b>GDP</b>	Gross Domestic Product
<b>GLSS</b>	Ghana Living Standards Survey
<b>GSS</b>	Ghana Statistical Service
<b>IDS</b>	Institute of Development Studies
<b>IFAD</b>	International Fund for Agricultural Development
<b>IFI</b>	International Financial Institution
<b>IITA</b>	International Institute for Tropical Agriculture
<b>IMF</b>	International Monetary Fund
<b>LBC</b>	Licensed Buying Company
<b>MDG</b>	Millennium Development Goal
<b>NGO</b>	Non-Governmental Organisation
<b>ODI</b>	Overseas Development Institute
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>SOAS</b>	School of Oriental and African Studies
<b>PBC</b>	Produce Buying Company
<b>SDR</b>	Special Drawing Rights
<b>TMS</b>	Tropical Manioc Selection
<b>WDI</b>	World Development Indicator

# 1. Introduction

At independence, Ghana was promised a bright future. Its economy was one of the strongest on the continent: rich in land, gold and forests and well-established as the world's leading cocoa producer. Despite these assets, subsequent economic growth was slow, and even reversed by the 1970s.

Major reforms were carried out in the 1980s; economic growth resumed and has been sustained. At the same time, Ghana has become one of the most politically stable countries in Africa, with elections regularly leading to changes in leadership. The country is now emerging as an African success story: it should soon become the first country on the continent to achieve the first Millennium Development Goal (MDG) of halving its national poverty rate against its 1990 level. Indeed, Ghana is now aiming to reach middle-income status before the end of the decade.

With agricultural growth averaging above 5% a year during the past 25 years, Ghana is now ranked among the five top performers in the world. This has coincided with the country's unprecedented poverty reduction and a rise in food availability per capita, making Ghana broadly self-sufficient in staple foods, particularly roots and tubers. Child malnutrition incidence has almost halved since the end of the 1980s. Ghana's agricultural success has also been seen in cash crops, particularly in cocoa.

Success has come from the restoration of incentives to production, as well as partial liberalisation of the cocoa marketing system. Political leadership, but also continuous support from the international community, has helped during difficult reforms. Growth in staple crops has been spurred by introduction of improved varieties, an increase in the number of village-based processing plants and an expanded land area under harvest.

A diversified portfolio of new export crops has emerged, starting with pineapples but also including mangos, nuts and other horticultural products. New export growth has been driven mainly by private investment, formerly deterred by an over-valuated Ghanaian cedi, but also by an improving infrastructure and business environment, political stability and the geographic proximity of the European market. Also, domestic demand for high value productions such as vegetables and some animal products has been boosted by rapidly growing urban markets in Ghana itself.

Lastly, a common feature of Ghanaian agriculture is the predominance of smallholders, producing for all agriculture value chains, including exports. Ghana offers a good example of how smallholders can be connected successfully with domestic and sometimes export markets, and also of how linkages with the rest of the rural economy can make agricultural growth contribute to generate off-farm opportunities for the rural poor.

## 2. Context

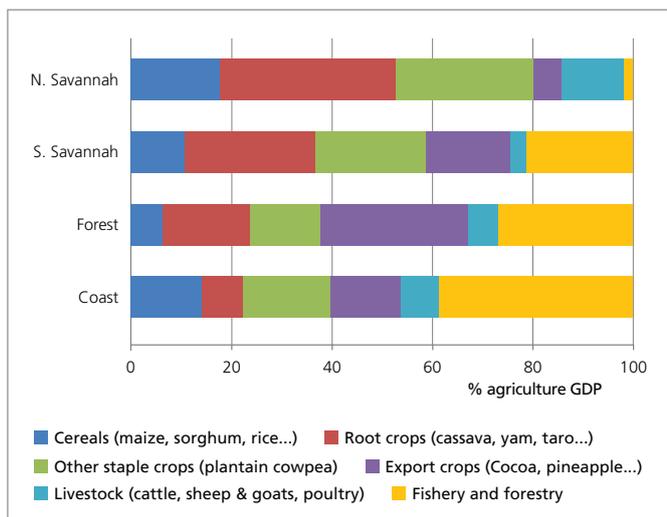
Ghanaian became independent in 1957. It was a very agrarian society, but it had various assets and was expected to prosper. However, post-independence politics and economic strategies did not fulfil their promise: after two decades of slow growth, the 1970s saw Ghana fall into political instability and economic decline. By the end of the decade, the country was ruined, the administration broken and the regime instable.

The military coup of J.J. Rawlings in 1981 marked the beginning of an economic and political restoration. President Rawlings' leadership was authoritarian, but also was based on a transformational and ambitious vision of development for the country. After a decade, presidential elections were organised, since which four presidential elections have taken place and three new presidents have successively been elected. Ghana is now hailed as one of the most democratic and stable countries in the region.

Ghana is still an agriculture-based country. In 2008, around 55% of the economically active population was employed in agriculture, with a large majority of poor people living in rural areas. Although its share in the economy is decreasing, agriculture still accounts for just below 40% of gross domestic product (GDP). But the Ghanaian economy is changing rapidly. In the early 1980s, at the beginning of the long period of economic and agricultural growth, agriculture was even more prominent in the economy, accounting for around 55% of GDP and above 60% of employment.

The country can be divided into three large zones, largely dependent on rainfall: humid coastal savannas, humid rainforests and drier savannas in the north (usually split into northern and southern savannas). Agriculture tends to differ across agro-ecological zones (Figure 1).

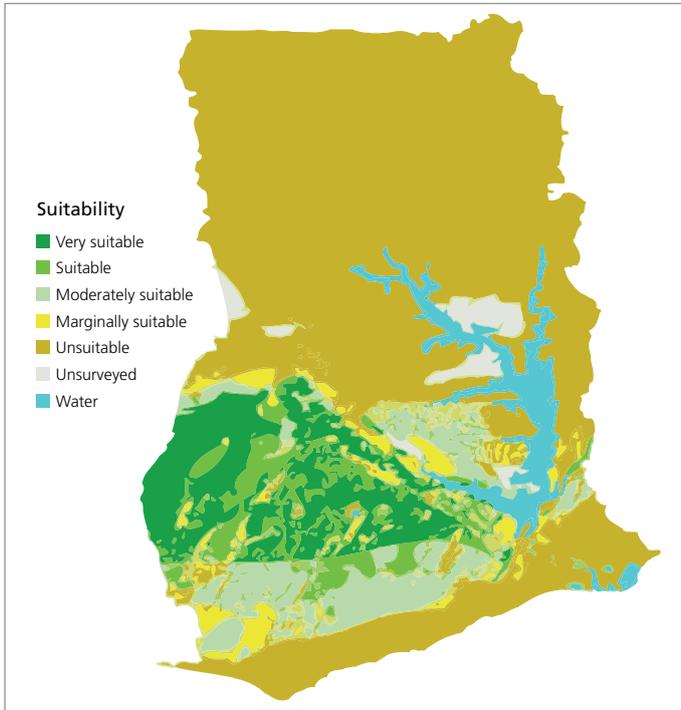
**Figure 1: Agriculture production zones**



Source: Breisinger et al. (2008b).

Whereas some crops are present almost everywhere (e.g. cassava and maize), others are associated with agro-ecological conditions. For example, cocoa is found mostly in the forest areas (Figure 2). Access to markets also influences production zones. For example, vegetables are grown around Accra and Kumasi and export pineapples in the coastal zone, not too far from the main harbour at Tema, near Accra.

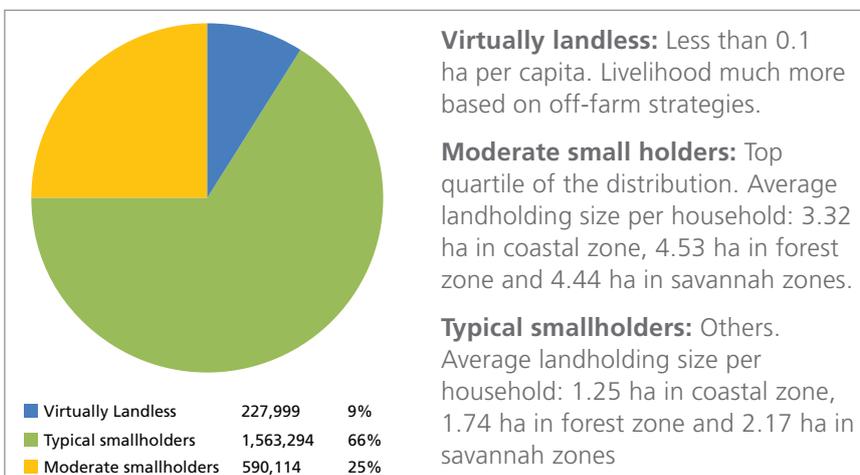
**Figure 2: Suitability of land for cocoa**



Source: Breisinger et al. (2008a).

Landholdings in Ghana are typically small. The average farm size is 2.27 ha, and more than 60% of farms are smaller than this average figure (Chamberlin, 2008). Small farms predominate throughout the country (Figure 3), although they tend to be larger on average in the savannah zones, with land distribution more skewed closer to the coast. Yet, land distribution is far from being even (the Gini for landholding varies from 0.48 to 0.58 from north to south). Landholding size has a strong relationship with crop diversity, income and poverty levels. Nonetheless, smallholders are involved in all production, including that of export-oriented crops such as pineapple and cocoa, for which quality standards may be a constraint.

**Figure 3: Distribution of farm holdings**



Source: Chamberlin (2008).

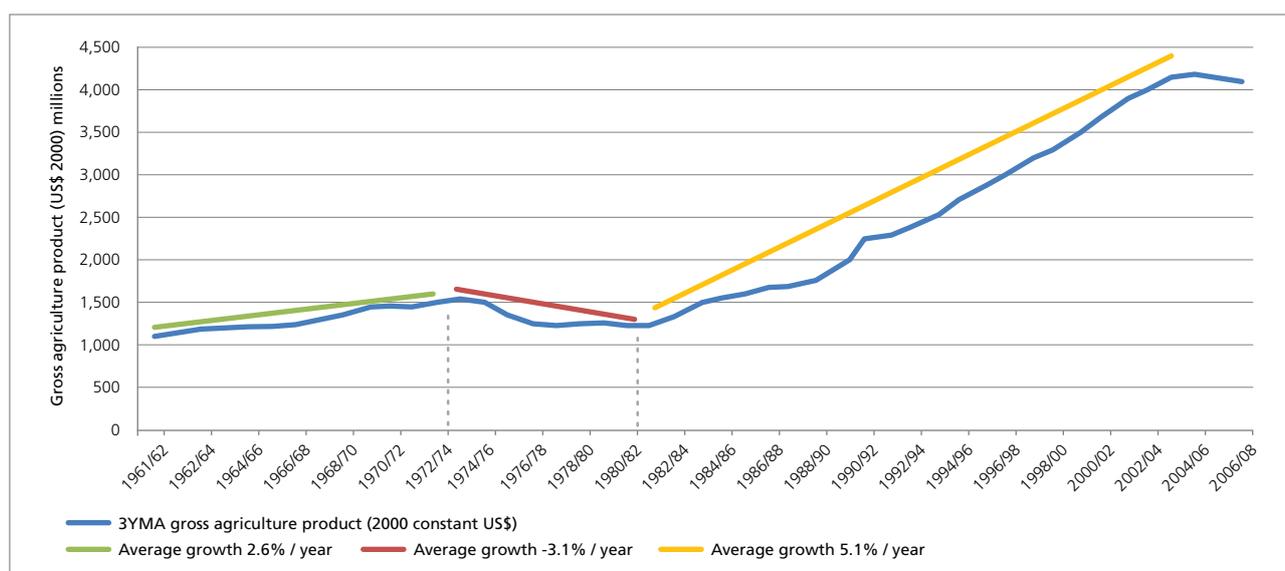
## 3. What has been achieved

### 3.1 Growth in aggregate agriculture production and productivity

After J.J. Rawlings came to power in 1981, agricultural gross product grew at an average annual rate of 5.1% (Figure 4). Only three counties have achieved higher agricultural growth over the same period (Figure 5). Since 1980, Ghana has performed better than countries often referred to as fast growing agricultural economies, such as Brazil, China and Vietnam.

More land was put under cultivation and more labour was employed in agriculture; at the same time, both land and labour became more productive (Figure 6).

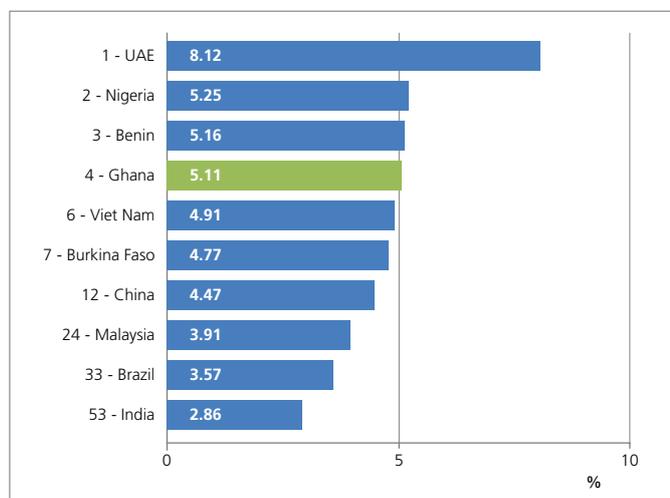
Figure 4: Agricultural product trend, 1961/62-2005/07



Note: Three-year moving average.

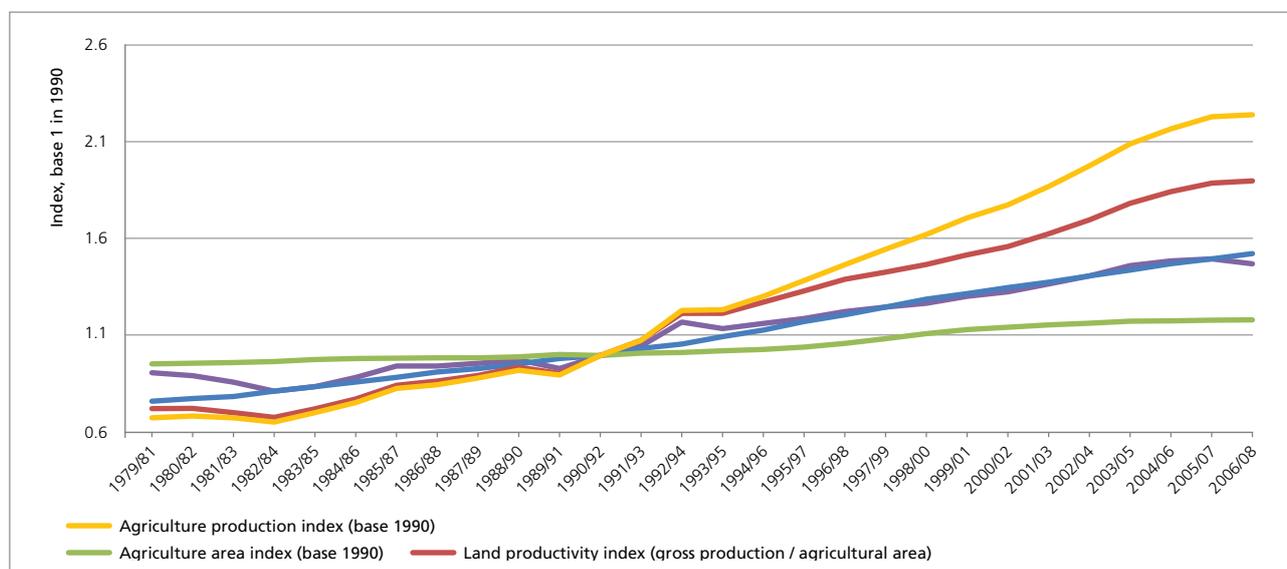
Source: FAOSTAT dataset. <http://faostat.fao.org/>.

**Figure 5: Ghana's rank in terms of annual growth in agricultural products, 1980-2007**



Source: FAOSTAT dataset.

**Figure 6: Growth in labour and land productivity of Ghanaian agriculture**

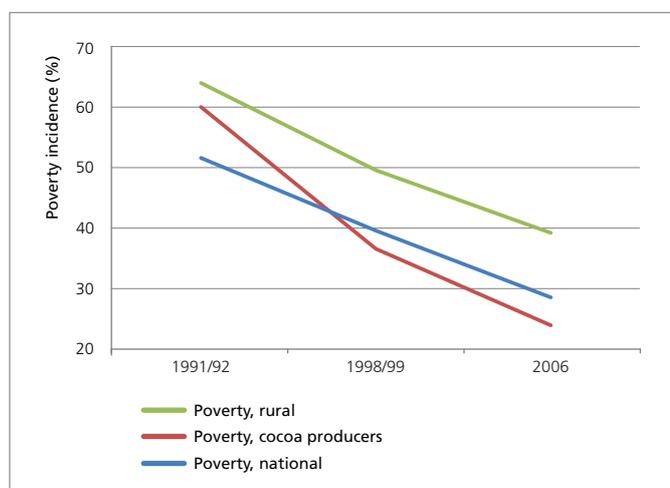


Source: FAOSTAT dataset.

### 3.2 Equity – linkages with poverty reduction and reduction in malnutrition

The link between agricultural growth and poverty reduction in Ghana has been studied quite extensively, using data from three nationally representative Ghana Living Standards Surveys (GLSSs), conducted by the Ghana Statistical Service (GSS) in 1991/92, 1998/99 and 2005/06.

Nationally, the poverty rate fell from 51.7% in 1991/92 to 39.5% in 1998/99, and then to 28.5% in 2005/06 (Figure 7), one of the best records on poverty reduction seen in Africa in the past 15 years. Poverty in Ghana is almost exclusively rural, although this is lower than in other countries in the region. Urban poverty was estimated at just over 10% in 2008, less than one-third the estimated rate in 1991/92 (Coulombe and Wodon, 2007), as against 39.2% in rural areas.

**Figure 7: National and rural poverty decline, 1991/92-2006**

Source: Coulombe and Wodon (2007).

Despite the apparent correlation of agricultural growth with falling rural poverty, some authors (e.g. Dewbre and Borot de Battisti, 2008) have questioned how far poverty reduction was caused by agricultural growth, since it may have been caused by growth of the overall economy in general and of the rural non-farm economy in particular. The case for agriculture being the driver of falling rural poverty rests on the following arguments:

- Labour productivity in agriculture has been rising, and this has probably raised farm incomes and reduced poverty of farming households.<sup>1</sup>
- Both rural and agricultural incomes rose only marginally between 1991/92 and 1998/99 (Figure 8),<sup>2</sup> but then increased remarkably from then on to 2005/06. As a ratio of average rural incomes, average agricultural income increased over this period. There is no evidence that non-farm incomes in rural areas increased more than farm incomes and thus drove poverty reduction.
- Coulombe and Wodon (2007) provide data on a key group of agricultural producers: cocoa farmers. Cocoa, as Section 4 explains, has been one of the fastest growing commodities, especially since 2000. This coincides with major reductions in poverty among households with cocoa, and by larger amounts than those seen in the general and rural populations.

Agricultural growth is also linked to improvements in nutrition. Since 1982, food supply per capita in Ghana has increased steadily, from around 1,600 Kcal/capita/day to above 2,600 Kcal/capita/day, a level which makes the country largely self-sufficient in staples (Figure 8). This has helped reduce the real price of food (Aggrey-Fynn et al., 2006). Unsurprisingly, this has translated into falling under-nourishment,<sup>3</sup> which reached 8% in 2003 from 34% in 1991 (Figure 8) – one of the greatest improvements in Africa. Such a strong effect of increased food supply on reducing under-nourishment owes to improving and relatively even access to food (see Aggrey-Fynn et al., 2006), precisely because the incomes of the poorest were able to rise as a result of agricultural growth.

Reductions in under-nourishment have been matched by reduced incidence of infants underweight:<sup>4</sup> levels fell from 30% in 1988 to 17% in 2008. Greater food availability and reduced poverty have contributed to this, although they are unlikely to be the only factors – with improvements in health and sanitation also playing a significant role.

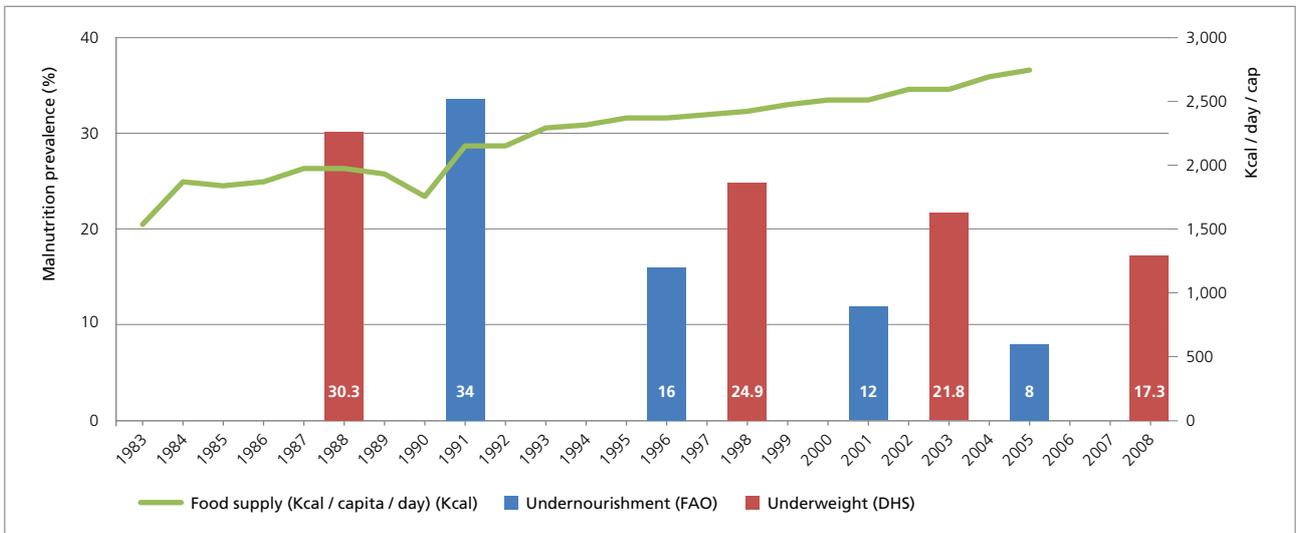
<sup>1</sup> Indeed, productivity gains in agriculture are often more effective than those in other sectors in terms of reducing poverty (World Bank, 2007), because: 1) agriculture is a major employer of poor people; 2) agricultural growth has positive impacts on the growth of other economic sectors; and 3) more food production can reduce the real price of food.

<sup>2</sup> Any data here that might make us doubt are related to the apparent stagnation of agricultural incomes in the 1990s, at a time when agricultural production was increasing considerably and rural poverty was falling. All the more curious, however, is the very small increment in rural incomes over this period.

<sup>3</sup> Food and Agriculture Organization (FAO) under-nourishment estimates are a function of income distribution, the relation between income and access to food (itself affected by food supply and food prices) and food needs (influenced by the age structure of the population). See Naiken (2002).

<sup>4</sup> Measure of weight against age, thereby combining measures of wasting and stunting.

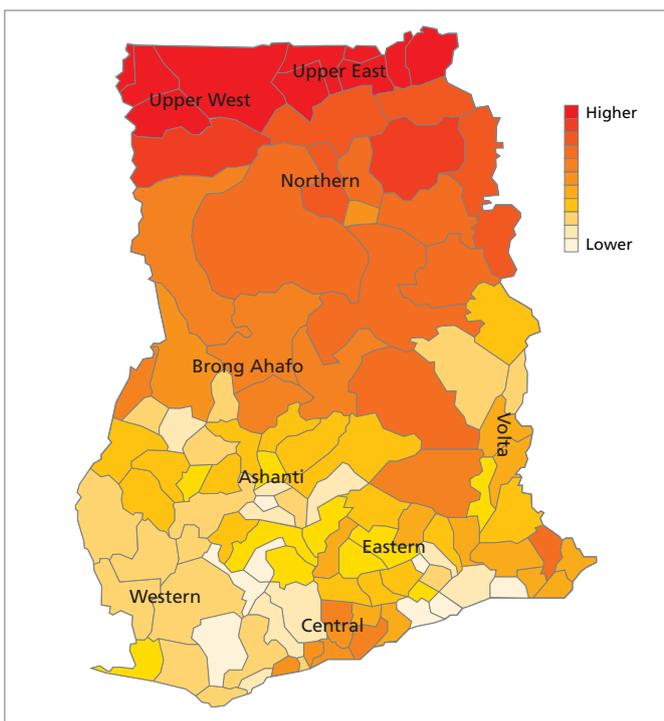
**Figure 8: Improvement in food security, 1983-2008**



Source: FAOSTAT dataset (food supply and under-nourishment), DHS (underweight).

The north of Ghana suffers from poorer natural resources and from its distance from the economic and political centres of Ghana to the south. Diversification of the rural economy has not happened in the north, where most rural households depend on subsistence farming. Yields for millet and sorghum, two key food crops of northern regions, have actually been falling (ODI/CEPA, 2005). Indeed, GLSS analyses show that growth has benefited the highest quintiles most (McKay and Aryeetey, 2004), and that regional disparities have tended to increase since the beginning of reforms (ODI/CEPA, 2005).

**Figure 9: Ghana poverty map**



Source: Coulombe and Wodon (2007).

### **3.3 Sustainability**

Agricultural land has grown quickly, but at the expense of forest areas. Putting underused land resources to work was the fastest and easiest way for agriculture to grow. But now natural resources are gradually becoming more constrained. Soil degradation and deforestation are becoming more pressing issues, leading to a call for a shift towards a model based on higher land productivity, but also for more effective soil management techniques.

With the current agriculture model, the mean estimated annual cost of environmental degradation in Ghana is nearly \$850 million, or 10% of GDP (World Bank, 2006). Diao and Sarpong (2007) estimate that soil degradation could severely constrain yield growth, reducing the potential for poverty reduction by above 5%. But the good news is that the necessary changes are not out of reach. Yields are still quite low for most crops. Fertilisers are used in growing but small quantities; irrigation is very limited; and sustainable fertility management techniques are not yet very common. For most crops, there is the potential for higher yields, and several techniques are available to help in achieving these changes. The challenge is mostly about making the incentives structure work towards the adoption of such techniques. For example, Diao and Sarpong (2007) argue that better land tenure security will lead to significant changes in soil fertility management practices.

## 4. Drivers of progress

### 4.1 Economic reform and the rebound of the cocoa sector

At independence, Ghana was the world's leading cocoa producer, but production then declined, especially during the late 1970s and early 1980s. Production fell from about 400,000 tonnes in 1975 to 159,000 tonnes in 1983, owing to over-valuation of the Ghana cedi, high (largely implicit) taxation of cocoa farmers and inefficiency of the monopolistic Cocoa Marketing Board (COCOBOD).

In 1983, Ghana began comprehensive economic reforms to stabilise the macro economy and restore incentives to producers, including farmers, especially those producing exports. These included devaluation of the cedi, control of inflation, reduced input subsidies, reform of cocoa marketing and trade liberalisation (Box 1). The reforms represented a remarkable change of direction in the economic management of Ghana: Box 2 gives details of the political economy context.

#### Box 1: Economic and agricultural reforms in Ghana after 1983

Stabilisation, or Economic Recovery Programme (ERP) (1983-1986):

- Rapid devaluation of the cedi to realign relative prices to encourage production and stimulate exports;
- Measures to control inflation.

Adjustment period (1986-1989):

- Continuation of devaluation and reform of credit;
- Progressive reduction of input subsidies.

Liberalisation (1990s):

- Reform of COCOBOD;
- Trade liberalisation;
- Removal of input subsidies.

Source: Seini (2002).

**Box 2: The political economy of reforms in Ghana**

The new government headed by J.J. Rawlings in 1981 inherited an economy in decline, indeed in chaos. Rawlings was set on fundamental reforms to Ghana's political system, disgusted by previous regimes that had delivered neither services nor growth, had been unaccountable to the citizenry and had sought to line the pockets of the leaders.

Rawlings, despite being of socialist leanings, was prepared to bring in economic management in line with the advice of the international financial institutions (IFIs). He appointed technocrats to key positions in the Ministry of Finance to design and implement the changes, while he promoted the vision and dealt with the politics. This ensured that he had donors' support for reforms: their funding made it possible for the government to invest in public goods and services.

The politics were notable. The new leader's popularity came initially from urban groups, such as unions and students. Yet, because devaluation, restrictions on public spending and wage restraints hit these groups hard, they soon protested and moved into opposition. Rawlings was not deterred. He had the advantage that, after the economic failures of the 1960s and 1970s and the difficulties of the early 1980s, which included forest fires and 1 million Ghanaians returning from Nigeria, there was an awareness that real changes had to be made. Moreover, the opposition was fragmented, and could not provide a convincing alternative to the chosen path; nor could they raise funds internationally without dealing with the IFIs.

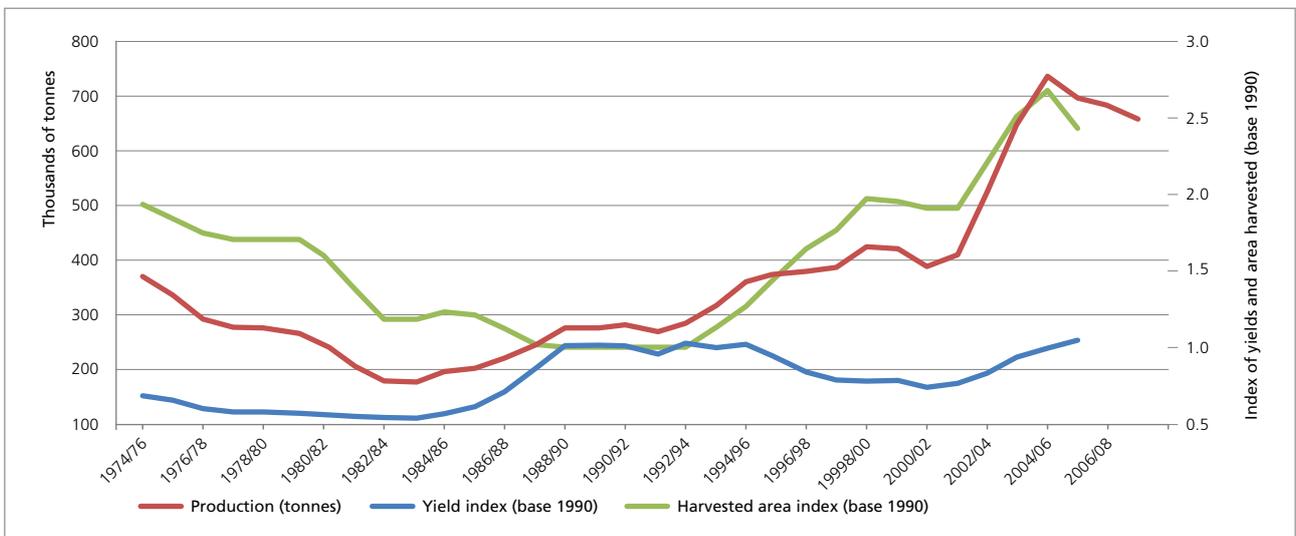
Protected by his personal charisma and his authoritarian grasp of power, Rawlings eventually built a new support base among cocoa growers and rural populations, who gained from the reforms and appreciated public investments in the countryside such as roads and electricity. He had time to build this base: from 1981 to 1992, there were no elections and no effective challenges to his leadership. By the time he faced the voters, enough had been achieved, particularly in rural areas, to guarantee his election, a feat repeated in 1996.

The period of active and profound reforms was remarkable: Rawlings' vision of a fundamental change to the governance of Ghana was in great measure achieved. What is more, detailed analysis of the politics suggests that the reforms were ultimately down to Rawlings' personal vision and his determination to change the way things were done in Ghana. Leadership in this case, it seems, was overwhelmingly important.

Source: Adedeje (2001); Armstrong (1996).

Cocoa producers responded quickly to the restoration of incentives, generated mainly by devaluation, which raised the cedi value of cocoa exports. Cocoa trade and production (Figure 10) recovered in the 1980s, with a substantial acceleration of growth in the 2000s. From 2000 to 2006, the cocoa sector grew quicker than the rest of the Ghanaian economy, increasing its share of national GDP from 3.5% to 4.7% (Coulombe and Wodon, 2007). Figure 10 shows that production growth owed largely to increased area under harvest, with yields largely stagnating. This expansion was the result of both better maintenance and the regeneration of poorly exploited groves, particularly in western Ghana in the 1990s (Teal and Vigneri, 2003). Pre-existing potential for cocoa production and past planting decisions were important starting points for growth (McKay and Aryeetey, 2004), and new farmers invested in cocoa production. McKay and Aryeetey (2004)'s analyses of the GLSS suggest a growing proportion of farmers cultivating export crops.

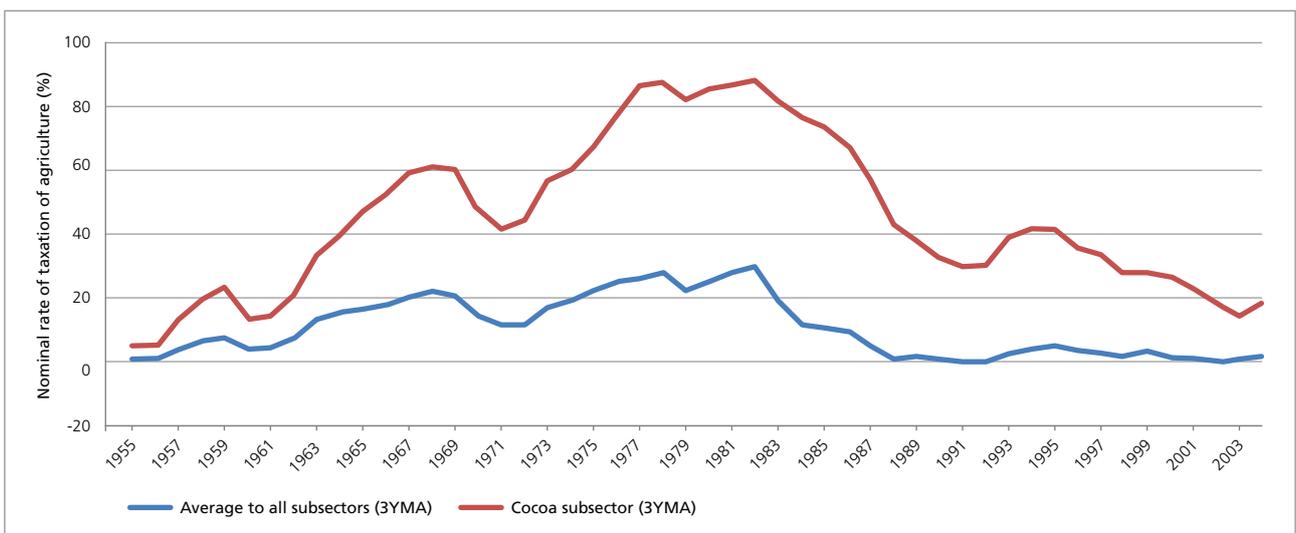
**Figure 10: Major cocoa sector indicators, 1974/76-2006/08**



Source: FAOSTAT dataset.

But what was the role of the reforms in this rehabilitation? Probably the single most important factor driving the cocoa rehabilitation was the sharp reduction in the implicit taxation of cocoa farmers after 1983 (Figure 11). Up until the early 1980s, the cocoa sector was more and more heavily taxed, but from 1983 implicit taxation levels were gradually reduced. Food production geared towards the domestic market had always been taxed only lightly (or supported, in the case of some food crops). Now, unlike in recent decades, cocoa is taxed only a little more than other crops.

**Figure 11: Nominal assistance to agriculture, 1955-2003**

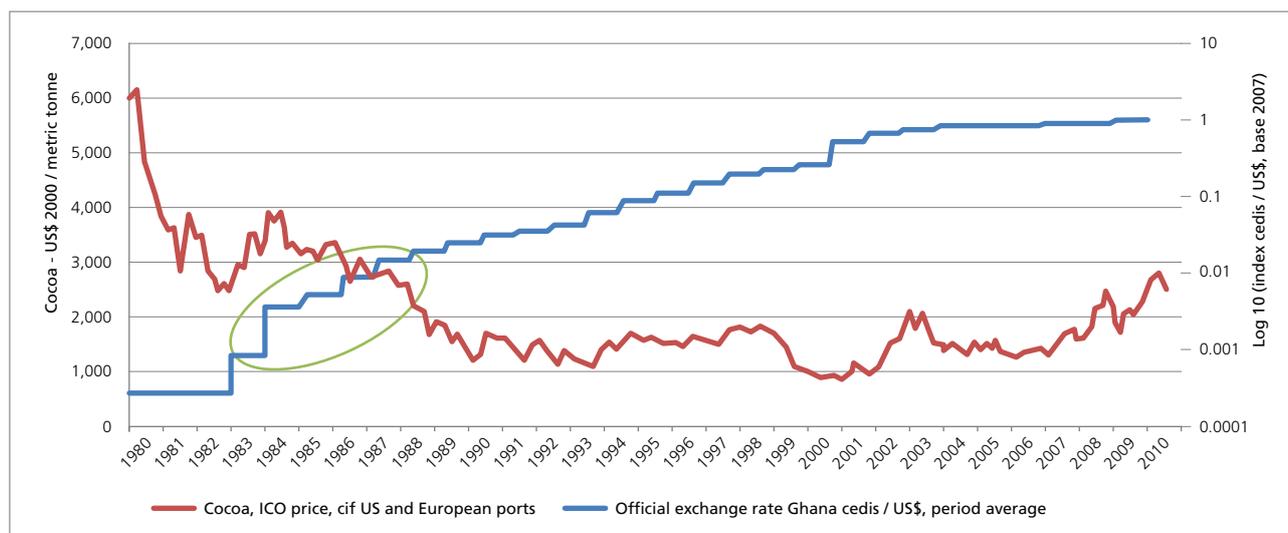


Source: CIES Database of Distortions to Agricultural Incentives. <http://cies.adelaide.edu.au/agdistortions/database/report/>.

Restoring cocoa producers' price incentives was also achieved through devaluation of the Ghana cedi, which favoured all export sectors, including cocoa, and reform of COCOBOD.

Given the previous heavy over-valuation of the cedi, devaluation was particularly rapid during the ERP period in the early 1980s (Figure 12). So strong was the devaluation, prices to producers rose, even though international prices of cocoa fell during the 1980s (Figure 13). Devaluation combined with successful anti-inflation measures (Seini, 2002) did a great deal to help raise cocoa producers' real incomes.

**Figure 12: Cocoa international prices and Ghana cedi exchange rate**



Source: IMF Primary Commodity Prices and WDI.

The other reason behind stronger price incentives to cocoa farmers was the reform of the cocoa sector itself. By 1983, COCOBOD was operating with high costs and heavy staffing. This, plus macroeconomic chaos, meant that producers received just 21% of the world price. The reforms thus included a specific Cocoa Rehabilitation Project, started in 1987 and funded by the World Bank, to resuscitate the cocoa economy. COCOBOD was stripped of staff, and domestic trading in cocoa was liberalised.

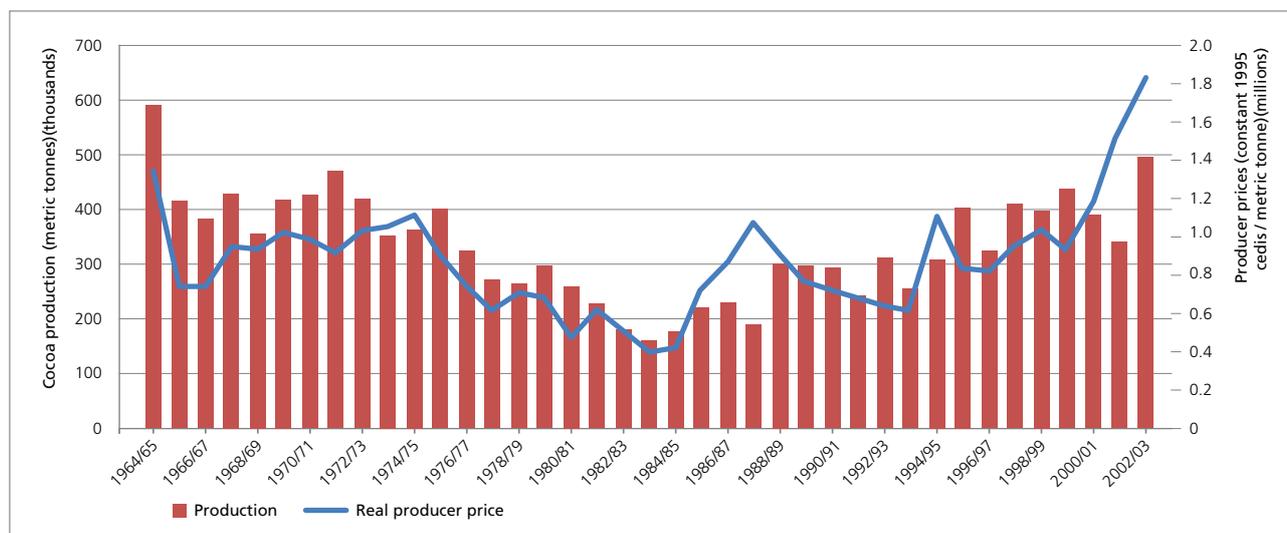
After the 1992 elections, the reform of COCOBOD gained momentum. Major changes introduced included: a reduction in staff levels, from over 130,000 in the early 1980s to 10,400 in 1995 and just over 5,100 staff by 2003; privatisation of cocoa input distribution; and introduction of competition in internal marketing. Licensed Buying Companies (LBCs) were set up to compete with the state-owned Produce Buying Company (PBC).<sup>5</sup>

Partial liberalisation of the sector allowed farmers to obtain a better share of the cocoa export price during the 1980s and 1990s, with the farmers' share rising to 40% in 1995 and 50% by 2001 (AfDB, 2002, in Brooks et al., 2009). Given reduced inflation, real prices to producers have risen, roughly tripling from the low point in the early 1980s (Figure 13).<sup>6</sup>

<sup>5</sup> A Cocoa Sector Marketing Committee vets and approves licensing of potential cocoa buying companies. Under the new system, individual cocoa farmers in various villages sell their cocoa beans to purchasing clerks of the respective licensed companies. The clerks then send the cocoa to depots, where it is handed over to district managers in the cocoa districts. The cocoa is then moved to the ports, where it is transferred to the government through the Cocoa Marketing Company, which sells to buyers abroad. When the cocoa is transferred to the Cocoa Marketing Company, it issues a certificate of receipt to the LBCs (Opoku-Agyemang and Asante, 2007, in Republic of Ghana, 2008).

<sup>6</sup> COCOBOD still extracts a significant rent from farmers. There appears to be little appetite for fully eliminating taxation in the short term, given the implications that further export tax and tariff reductions may have for government revenues (Republic of Ghana, 2008).

**Figure 13: Cocoa production and real prices to producers, 1964/65-2002/03**

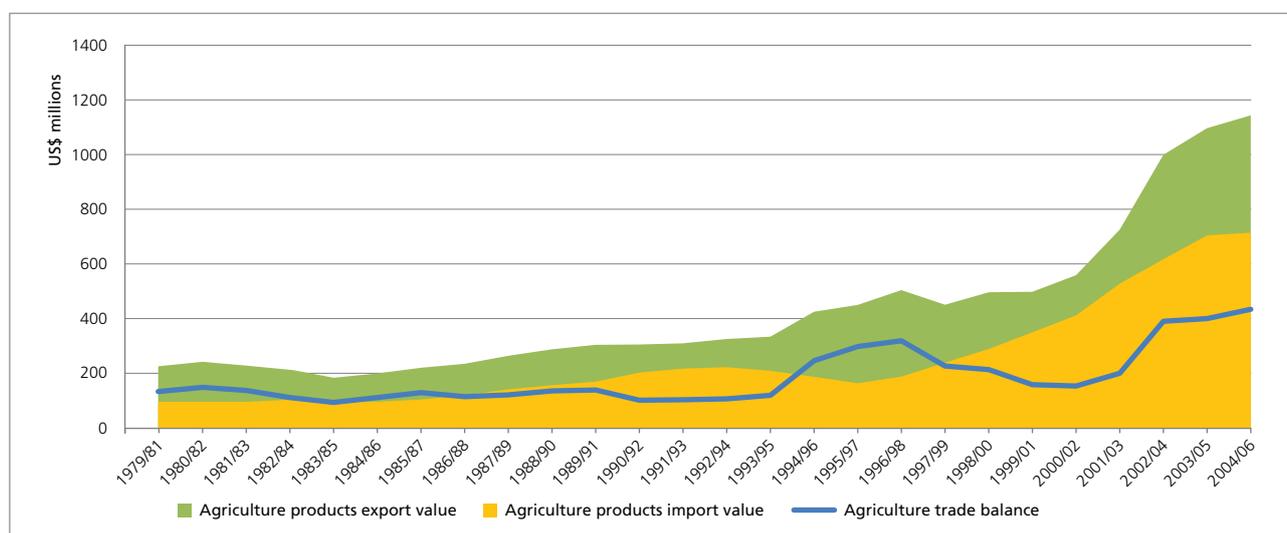


Source: COCOBOD data, in Brooks et al. (2009).

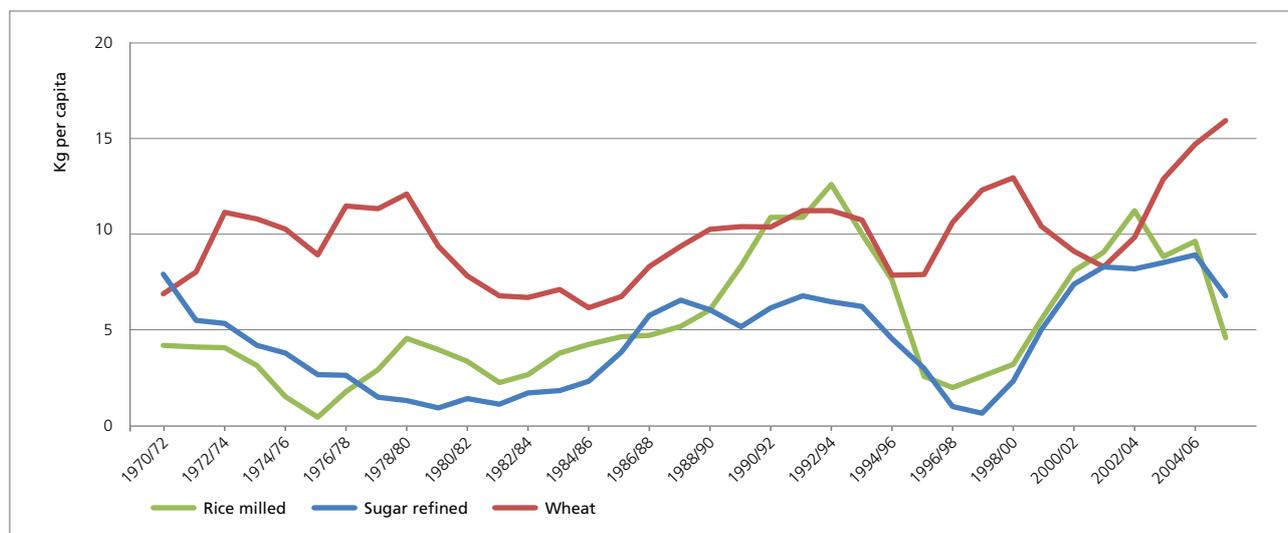
With taxes reduced, some COCOBOD services were cut, such as input distribution and subsidies. COCOBOD re-centred its extension services on plant breeding and disease control (Seini, 2004). Yet, competition among purchasing companies has improved farmers' access to farm inputs (Teal and Vigneri, 2004). Increased use of fertilisers and pesticides helped raise cocoa farm labour productivity by an estimated 39% between 1991 and 1998, allowing cocoa farmers to spend time on other activities. Indeed, off-farm incomes are significantly higher for cocoa farmers (Canagarajah et al., 2001) than for other farming households. Meanwhile, the revival of cocoa not only has raised farmers' incomes, but also has played a strong role in stimulating the rest of the rural economy through increased spending in the areas it is grown.

Trade liberalisation came at the later stage of the reform, implemented in the 1990s. Led by cocoa exports, but also by growth in non-traditional agriculture exports (see Section 4.3), export earnings have exploded since the early 1990s. Despite rising agricultural imports in areas where Ghana is a less efficient producer, the trade balance for agriculture has largely been positive and increasing (Figure 14). Although imports are significant for the least competitive sectors, such as rice, chicken and wheat, they contribute only a relatively small share of Ghana's food needs, as can be seen by the amount imported expressed per capita (Figure 15).

**Figure 14: Agricultural trade, 1979/81-2003/05**



Source: FAOSTAT dataset.

**Figure 15: Import trends, 1970/72-2004/06**

Source: FAOSTAT dataset.

To conclude, Ghana is an example of successful reform of economic policy that resulted in increased production and incomes of small farmers and of export agriculture in general. This stimulated a cocoa rebound, raising many farmers' incomes.

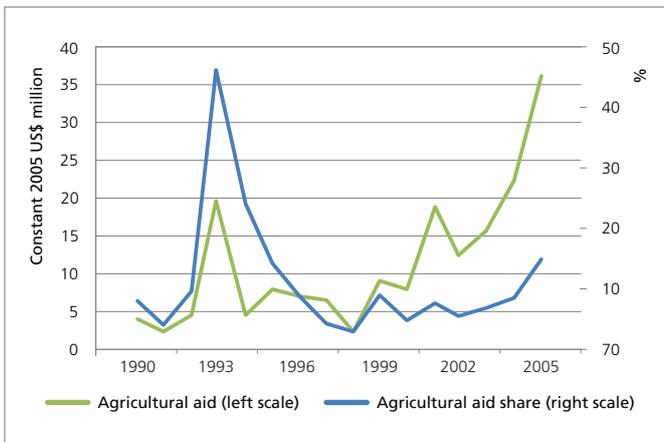
## 4.2 Donors in effective partnership with government

Donors, with the World Bank and International Monetary Fund (IMF) leading, supported the reforms that began in 1983. They provided funds: the World Bank alone provided \$2 billion between 1983 and 1995; the IMF put in more than SDR400 million in standby facilities in 1983-1985. Although these two agencies approved the direction of Ghana's reforms, they would have liked them to proceed faster. For the sake of local ownership, though, they continued to support a more gradual schedule for change (Armstrong, 1996).

During the 1980s, Ghana became one of the more favoured countries for international aid, so much so that by the early 1990s there were fears of 'Dutch disease' – an appreciation of the exchange rate that would have reduced the competitiveness of Ghana's exports (Younger, 1992).

Most donor support to agriculture came long after the start of the ERP. The Cocoa Rehabilitation Project, launched in 1988, has been the most important, worth \$40 million. Yet, levels of funding to agriculture in particular were not that great. Dewbre and Borot de Battisti (2008) report that, since 1990, agricultural aid has rarely taken more than a 10% share of all aid to Ghana, the exception being the cocoa project in the early 1990s (Figure 16).

**Figure 16: Agricultural aid allocations, 1990-2005**



Source: Dewbre and Borot de Battisti (2008).

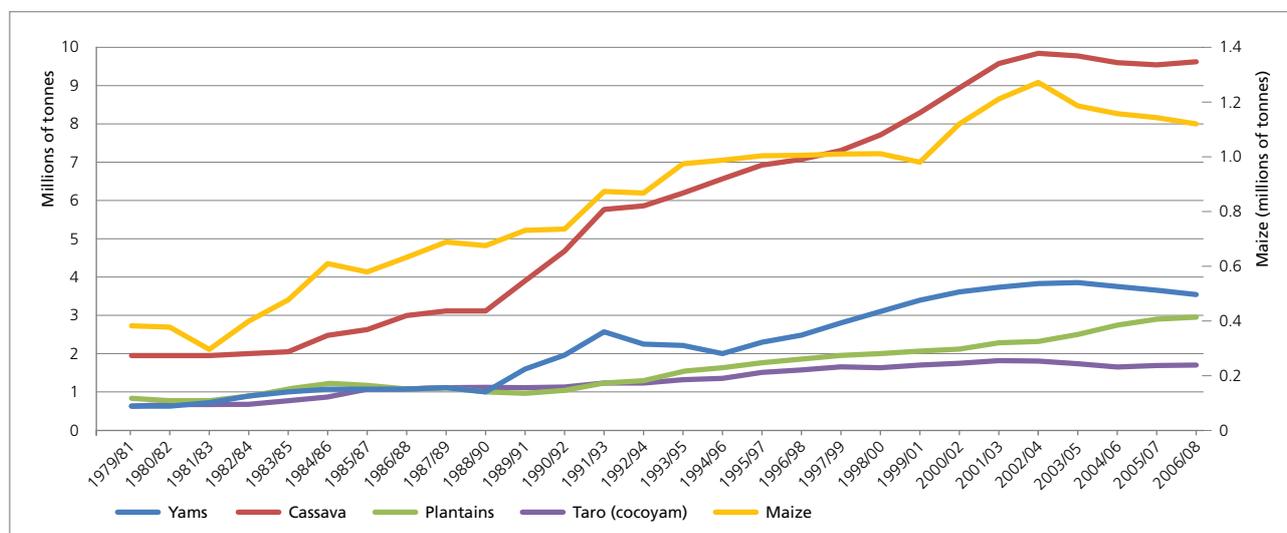
Funding to agriculture (narrowly defined), however, may not be quite the point: much of what benefited the farmers, and cocoa growers in particular, came from economic reform, macroeconomic stability and public investments in highways – rather than from programmes implemented by the Ministry of Food and Agriculture. This broader reform agenda was supported by the international community.

Moreover, many donors were prepared to trust the government in its endeavours, providing additional finance rather than imposing their favoured projects. Hence, although aid programmes to Ghana cannot claim to have transformed the country, they provided valued support to the reforms, in concord with government objectives. This is not to say that some individual aid-funded endeavours did not have their successes: they did, perhaps none more so than international funding to regional efforts to breed disease-resistant and improved strains of cassava.

### 4.3 Staple crops: Rapid growth of roots and tuber production

Ghanaian agriculture is dominated by food crops, produced for subsistence and the domestic market. Maize and cassava are the two major staple crops, followed by other root crops such as yam and cocoyam, as well as plantain and rice in the south and sorghum and millet in the northern regions. Food crops have enjoyed significant production growth since the 1980s, as Figure 17 illustrates. The most striking trend is perhaps the fivefold increase in cassava production from the early 1980s to the mid-2000s. Maize, yam, cocoyam and plantain production have also increased significantly. Millet and sorghum output has remained stagnant, however.

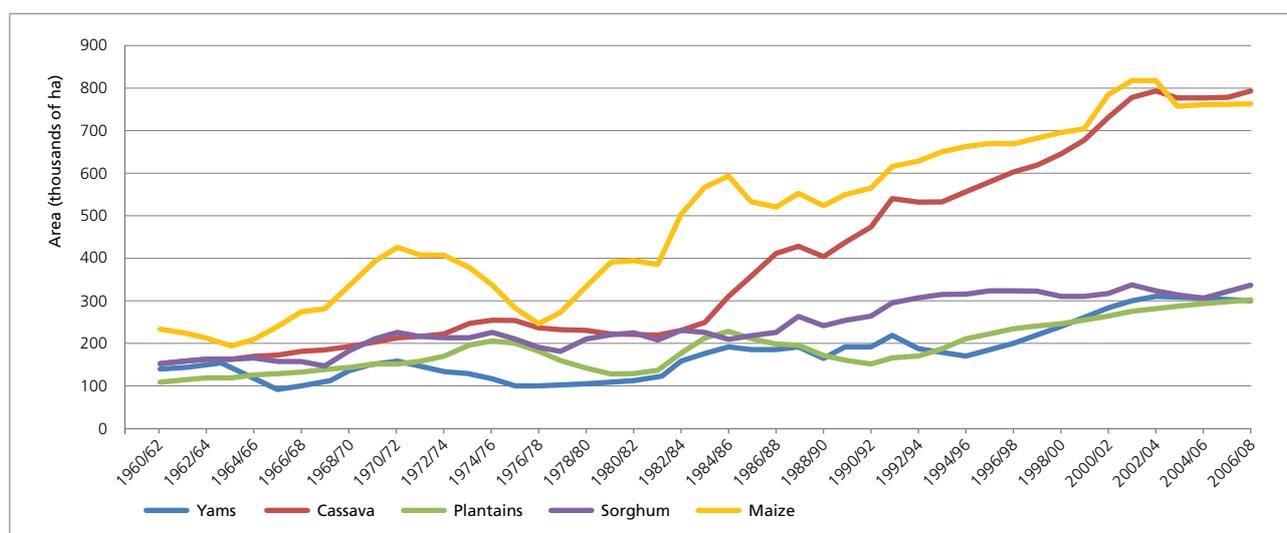
**Figure 17: Rapid growth in production of staple crops, 1979/81-2005/07**



Note: Three-year moving average.  
Source: FAOSTAT dataset.

Staple crop production has increased substantially, primarily through land expansion – especially for maize and cassava (Breisinger, 2008b; Figure 18). Overall, arable land has more than doubled in size since 1980 (Figure 19). Despite a significant increase in the agricultural population, the amount of arable land per agricultural worker has fluctuated between 0.55 ha and 0.75 ha.<sup>7</sup> It seems that the incentives restored by the reforms have encouraged the conversion of land to arable. That a good part of this land has come from forests is cause for concern.

**Figure 18: Increase in areas under harvest for key crops, 1960/62-2005/07**



Source: FAOSTAT dataset.

<sup>7</sup>. Extension of arable land is common throughout the African continent where large areas of land are available.

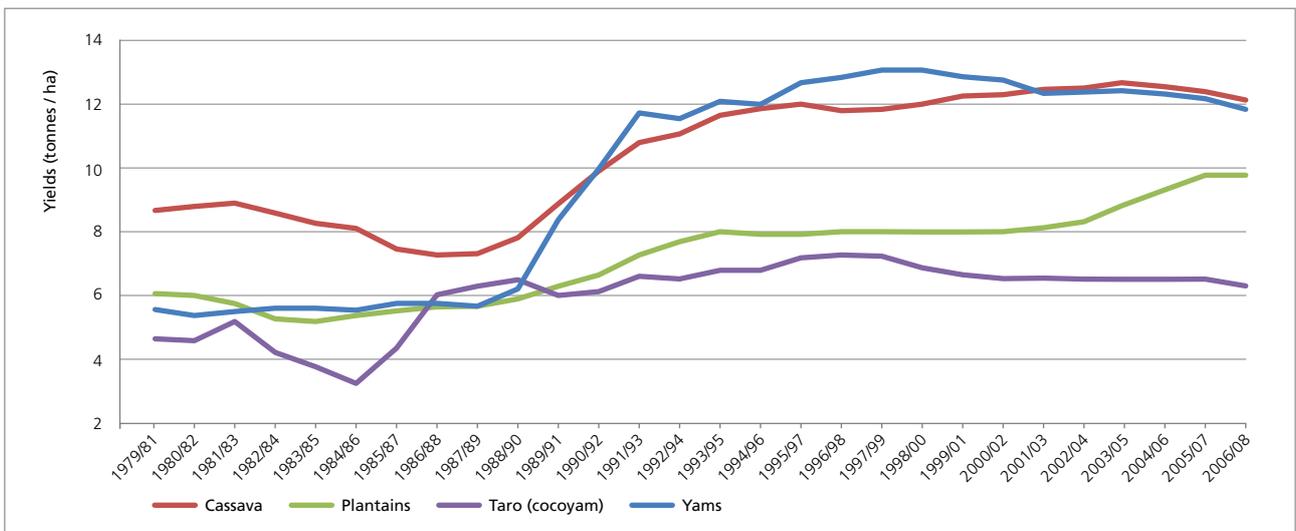
**Figure 19: Arable land trends, 1960/62-2005/07**



Source: FAOSTAT dataset.

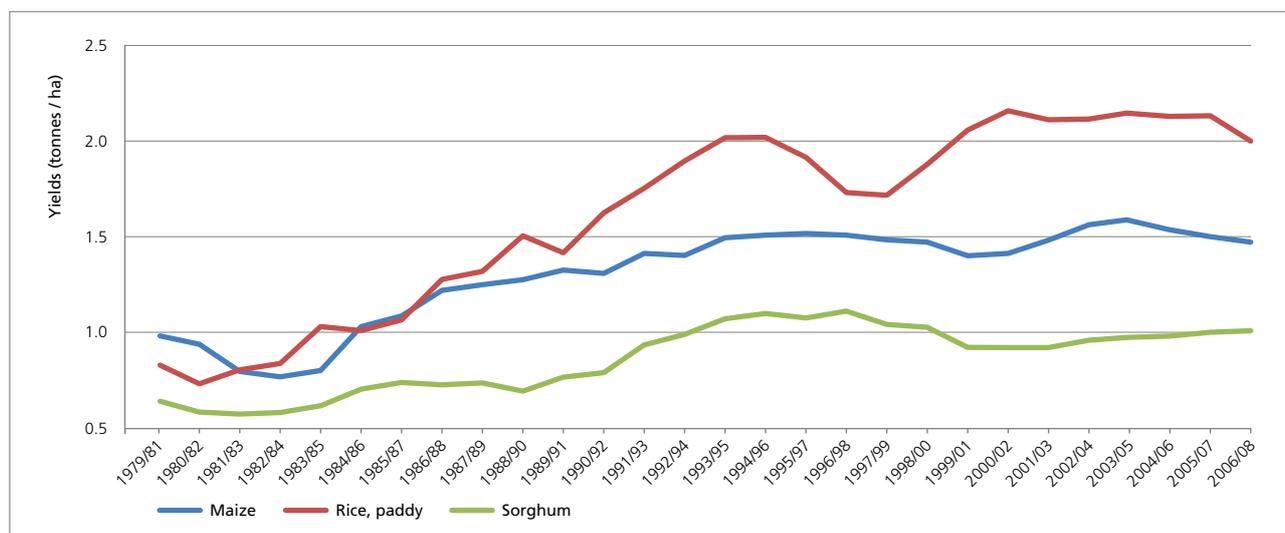
Yields have progressed too, particularly in the 1990s. This was the case for cassava and yam, but also paddy and, to a lesser extent, maize (Figures 20 and 21). The International Institute for Tropical Agriculture (IITA) Tropical Manioc Selection (TMS) programme supported by the International Fund for Agricultural Development (IFAD) and others has contributed to the introduction of higher yielding cassava varieties. New cultivars allowed yields to double, with limited extra inputs (Manyong et al., 2000). Improved maize varieties have been introduced as well, the result of research funded by the Canadian International Development Agency (CIDA), although their impact could have been even higher with more use of fertilisers, necessary for the new cultivars to express their full potential (Steedman, 2003, in World Bank, 2007).

**Figure 20: Yields trends for root crops, tubers and plantains, 1979/81-2006/08**



Note: The yield increases in root crops in the early 1990s are scarcely credible. They coincide with a change in the way that yields were estimated and probably exaggerate yield gains.

Source: FAOSTAT dataset.

**Figure 21: Yields trends for cereals, 1979/81-2005/07**

Source: FAOSTAT dataset.

For cassava and yam, market opportunities have played an important role as an incentive to increase production. For cassava, this was linked mainly to the possibility of farmers adding value, processing cassava into *gari* (flour) before marketing the transformed product (IFAD/FAO, 2005). The spread of village processing plants has played an important role in opening up such opportunities to cassava producers. IITA introduced mechanised processing, helping save hours of women's labour in many Ghanaian villages (Nweke, 2004), while meeting the growing demand for *gari*. Meanwhile, the increase in yam production has responded largely to growing urban demand, facilitated by an effective domestic marketing (ODI/CEPA, 2005). Even the smallest farmers are relatively well integrated into domestic food markets (Chamberlain, 2008), which means they have additional opportunities to earn an income.

#### 4.4 Nurturing comparative advantages for high value exports

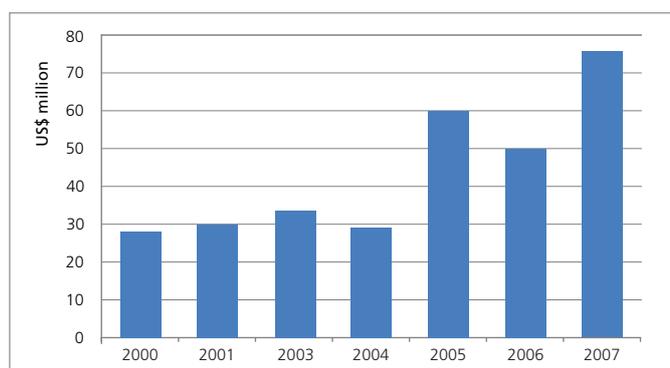
More recently, horticultural exports have grown rapidly, averaging a more than 13% growth in value a year during 2000-2007 (Figure 22). Pineapple is the most important of such crops: Ghana had captured about 10% of the European market share for pineapples by 2004, starting from negligible production levels in the late 1990s. The list also includes mangos, shea nuts and cashew nuts from the north, and Asian vegetables such as chillies and aubergines from the coast. Most horticultural export crop producers are small- to medium-scale farmers. Rapid expansion of such horticultural exports has been driven mainly by private investors, seeking supplies to the European market.

This owes much to the improved investment climate since reform, as well as to public investments in infrastructure. Ghana's transport network is now better than that of neighbouring countries, and well above average for sub-Saharan Africa (World Bank, 2007). Recent investments in Tema harbour, including a new cold storage facility at the sea port since the end of 2009, have also helped.

Private companies acknowledge a number of conditions that have made investment in Ghana more and more secure and profitable, among which are: its closeness to European markets; relatively good infrastructure, especially for international transport, including effective and affordable air freight services; the devaluation of the Cedi; political stability; and cheap labour (Pilkes, 2004).

Some of the export crops are supplied by contracted small farmers on out-grower schemes. Ghanaian out-growers have managed to reach quality standards that make them quite competitive with larger producers.

**Figure 22: Growth in horticultural exports, 2000-2007**



Source: Ministry of Food and Agriculture data, in World Bank (2007).

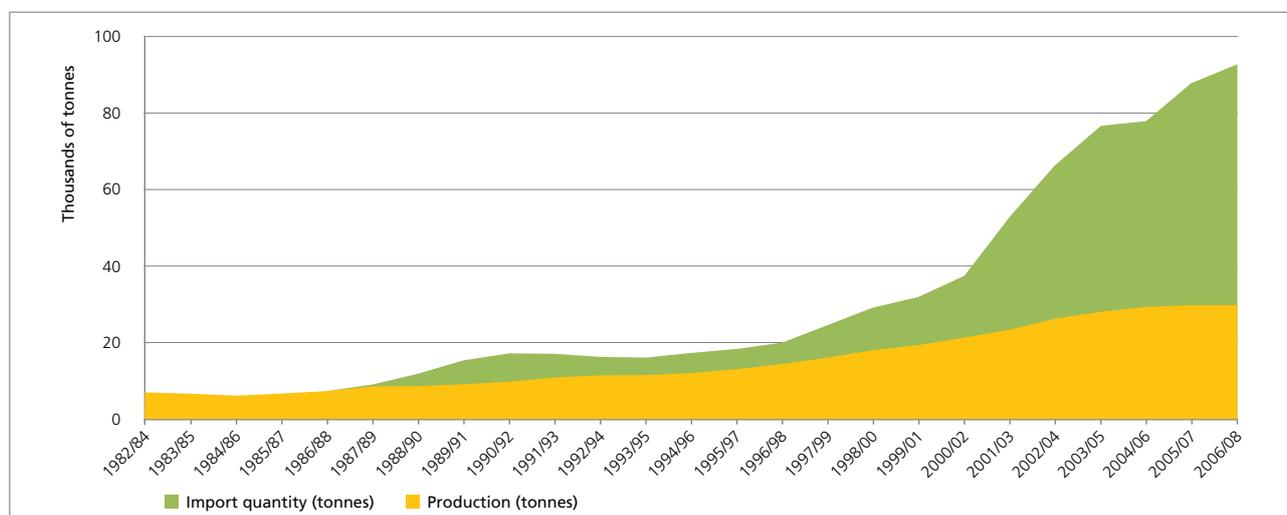
Despite growth, Ghana is still a relatively small player in horticultural export markets, and therefore is vulnerable to changes instituted by market leaders. An example is the dramatic reduction in market share and export earnings from pineapples with the introduction of the MD2 pineapple cultivar by Del Monte in Costa Rica. As a result of this, pineapple exports declined by 35% in 2005. Fortunately, this was temporary: since then, commercial producers such as Dole have increased operations in Ghana, and non-governmental organisations (NGOs) have supported smallholders to shift to MD2 varieties (Fold, 2008).

#### 4.5 Local demand for higher value agricultural products

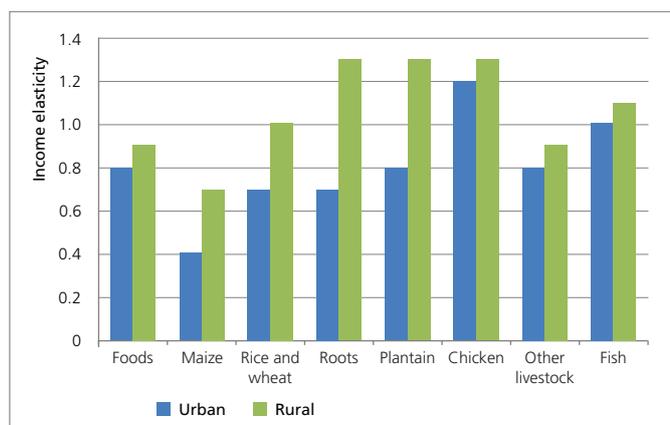
With economic growth, urbanisation and poverty reduction, domestic food markets are changing. A highly visible illustration of this trend is the rapid development of supermarkets, targeting better-off consumers. But perhaps the most significant transition lies in broad-based changes in food habits.

Growth of the chicken meat market is a good example. Although Ghanaian meat consumption is still relatively small, chicken demand has increased rapidly (average growth of production and imports rising by 7.2% and 25% over the past 25 years, respectively (Figure 23)). The potential for future growth is promising. Income elasticity for chicken is strongly positive, in both rural and urban areas (Figure 24), suggesting that future income growth will translate into rapidly growing demand for chicken. Yet, until now and despite protection, imports of poultry meat have outstripped local supply (Figure 23). It is not clear that Ghana's farmers can compete with cheap imports here.

**Figure 23: Chicken production and imports, 1982/84-2006/08**



Source: GLSS 2005, in Breisinger (2008b); FAOSTAT dataset.

**Figure 24: High income elasticity for chicken meat**

Source: GLSS 2005, in Breisinger (2008b); FAOSTAT dataset.

Economic recovery has also stimulated production of vegetables for the domestic market, no more so than for tomatoes, production of which increased more than six times between 1985 and 1997.

Village studies (Berry 1997; Marfo et al., 2002; Okali and Sumberg, 1999) describe how farmers cultivate plots of less than half a hectare, using simple irrigation in the dry season, to grow tomatoes, peppers, aubergines and okra. For example, in Kumawu, 50km northeast of Kumasi, migrants returning from Nigeria around 1983 began to grow tomatoes and some onions (Berry 1997). By the end of the decade, tomatoes were their main commercial crop. They were grown on a small scale: usually on fields of under 1 ha, with two to three crops a year, after which the land would be rotated to other crops or left fallow. Tomatoes required investment of \$45-80 an acre in fertiliser and pesticide, plus the hiring of daily labourers to prepare fields and to harvest the crop. The crop was sold by the roadside to traders who arrive in small trucks from Kumasi and even Accra: negotiations took place on the spot. Prices could vary enormously: just before the harvest, in early June, boxes were worth \$30-35; by early July, they were down to just \$1.50 a box – and many farmers did not bother to harvest the tomatoes. The main reaction to such risk was diversification –tomato growing was just one thing they did, and a speculative one at that.

Returns to growing vegetables in 1999 in four villages in Ashanti and Brong were on average more than \$5 a day, at a time when casual labour in rural areas was paid around \$1 a day. Vegetable growing generates regular cash income (Marfo et al., 2002).

The conditions for growth of this are simple: access to urban markets – small-scale traders collect tomatoes in the morning in pick-up trucks; and some cash to buy seed, fertiliser and chemicals. Capital is the main limitation, and is obtained almost entirely from kin and friends, from labour earnings and from the profits on other crops or enterprises.

## 5. Conclusions

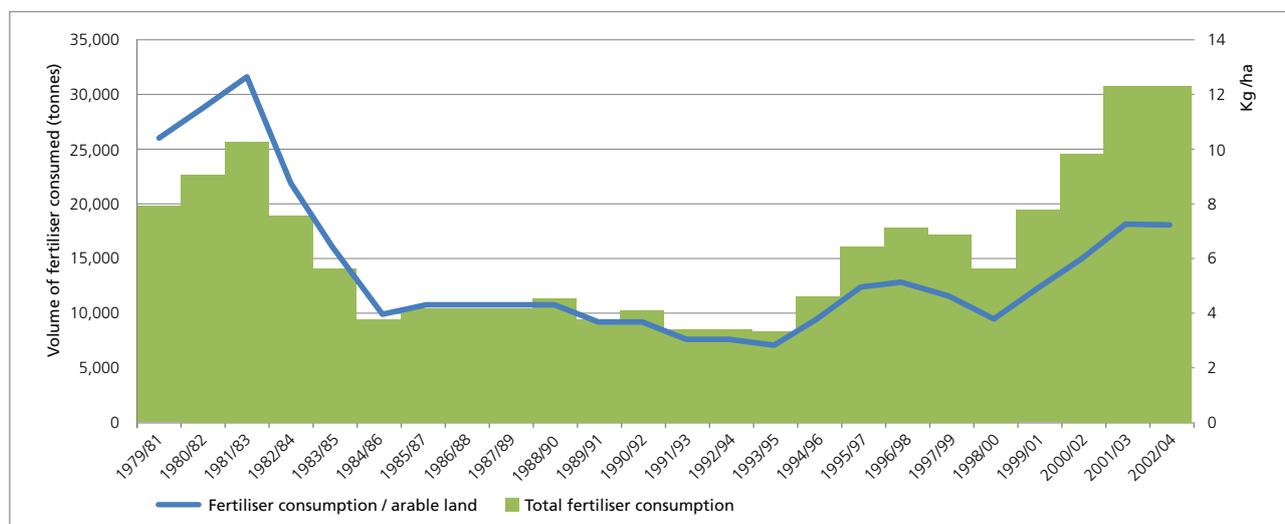
Poverty in Ghana, including rural poverty, has fallen markedly, as has under-nourishment and malnutrition, and the country is well on its way to meet important targets under MDG 1. It seems highly likely that improvements in rural welfare owe much to agricultural growth, both in food and cash crops and also in non-traditional exports. Growth has been achieved through economic reforms undertaken from 1983 onwards, championed by J.J. Rawlings and supported by donors. Overall economic advances have fuelled domestic demand for foods of higher value and more convenience, and agricultural research has paid off too.

### 5.1 Key lessons

- Much of Ghana's agricultural growth is down to the **initiative of farmers and those in the agricultural supply chains**. However, this has been made possible by **policy that has focused on critical issues**: ensuring a favourable climate for investment and supplying public goods, especially roads and research. Investments in agricultural research and extension – and in unfashionable crops such as cassava – have paid off.
- **Donors** supported and encouraged the government in the reforms of the 1980s and 1990s, which restored incentives to farmers, and funded the provision of public goods. In the case of research on cassava, the merits of regional collaboration are clear to see.
- Ghana has been able to follow a **broadly consistent strategy for agricultural development** since the early 1980s, thanks to political stability and broad consensus on the importance of the investment climate and public goods.
- Issues often seen as **major obstacles to agricultural growth have not proved so** in this case. Although there are clear market failures, in that farmers find it very difficult to access formal credit and indeed to acquire inputs, these have not prevented growth. Most land is held under customary tenure, yet this has apparently not deterred investment significantly.
- This case lends support to those who argue that **the state should concentrate its efforts on critical areas**, and consequently should not – at least until state capacity and resources permit – try to solve all problems and move on all fronts.

### 5.2 Challenges

- Although yields have improved, especially for root crops, **yield growth has been disappointing**. Despite a recent rebound (Figure 25), Ghanaian agriculture has made little use of farm inputs since reforms began, reducing inputs in the 1980s and early 1990s after input subsidies were cut, with market-based mechanisms for input supply starting to become effective only from the mid-1990s and even more so in the 2000s. However, this implies that there is high potential for improved yields: filling the gap should not require any new science. The challenge is arguably more in reducing input market failures without falling into the trap of costly inputs subsidies. Current trends in fertiliser use suggest that input markets may already have started to work better.
- **Regional disparities** have tended to increase since the beginning of the reform period, and are cause for concern. Northern regions are very clearly lagging behind, both in terms of agricultural growth but even more clearly in terms of rural poverty reduction (Coulombe and Wodon 2007). These disadvantages may be difficult to overcome without deliberate policies to redistribute incomes. Meanwhile, although it would be unreasonable to expect the north to be as productive as the south, opportunities in cotton and probably other crops have not been taken up (given that much of the north consists of guinea savannah, which in neighbouring countries (northern Côte d'Ivoire, southern Mali and southwest Burkina Faso) have seen booming cotton production in the past few decades).

**Figure 25: Fertiliser use and imports, 1979/81-2002/04**

Source: FAOSTAT dataset.

- At some point soon, **the scope for further growth of this kind will end**, at which point further advances will have to come from more efficient use of existing resources. The challenge will then be to overcome market failures that deter investment and the use of external inputs and irrigation, and to increase farmers' skills and access to better techniques.
- Environmental issues are becoming more central to agricultural policy debates in Ghana, but there is much to be done to **make current farm practices more sustainable**, in particular to address the environmental costs of forest clearance, loss of biodiversity, and unsustainable management of soils in some areas.
- The **difficulty in gaining access to agricultural credit** is well identified. Agricultural credit is largely excluded from the formal banking system (Seini, 2002); indeed, rural areas are poorly served by formal banking. Instead, most formal rural finance consists of various forms of microfinance, with outstanding loans of over \$200 million in 2005 (World Bank, 2007). Average loan size is small, for periods too short to finance agricultural inputs let alone capital investments. And, as in other countries, microfinance tends to miss out the poorest.
- Most agricultural land in Ghana is held in customary tenure (see Amanor, 1999; Awanyo, 1998; Berry, 1997; Gyasi, 1994). Increasing population density has tended to make land more valuable and put **strains on existing tenure**. It is feared that tenure may be becoming insecure, thereby limiting access to credit, greater use of inputs and better soil management practices. On the other hand, it is not clear that tenure insecurity is the main cause of underinvestment. Moreover, it is not necessarily the case that freehold land tenure with titles is the only way to give security. As Besley argues (1995), building on longstanding practices may be simpler, more acceptable and legitimate, and just as effective.
- A number of challenges relate to **international trade**. For example, a major constraint to additional cocoa processing in country is tariff escalation: tariffs levied on cocoa-based exports increase the higher the degree of processing (World Bank, 2007). Meanwhile, imports are sometimes seen as a threat to the development of local production for import-sensitive sectors (e.g. rice and poultry meat). There may be the potential to replace some of these imports. For example, small-scale irrigation in valley bottoms may be an option to expand rice production, and in dryland areas Nerica rice varieties may produce more rice.
- Although more social science research is carried out in Ghana than in most of its neighbouring countries, there are **several important areas that are not well enough known and understood**. From which farmers have increases in agricultural growth come? What conditions have they had, and needed, to raise production? How much has their success created links to other activities and enabled others, especially land-poor rural households, to share in the benefits of growth? Who, on the other hand, is not benefiting? Finally, are there ways to facilitate and encourage broad-based growth centred on agriculture, and how can those not currently benefiting share in the benefits?

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