8

Developing Agricultural Value Chains

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8.1 Introduction

Although Ghana's agricultural sector output grew at an impressive 4.5 percent per annum between 1994 and 2013, most of this growth was from cocoa and roots and tubers, which together account for nearly 75 percent of the total value of agricultural output (see Chapter 4). As a result, while the country remains largely self sufficient in basic staples, and continues to expand its traditional export crop, cocoa, the composition of agricultural output has not changed adequately to match the growth in the domestic demand for higher-income elastic foods like rice and tomatoes, nor has agro-processing expanded to meet a growing urban demand for processed and pre-cooked foods. One consequence has been rapid growth in the importation of rice, poultry meat, and processed tomato paste, while nontraditional agricultural exports like pineapples have languished. This begs the question: Is it sufficient for government policy to focus largely on fundamentals, such as creating an enabling, but commodity neutral, policy environment, and relying on the private sector to take it from there (see Chapters 3 and 4)? This approach seems to have worked reasonably well for many traditional food commodities produced for the domestic market (e.g., many local food staples and vegetables), but has been much less successful in developing value chains for commodities that compete internationally, either as exports or import substitutes, in raw or processed form.

In many developing countries, governments have played leading roles in developing value chains for priority commodities, particularly nontraditional commodities (Chandra 2006). This can be a very successful approach, as illustrated by the development of coffee exports from Vietnam, and tropical fruit juices from Thailand (Thoburn 2009). It was also a very successful strategy during Asia's green revolution, where most states assumed many of the functions along value chains for wheat and rice. Ghana's own

experience with cocoa is another example of where the state has actively intervened along an entire value chain, from direct support of technology, farm inputs, and pest management to control of marketing and exports, and this has been very successful since the policy reforms of the 1980s. When successful, these value chain interventions have served as important growth motors helping to drive broader patterns of agricultural development and structural transformation.

However, the approach has not always worked, especially in Africa, including some of Ghana's earlier attempts with state agro-industries in the immediate post-Independence period, and its "Operation Feed Yourself" (OFY) and "Operation Feed Your Factories" programs of the 1970s (Rothchild 2015).[1] As discussed in Chapter 3, part of the problem has been a weak public sector capacity for developing and implementing effective value chain interventions, a weakness that has been amplified by the government's often antagonistic and weak relationships with the private sector. However, this may be changing, and the government has recently committed to the policy framework of the "New Alliance for Food Security and Nutrition", an initiative of the G7 and African Union. In return for committing to policies that would enable the private sector to participate more fully in input markets, reduce transactions costs, and engage in a more transparent development of evidence-based policies that would encourage private investments, nearly fifteen domestic and global companies have signed letters of intent to invest in the agricultural sector.

The question now is whether the Ghanaian government should again try to promote the development of value chains for specific commodities, and if so in what ways? Possible interventions might range from state interventions which complement the private sector by fixing specific weak points along value chains, to more comprehensive interventions where the state either assumes many of the functions along the value chain, or seeks coordinated solutions in partnership with the private sector.

This chapter examines and compares four important but different types of value chains in Ghana: two export crops—cocoa and pineapples, and two import-substitution crops—rice and tomatoes. Apart from cocoa, these crops have under-exploited opportunities, and we examine the opportunities and constraints along their value chains, and the roles that the public sector has or

[1] Weimers (2015) has argued that some of the earlier commodity and subsidy programs were helpful for small farmers, but there is little evidence to show they had sufficient impacts on national supplies of targeted crops or the agricultural growth rate to justify their high costs.

might need to play. This leads to some more general conclusions about the best ways to develop these and related agricultural value chains in Ghana.

8.2 The Selected Value Chains

The selected value chains demonstrate mixed experiences in developing domestic and export value chains for commodities exposed to international competition. Cocoa is a notable success, the production and export of which has increased dramatically since the early 2000s, and Ghana had regained its status as a major global producer by 2010. On the other hand, after making some inroads into expanding nontraditional exports in the late 1990s, the export of pineapples, the principal nontraditional export crop, has nearly halved. Nor have domestic value chains developed adequately to take advantage of import-substitution opportunities. Concerned about growing food imports, the president noted in 2014 that Ghana was spending nearly a billion dollars annually to import food that it could produce. The big items on the list were rice, poultry meat, and tomato products. Rice consumption has raced ahead of domestic production, necessitating imports of nearly half a million tons of rice annually, equivalent to about half of domestic rice consumption. Processing of tomato, which has been an ambition since Independence, has yet to turn into reality; Ghana is now one of the largest importers of processed tomato products in West Africa. Ghana does not even produce enough fresh tomatoes to meet its domestic demand. Further details about each of the four value chains are considered below.

Cocoa, rice, and tomatoes are all labor-intensive crops that are hard to mechanize and hence are grown predominantly by smallholders, who, with their more abundant family labor per hectare, have a competitive edge over larger holdings. Smallholders also tend to obtain higher yields. With cocoa, for example, smallholders use higher levels of fertilizers and obtain yields that are nearly double those obtained on larger holdings. Smallholders also dominate the production of pineapples for the local market, but play a smaller role in producing for the export market. This is because they are less able to adopt the more capital- and knowledge-intensive technologies that are needed to produce the varieties required as export materials, or to meet the high quality standards for fresh fruits. The few smallholders who do participate in the export market either belong to a cooperative or are vertically integrated with pineapple exporters, such as through "core-satellite" systems (Suzuki, Jarvis, and Sexton 2011).

8.2.1 Cocoa

Cocoa was developed by indigenous capitalist farmers who were already producing export crops like oil palm and saw an opportunity to sell cocoa to European trading houses (Hill 1963). By the time Ghana became independent, it was the largest cocoa producer in the world, with an established marketing board that had built up huge financial reserves. These reserves, plus revenues from a continuing cocoa tax, became available to the first administration to launch an ambitious but unsuccessful industrialization strategy. During the economic crisis leading up to the policy reforms of the 1980s, the government had become highly dependent on cocoa taxes for most of its revenue, and producers were so squeezed by a high cocoa tax, an over-valued currency, and rapid inflation, that cocoa production for many farmers was barely profitable. By the early 1980s, production had fallen below 200,000 tons, less than one half of the peak production of 565,000 tons achieved in the 1960s.

The policy reforms of the 1980s, together with an upward trend in world cocoa prices beginning in the early 2000s, revived the fortunes of the cocoa sector (Kolavalli and Vigneri 2011). Production soared to a million tons in 2010, though it has since stabilized at around 850,000 tons. At the heart of the policy reform was the commitment by the government to increase the producers' share of export prices. Unlike some neighboring countries, the government decided not to fully liberalize the cocoa value chain, and instead reorganized the marketing board to limit the scope of its activities and reduce its staff strength drastically. It also established the Producer Price Review Committee comprising of stakeholder representatives to recommend producer prices and prices for various services in the sector. It also gradually reduced export taxes from nearly a third of export prices to less than 3 percent by 2010. The marketing board continued to control the quality of cocoa exports, a practice that was discontinued in the liberalized sectors of some neighboring countries, and this has enabled Ghana to maintain its reputation for cocoa of high quality, which earns a price premium of around 5 percent in the world market (Kolavalli et al. 2012).

8.2.1.1 Marketing

Since colonial times, all trade in cocoa for both the domestic and export markets has been controlled by a marketing board, originally the Cocoa Marketing Board (CMB) but later named the Cocobod. Cocobod pays producers a guaranteed pan-seasonal, pan-national price that is announced at the

beginning of each season. Growers sell to private buying companies, who are selected and licensed by Cocobod. The trading companies receive a margin that is determined by a stakeholder committee, which also recommends the producer price to be paid by Cocobod.

Cocobod is able to offer a guaranteed price to growers at the beginning of each season by selling three-quarters of its crop in advance of the season in international markets. Its ability to advance sell comes from its established international reputation for reliable supplies of large quantities of beans of superior and uniform quality. It also helps that there are international futures markets in which importers can hedge their price risks. While it stabilizes prices within a season, Cocobod is not able to do this across years. It tried this to some extent in 2012 when it used some $100 million of reserves to offer higher-than-world prices to growers, but this is not a sustainable strategy when world cocoa prices are trending down.

Building a national reputation for quality cocoa has paid off well for Ghana. This has been achieved because of Cocobod's monopoly over exports and its ability to deliver large quantities of uniform quality beans. Quality Control Company (QCC), a subsidiary of Cocobod, which is primarily responsible for maintaining export quality, enforces stringent regulations that maintain the quality of cocoa delivered to Cocobod by its licensed buyers. The cost of maintaining quality averages less than 2 percent of the value of the cocoa, which is worthwhile given the price premium for quality is about 5 percent.

8.2.1.2 Production

Cocoa is cultivated and processed using the same labor-intensive methods and tools that have been used for decades. Labor is the main input, and labor use per hectare has increased over the years with greater use of complementary inputs and the need to harvest and process the additional production. However, because of improved trees and plant protection practices, yields have increased faster than labor use, and labor per unit of cocoa about halved between 2002 and 2010 (Vigneri and Kolavalli 2016).

There has been a major effort to replace traditional cocoa trees with hybrids, but so far only about half the cocoa area has been replanted with hybrids. One reason for the slow progress is that there are problems with the supply of seeds, which is controlled by Cocobod. Another reason is that farmers tend to wait until older trees become unproductive before replanting with hybrids. Yet another reason is that hybrids do not give higher yields for all growers; performance is moderated by the age of the trees, level of shade, fertilizer application, and other cultivation practices.

Yield response to fertilizer is generally modest, but its use is maintained with the aid of a fertilizer subsidy. The subsidy reached nearly 100 percent in 2015 when fertilizers were supplied free to well-maintained farms. Pesticides are also subsidized for cocoa, and public sprays to control some contagious pests and diseases are undertaken by Cocobod, paid for using cocoa export revenue held back from growers.

8.2.1.3 Competitiveness

Ghanaian cocoa is internationally competitive because its high-quality beans ensure that the beans are sought after and sell at a premium. Major competitors of other countries in the world market have achieved higher yields with lower costs of production, but because their product quality is lower, their returns are no higher. For example, under comparable levels of technology, the gross margins earned per hectare in Ghana are similar to those obtained in Cote d'Ivoire (LMC 2014).

Despite producing high-quality beans, Ghana has not been able to develop any agro-processing activities like manufacturing chocolate. This is primarily because cocoa beans make up less than 20 percent of the cost of raw material going into production of chocolates (Gilbert 2008), and for the other materials used in chocolate production, including dairy products, Ghana simply cannot compete with Western Europe on a cost basis.

8.2.2 Pineapples

Indigenous farmers also initiated the production of pineapples in Ghana. The Aburi botanical gardens, established by German missionaries in the late nineteenth century, introduced the smooth Cayenne variety into Ghana and peasant farmers near Accra started growing it. The first serious attempt to export pineapples was made during the mid-1960s, when a processing plant and a state-owned plantation were established as part of the country's post-Independence strategy for industrialization and import substitution (Whitfield 2010). However, production stalled when the public processing plants that were established in the early 1960s failed because of weak raw material supply, in addition to the usual management problems that beset most parastatals.

Pineapple exports were revived in the 1990s by private importers who saw an opportunity to compete in the European markets when airfreight costs to Europe became favorable as a result of the economic reforms (Danielou and

Ravry 2005). Airfreight from Ghana actually became cheaper than sea freight from neighboring Cote d'Ivoire, the major exporter from West Africa. Ghana dramatically increased its exports of fresh pineapples to Europe between 1994 and 2004, reaching annual exports of 71,000 MT, and increasing its market share in Europe to 10 percent in 2004 (Gatune et al. 2013). This expansion was temporarily checked when airfreight was liberalized in Cote d'Ivoire, but with a public effort that involved organizing producers into a cooperative—Sea-Freight Pineapple Exporters Ghana (SPEG)—to bulk up their exports to attract ships to Ghanaian ports to pick up the produce, producers were able to switch back to sea freight and exports continued. However, the quality of exports declined with the longer delays incurred with sea freight.

Exports crashed in 2005 when a new variety of pineapple, MD2, went into production in Costa Rica and was introduced into the European markets. MD2 was developed by the Hawaii Pineapple Research Institute and further modified by Del Monte, and is sweeter, smaller in size, yellowish (golden) in appearance and more consistent in flavor than the traditional Smooth Cayenne exported by Ghana. Retailers also considered it to be superior because of its longer shelf life and easier storability (Fold and Gough 2008). Even though planting material for MD2 became available in Ghana, most growers were not able to acquire the necessary knowledge to grow it in the absence of any forward-looking national investments in research and development to support local production (Whitfield 2010). Some large-scale growers hired consultants from Costa Rica to guide them in their production practices, but these practices do not seem to have been suitable for Ghanaian conditions (Moss et al. 2014).

Ghana's exports fell from 71,000 MT in 2004 to 35,000 MT in 2008, and the export of Smooth Cayenne by sea ceased in 2006 (Gatune et al. 2013). Several fruit-processing firms that had sprung up to take advantage of pineapples rejected for export closed down as they were no longer able to procure sufficient fruits from growers (Gatune, et al. 2013). Processing Smooth Cayenne and Sugar Loaf varieties, which are produced for the local market, has evolved as a strategy to replace some exports (Kleemann, Abdulai, and Buss 2014).

8.2.2.1 Marketing

There are two markets for pineapples: export of fresh pineapples, and a domestic market for fresh and processed pineapples. Most of the production for the domestic market is produced by small-scale growers and sold to itinerant traders who supply fresh fruits to consumer markets throughout

the country, and to fruit-processing companies. All pineapple exports are undertaken by private companies, many of which also have their own pineapple farms. There were about sixty exporters prior to 2004, but Suzuki (2014) found only fourteen a decade later. Relatively few smallholders produce pineapples for the export market, and those who do are vertically linked to pineapple exporters, such as in "core-satellite" systems (Suzuki, Jarvis, and Sexton 2011). Contract farmers may receive inputs and services from the exporter, but there is no commitment to buy specific quantities from them at the time of planting. Under this system, the smallholders bear most of the marketing risk (Suzuki et al. 2011). This is because exporters have first call on the growers' harvest, but they only purchase the amount of pineapples they can export, and this amount is often not known until the last moment. Smallholders have to sell any surplus production in the domestic market.

8.2.2.2 Competitiveness

Ghana struggles to remain competitive as a pineapple exporter. Its last export surge depended on sea freight, and that depended on producers and exporters producing fruits of good quality with an adequate shelf life, and delivered to the port in good condition and kept under cool conditions. This has always been a challenge in Ghana. Growers do not follow standardized practices capable of producing homogenous, good quality fruits, and there is significant loss and deterioration of quality at the post-harvest stage because of insufficient investments in handling, cooling, and transporting facilities (Whitfield 2010). In addition, facilities at the main seaport are not organized for perishable exports as there are no packing sheds and cold stores.

Ghanaian exporters have never been able to achieve the volumes of exports and standards of management needed to gain leverage in the European market and increase their profit margins. Ghana's pineapple exports were estimated to earn 20 percent gross margin on turnover compared to 49 percent by Costa Rican exporters; Costa Rican producers also have six times more revenue per hectare than Ghana in the conventional market (Gatune et al. 2013). Competitiveness took another shock in 2005 with the introduction of MD2 into the European market, and the failure of most Ghanaian producers to adopt it.

8.2.3 Rice

Rice is one of the main staples in Ghana, and because demand is income elastic, the growth in per capita incomes has helped increase per capita

consumption of rice by about 20 percent since the 1980s (MoFA 2010). Production grew by 7.6 percent per year over 1980–94, and 5.4 percent per year over 1995–2012, and total production grew from about 80,000 MT of paddy rice per year in the late 1980s, to nearly half a million MT in 2010 (see Chapter 4). However, national demand grew faster and rice imports (in milled rice equivalents) increased from 16,358 tons in 1980, to 166,828 tons in 2000, to 320,143 tons in 2010 (FAOSTAT). Most of the imported rice is of the long grain, aromatic varieties that consumers generally prefer, and which originate principally from Vietnam and Thailand (Amanor-Boadu 2012; Modzakeh and Angelucci 2016). Locally produced rice is perceived to be of lower quality because of the type of varieties grown and the way it is milled. Rice is typically processed through parboiling techniques, which makes the rice harder, glassier, and firmer when cooked, and this does not appeal to the many urban consumers who now dominate the domestic rice market (Kranjac-Berisavljevic et al. 2003).

8.2.3.1 Marketing

Rice production and trading is fully in the hands of the private sector. There are essentially two markets, one for imported rice and the other for locally produced rice. Smallholder rice producers usually sell their produce to market women who then sell to retailers and consumers. Just a few producers are able to sell their produce directly to final consumers (Amanor-Boadu 2012). The market women, who constitute the majority of wholesalers and retailers, travel to rice-producing areas to assemble production from numerous smallholder producers. These itinerant traders operate an oligopolistic system with strong influences on both consumer and producer prices (Kranjac-Berisavljevic et al. 2003; Amanor-Boadu 2012).

Imported rice is sold to wholesalers and retailers at the local ports in Tema and Takoradi. Although middlemen are often used to link wholesalers to retailers and consumers, consumers are also able to directly purchase from importers (Amanor-Boadu 2012). Various brands of imported rice are marketed through television and other media (Kranjac-Berisavljevic et al. 2003).

Imported rice is priced higher than local rice, by about 15–40 percent on average, and is mainly associated with better-quality, long-grain perfumed rice of good taste and appearance (Ragasa et al. 2013). Grade 1 rice accounts for about 6 percent of total imports, while grade 2 accounts for 51 percent. Grade 1 rice is not produced in Ghana, and grade 2 rice represents only 4 percent of total production. Most of the domestic production (83 percent) is of grade 5 (USAID 2009).

8.2.3.2 Production

The bulk of the rice is produced in northern Ghana under lowland or irrigated conditions. While non-irrigated yields are generally 2 tons per ha, yields averaging 5.5 tons per hectare have been achieved in the Kpong Irrigation Project (KIP), where producers benefit from good irrigation, grow consumer-preferred fragrant rice varieties, use certified seeds, and adopt a well-developed set of agronomic practices that are communicated through an effective extension system (Takeshima et al. 2013).

Tractors are used to prepare land for rice cultivation, and machines are also used for harvesting and threshing. Mechanization costs are high compared to competing countries like Thailand (Byerlee et al. 2013). The adoption and replacement of modern varieties in rice production is about average for a West African country; the average age of rice varieties is fifteen years (Ragasa et al. 2013). Although nearly twenty rice varieties have been officially released in Ghana since the 1970s, significant quantities of certified seeds are only produced for three varieties. Use of fertilizer is generally not profitable except under irrigated conditions (Ragasa et al. 2013).

8.2.3.3 Competitiveness

With few exceptions, domestically grown rice cannot compete with imported long grain, aromatic rice, and is protected by levies and taxes that add nearly 40 percent to the price of imports. One exception is the Kpong Irrigation Project which can compete, but this required substantial public investment in irrigation infrastructure. On average, domestic rice sells at prices that are 10–30 percent less than those of imported rice (Ragasa et al. 2013). The costs of producing and marketing rice in Ghana are considerably higher than in Thailand or Senegal (Byerlee et al. 2013). There are opportunities for improving competitiveness by growing more of the types of rice that consumers want, by growing more rice under irrigated conditions, and by improving rice milling and processing to improve conversion rates and quality (Winter-Nelson and Aggrey-Fynn 2008).

8.2.4 Tomatoes

Tomatoes and processed products such as tomato paste are an integral part of the Ghanaian diet, and a significant share of household expenditures on vegetables is for tomatoes and tomato products. National consumption has

grown steadily, while domestic production has stagnated. Beginning at about 100,000 tons in the 1970s, production peaked at about 200,000 tons per year in the late 1990s, but has since gradually declined. Yields were about 13 tons per hectare in the 1990s (Wolff 1999), but averaged only about 7.5 tons/ha in the early 2000s, and 6.7 tons/ha by the end of the decade (Asuming-Brempong and Asuming Boakye 2008). Ghana is now a major importer of tomato paste and anywhere from a third to one half of the fresh tomatoes consumed in the country are imported from Burkina Faso.

Government invested in the processing of tomatoes as part of the post-Independence industrialization strategy, but the industry failed. Apart from public sector inefficiencies, a key reason for failure was an inability to source tomatoes of acceptable quality at remunerative prices from Ghanaian farmers (Robinson and Kolavalli 2010a). Recent surveys suggest that nearly three-quarters of producers have production costs that are higher than the prices that processors can viably afford to pay given the price of available imports (Robinson and Kolavalli 2010a). Privatization of some of the state-owned factories also failed, basically because the processors were also unable to source adequate raw material through out-grower arrangements.

8.2.4.1 Marketing

Producers sell their tomatoes to itinerant traders. The movement of tomatoes to major markets is controlled by an association of traders, which acts as a cartel controlling the total volume that enters a market. The cartel effectively widens the price wedge between farmers and consumers in major urban markets, but the prices producers receive are still higher than what they would get selling in local markets (Robinson and Ngleza 2011). Paste and other processed tomato products are imported into the country by private traders; one company imports paste in bulk to repackage for the local market.

8.2.4.2 Production

Most tomatoes are grown seasonally under rain-fed conditions, though some growers irrigate manually by lifting water from shallow wells. Improved varieties are important for achieving higher yields. Two varieties, Power Rano, grown widely in Brong Ahafo under rain-fed conditions, and Pecto-mech, a variety suitable for processing that is grown widely in the Upper East, outperform other varieties under most conditions. However, farmers in Ghana have historically appeared reluctant to purchase seeds (Orchard and Suglo 1999). Recent surveys suggest that less than one half of the producers purchase all their seeds, and nearly a third use seeds extracted from unsold tomatoes

(Monney et al. 2009). In the northeastern part of the country, where tomato is cultivated intensively with appropriate varieties and adequate levels of fertilizers, yields are declining because of a "the tomato disease complex", which involves the excessive buildup of soil nematodes and uncontrollable proliferation of fungal, bacterial, viral, and other diseases (Baba et al. 2013).

8.2.4.3 Competitiveness

The tomato sector struggles to compete with imports. Imported fresh tomatoes are typically of higher quality than local products, and they are not as seasonal in their supply, making them more attractive to urban retailers and supermarkets. Traders claim that locally produced tomatoes are watery, too seedy, and have shorter lifespans than imported varieties. Local tomatoes are also too expensive for processing given the low price of imported products. A major reason for this is low yields, which range from 10 to 20 tons/ha, depending on whether production is rain-fed or irrigated, compared to 60 to 80 tons/ha obtained in major processing countries. More than half of producers incur production costs that are higher than GH¢100 per ton, which is the price that processors can afford to pay growers and still compete with imported products (Robinson and Kolavalli 2010a).

8.3 Policies to Support Value Chains

We turn now to an examination of the kinds of public interventions that might help strengthen the four value chains described above. A value chain comprises a series of value-adding activities that extend from various stages in farm production, through post-harvest handling, processing, and marketing until the product reaches its final destination. Most activities along value chains are best undertaken by the private sector, and the need for public interventions arises when the private sector is unable to adequately perform its roles. There may be many reasons for private sector failings, including market failure problems (e.g., lack of complementary inputs, or first mover problems), discriminatory government policies (e.g., taxes and tariffs, preferential treatment of state-owned enterprises), and insufficient provision of public goods and services (e.g., rural roads, agricultural R&D, seed regulations, and cold storage facilities). Public interventions to resolve value chain problems range from ones designed to fix specific weaknesses along the value chain for an individual commodity, through public–private partnerships to coordinate activities along the value chain, to the public sector taking control of

large parts of the value chain (as with cocoa). We consider recent examples of government interventions in Ghana, and identify some important gaps and failures that remain for our selected value chain case studies.

8.3.1 Targeted Interventions along Value Chains

We consider interventions along value chains, beginning with inputs needed for farm production and working up the chain to processing and marketing. Some value chain interventions are specific to a commodity, but many are cross cutting and impact on several value chains at a time.

8.3.1.1 Seeds

Apart from cocoa, where Cocobod has proactively supported the development and dissemination of improved cocoa trees, Ghanaian farmers have limited access to improved crop varieties, either because they have not been developed and adapted to local conditions, or because the seeds are unattainable. A recent IFPRI study (Tripp and Ragasa 2015) identified several weaknesses along the seed supply chain and made recommendations for improving the situation. These included: a) additional government support of public research institutions to implement long-term strategies to supply farmers with superior seed varieties, and to maintain pure lines that are accessible to private breeders; b) strengthening the functioning of critical institutions in the seed sector, such as the National Seed Council; c) providing more effective coordination and regulation; d) guaranteeing the availability of foundation seeds; and e) ensuring the integrity and pureness of seeds sold to farmers. It was also noted that access to seeds could be improved immediately by implementing the existing ECOWAS harmonization policy on seeds to benefit from a larger market for seeds and to encourage private investments.

8.3.1.2 Chemical Inputs

Chemical inputs of fertilizers and pesticides are mainly supplied by the private sector in Ghana. However, use levels are still low, and this reflects demand as well as supply-side issues. One reason demand is low is because for many farmers, the returns to fertilizer use are low and risky, especially when crops are grown without irrigation. Higher returns depend on complementary actions like the use of improved seeds, better management of soil fertility, better agronomic practices, and additional irrigation. In the case of cocoa, Cocobod provides extension services for cocoa growers to help establish the

complementary requirements for achieving higher yields, but there is little systematic support for other commodities. The private sector plays a small role in providing information to farmers growing other crops, such as export firms that enter into contract-farming arrangements (e.g., pineapples), or input suppliers who have incentive to help farmers increase their crop yield responses, and hence their demand for chemicals. However, there is clearly an important knowledge gap that is not currently being met by the public extension system (Moore, Ferguson, and Lolig 2015). There is also need for more widespread soil testing and mapping so that fertilizer dealers and farmers can better match fertilizer blends with regional soil nutrient deficiencies. Other public responsibilities include regulating and guiding proper use of fertilizers and chemicals.

Cocobod has been subsidizing fertilizer use on cocoa since 2003 as part of its Hi-Tech Program, but in order to encourage greater use on other crops the government introduced a subsidy in 2007 as part of a broader package of interventions to support agricultural growth (see Chapter 7). The subsidy covered about half the fertilizer price in 2008, but had fallen to 26 percent in 2016. Partly as a result of the subsidy, fertilizer use in Ghana was six to ten times higher in 2010 than it was in the early 2000s. Although the subsidy has encouraged greater fertilizer use, the evidence provided in other chapters of this book suggests that this has contributed little to crop yield growth, but by helping to maintain soil fertility, has enabled farmers to reduce the length of their fallow periods and expand their cropped areas. As discussed in Chapter 7, the fertilizer subsidy has become an important financial burden of the state that may not be sustainable, and there is a need to explore smarter and less costly ways of supporting the uptake of fertilizer use. Ghana does a poor job of targeting fertilizer subsidies compared to some other African countries, and the financial cost could be reduced with little impact on fertilizer use by targeting subsidies to smallholders for the production of food grains who would not otherwise buy fertilizers (Houssou et al. 2018). Moreover, investments in seed supplies, irrigation, and soil mapping and testing, as well as the development of more effective fertilizer products, could help improve crop-yield response to fertilizer, making it more profitable for farmers to use even in the absence of a subsidy (Jayne et al. 2015).

8.3.1.3 Mechanization

Farming systems in Ghana have evolved to the extent that mechanization of some operations has become necessary. Currently, the main demand for mechanization is for land preparation, which is important for regularly

planted crops like rice, pineapples, and tomatoes. Most land preparation is undertaken using four-wheel tractors, and since few farmers can afford to own these, they are available for hire through parallel supply systems (see Chapter 9 for more details). One is a network of Agricultural Mechanization Services Centers (AMSECs) established by the government beginning in 2007 through the supply of subsidized machinery and credit to selected private sector contractors. The other is a well-developed private sector supply chain of importers, machinery service contractors (mostly farmers), and repair and maintenance shops. The private system has developed without government support, and its lynchpin is a cadre of medium- and large-scale farmers who own used tractors and hire out tractor services to smaller-scale farmers when they are not required for use on the home farm. These contractor farmers interface with private firms who import secondhand tractors, and machinery repair and maintenance shops, which also stock spare parts. This system is working well and has created a competitive market for hiring-in services. On the other hand, the AMSEC model recently promoted by the government seems not to be viable in its present form (see Chapter 9). Many of the AMSECs have unprofitable business models and struggle to pay their debts to the government. One reason is a lack of development of spare parts and maintenance services for the machines imported by the government, which prevents them from making effective use of the machines.

As argued in Chapters 7 and 9, continuation of the AMSEC program in its present form will only add to the financial burden on the government. It would be better if the government were to phase out its AMSEC program, or suitably modify it to make machines available to commercial growers, and focus its efforts on supporting the private sector by funding appropriate mechanization research, technical training of young mechanics, and ensuring that financial institutions can provide the longer-term lending needed by private agents and farmers in the mechanization supply chain (see Chapter 9).

8.3.1.4 Credit

High-value crops like pineapples and tomatoes also have high input costs, and seasonal cash flow can be a problem for many smallholders. At present, the formal financial sector provides little credit to smallholders other than for cocoa, and smallholders borrow mainly from relatives and traders. Banks are reluctant to lend for agricultural activities, which are perceived to be risky, especially at a time when the return on T-bills exceeds 20 percent. When commercial bank loans are available, loan rates range from 30–35 percent in addition to a hefty administrative fee. Finding effective ways of facilitating

greater farmer access to credit would seem to be one area where additional research is needed.

8.3.1.5 Organizing farmers into groups

All four of our selected value chains are predominantly supplied by smallholders, and this poses challenges in maintaining competitiveness in world markets, either for export or import substitution. To keep costs down and quality up, it helps to organize smallholders into groups for marketing purposes, and for supplying them with modern inputs, extension, credit, and the like. In the case of cocoa, Cocobod serves this role, acting rather like a national cooperative. But farmers are much more fragmented for other commodities.

There have been many project interventions in Ghana to organize smallholders into Farmer Based Organizations (FBOs), but overall the experience has not been encouraging. For example, there was a World Bank attempt in 1999 to set up a pineapple exporting cooperative for smallholders (Farmapine Ghana Ltd) that initially had 178 smallholder members. The cooperative offered technical advice to its members and bulked up their output for marketing (Takane 2004). At its peak in 2000 the cooperative became the second-largest exporter of pineapples from Ghana. However, because of high operating costs, the prices it offered to its members were less than the prices offered by commercial exporters and the company went bankrupt in 2003–4, just as the global market for Smooth Cayenne pineapples collapsed (Halbach 2011).

A recent review of one project in which FBOs were organized found no evidence of the groups obtaining higher prices by acting collectively (IFAD 2015). One survey of FBOs found that a significant share was organized largely for receiving grants and services from projects, rather than filling any marketing or input supply need (Salifu et al. 2012).

Many private companies also try to work with groups of farmers rather than individuals. One input supply company organizes cocoa producers into small groups so as to provide them with inputs on credit, and train them in best practices (Opoko et al. 2009). Masara N'zarki is a program in which maize growers are organized into groups to receive inputs on credit, in some cases with an arrangement to buy the grains from them (Guyver and MacCarthy 2011). While on average participants in these programs become more productive, it is disappointing that a surprisingly large share of them undermine the programs by side-selling produce to avoid debt repayment. Moreover, proliferation of programs that offer inputs for free or on a subsidized basis also discourage participation in commercial contracts (Lambrecht and

Asare 2016). One donor teamed up with a private processing company, a marketing company, and the Ministry of Agriculture to support farmers in producing tomatoes for the processor on contract. For various reasons, including the inability to supply inputs on time to farmers and delayed rainfall, producers were not able to increase productivity as expected and many of them side-sold to itinerant traders (Robinson and Kolavalli 2010b).

The need to organize smallholders seems less compelling for rice than pineapples or tomatoes, since rice is a nonperishable commodity and there are competitive marketing arrangements with many traders and many different sized mills.

8.3.1.6 Agro-processing

The private sector plays the primary role in agro-processing in Ghana today; past attempts with state-owned processing plants for a range of commodities all failed. However, there are a number of constraints that hold back private investment in agro-processing. One is comparative advantage. In the case of cocoa, Ghana has no comparative advantage in exporting processed chocolate products, but it has developed private processing capacity for the domestic market. Unfortunately, less than 50 percent of the local capacity to grind cocoa beans (nearly half a million tons) is utilized. In the case of tomatoes, yields are too low and per unit growing costs too high to enable processors to compete with imported tomato paste. This has led to many failed and under-utilized tomato processing plants.

Another constraint is the challenge of obtaining adequate supplies of raw materials of the right qualities and on a sustained basis. Small-scale rice mill owners in the Kpong area attempt to obtain adequate paddy supplies to keep their mills running by extending credit to smallholders. In the case of pineapples and tomatoes, growers look to processors primarily to absorb surpluses they cannot sell for export or in the fresh market. Viable processing, however, cannot be built on seasonal gluts, as they may not be suitable for processing (e.g., tomatoes for processing need to have higher level of solids than that contained in tomatoes marketed to consumers), and mills need more sustained supplies over the year to operate their capacity efficiently.

Government policy can have a major impact on the development of agro-processing. Writing on the globalization of tomato processing, Prichard and Burch (2003) note that in Thailand, the sector emerged because of the congruence of a growing domestic demand for paste, producers who were already used to contract-farming systems, government incentives offered to industries to site themselves in the region, and cheap capital from Taiwan.

In China, another country in which processing has flourished, financing arrangements with Italian firms enabled them to invest in state-of-the-art equipment by paying for it in processed outputs. The arrangement also gave them access to markets.

The four value chains studied here suggest that private sector investments in processing usually follow the availability of raw materials rather than the other way round, in which case it is better for policymakers to focus on ways of increasing the productivity and quality of crops and to leave processing investments to the private sector. But government does have an important facilitating role to play in supporting private firms, especially during their establishment phase. The experience of some of the agro-processing units in the northern part of Ghana suggests that incentives such as tax breaks do not make much of a difference, whereas a reliable supply of raw material and infrastructure that influence the cost of operations are more important to the viability of operations.[2] A recent enterprise survey in Ghana found that access to finance was overwhelmingly identified as the main obstacle to growth (World Bank 2014). Land rights are another important constraint, both for obtaining sites for building agro-processing and storage facilities, and for establishing large-scale commercial farms, even when the latter might serve as hubs for smallholder out-grower schemes (Amanor 2013; Throup et al. 2014). For perishable commodities like pineapples and tomatoes, public support for investments in transport systems and cold storage facilities is also important for building up supply chains for agro-processing.

8.3.1.7 Quality control

Quality control is particularly important for exports, with the potential to create a regional/national reputation to either obtain a price premium or serve niche markets. Ghana's experience in exporting high-quality cocoa beans is a good example of the benefits of quality control. The absence of it can be disastrous, as illustrated by a recent EC ban on imports of all fruits and vegetables from Ghana because of contamination with harmful organisms and poor documentation. Investing in improving quality is also worthwhile in the domestic market. Domestically produced rice, for example, has not been able to adequately compete with imported rice because of quality issues, and sells at prices that are 15 percent lower than imported rice, despite an import

[2] Based on discussions by the author with the heads of Ghana's investment promotion council and the free trade zone authority.

tariff on the latter. Desired attributes of rice quality include fragrance, polish, and freedom from contamination with stones and chaff.

Quality improvement needs to be undertaken at two levels: during on-farm production, and during post-harvest handling, processing, and marketing. Table 8.1 indicates key quality aspects for each of our four commodities, as well as some of the infrastructure requirements needed to achieve them.

Quality improvement on-farm requires the adoption of appropriate production and post-harvest practices by producers. In the case of cocoa, for example, quality depends on plant protection practices, timely harvesting, and proper fermenting and drying of beans. For rice, pineapples, and tomatoes, quality could be significantly improved by growing varieties that better meet consumer and processor requirements. Proper post-harvest handling of perishable crops like tomatoes and pineapples requires farmers have good access to transport and appropriate storage facilities (e.g., cold storage for pineapples) to avoid spoilage. Rice farmers need to thresh and bag their paddy without adding stones and soil. Tomato growers need to adopt watering practices prior to harvesting that lead to acceptable solids content in the fruit, which is important for processing.

Agricultural processors and exporters need access to good transport and storage facilities, which link back to the farm. Some of the needed infrastructure investments will be privately made, but public investments in rural roads, warehouses, cold storage, port facilities, and the like, play crucial complementary roles. Limited access to feeder roads and farm tracks still discourage

Table 8.1. Requirements for improving quality in selected value chains

	Cocoa	**Rice**	**Tomato**	**Pineapple**
Production practices	Appropriate harvesting practices	Cultivation of a fragrant variety	Suitable variety and watering practices to reduce water content	Suitable variety and production practices
Post-harvest handling/ Processing	Proper fermentation and drying	Threshing and bagging without stones and soil; proper milling	Sorting and packing; appropriate containers	Sorting and packing in a cold chain
Infrastructure required	Minimal: low-tech frames for drying on farms	Appropriate milling and grading facility	Transport	On-farm cold chain

Source: Author.

investment, particularly in the northern part of Ghana. The bulk of the produce has to be carried in head loads from farm to homes and then on to markets. Perishable crops such as tomatoes still suffer serious damage in road transport.

Market incentives are also crucial for maintaining quality. Incentives need to begin with a grading system so that the prices paid by exporters, processors, or retailers reflect the quality of the product delivered to them, and these price signals then need to be transmitted back along the value chain to the grower. This happens in the case of cocoa, but rarely for rice, pineapples, or tomatoes. Growers of these crops do not have their produce graded, and hence have little incentive to produce higher-quality products. Tomato traders, for example, trade tomatoes in crates they take to producers, the size of which has grown so that when full they can no longer be carried by a single person. The tomatoes are simply packed into the crates without sorting, and the crates are stacked and transported over long distances, during which time many tomatoes get crushed. The traders have sufficient market power to prevent retailers from choosing among crates, thus preventing grading even at their destination. Nor do rice traders invest in grading, although the costs of doing so are marginal compared to a 20 percent price premium paid on graded rice. Although an association of pineapple exporters exists, they have not been able to maintain the quality of Ghana's exports. Nor has quality improvement and grading yet emerged in the domestic market.

Ghana's recent effort to offer grading as part of a warehouse receipt system does not appear to have encouraged grading, or the emergence of a quality premium for commodities like maize. There have also been many private-sector-led efforts to produce certified traceable outputs for export markets, but these have not succeeded. Some producers, on the other hand, have responded to market opportunities for quality products. For example, a number of greenhouses have set up to meet the demand for high-quality tomatoes as substitutes for imports from South Africa.

8.3.1.8 Other supporting policies

Government can directly influence value chains for internationally traded goods through imposition of taxes and tariffs. In Ghana, domestic rice production is protected by levies and taxes that add nearly 40 percent to the price of imported rice (Ragasa et al. 2013). Yet this does not seem to have encouraged a shift towards a more competitive domestic rice sector; if anything it may have helped sustain an inefficient system of producing inferior types of rice that are poorly milled and unappealing to many urban consumers. In the

case of cocoa, production for export is still taxed, though since the economic reforms the rate of taxation has been kept low enough so as not to discourage production. Moreover, a substantial share of the tax is returned to cocoa growers in the form of services provided by Cocobod (Kolavalli, 2017).

8.3.2 More Comprehensive Institutional Interventions within Value Chains

Given obvious failures at various points along the value chains for pineapples, rice, and tomatoes, might there be a case for greater public sector coordination, as has been done successfully for cocoa for many decades? We consider first the case of cocoa and identify reasons why the Cocobod model is unlikely to work for other commodities like pineapples, rice, or tomatoes. This leads to consideration of alternative forms of public intervention for these commodities.

8.3.2.1 The Cocobod model

The Cocobod model is one in which the state, through a parastatal, has taken almost full control of the value chain for cocoa. While some functions along the value chain have been privatized, such as the collection of cocoa from farmers, supplying fertilizers, and processing, most of these functions are undertaken by private firms that are vetted and licensed by Cocobod.

There are two compelling reasons that justify Cocobod's continuing and extensive interventions along the value chain for cocoa. One is the need to achieve quality control along the entire value chain to ensure high quality cocoa beans for export that attract a price premium. Quality control is especially challenging given that the crop is grown by a large number of diverse smallholders scattered throughout the forest zone. Second, is the need to have the marketing power to obtain and maintain leverage and branding in the world market, something that no private exporting firm could easily replicate. Cocobod has been able to fulfill these needs because, unlike the cocoa sectors in some neighboring countries, it has retained a monopoly power over cocoa exports. It also helps that Ghana is an established and major player in the world market. Cocobod has also strengthened its competitiveness by using its marketing power to retain some of the cocoa revenues to invest in cocoa research and to supply productivity- and quality-enhancing services to farmers, such as hybrid trees, extension, and public sprays.

The experience with marketing boards in Africa has generally been unfavorable, but Cocobod stands out as an exception. Contrary to what might be

expected, Cocobod and its associated marketing organizations (Quality Control Company and the Cocoa Marketing Company) seem not to have been corrupted or lured into major inefficiencies as a result of their monopoly power. It is not clear that there are any specific characteristics of cocoa as a commodity that explain the development of a marketing organization as "capable" and accountable as Cocobod, and its success may simply reflect a capacity that originates from its accumulated institutional heritage and marketing experience from prior to Independence, and its initial base in London. It also benefited from cost-cutting and performance-improving measures introduced as part of the economic reforms, and to continuing government oversight. Yet its success with cocoa does not seem to be easily transferable, as demonstrated by Cocobod's recent and less successful foray into developing the value chain for shea nut exports.

Would the Cocobod model work for other export commodities like pineapples? Probably not. Ghana is a relatively small player in the world pineapple market and the successful exporting of fresh pineapples requires finding a niche in a very competitive and dynamic world market, and overcoming quality and transport problems with a perishable commodity. There is need for nimble solutions that only the private sector is likely to find. Rather than a publicly controlled marketing board, perhaps what Ghana needs for its pineapple exports is some large private firms, or an association of private firms, to develop and integrate the value chain themselves, especially firms that have access to export markets and foreign investment capital, and who could set up their own production networks and invest in domestic processing as appropriate. The state could still play a supporting role, such as promoting exports, much as the Chilean government promotes the branding and export of Chilean wine (Benavente 2006).

In the case of tomatoes, the challenge is to be able to match the quality of imported tomatoes and processed products, not to create world market niches for exports. A parastatal marketing board would likely lobby for import tariffs and taxes on competing imports, which would not only discourage development of a more competitive domestic value chain for tomatoes and tomato products, but would also raise the prices of some important and nutritious foods for the poor.

The market for rice is quite different. It is a non-perishable commodity with a highly competitive domestic market with lots of traders and millers of different scales. As with tomatoes, a major challenge is to improve the quality of domestically grown and milled rice to compete with imports, and this calls for a more limited but supportive public sector role. There is already an import

tariff on imported rice, but it has done little to promote a more competitive domestic value chain, yet has increased the price of an important food for the poor.

8.3.2.2 Alternative Models

Resolving many of the weaknesses along the value chains for pineapples, tomatoes, and rice does call for some more coordinated interventions along their value chains. Quality control, for example, requires an adequate grading system of the final product, and also the ability to transmit the price differentials associated with different qualities back along the value chain to relevant decision-makers, including farmers. This might require some coordination of the supply of desired seed varieties to farmers with appropriate advice on agronomic practices, with improved post-harvest grading and handling by farmers, traders, and transporters, as well as improvements in processing plants. Getting all the relevant decision-makers to agree and work in complementary ways and at the right times is not something that necessarily evolves when left to market forces alone.

As an alternative to the marketing board solution, there have been several recent attempts to find more flexible institutional structures that can facilitate and encourage coordination and the development of non-market relationships among value chain actors, but without undermining a basic laissez-faire approach to the market. Particular attention has been given to the problem of giving smallholders access to inputs and markets (Kolavalli et al. 2015). Some programs in Ghana such as the Northern Rural Growth Project (NRGP) and the Market Oriented Agricultural Project (MoAP), enable various actors in value chains to interact with each other by organizing value chain committees. Whether these efforts are useful to overcome some of the market failures to give smallholders greater access to inputs and output markets remains to be seen.

Crop development strategies too have been developed with the participation of private value chain actors. Maize and yam development strategies were developed in Ghana with substantial participation of value chain actors in the belief that when they come together problems can be better diagnosed and resolved (Kolavalli et al 2015). The strategies that emerge from such approaches, however, lack focus and often neglect the role of technologies. For example, value-chain-based studies attribute low productivity and production of rice in Ghana to a whole range of factors: low profitability and trader oligopoly, low processing premiums, insufficient knowledge of packaging, insufficient availability of inputs including certified seeds, insufficient mechanization

and private-sector development for machine parts or appropriate milling machines, high labor costs, poor performance of public irrigation projects, weak extension services with poor knowledge of production practices for lowland/irrigated rice production, lack of credit and high interest rates, inadequate drying space, warehousing and storage, weak land tenure that discourages investment in irrigation and land improvements (Kranjac-Berisavljevic et al. 2003; USAID 2009; CARD 2010; IFDC 2008; Somado et al. 2008). Without some prioritization of these problems it is not clear how any committee would be able to begin to resolve them.

As discussed in Chapter 3, the development of more cohesive strategies for value chain development such as practiced in some East Asian countries has been constrained by a weak public sector capacity and the government's often antagonistic and weak relationships with the private sector.

8.4 Conclusions

This chapter has examined the value chains four important agricultural commodities, each of which has to compete internationally, either as an export commodity (cocoa and pineapples) or as a substitute for imports (tomatoes and rice).

The cocoa value chain is controlled by a parastatal, Cocobod, and works reasonably well. Ghana is able to maintain a high-quality product that is recognized in the world market and receives a price premium. Quality control is effectively managed all the way down from the export market to the smallholder. Growers have access to hybrids and needed inputs, and Cocobod even does some of the spraying. While there have been government aspirations to develop more value addition from cocoa, it seems clear that apart from the domestic market, Ghana has no competitive advantage in developing an industry for producing chocolate products for export. The puzzle with cocoa is why Cocobod has been so successful given the generally poor experience with marketing boards and parastatals in Ghana and elsewhere in Africa. Its success may lie with a unique institutional capacity that is the outcome of its long history and accumulated marketing experience, together with effective government oversight.

Pineapples provide an example of failed coordination along a value chain. The problems faced by the Ghanaian pineapple industry is not so much access to world markets, but rather challenges with production, quality control, responding to market shifts, and transitioning to new game-changing varieties like MD2. It is not clear that the government has the capacity to establish a

marketing board that would do for pineapples what Cocobod has done for cocoa. A better option is to provide public sector support to large private firms, or an association of private firms, in developing and integrating the value chain themselves for pineapple exports; firms that have access to export markets and foreign investment capital, and who can set up their own production and quality control systems, and invest in domestic processing as appropriate. Such models already exist in Ghana, and the public sector could help scale up such ventures and link in more smallholders by investing in agricultural extension and infrastructure development, such as rural roads and cold storage facilities at airport or docks; also by supporting pineapple grading systems, making land accessible for hub-and-spoke estates, providing tax incentives, and promoting Ghana's pineapple exports and branding in overseas markets. Many of these investments might be financed by introducing a levy on exports, much as is done with cocoa. The lack of such government support in the past helps explain why private firms have not been more successful (Whitfield 2012).

Tomato is another value chain that is best left to private sector initiative. However, in this case there is scope for parallel supply systems: one that is more highly organized for quality control to meet the requirements of processing plants and high-end retailers and supermarkets, and another less-organized chain to produce fresh fruits for the domestic market. Again, the private sector should be encouraged to invest in developing the value chain for quality controlled fruits and to set up its own supply, quality control, and processing systems. But again this requires a more supportive environment than the government has been willing to provide so far, especially in helping small farmers improve their yields and the quality of their produce.

The value chain for rice is quite different. It is a non-perishable commodity with a highly competitive domestic market with lots of traders and millers of different scales. A major challenge is to improve the quality of domestically grown and milled rice to compete with imports. Rice does not easily lend itself to contract farming or out-grower schemes, so it is difficult for the milling sector to improve the quality of the paddy it receives from farmers for milling. Rice growers need more public sector support to increase the productivity and quality of their product, and among other things this requires greater investment in irrigation, agricultural research, and rural infrastructure. So far the main policy intervention has been the introduction of an import tariff on imported rice, but it has done little to promote a more competitive domestic value chain, yet has increased the price of an important food for the poor.

The findings for pineapples, tomatoes, and rice are illustrative of the problems facing most other agricultural value chains in Ghana, and which arise

from inadequate levels of state support for farmers and private sector players along value chains. Part of the problem is weak state capacity to intervene more effectively along value chains (Cocobod being an exception), but more fundamentally it reflects low levels of public investment in the noncocoa subsector (Chapter 7), and a constraining business environment. Important failures have been: the poor performance of the public R&D system in developing more appropriate crop varieties to meet market needs; breakdowns in the supply chain for providing farmers with improved seeds; and inadequate agricultural extension, all of which are needed to further the development and uptake of better technologies that could help make Ghanaian farmers more competitive. Another failure has been insufficient provision of finance to agribusiness. Land rights are another important issue, both for obtaining sites for building agro-processing and storage facilities, but also for establishing large-scale commercial farms, even when the latter might serve as hubs for smallholder out-grower schemes (Amanor 2013; Throup et al. 2014). Greater investment in these fundamentals would go a long way towards helping Ghana's small farmers become more competitive in their domestic as well as export markets.

Beyond these fundamentals, there is need for government to be more proactive in working with private sector players, both large and small, in developing grading systems and coordinating value chains through various forms of marketing associations, or multi-stakeholder platforms (Devaux et al. 2016). However, as discussed in Chapter 3, for government to play more proactive roles along value chains requires overcoming inherently weak public sector capacities, and a greater willingness to engage with the private sector. As the Government is again turning towards a more proactive approach to the noncocoa subsector, it remains to be seen whether its recent commitment to the policy framework of the "New Alliance for Food Security and Nutrition" will lead to more effective partnerships with the private sector.

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