



**Developing a Palm Oil Sector:
The Experiences of Malaysia and Ghana
Compared**

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ABSTRACT

This paper explores what can be learned about the development of a productive sector and the factors that affect the process of upgrading and innovation, through a comparative assessment of the experiences of Malaysia and Ghana in the palm oil sector. The purpose is not to carry out a direct comparison of the trajectories of the sectors in the two countries, which would serve only to emphasize the failures in the 'construction' of the palm industry in Ghana. Rather, the role of context must be acknowledged, such that learning starts with understanding key points in the industries' trajectories that either break or accelerate path dependency. Thus, the paper focuses on the differing contextual factors and initial conditions, and how they shaped early divergent paths and industry structures, as well as the presence or absence of factors supporting expansion and diversification within each country's trajectory.

INTRODUCTION

In the British colony of the Gold Coast (now Ghana), an oil palm plantation and mill was established by Alexander Cecil Goff in the early 1900s at a location near the coast. The story goes that Europeans in Malaysia, also a British colony, travelled to this oil palm estate to learn about oil palm plantation cultivation, taking away seeds, and production techniques. Oil palm estates owned by Europeans were established in Malaysia from 1917 onwards. From this common root, the palm oil industry took very divergent paths in the two countries. Both countries gained independence from England in 1957. However, by 1960 Malaysia had a well-established palm oil export industry, while attempts were under way to revive Ghana's oil palm industry to meet domestic industrial and consumption demands. From the late 1960s to the late 1980s, Malaysia's palm oil production and processing capacity increased dramatically and it expanded into higher-value products. Malaysia dominated the world market for palm oil from the early 1970s onwards. In contrast, successive initiatives in Ghana to stimulate palm oil production have met with little success, leaving the country with a small palm oil industry, by global standards, tailored for the domestic market but looking towards the West African regional market while being unable to compete on the international market.

How do we explain the divergent paths: Why did a successful palm oil industry emerge in Malaysia, and not in Ghana? Moreover, how do new industries emerge, expand and upgrade in developing countries? In the early period of economic development, such new industries are usually agro-industries, which share general characteristics of all industries but also have unique features related to the nature of agricultural production. In this paper, we examine why the Malaysian and Ghanaian palm

oil industries developed so differently and, in the process, highlight the factors and conditions accounting for the dynamism and success of the Malaysian industry and the stagnation and limited nature of the Ghanaian industry. These are two extreme cases, but it is useful to compare extreme cases because it brings out so starkly the contexts in which industries are made and the factors necessary to make them successful. Moreover, the palm oil industry is well suited for examination of these questions as the nature of the crop dictates processing (milling) within 24 hours after milling. Hence, the palm oil industry is an excellent example of agricultural production that embodies concerns for linkages to industrial development.

The paper discusses several factors that explain the divergence. In particular, this comparative study highlights that industries can (and must) be made through intentional acts of farms, firms, informal and formal networks, and state organs, but that these acts take place within and are shaped by given social, economic and institutional contexts. These contexts are not static, and they can be the target of actions to change them, but they nonetheless play a powerful role in shaping how industries emerge and evolve.

Section one analyzes the initial conditions in Malaysia and Ghana surrounding the emergence of the industry. Not only did the initial conditions differ significantly between the two countries, we argue that they spurred the development of the palm oil industry in Malaysia, while the initial conditions in Ghana stymied it. Section two gives an overview of the contemporary industry structures in each country, illustrating how they developed very differently. The remaining sections of the paper explain why the industry structures evolved in different ways as well as the dynamism and success of the Malaysian industry and the stagnation and limited nature of the Ghanaian industry (i.e. its inability to expand as well as

upgrade into more value-added products). The paper highlights the importance of the original structure of the industry and the degree of path dependency in its evolution. In particular, section three examines key state policies and the motivation of state elites as well as the coherence or fragmentation of policies and initiatives targeting the industry and their implementation; the implications of market orientation (domestic or global); section four examines the integration (or lack of) of smallholder oil palm production into the industrial value chain; and section five examines the nature of collective action among industry actors and the pressure (or lack of it) from industry actors on government to adopt policies which push the industry in certain directions.

The paper is based on empirical research on the palm oil industries in the two countries. Fieldwork on the Ghana case was started in the years around 2000 but primarily carried out between 2009 and 2011. It involved interviews with all of the large estates, half of the medium estates, several domestic industrial buyers, government officials designing and implementing initiatives related to the palm oil industry, and domestic experts on the palm oil industry, as well as visits to the main oil palm growing areas where estates and processors are located, and collection of contemporary and historical documents on the industry and government initiatives. Empirical work on the Malaysia case is based on research undertaken in the early 1990s.

Before starting, let us give some basic background about palm oil production. The oil palm tree bears fruit in bunches, called fresh fruit bunches. The individual fruitlets contain an outer skin, a pulp containing the palm oil, and a central nut consisting of a shell and the kernel. Two kinds of oil are obtained from the fruit. Crude palm oil is produced from the pulp, and palm kernel oil is produced from the nuts. Palm oil is the most versatile vegetable oil

in the world due to its numerous food and non-food uses. Crude palm oil is used in producing soap and other non-edible products, as well as for industrial purposes. Crude palm oil must be refined before use in food manufacturing processes to produce products such as biscuits and ice cream. Refined oil can be fractionated to produce liquid palm olein and palm stearin fractions, used for cooking-oil and margarine. Palm kernel oil can also be used as an edible fat in manufactured foods. Kernel oil is also used in the oleo-chemical industry to manufacture products such as cosmetics. The palm oil milling process produces several by-products, some of which can also be sold while others can be used in the production process. Global palm oil production and trade have risen steeply and continuously since the 1970s. Malaysia and Indonesia have been the major suppliers of palm oil since the 1970s and still are. Currently, they account for about 87 percent of global production and about 91 percent of global trade, as Table 1 indicates. The three major importers of palm oil are China, India and the European Union. Recently, there is growing interest in palm oil for its use in biodiesel production.

I. INITIAL CONDITIONS

Very different initial conditions set the two countries' palm oil industries on divergent paths in the early stage in industry development. First, they produced different industry structures from the beginning. By the time of independence, there were about 57 oil palm estates operating in Malaysia (Jin-Bee 1967: 255). In contrast, there was only 1 estate in Ghana, the original Sese plantation and mill, and production for domestic consumptions was largely in the hands of smallholder farmers and small-scale processors. Second, initial conditions produced different market orientations. Malaysia's industry was born export-

Table 1 Palm oil: production, export, import, and consumption (for food and non-food purposes) in 2009/10. All figures are million tonnes.

Production:	44.8 (Indonesia 21.0, Malaysia 17.8, Thailand 1.3, Columbia 0.8, Nigeria 0.8, other 3.1)
Exports:	35.0 (Indonesia 16.2, Malaysia 15.5, others 3.3)
Imports:	34.6 (India 6.6, China 5.8, EU-27 5.1, Pakistan 2.2, Bangladesh 1.0, USA 1.0, others 13.9)
Consumption:	44.7 (India 6.8, China 5.9, EU-27 5.0, Indonesia 4.7, Malaysia 3.6, Pakistan 2.1, Thailand 1.3, Nigeria 1.2, USA 1.0, Bangladesh 0.9, others 12.2)

Source: The AOCS Lipid Library, accessed at <http://lipidlibrary.aocs.org/market/palmoil.htm>.

oriented, implanted and incorporated as it was in former rubber estates already organised as suppliers to the world market. By 1960, Malaysia was exporting 90,500 tons of crude palm oil, which consisted of most of its production (Jin-Bee 1967: 258). In contrast, Ghana ceased to export palm oil in 1960, and only began exporting again in very small amounts from 1990. When the first independent government attempted to revive the industry, it focused on meeting the growing domestic demand for consumption and industrial uses, given the small production volumes. Thus, although the first Ghanaian industry was born export-oriented, that one died shortly after independence in 1957, and the second version that emerged in the post-independence period was domestic-oriented.

The main factors behind this early divergent trajectory included initial forms of production, legacy of plantation cultivation (or lack of it), land tenure arrangements, and the degree of embeddedness of the commodity (palm oil) in the indigenous society. We briefly explain divergences in each of these areas and their interconnectedness.

Initial forms of production

The oil palm tree originates from West Africa. International trade in oil palm products between West Africa, including Ghana, and Europe grew from the 1820s, as a result of demand generated by the industrial revolution in Europe (Agbodeka 1992: 40). The British deliberately encouraged the palm oil trade, and palm oil became the principal cargo for former slave traders and ships after the abolition of the slave trade. Oil palm was introduced to other regions and adapted easily to areas in Southeast Asia, including Malaysia, where the ecological conditions for the crop are more favourable than in Ghana.¹

Ghana may have had a head start in palm oil production, but its 19th century palm oil industry was built on a shaky foundation. Palm oil exports from Ghana increased between the 1830s and 1880s, with oil palm products (palm oil and kernels) the primary export.

¹ The rainfall period in the southern parts of Ghana, where oil palm is grown, is much shorter than in Malaysia, where only small fluctuations occur in annual precipitation. In Ghana, oil palm cultivation has a peak season from April to November and a lean season from December to March, which corresponds with the rainy and dry seasons. About 70 percent of annual yield occurs during the peak season. Irrigation is not used on Ghanaian oil palm estates.

Palm oil was produced by smallholder farmers and manual small-scale processors located near the coast. Some local peasant farmers cultivated oil palm explicitly for the export trade, migrating and buying land (Gyasi 1994), but the vast majority of oil palm products came from wild groves (Agbodeka 1992). The coast was not the best ecological zone for cultivating oil palm, but the lack of infrastructure in the forest zone made production there uneconomical.

However, after a peak in the mid-1880s, exports of oil palm products decreased and more or less disappeared in the early 20th century, due to low world market prices caused by increased production of palm oil in the Dutch colonies in Southeast Asia and the emergence of temperate substitutes. Instead, peasant farmers increasingly entered into the more remunerative and less labour-intensive cocoa cultivation. The rapidly increasing demand for chocolate in industrialising Europe stimulated cultivation of cocoa to such an extent that the crop eventually took over as the territory's major agricultural export commodity (Agbodeka 1992; Gyasi 1992). The low quality of palm oil due to primitive processing techniques and high transport costs were also factors leading to the decline of palm oil exports, which ceased in the 1950s. Palm oil never regained its importance in foreign trade.

In contrast, oil palm cultivation and processing in Malaysia was undertaken on large-scale plantations with mechanized processing from the beginning. The first palm oil estate emerged in 1918 and oil palm cultivation increased gradually during the 1920s. Up to the late 1950s, oil palms were only grown on private estate land supported by the idea that oil palm could only be grown successfully by estates: As early as 1934 the British colonial government helped to promote this idea by stating that an area of at least 200 acres must be taken up by any person desiring to alienate land for oil palm cultivation (Jin-Bee 1967: 197). After a rela-

tively modest growth, cropped area increased to about 55,000 hectares in 1960; at that time production was dominated by British, Danish and French capital (Gullick 1981).

During the colonial period Malay smallholders were basically limited to producing rice (the staple crop of Malaysia) and other food crops. Colonial policies restricted paddy-land to Malays, part of a concerted effort to reserve cultivation of export crops to British capital. The aim was to encapsulate the rural Malays in a mixture of subsistence and local-market-oriented food production in isolation from the world market. Expansion of local paddy production was also considered to be an important means to increase colonial revenue, burdened by costly imports of rice from Siam and Burma (Jomo Sundaram 1988; Jenkins & Lai 1989). Rubber, the all-important export crop, was primarily produced by Indian migrant labour on large foreign, primarily British, owned estates. Some of the smallholders located in areas not restricted to paddy production were also cultivating rubber. This group included ethnic Chinese formerly employed as migrant labour in the tin mining sector. In the early 1960s, a number of independent smallholders started to plant oil palm, imitating the new estate strategy of shifting from rubber to oil palms (Khera 1976). Unsurprisingly, most smallholders were ethnic Chinese and their holdings on average larger than oil palm holdings owned by independent Malay smallholders.

History of plantation cultivation

The initial form of production of palm oil in each country is linked to its history of plantation cultivation. Malaysia had extensive experience with large-scale plantation cultivation of agricultural crops. It started when large numbers of British coffee planters came to Malaysia from Ceylon in the late in the 19th century. After mixed success in efforts to cultivate coffee

in Malaysia, rubber production started to take off in the west of Peninsular Malaysia, where physical infrastructure was comparatively much more developed because of the location of tin deposits and mining activities. Furthermore, demand for rubber increased rapidly in the early part of the 20th century (Andaya & Andaya 1982).

Before the Second World War most of the initially planter-owned rubber estates were linked to so-called agency houses. These agencies were based in the UK and started business in import-export trading of goods in relation to the mining and plantation sectors in Malaysia. Gradually they developed a capacity to serve the individual planter- or group-owned estates with management and financial services and became more integrated in plantation activities. When cyclical down-turns of commodity prices or other factors wiped out individual planters/groups, the agencies took over assets with their own funds or raised capital in the UK to continue production (Tan Tat Wai 1982).

This institutional setup enhanced centralisation of plantation capital during the 1950s, as large numbers of planter-owned estates were sold to the agency houses owing to the political and military situation in the country when Independence seemed imminent. On the other hand considerable financial resources had been accumulated in the big agencies as a result of high commodity prices during the Korean War. Thus, the big agencies could acquire well-managed estates and already existing plantation groups at bargain prices. As holdings increased, ways to take advantage of economies of scale were sought. The result was a process of estate 'swaps' among the agencies, so that large tracts of land under single ownership were formed, some of them as large as 5-8,000 hectares (Khera 1976). In this process profits were realized as capital gains, tax payments were evaded and the book value raised, in turn

improving the bargaining position of agencies in case of prospective nationalisation policies under Independence. The process resulted in the creation of a small number of dominating plantation companies: In 1974, the five largest companies controlled about 45 percent of total estate area under oil palm, and together with about a dozen of other plantation groups they controlled about 70 percent (Tan Tat Wai 1982).

Rubber faced increasing competition on the world market owing to the sharp drop in prices of synthetic rubber products during the 1960s caused by technological breakthroughs in the petrochemical industry. Prices on natural rubber, although fluctuating widely, followed a declining trend (Pollak 1980). In the following years a large number of rubber estates ventured into oil palms using a state-financed replanting grant as a subsidy to convert former rubber land to more profitable and less labour-intensive oil palms. As the plantation sector was totally dominated by foreign (including Singaporean) capital, oil palm growing was still primarily carried out on foreign-owned estates.

Paradoxically, the centralisation of plantation capital was similar to an increase in the number of locally owned smaller estates and independent smallholdings. This was a result of the same process where foreign owners of relatively small estates sold their land. Through their experience gained in servicing a large number of estates, the estate agencies were in a favourable position to choose among the estates for sale. Those left over were sold to local investors or middlemen ('syndicates'), who divided the estate and resold it as smaller estates and/or smallholdings.

In contrast, neither the pre-colonial nor the colonial period in Ghana generated experience with large-scale plantation cultivation. The Dutch attempted to establish plantations near the coast during the 18th and 19th centuries. Other plantations established by German,

British, and other European interests around the end of the 19th century and in the early decades of the 20th century, particularly after the British colonial government encouraged foreign investment in large-scale plantations and processing mills through specific production incentives in the 1910s and 1920s as a means to revive the palm oil industry. However, the plantation system failed to gain a significant hold, partly because of the internal political insecurity engendered by inter-tribal warfare and by rivalry among the European powers seeking territorial hegemony, and also because of the negative attitude towards the plantation system by the British Crown due to fear that it would cause political instability. From about 1850 onwards, the British gained the upper hand in the European struggle to colonize Ghana (Gyasi 1996).

Despite pressure by external private commercial interests, plantations were not favoured by the dominant British colonial administration. British government advisers argued that the indigenous small-scale peasant farming system was more resilient economically than the exotic large plantations. But the position of the colonial administration was also informed by fear of dispossessing the owners of their land and disrupting the existing small-holder export production system as a result of extensive land acquisitions necessary for the plantations. In particular, they feared precipitating local opposition of the kind provoked by attempted (but aborted) legislation in the late 1890s, which sought to vest in the British Crown all unoccupied lands, forest lands, and minerals (Gyasi 1996). African educated elite (predominantly lawyers) teamed up with the traditional elite (chiefs) to defend the latter's control over all land. Importantly, these court cases had formed an important platform for proto-nationalist, anti-colonial sentiments, which the colonial administration did not want to stoke further (Kimble 1963). This am-

bivalence towards the plantation system was reinforced by an official rejection of the system by the British colonial administration in 1926. Consequently, plantations did not make much impact on agricultural production during the colonial era in Ghana.

Land tenure arrangements

The aborted legislation of the British colonial government in Ghana to take control over 'idle' lands meant that pre-colonial communal land tenure arrangements were left intact. The failure of large-scale plantation cultivation to take hold also meant there were no major forces driving changes in traditional land tenure systems. The land tenure system in southern Ghana has not been static. It has evolved in response to cash crop production by small-holder and small capitalist farmers, but not in ways that favour plantation large-scale agricultural production (Amanor 2001). These changes include the creation of a strategic rent system, which allowed a previous taboo of giving land to 'strangers' (those not belonging to the 'community') to be overcome. As a result, land can be hired from landlords in return for rent, which is paid in the form of a percentage of the crop. Large tracts of land can be leased for long periods of time, such as 50 years (but not generally bought). Because land ownership is fluid, linked to the decisions of the elder of a family (for lineage land) or the chief (for stool land), land titling is not common. Furthermore, there may be multiple claimants to lands, all demanding compensation. In short, land cannot be easily bought and sold. Acquiring large pieces of land involves a long process of negotiations with landowners, chiefs, people on the land, as well as compensation for the land, people on the land and structures on the land. And even after compensation is paid, new claims might arise.

Furthermore, since the colonial administration had not appropriated any large tracks of land, post-independence governments in Ghana did not have ready stocks of land available to use in large-scale agriculture, unlike in neighbouring Côte d'Ivoire (Daddieh 1994). When the post-independent governments in Ghana decided to support plantation production generally, and palm oil in particular, they had to forcefully expropriate land. These forced acquisitions generated serious problems for the large-scale palm oil estates.

In contrast, land alienation in what came to be British Malaya was relatively smooth and without the same conflicts. The British-controlled local Malay states (kingdoms), which owned the land, were anxious to encourage investments that developed the territory (Tate 1996). The Malay landholders were split into two groups: Those holding land under the Malay system and paying a tenth to the colonial authorities and those without any rights to land. The latter were treated as squatters who could occupy the land subject to conditions and decisions laid down by the landlord, i.e. the colonial government. Remaining land was state land that unfettered could be allocated to prospective planters. Initial practical problems with absence of land surveys and remoteness and inaccessibility of land were gradually overcome as the physical and functional infrastructure developed. Further, a system of land grants was replaced by auctions when land prices increased as plantation agriculture were established in the late 19th century. Land speculation was targeted by legal provisions for cultivation of land within a certain time limit.

Degree of societal embeddedness

In Malaysia, and Asia generally, there is virtually no cultural requirement for palm oil in its raw unrefined form. Traditionally coconut oil has been used as a frying medium, and palm oil,

beyond its industrial uses, has no special significance for smallholders. In contrast, oil palm was well known and exploited by indigenes of southern Ghana for many centuries. It is part of the daily life routines forming the basis of their cuisine and social-cultural patterns in the coastal and forest zones. It constitutes the most important source of edible oil. Oil palm fruits were processed into crude palm oil manually in households or by small mills, and the crude palm oil was sold as a commodity used in preparing Ghanaian food. Thus, crude palm oil was not just a cash crop exported to meet the growing demands of the world economy, but also part of the local economy that had always produced to meet domestic needs.

This societal embeddedness of oil palm in Ghana has had important implications for its commercial production for industrial processing. Oil palm trees are often felled before they have reached maturity to make palm wine, a drink of great cultural importance and thus also economically valuable. More importantly, production for domestic consumption is a separate segment of the industry from palm oil produced for industrial use. The domestic consumption segment continues regardless of developments in the industrial segment, but the two can affect each other in important ways, as will be shown. One way is that the industrial and domestic consumption segments of the industry compete for fruits. Another way is that smallholders neglected to adopt the high-yielding oil palm variety that is better for industrial milling (due to its higher oil content), because this variety is perceived to be less desirable for producing palm oil for domestic consumption (Huddleston 2006: 60). And smallholders sell their produce to both industrial and domestic consumption processors, and want to retain the option of selling to the domestic consumption market.

2. INDUSTRY STRUCTURE

Having started Independence with very different industry structures, the palm oil industries in Ghana and Malaysia continued to take divergent paths. This section describes the contemporary industry structures in the two countries. The following sections explain the industry structures by analyzing developments in the post-independence period in terms of state policies and state elite motivations, the integration of smallholder production, implications of market orientation, and collective action among industry actors.

Ghana

The structure of the palm oil industry in Ghana has been shaped by the presence of two different markets: home consumption and industrial use in domestic manufacturing. As a result, Ghana's industry has two sub-sectors which are largely separate. The industrial use sub-sector consists of medium- and large-scale oil palm plantations and mills. It is characterized by more efficient technology, economies of scale, higher productivity on farms (in terms of yields of oil palm bunches) and in mills (in terms of quantity of oil extracted), and by its better quality of crude palm oil as well as further refined palm oil products, which are sold to companies for use in manufacturing. The small-scale sub-sector consists of private smallholder oil palm cultivators, who largely sell their fruit bunches to small-scale mills or household (largely manual) processors. It is characterized by low-yielding oil palm variety, low productivity of farm and mill, and low quality crude palm oil which is sold in the village or at small town markets.

There are four large-scale oil palm plantations that have their own processing mills (which we refer to as the estates), eight medium-scale mills (most of which have small oil

palm plantations), and about 400 small-scale processing units. There are a few palm kernel mills producing only palm kernel oil, which emerged because many estates did not have palm kernel processing capacities in the past. A recent study calculates that small-scale and village mills utilize about 68 percent of the oil palm fruit bunches produced in Ghana (and account for 55 percent of the crude palm oil produced); that medium-size mills use about 12 percent of total fruit bunches, but this is an over-estimation because one of the mills stopped operating; and the large-scale estates use about 19-20 percent of total fruit bunches produced (Ecorys & CDC 2010). The remaining percentage is accounted for by household production, which provides 10 percent of crude palm oil output in Ghana. These are rough estimates, but they give an indication of the general division of production of crude palm oil in Ghana.

The total area cultivated in 2008 was 300,000 hectares, which was a major expansion from the approximately 175,000 hectares cultivated in 2002. Although the large estates have the highest farm productivity, it is low compared to Malaysia. Malaysia oil palm yields 17.6 tons per hectare, whereas large estates in Ghana do not get more than 10 tons per hectare on their nucleus plantations, and smallholder yields can be as low as 2 tons per hectare (Ecorys & CDC 2010). None of the mills currently operate at 100 percent capacity, mainly because of short supply of fruit bunches.

Post-independence governments in the 1960s and 1970s attempted to create large-scale estates, all of which were initiated by the state solely or the state in collaboration with foreign private investors and official development finance. This period bequeathed four viable large-scale estates which were fully or partially privatized in the 1990s and early 2000s. They are Ghana Oil Palm Development Company (GOPDC), Twifo Oil Palm Plantations

(TOPP), Benso Oil Palm Plantations (BOPP), and Norpalm Ghana. The privatization of the large-scale estates resulted in the shareholding majority taken over by foreign companies. Unilever owns completely or has controlling shares in BOPP and TOPP, and runs them using common management. In 2010, Unilever sold BOPP, to another multinational company, as part of its strategy of shedding its production enterprises and focusing on manufacturing consumer goods. Unilever is interested in selling TOPP, but that sale is complicated due to the government still owning shares in the company.

These large-scale estates currently buy about 60 percent of their raw material from sources outside the nucleus plantation. They are trying to reduce this to 50/50 by acquiring land or by improving yields. GOPDC has a large outgrower scheme that was established over decades with assistance from the government and the World Bank. TOPP is setting up an outgrower scheme with government and donor support. All these estates have smallholder schemes where small farmers, usually those displaced by the estate, were given land to cultivate oil palm on the estate's nucleus plantation. Notably, the majority of the costs related to setting up the various outgrower and smallholder schemes were financed by official aid from multilateral and bilateral donors, such as the World Bank, European Union, and French aid agency.

The medium-scale mills are private and were completely Ghanaian-owned until recently. These mills were established in the 1970s and in the early 1980s. Many of these ventures failed. An FAO study conducted in 2006 indicates that at least 4 out of the existing 12 mills were not viable companies, making the requisite profit margins (Owiredu 2006). Only one of the Ghanaian-owned medium-scale mills is really doing well. Notably, this mill is owned by an Ashanti paramount chief who was able to

access concessional financial resources through government-donor projects, which he used to set up an outgrower scheme and upgrade the company's mill. This mill has expanded significantly in size and capabilities, now includes a palm oil refinery and fractionation plant as well as a shea butter plant. The other medium-scale mills do not have large (yielding) nucleus farms, nor do they have outgrower schemes, as these are too expensive and they have not received external subsidies to establish them. The other medium-sized mills rely dominantly on buying from private smallholders. Their mills have a much lower extraction rate because they rely largely on buying from private smallholders who grow an oil palm variety that has lower oil content and because they use less efficient technology than the estate mills (Owiredu 2006; Ecorys & CDC 2010).

In the last few years, foreign investment in palm oil mills increased, and a few new mills (either foreign or domestic investment, or both) are being built. The recent interest is attributed to the high price of crude palm oil and surging interest in oil palm for biodiesel. As these investments and developments are in process and take several years to come on board, they were not part of the research for this study.

Smallholder oil palm farmers straddle the two sub-sectors of the industry. There are three categories of smallholder producers: (1) small farmers who participate in outgrower schemes and are under contractual agreements to deliver to a particular mill; (2) small farmers who operate on land owned by the large estates (as a gesture for being displaced by the estate) and are independent producers who often sell their crop to traditional processors or process small quantities of oil themselves; and (3) small farmers who operate on land near large estates and medium-sized mills who choose between selling to the modern mills or to the small village mills.

Medium and large-scale mills sell to a small number of industrial companies, although Unilever was the dominant buyer until recently. Unilever's factory in Ghana produces a large range of consumer goods marketed in the West African region. Unilever, PZ Cussons, Ameen Sangari and now GOPDC have refinery and fractionation facilities. There are a few other buyers of crude palm oil who use it in manufacturing soaps and other products. The volume of crude palm oil produced in Ghana is not enough to meet the needs of these factories, which thus also import crude palm oil or substitutes for it. Small quantities of crude palm oil are exported to European and US niche markets such as ethnic foods or organic palm oil.

Malaysia

The agricultural segment of the Malaysian palm oil industry is dominated by plantations operated through basically similar operational principles but of a very varied nature in terms of size, ownership, purpose (profit or socio-political concerns) and linkages to processing segments (milling, refining, etc.). During the expansionary phase up to 2000, most of the plantations were controlled by state capital, barring a few notable exceptions controlled by foreign capital.

Most of the mills in Malaysia are located in the main producer regions on estates or in connection with resettlement schemes, because processing needs to take place before 24 hours after harvest. According to available statistics for 1988, 45 mills were located on estates and 58 were located in connection with resettlement schemes (Dept. of Statistics 1988; FELDA 1988). The remaining 119 mills in Malaysia were operated and owned by so-called 'independent' millers; either by smallholder and (local) state organizations or linked to comparatively small private estates. This structure

in the primary processing industry leaves little room for intermediaries, as transactions mostly are carried out as intra-company trade. Private dealers or Farmer's Organizations were only important in areas where smallholdings under oil palms are common (Thiran 1984).

In the secondary processing segment (the refining industry) crude palm oil is manufactured to various consumer goods and intermediate goods for further processing in the food and chemical industries. The technological development in the Malaysian oil milling industry (the primary processing segment) resulted in improved process control and therefore in higher quality of the crude palm oil. Since the start of the refining industry in the late 1960s, most crude palm oil has been sold subject to a contract, usually one issued jointly by the two producer organizations for plantations (MOPGC) and millers (PORAM). The contract specifies the volume, time and location of deliveries and the maximum level of various impurities. Higher quality of crude palm oil within narrow specifications reduces processing costs and increase stability and quality of secondary processed goods. The contract system has worked well and eased commercial transactions between mills and refineries.

Already in 1974 approximately 30 refineries were approved and within two years 15 of these were in operation soon to be followed by more so that in 1981 the number of refineries was 49 (Business Times 1989/90; Iftikar Ahmad 1984). They were primarily located near harbours in the major palm oil producing states, but at this initial stage in the development of the industry location advantages did not matter significantly. Consequently, a considerable number of refineries were located in provincial inland cities or even in rural areas close to ownership-related plantation and milling activities that partly covered the supply of crude palm oil. Tax-related location benefits, development of state-financed industrial es-

tates with efficient supply of utilities and basic infrastructure were provided as part of state policies promoting decentralized industrialization (Cho 1990).

Capacity increased in 1985 by nearly 1.0 million tons due to revitalization of some of the old refineries and again by impressive 2.7 million tons up to a total of 8.1 million tons in 1986. The expansion was a result of a dramatic change in the mid-1980s when the large plantation companies, now under control by Malaysian parastatals, wanted to expand downstream in an effort to control marketing of the agricultural product – almost a decade after the bonanza of the refining industry. At the end of 1989, 37 refineries in operation represented a total capacity of 9.3 million tons – corresponding to more than 50 percent excess capacity compared to crude palm oil production that year (PORLA 1989).

No restrictions were put on new entrants and many of the existing refineries were taken over, revamped and expanded. The ability to process a broad spectrum of palm oil products made it easier for some of the refineries to venture into the manufactured fats industry (cooking oil, margarine, vanaspati, shortenings, soap, etc.) by investing in equipment for hydrogenation, inter-estification and blending of oils. These products were primarily directed at the domestic market as similar processing capacity existed in most of the potential markets and marketing in terms of brand names is crucial.

Whereas technological requirements and investment costs are relatively low for downstream expansion (including both production of palm kernel products and consumer fats), activities in the speciality fats industry is more demanding in terms of technical expertise. Speciality fats are used in the chocolate-based confectionary industry as these fats have sharp melting behaviours and a low solid fat content at body temperature. According to the tech-

nical abilities of the refiner and specifications from the industrial end-user a number of palm oil products are usable as raw materials. Finally, the oleochemical industry emerged in the mid-1980s as a sector of importance. Technology in the oleochemical industry is described as proprietary: it is based on in-house research and development, and prospective partners outside the industry have no means to appraise the standard and price of imported equipment. Oleochemicals are used in the chemical industry (detergents, varnishes, paints, coatings, etc.), and it is estimated that 90 percent of the market is in the industrialized countries (MIDA/UNIDO 1985; Mohd. Salleh Kassim 1984; Ong & Santhiapillai 1988). The sector is far more capital-intensive and technologically advanced than the other sectors' downstream secondary processing. Only five plants started operations in the early to mid-1980s, mainly producing the most simple oleochemicals (fatty acids, fatty acid methyl esters and glycerine, the latter being a by-product), but approvals were given to new factories and after a slow start the oleochemical industry has experienced a substantial expansion.

3. STATE ELITE MOTIVATIONS AND POLICIES TARGETING THE PALM OIL SECTOR

What motivates state elites to target certain industries, why do they choose the policies or approaches they do, and how well are those policies implemented? These are key questions regarding the making of industries, and their answers in the two countries explain a lot about the divergent paths. Conclusions arising from the following comparison point to the importance of how sections of the ruling elite link industry initiatives to political strategies of maintaining power in ways which support (rather than undermine) the dynamism of the

industry, and to the importance of the coherence (or fragmentation) of policies and initiatives targeting the industry and learning.

Ghana

At Independence in 1957, Ghana was a net importer of palm oil, as production could not keep up with domestic demand. Across the decades, and up to the present, the motivations of state elites for supporting palm oil production were primarily about reducing pressures on foreign currency reserves caused by huge import bills. The specific policies targeting the sector have frequently and abruptly changed, often with the change of government and ruling elites in power. This situation is in contrast to the more gradual evolution of policies based on learning from experience in Malaysia, albeit Malaysia experienced more political stability and continuity of the ruling coalition in power than Ghana experienced.

The first independent government of Kwame Nkrumah actively sought to promote large-scale plantations and modern processing of palm oil. It encouraged foreign private investment, but with very few results after five years. Daddieh (1994) argues that it was Nkrumah's ambivalence towards large-scale private capitalist farming that prevented Ghana from rapidly expanding production of oil palm through mobilizing international capital and using contract farming of smallholders, as its neighbour Côte d'Ivoire did. How committed Nkrumah was to attracting private capital in the early years of his government is still contested, but after 1961 it is clear that Nkrumah made a sharp change in economic policy across the board towards state capitalism. He sought to transform local farming, manufacturing and trading systems through the creation of state farms, factories and trading companies. The Ghana State Farms Corporation took over management of four existing oil palm estates

and expanded them and established new mills. The land for state oil palm plantations was acquired compulsorily, and land owners were not compensated, as Nkrumah said it would bring jobs to the area. The Workers Brigade was created from youth in the oil palm growing areas to engage in production of oil palm fruits for sale to the mills, and as a source of rural employment.

Some observers refer to Nkrumah's agricultural strategy in general as predicated on creating a 'public sector peasantry', rather than creating conditions for the emergence of agrarian capitalism, whether foreign-dominated or domestic (Daddieh 1994: 194). Nkrumah's economic policies were also part of political strategy. Having weakened the existing political opposition, state control over the economy was an attempt to keep new political opposition away from an independent economic base. This strategy was possible because there was no large and economically powerful entrepreneur class with which Nkrumah might have been compelled to negotiate.

The state-owned estates were poorly managed, but they were also not given enough time to (literally) bear fruit. Nkrumah's government was overthrown in early 1966. The next two governments (1966-1972) tried to privatize the estates, but no private investors wanted to buy them because they were not yet profitable (Foli 2010). Although keeping the estates under state ownership, the Busia government (1969-72) changed the management of the estates for political reasons (scepticism of the political loyalty of the managers). Similarly, the government kept the Workers Brigade, but renamed it. The state-owned oil palm plantations at Sese and Pretesea were deemed profitable, and thus supported financially by the government to improve its efficiency. In short, there was no real change in government strategy during this period, but

neither was there much expansion in the sector.

Palm oil production continued to decline until about 1970, after which there was a rapid expansion. The Acheampong government (1972-1978) renewed the zeal to expand oil palm cultivation and processing, driven mostly by the need to reduce import bills due to limited foreign exchange. In general, the government's strategy was to aim for self-sufficiency in major commodities such as palm oil and rice. In 1972, domestic production of palm oil was meeting only 43 percent of industrial processing and local consumption needs. The increase in demand was due to the expansion of the factory established by Lever Brothers Ghana Limited (Unilever) in the 1960s which used palm oil as its main raw material.

The Acheampong government pursued several strategies in order to promote rural industrialisation, which affected the palm oil sector. One was to rehabilitate and expand state farms and mills. Another was to finance enterprising individuals who wanted to set up various types of processing activities. A number of medium-sized palm oil mills were set up in the 1970s, located in high-volume oil palm cultivating areas, by local businessmen with the help of favourable loans from state-controlled banks (Fold 2003). The mills were often established by former politicians or civil servants with knowledge of oil palm. By the 2000s, many of these mills (as mentioned earlier) were not viable, had been written off by the state-owned banks and sometimes neglected by their owners. A few medium-sized oil mills were set up a bit later, including the one by the Ashanti paramount chief that is doing well (see above).

Another strategy was to enter joint ventures with foreign firms operating in Ghana. Foreign firms were not allowed to repatriate dividends due to controls on foreign exchange, but if they invested in agri-business, they would be allowed to repatriate some. A fourth strategy,

complementing the previous one, was to seek funds through official development assistance. The result was the creation of several new small state-owned and -managed estates and three large-scale estates run with foreign private management and consisting of a palm oil mill, nucleus plantation, smallholder scheme and outgrower scheme. The estate companies had huge tracts of land (4-5,000 hectares) in the area around or nearby state oil palm plantations. BOPP was established in 1976 as a joint venture between the government and Unilever. GOPDC was established in 1977 as a wholly government-owned estate, but it received substantial financial, technical and managerial support through World Bank loans over the next 15 years. And TOPP was established in 1977 with capital borrowed from the European Union, Commonwealth Development Corporation, two foreign private companies operating in Ghana (PZ Cussons and Mobil), and a state-owned bank.

These large joint-venture estates and state-owned oil palm plantations were created on land forcefully expropriated by the state. The expropriation caused serious problems in some cases, leading to land litigation, protests by peasant farmers and delays in getting the large estates operational. This issue will be discussed further in the next section on integration of smallholder production. The fact that land had been expropriated also became an issue when the government in power in the 1980s and 1990s sought to privatize the plantations and estates, as we now discuss.

In the 1980s, there was another change in economic policy generally, and in policies targeting the palm oil industry in particular, not long after the large estates had become operational. The Provisional National Defence Council led by J.J. Rawlings came to power in a coup at the end of 1981, in the context of severe economic decline in the country. By 1984, it began implementing a structural ad-

justment programme with the IMF and World Bank. The new strategy was to privatize the state farm sector, including government ownership of oil palm plantations and mills. The state-owned and -managed farms had proved generally uneconomically, since the time of Nkrumah, due to capital constraints, political interference, poor management and the rigidity of state economic controls put in place due to chronic macroeconomic imbalances which began around 1964 (Gyasi 1996). The only state-owned plantations that looked viable were the ones at Sese and Pretsea, which were incorporated as the National Oil Palms Limited in 1984. This estate, along with the three large estates with government ownership created under Acheampong, were seen as potentially profitable. The government encouraged them to improve their productivity and sourced capital for them from private sources and donor funds. The newer three estates became profitable by 1991 (Foli 2010).

With the improved productivity of the palm oil estates, privatization of state-owned oil palm plantations and estates began in earnest under the National Democratic Congress government, which succeeded the technocratic-military government after democratic elections in 1992 (and was very similar in composition to it, such that Ghanaians refer to the PNDC/NDC period which lasted from 1982 through 2000). The process began in 1994 and lasted well into the 2000s. The four large estates were privatized in several waves. In 1994, the government sold 80 percent of its shares in GOPDC to SIAT Ghana consortium, which consisted predominantly of SIAT Belgium, which was given management control, and two Ghanaian investment companies. In 2008, the government offloaded the remaining 20 percent of its shares on the Ghana stock exchange. In 1997, the government sold 40 percent of its shares in TOPP to Unilever, giving it management control. To this day, the government still

has 40.5 percent stake in TOPP. In 2004, the government offloaded all of its shares in BOPP on the stock exchange, and Unilever bought 58 percent of the shares. BOPP and TOPP are now managed jointly by Unilever. The National Oil Palms Limited was sold in 2000 to Norpalm AS, a company from Norway. The smaller state-owned plantations and mills were bought by Ghanaians or by the large estates as a way to expand. The purchase of the estates by private investors led immediately to investments in replanting old trees, upgrading mills, and new technology and practices.

In general, during the divestiture process, the state oil palm plantations were 'returned' to the Traditional Councils (chiefs), which govern rights to land in southern Ghana. Since the government had never paid for the lands, the Traditional Councils wanted the lands to be returned to them. In at least one case, a medium-sized mill bought a state farm, but the surrounding community regarded it as their land and challenged the acquisition. In the end, the land was 'sold' to the Traditional Council of the community.² In another case, the head of the Traditional Council was the owner of a medium-sized mill, and he was able to acquire and use the plantation for his mill company.

The coming to power of the New Patriotic Party (NPP) in 2001 marked another shift in policy towards the palm oil industry. The NPP government wanted to support the expansion of oil palm cultivation and palm oil processing, citing the large unmet demand in Ghana and the large markets in the West African region. The policy was shaped by a small group within the ruling party centred on the President and became one of four Presidential Special Initia-

2 Official data from the Divestiture Implementation Committee indicates that the Traditional Council paid for the farm, but these numbers are often what is pledged, and official data on what was actually paid is difficult to access.

tives aimed at creating new pillars of growth. The oil palm initiative in particular aimed at building rural industry, creating rural employment and empowering smallholder farmers. It was not designed in close collaboration with industry players, and it largely ran parallel to the industrial sub-sector of the industry both in design and implementation. It aimed to increase production of smallholder farmers and to create farmer-owned enterprises where farmers had a stake in mills but capital and management was brought in by a 'strategic investor'.

This approach was partly shaped by past experiences. Expropriating land was not an option, given the political problems it had caused in the past and given ongoing land litigation after privatization of the large estates. Thus, an approach like the FELDA scheme in Malaysia (see below), where the state is able to create palm oil estates (plantations and mills) on large tracts of contiguous land, where small farmers are settled and required to farm a small tract under supervision of state-led management, was not feasible. Instead, the NPP government tried a slight variation, where landowners were asked to contribute land within a certain radius that could be used for a group of farmers to cultivate oil palm, and ultimately both landowners and farmers would constitute a palm oil processing company together with a strategic investor who finances and manages the palm oil mill. Landowners and farmers would have shares in the company through their contribution of land and labour. Existing large and medium estates/mills were expected to participate in the state-run scheme on the state's terms, and to allow farmers and landowners to have shares in their company. This was rejected, and some existing estates participated in the Initiative, but only in terms of operating a nursery for oil palm seedlings to be distributed to the small farmers in the state-run scheme. The existing processors preferred that any approach to expanding oil palm cultivation and processing

capacity be done in collaboration with them, and at the least include linking smallholders supported by the state to existing mills. The design of the Initiative was largely informed by political imperatives. Helping a large number of smallholder farmers, and doing so in a way that the government could take direct credit, scores a lot of political points that politicians can 'cash in' at election time.

The Initiative was implemented by political appointees and largely autonomous from the Ministry of Trade and Industry and the Ministry of Food and Agriculture. Implementation was under-funded, as a result of the ruling elites' inability to prioritize this Initiative above the myriad of other claims on the budgets' other resources and internal power struggles within the ruling elite. It was also poorly managed, due to conflicts between bureaucrats and ruling elites and the absence of strong administrative structures. In 2006, the Initiative largely stalled due to lack of funds, and thus it did not achieve much of its ambitious goals. It did expand oil palm cultivation by smallholders by 30,000 hectares, but it did not continue to support farmers through the whole three year investment period (before trees begin yielding fruits) and thus many farms were not kept up. The real contribution is estimated at 10,000 hectares. These new plantations were planted with the high-yielding variety, so they should produce more fruits, but the farms have not been kept well, which will reduce the yield.

The first decade of the 21st century has been characterized by policy fragmentation. This fragmentation was not the result of a change in government after elections in December 2008, as the fragmentation was set in motion before the change in government and continued after the new National Democratic Congress government took over in January 2009. Rather it is a result of weak state organization where groups of politicians or groups of donors support new initiatives without linking them to-

gether or learning from past experiences. In the 2000s, there have been three government initiatives on palm oil organized by three different state institutions with no connections to each other. The Ministry of Food and Agriculture, in collaboration with donors, is supporting a large outgrower scheme for TOPP. The Presidential Special Initiatives (PSI) Secretariat was in charge of implementing the oil palm PSI described above. And the Micro, Small and Medium Enterprises project funded by the World Bank and implemented by a separate project unit positioned within the Ministry of Trade and Industry has paid for value chain studies, including one on palm oil with an eye to creating interventions in that industry but with no linkages to what the PSI did or is currently doing, even though the PSI portfolio has now been moved to the Ministry of Trade and Industry. Likewise, it seems that industry actors have been only marginally involved with this latest initiative.

Lastly, the public research institution specializing in oil palm has been seriously neglected over the years and is a very weak institution. The Oil Palm Research Institute is supposed to provide seedlings and technical assistance to small farmers. The oil palm PSI sought to strengthen the Institute by increasing funding for it to produce improved seed nuts and germinate them into seedlings for PSI nurseries and eventually given to smallholders. However, large estates complain that the quality of seed nuts is still not good enough, so they source outside Ghana. It is argued that the PSI initiative did not support the Institute long enough for it to have really upgraded seeds. In sum, there is no strong institute providing research and development services for either the industrial or the small-scale sub-sectors of the palm oil industry in Ghana.

Malaysia

In Malaysia, a number of agricultural policies were gradually developed by the colonial government towards the rubber sector. These were important milestones as they re-appeared in various forms later in policies targeting the palm oil sector. Firstly, a flexible export tax served to fuel colonial state revenue and smooth out producer revenue, as the tax was at a relatively high level in boom periods and reduced in bust periods, hence reducing the transfer of international instability to the local economy. Secondly, a duty introduced in the 1920s financed a research institution for rubber, ranging from breeding over agricultural practices to research in new end-uses. The research institution was established on the initiative of the estate sector itself, frightened of a repetition of their Ceylon-tragedy. In the 1950s policies were broadened to include a scheme for replanting of old rubber plantations. Furthermore, pressed by the Malay and Chinese nationalist organizations and against the background of the Communist Insurgency initiated after the Second World War, the colonial government opened up the scheme for rubber smallholders. Several problems were encountered in the administration owing to the different cropping pattern and fragmented nature of holdings, and the smallholders did not gain proportionately from the scheme compared with their contributions. But the overall effect was unmistakable in terms of increased productivity emerging in the late 1950s as new high yielding varieties matured for harvest (Jomo Sundaram 1988; Jenkins & Lai 1989).

After Independence state power was taken over by a coalition of parties representing the three major ethnic groups, but with the Malay-party constituting the leading core. Throughout the 1960s efforts to increase income and eradicate poverty among smallholders were stepped up, primarily in the form of an increasing commercialization of production (Shand

& Mohd. Ariff Hussein 1989; Mohd. Halib & Zahid Emby 1988; Jesudason 1989). Physical infrastructure was improved and efforts to establish new institutions were gradually started within the fields of advisory services, provision of credit, supply of agricultural inputs (seed, fertilizer, pesticides, etc.) and marketing of crops. In the major paddy-producing areas, large-scale public investments in irrigation programs prepared the way for double-cropping with high-yielding paddy varieties. In non-paddy areas, fringe land of existing rural settlements was transferred on a trial basis by various organizations to estate-like production of export crops, primarily rubber. The rural population was gradually accustomed to wage labour in these new 'in-situ' development projects, as possibilities for money income were created by harvest and maintenance tasks. And new settlement schemes for landless rural households started large-scale cultivation of rubber trees and oil palms on virgin land. The settlers were provided with housing facilities and title to land within the organizational framework of FELDA, the Federal Land Development Authority (see below).

Besides raising the level of income among rural smallholders, agricultural policies were directed towards a diversification of the economic base (Hasan 1980; Cho 1990). Rubber entered a prolonged price decline in the early 1960s, owing to competition from petrochemical substitutes. New policy measures to change the slender export base consisting of rubber and tin were implemented. Large-scale agricultural diversification was stimulated by including the transfer of former rubber land to oil palm in the rubber replanting scheme. This subsidy, in addition to perceived high export taxes on rubber, lower labour intensity in oil palm cultivation and higher returns per hectare, resulted in rapid expansion of estate land under oil palm and a decreasing share of Malaysian rubber being produced by this sector. A

major boost to total land under oil palm was the decision made by FELDA to base future settlement schemes on oil palm cultivation (Tunku Shamsul Bahrin & Lee Boon Thong 1988).

However, in the rural areas benefits from the 'modernization' seemed to ooze away from the broad masses of Malays (Mohd. Halib & Zahid Emby 1988). Only peasants holding comparatively more land than the majority of smallholders were able to obtain institutional credit for investments in land and agricultural inputs, increase production and use the improved marketing facilities. The large mass of smallholders held too small areas of farm land to obtain substantial credit under the ruling conditions.

Ethnic and social conflicts culminated in extensive urban riots shortly after an election in 1969 – a turning point in the modern history of Malaysia (Gullick 1981; Andaya & Andaya 1982). For the new government, still centred around the dominating Malay party but now based on a coalition among several political parties, a primary objective was to preserve political and social stability in the country by improving the living conditions of households belonging to lower social strata. Contrary to political practice so far, state power was chosen as the central instrument for the future economic and social transformation-process of the Malaysian society.

The objectives and new policies were formulated in the framework of a 'New Economic Policy' (NEP). Basically, NEP is an ethno-social superstructure on an export-oriented industrialization strategy. NEP consists of two basic objectives: firstly, to reduce poverty and secondly, to reduce social differences between ethnic groups. Both objectives were scheduled to be achieved by economic growth based on expanded state participation in the economy and reorientation of the industrialization strategy in favour of manufactured ex-

ports, respectively. In practice, the two general objectives were pursued by two different sets of policies, one directed primarily towards agricultural/rural development and the other directed primarily towards industrial/urban development. Reduction of poverty was carried out through development programs aimed at poor households, which in practice primarily meant poor Malays in rural areas. However, new forms of policies were not identified, but rather old acquaintances from the Colonial period were intensified and streamlined (Drury 1988). Firstly, access for smallholders to credit and alternative marketing channels were improved. Particular emphasis was put on the development of Malay-controlled institutions that circumvent the Chinese commercial middlemen who dominated the retail trade in rural areas. In addition, subsidies to paddy farmers were expanded substantially in the mid-1970s (Jenkins & Lai 1989).

Secondly, the above-mentioned resettlement programs were intensified, absorbing an increasing number of poor (Malay) households and enlarging the cultivated area of export crops. And activities of other organizations that offered services to existing villages in connection with transformation of fringe land to plantation-like production of export crops, primarily oil palms, were increased.

While the poverty reduction objective was primarily reflected in state-financed activities in rural areas, reduction of social differences between ethnic groups has been a major issue of state regulation of the urban industrial sector. Firstly, the government pressed for industrial employment of more Malays in all positions, ranging from unskilled workers to technical and administrative managers. Secondly, equity shares were to be distributed according to specified targets – by 1990, 30 percent should be held by Malays, 30 percent by foreigners and 40 percent by other Malaysians (Chinese and Indians). In order to fulfil the NEP objectives,

state capital was pumped into the economy, fuelled by booming revenue from exports of newly discovered mineral oil. Parastatals started to buy up shares in existing companies with activities in the agricultural, industrial and financial sectors. Within a couple of years state capital had taken over a number of major manufacturing companies, gained control over the tin mining industry, and acquired substantial interests in the financial sector.

The private, foreign-owned estates became one of the primary targets, and state capital took over major plantation companies one by one. By the early 1980s state capital virtually controlled the whole estate sector (Chee Peng Lim 1985; Lim Mai Huh 1985). Thus local ownership was increased: By the end of 1988, the locally owned share of oil palm hectareage was 93 percent (Dept. of Statistics 1988). The change in ownership did not change the highly commercial orientation of the plantation companies but paved the way for the entry of politically allied Malays in estate and company management, thus strengthening the link between policy decisions by government and commercial practices in an agricultural sub-sector with heavy impact on national economic and political development.

4. INTEGRATION OF SMALLHOLDER PRODUCTION

To what extent is smallholder production integrated, how is that achieved, and how is it legitimized? In Ghana, there is virtually no interaction between the small-scale and industrial sub-sectors, outside of outgrowers and smallholders on nucleus plantations, and some small farmers cultivating near the four large plantations. Connecting these filaments would provide the industrial processors with the needed additional supplies of crude palm oil. In contrast, smallholders in Malaysia are

tightly integrated into a single industry filament.

Malaysia

The share of independent smallholders in Malaysia is modest compared to those that are attached to different public schemes. A common feature is the attempt to gather a number of smallholders under an estate-like form of organization, capable of exploiting the economies of scale related to plantation operations. However, the schemes are organized in different ways and the degree of centralized control of operations differs from scheme to scheme (Barlow 1986; Malek Mansoor & Barlow 1988; Khera 1976).

Already in the early 1960s (local) state schemes were established in connection with existing villages. Fringe areas close to villages were allocated by local authorities, but support was limited to clearing of land and provision of planting materials and other inputs. Due to a high rate of failure it was soon realized that more substantial support in a stricter institutional setup was needed. A federal institution, FELCRA (the Federal Land Consolidation and Rehabilitation Authority), was established in 1966 to rehabilitate failed state schemes and expand similar activities in other villages. Support included agricultural extension, marketing services and even establishing of milling facilities in regions with extensive FELCRA activity. In 1977 the share system was introduced and adopted on nearly all FELCRA schemes. Under this system dividend from net proceeds are paid out to the landowners (smallholders). Practice showed that maintenance and harvesting were increasingly carried out by hired labour instead of the smallholders themselves. In the share system, FELCRA hires labour for various activities and organizes transport and marketing. Thus, in essence smallholders are now receiving a rent from their land. State

schemes in the original form were abandoned in the mid-1960s and succeeded partly by group smallholdings organized in a similar way as smallholders within FELCRA and partly by commercial estates based on hired labour at standard wages but no other benefits provided. These latter plantations are established to finance other state development projects and not in order to alleviate poverty among rural dwellers or landless rural labourers.

Of minor importance in terms of acreage are schemes under the guidance of RISDA, the Rubber Industry Smallholders Development Authority. Within the framework of this institution, oil palms are grown in large estates managed by RISDA but with clear welfare goals: Employment is offered to former and present rubber smallholders in the surrounding area and owners of land are paid a monthly payment during immaturity and dividends from net proceeds of fresh fruit bunch (ffb) sales. In the early 1980s, mini-estates were established on consolidated areas of former independent rubber smallholdings. In both types of estates, land is cleared and planted by contractors hired by RISDA, and management and marketing is also in the hands of the institution. Due to their location on fringe areas near to existing settlements, schemes of the above types are usually of the size of small estates, about 200-500 hectares, but a few larger plantations of about 1000 hectares or more are found as well.

Generally, supervision and control by the central public body have developed from loose to more tightly structured systems (Malek Mansoor & C. Barlow 1988). Local smallholders are only involved in the projects as providers of land and receivers of dividends, whereas management and marketing operations are carried out by a public body. Thus, all types of schemes are taking over 'normal' estate practices concerning organization of production. But the same efficiency and economics of scale

are not obtained, owing to the relatively small size of plantations and a relatively lower level of management capability. In this perspective, activities by these public bodies on behalf of the smallholders serve as a means to distribute welfare in the form of money subsidies to certain rural target groups. The struggle for state subsidies in the form of plantation activities embodied in different institutional setups becomes an imperative for all local communities wishing to remain in their traditional surroundings. At the same time in government policy, schemes are an important means in government policy to reduce urban migration and gain political support.

Of decisive importance in the overall picture of group smallholdings are the resettlement schemes within the organizational framework of FELDA (mentioned above). These schemes are located relatively far away from existing rural villages and consist of urban settlements in connection with large newly established plantations on soil and topography of secondary suitability compared with the well-established private estates. The welfare objectives of FELDA have been unchanged since the inception of the organization, namely to resettle landless or almost landless rural families in schemes where basic amenities such as housing, water, health care, etc. are provided.

FELDA started operations in 1956, providing funds to local state resettlement projects for landless peasants, but already in 1960 FELDA took over as an implementing agency at the federal level. Failures were already visible in the organization of the early schemes, all of which were based on allocations to individual settlers of land for rubber trees. From 1962 oil palms were planted at FELDA schemes, thus increasing the need for centralized management of production at scheme level. Over the years, FELDA developed a 'package approach' to the establishment of new schemes. Virgin land was cleared, roads in the new village as well as plan-

tation areas were constructed, water and electricity supplies were installed, standard houses built, and palm or rubber seedlings planted. All these operations were carried out by private contractors hired by FELDA (Khera 1976). Costs of basic infrastructure in the settlements as well as of administration and management were covered by allocations from the federal development budget to FELDA. But costs related to the establishment of plantations, maintenance of oil palms in the initial phase, housing and site development, and subsistence allowance to settlers during the maturity period were paid back by the settlers over a 20-year period. The period could be extended if incomes dropped seriously owing to sharp declines of the palm oil price on the international markets. Production in FELDA schemes was organized in a relatively well-structured hierarchy very similar to that prevailing on private estates – and even similar to that of classical Malay society (Sutton 1989).

The pattern and structure of individual settlements changed considerably with a trend towards larger complexes, encompassing several schemes but with only one village or urban settlement, in which all settler families live. Individual schemes of about 400-500 families and 1600-2000 hectares were replaced by complexes of about 1,000-2,000 families and 4,000-8,000 hectares developed in successive phases. Moreover, the regional pattern of schemes changed. Early schemes were distributed in a scattered manner, whereas newer schemes or complexes (a cluster of adjoining schemes) were located in regional concentrations even constituting virtual regional development programs. This concept was also pursued from the outset in oil palm expansion in Sabah, i.e. the Sabahat complex covering slightly more than 100,000 hectares (Sutton 1989).

The development of the resettlement programme was impressive in pure quantitative terms: By 1988, 441 schemes had been

established totalling a cropped area of about 750,000 hectares, of which two thirds were planted with oil palm (FELDA 1988). In the early 1990s, FELDA became the single biggest agent in the oil palm growing part of agriculture.

Ghana

In Ghana, smallholder production is not well integrated into the industry structure, due to the fact that smallholders straddle the two industry sub-sectors. Another reason that smallholders are not well integrated has been the challenge of legitimizing their incorporation. Unlike its neighbour the Côte d'Ivoire, the Ghanaian state did not have the luxury of making use of land already expropriated from peasant households by the colonial state for the purpose of establishing large plantations (Daddieh 1994). Immediate post-independent governments tried to expropriate land owned by village communities and peasant households and were resisted by lawyers representing the chiefs and families of affected villages. The government incurred considerable costs, legal delays, violent reactions by landlords, and high compensation bills. The very legitimacy of the government was called into question.

All of the three estates created under Acheampong's government (1972-78) were plagued by land litigation, which resulted in some of the land expropriated not being used (Huddleston 2006). Smallholder schemes on nucleus plantations were established as means to legitimize the presence of the estates by incorporating those who had to be resettled into its production. For example, the smallholder scheme created at GOPDC that provided to local residents rent-free, assuaged some of the anger aroused by land expropriation, but the local residents never really forgave the government or GOPDC (Huddleston & Tonts 2007). TOPP also created a smallholder scheme in the

early 1980s, but it was fraught with problems and was abandoned. BOPP did not create a smallholder scheme until the mid-1990s, but it has been successful and still exists. Norpalm now has a very small smallholder scheme which it sees as 'corporate social responsibility'.

Outgrower schemes also served the dual purpose of expanding raw material and bringing benefits of the estate to the surrounding villages and thus legitimizing the estate and rationalizing their incorporation into production for the industrial sub-sector. Outgrower schemes also involve the provision of high-yielding seedlings to outgrowers, along with agronomic advice and the application of fertilizers and other inputs and services. The costs of these things are then added to the individual outgrower's account, and will begin being repaid after a certain period. Given the extension service, collection and monitoring involved, outgrower schemes are costly. In addition, despite monitoring, outgrowers can (and do) sell their fresh fruit bunches to small processors in the villages or to other estates (whoever offers the best price). The outgrower schemes that exist were subsidized in their creation with donor funds. Estates not benefiting from such donor subsidies are not interested in setting up outgrower schemes, because they cost a lot, and those costs will not be recouped if outgrowers sell their fruits to other buyers.

Smallholder farmers will sell their fruits to the highest bidder. Thus, even outgrowers who have received loans and assistance from estates, will sell to other estates or to small-scale processors if the spot price is higher. In areas where there are several estates in close proximity, competition for fruits is intense and has led to price wars between the estates as well as with local buyers for the home consumption sub-sector. In these areas, setting up outgrower schemes is seen as suicidal. Farmers often perceive that they are exploited by the estates, although this cannot be true in recent

times when farmers are benefiting from price wars between the large estate. Furthermore, estates are trying to win farmer loyalty among outgrowers and private smallholders through a variety of non-price mechanisms. Some estates have formed links with farmers supported under the oil palm PSI, but mostly there are no formal links. Many estates know who the PSI farmers in their area are and are keeping an eye on them.

5. IMPLICATIONS OF MARKET ORIENTATION

The two country cases illustrate that there are important links between market orientation (global or domestic) and incentives for processing and upgrading generated.

Malaysia

The Malaysian palm oil sector was born export-oriented, and the development of the processing industry is clearly visible in the composition and direction of exports. In 1977, soon after the establishment of refining capacity, the exported volume of processed palm oil surpassed that of crude palm oil, and already in the early 1980s the latter was of no significant importance in total exports of palm oil products. Up to 1970 palm kernels were exported without further local processing but exports of palm kernel oil and palm kernel cake took off in the mid-1970s and increased substantially in the 1980s; palm kernels have not been exported since 1979.

Furthermore, the composition of processed palm oil products has changed, reflecting the development of production technology: Exports of basic refined products have gradually developed into more advanced fractionated products such as palm olein and stearin. Exports of palm kernel oil have changed in com-

position as well. Up to 1983 only crude palm kernel oil was exported (Ong & Santhiapillai 1989) but since then the importance of crude palm kernel oil in exports declined markedly, and already by 1991 nearly two thirds (in volume terms) of palm kernel oil exports consisted of processed products. In addition, exports of further processed palm oil transformed into consumer goods started, such as soap, margarine, vanaspati and other prepared edible fats. Exports of oleochemical products (fatty acids, glycerine, etc.) also expanded after the establishment of oleochemical plants in the early 1980s, and export earnings increased steadily during the 1980s.

The diversification of palm oil exports was not limited to the structural composition of processed products. Substantial changes in markets took place at the same time. From a situation initially dominated by exports of crude palm oil to the USA and the European Economic Community, exports of processed palm oil products have become more and more dependent on demand in developing countries, primarily in the Middle East, South Asia and East Asia. In the mid-1970s about 25 percent of total palm oil exports were directed to the South. But during the following decade (although primarily in the first five years) the situation was almost reversed: In the late 1980s about 75 percent of palm oil exports were directed towards developing countries. The shift in market orientation was closely related to the establishment and expansion of the Malaysian palm oil processing industry. On the one hand, existing markets in the North were difficult to expand downstream, owing to protectionist measures and slowly growing demand (Matthews 1985; ITC 1990). On the other hand, new markets were only possible to penetrate with partly or wholly processed oils and fats products. Individual countries had a significant importance in this development, in particular India, Pakistan and China, who generally

liberalized imports and entered into bilateral trade agreements with Malaysia. These agreements included vegetable oil, a basic consumer good insufficiently produced domestically in the countries. However, it is indicative that Malaysian palm oil products were exported to about 70 countries, most of them developing countries, indicating the broad and geographically dispersed market for exports (PORLA 1990).

A major cause behind the quick diversification of exports was that minimum public quality requirements were defined in the PORLA (Quality Control) Act. Samples from exports were gathered and analyzed by PORLA to increase consciousness in the industry about the need to meet contractual quality requirements. Also the local, but internationally recognized, surveyor companies were licensed by PORLA. These independent analysts checked the quality of palm oil products before these were shipped from Malaysian bulking installations. The regulation by PORLA has been important for the fulfilment of one of the basic features of the government's trade policies viz. to facilitate and assure a regular supply of consistently high quality products.

The many-faceted and successful structural transformation of the palm oil industry has not taken place without internal conflicts and crises. During the 1970s, in the initial round of investment in the palm oil refining (secondary processing) industry, new agents entered the stage. Foreign capital was dominated by Japanese and Indian capital interests, which quickly responded on the opportunities for exports of processed palm oil from Malaysia. Japanese capital consisted of interests with specific technical and management capacity in marketing and production; they formed joint ventures with (Malaysian) state capital. Indian capital started to operate in joint ventures with local private capital, often based on ethnic links, and used their already existing trade relations

in India and neighbouring countries. Similarly, capital from Singapore linked up with local private Chinese capital. With few exemptions the plantation companies, still dominated by capital from the UK, did not venture downstream. Apparently, they were limited by their own traditional conception concerning their position in the division of labour (Bek-Nielsen 1989).

After a short but chaotic period in which many non-plantation-based companies entered the industry, increasing competition for raw materials restricted the full utilization of capital equipment. Even though crude palm oil was locked in Malaysia by an export duty system, the uncoordinated expansion of capacity in the refining industry caused some of the weaker and non-efficient producers to close temporarily or completely in the early 1980s. As this first round of restructuring came to an end, new agents entered the scene, viz. FELDA and transnational companies, including Malaysian (state) capital groups. New refineries were erected and some of the existing refineries were taken over, revamped and expanded with state-of-the-art physical refining technology. This resulted in a tremendous increase of capacity towards the end of the decade, in turn resulting in a new round of restructuring in which the pressure on small and inefficient producers increased as margins diminished. This time also well-managed and efficient production units had to reorient their commercial strategies if they chose to withdraw from the race for economies of scale. Various forms of specialization, vertical integration or different combinations of strategies were pursued by the refineries. Pursuing economies of scale were primarily carried out by independent refineries without any interests in agricultural production but with knowledge and access to markets of growing importance in the South.

One of the major problems during the entire period has been the struggle between ag-

gricultural producers and industrial processors over the local supply and price of crude palm oil. The dispute was caused by the immanent contradiction between producers of agricultural raw materials (interested in high prices) and independent processing industries (interested in high margins). In the case of Malaysian palm oil this contradiction was even further pronounced, as the lion's share of exported standard products was directed towards markets in the South. These markets operate under budget restraints and are usually dominated by a single customer, i.e. a state-controlled institution that handles food imports. Therefore, a low and competitive unit price means higher volume of exports and consequently higher revenue for independent refineries

Ghana

In Ghana, the palm oil industry since independence has been geared towards meeting domestic demand and thus reducing import bills, i.e. it has largely been an import substitution industry. The growth in oil palm cultivation from the 1970s was in response to the increase in domestic demand as a result of growth in population, urbanization and industrialization (Gyasi 1988). Some of the current industrial buyers, such as Unilever, PZ Cussons and Ameen Sangari, set up factories and were importing animal fat as raw material. These industrial users switched to domestically produced crude palm oil, when it became available and invested in oil palm plantations themselves. Without facing the stringencies of the export market or falling prices for low value products like crude palm oil, the domestic industry would need artificial stimulus to

upgrade.³ That stimulus has not come from the state, a lead firm, a producer association, or a state-business regulatory board.

Unilever invested in one estate from the beginning of the palm oil sector expansion (in the 1970s) and bought shares in a second estate during the privatization process. Thus, two of the four large estates served primarily to meet the needs of the Unilever factory in Ghana. For a long time, Unilever was the main buyer for most palm oil processors in Ghana. As one of the main estates and as one of the main buyers, Unilever did not provide incentives for expanding production or upgrading. Unilever has refining and fractionating capacities at its factory, and thus the estates in which it has ownership and managing control can be considered vertically integrated with Unilever's consumer manufacture production.

GOPDC was mainly supplying Unilever. However, since it built refining and fractionating capacities (completed in 2007), GOPDC sells higher-value products to Unilever as well as to a range of customers in Ghana and the West African region. The largest shareholder in GOPDC, SIAT Belgium, has palm oil estates (plantations, mills and refining capacities) in two other West African countries. Its target market, and reason for buying GOPDC, is the food industry in the West African region. The multinational company had knowledge and capabilities in refinery and fractionation before investing in Ghana.

In contrast, the Norwegian company that took over Norpalm Ghana had more of a challenge in making Norpalm a thriving commercial entity. It had to replant the entire nucleus plantation, due to ageing trees. But it was also hemmed-in by cash flow problems. The Nor-

3 Notably, the price of crude palm oil rose significantly in the late 2000s.

wegian company did not bring working capital to Norpalm, for reasons which could not be uncovered (and possibly in infringement of the privatization agreement). Thus, the management of Norpalm sold shares to PZ Cusson in order to get liquidity and in return PZ Cusson bought all oil. However, PZ Cusson's supply needs are not currently expanding, so the growing estate is looking for other buyers in Ghana and in the West African region. It is not clear that the Norwegian company that took over Norpalm had much experience in the sector, as there is little information available about the parent company Norpalm AS. Its management team is entirely Ghanaian, unlike in the case of GOPDC.

Since the establishment of the Ghana Oil Palm Development Association in 1985, the prices of crude palm oil and palm kernel oil were agreed between producers and buyers. In 1990, after the domestic glut of palm oil that resulted from buyers importing oil because the domestic price was too high and producers were unwilling to change it, a new pricing system linked to the world market price was agreed. The prices of oil are set using the world market price (quoted at Rotterdam) on the last working day of the previous month plus freight charge to Ghana. Thus, producers receive the same price as it costs to import oil to Ghana, and thus a price higher than the world market price. The buyers agreed to this formula, at the time, as a means to help the estates improve. This Rotterdam pricing formula remained in place in 2010, despite the fact that the Association had become defunct. In sum, there is no incentive for producers to export unless there is an oversupply, and the production level in Ghana is not high enough to necessitate exporting to get rid of surplus, yet.

In the early days, there were few incentives on the large estates to acquire the knowledge and practices necessary to meet global competitive standards, even though they had pri-

vate foreign management. And there was little competition within Ghana to force them, or learning from peers, because all the estates had similar practices. There was general pressure from the government in the early 1980s to improve profitability so the estates would be attractive for privatization, but the government did not monitor this process and provide benchmarking or targets. The real driving force came from the individual efforts of one estate to learn from other countries and adapt it to Ghanaian conditions, and then this estate shared its knowledge with the other estates. At that time knowledge sharing was facilitated by the fact that all large estates had some government ownership and by the absence of perceived competition between them. Since privatization, the three large estates (counting BOPP and TOPP as one) act as islands, and competition for raw material supply increased among them with little cooperation in addressing collective industry issues and problems. There is little knowledge sharing among any of the estates, as discussed in the next section.

Currently, all estates would like to expand their processing capacity, but the major constraint is supply of raw material and uncoordinated expansion of the industry where new mills are being established too close to existing ones (making competition for raw material even worse). Mill capacities operate below capacity, partly due to supply and partly due to lean season. In order for estates to increase their access to raw material, they need to acquire more land for their own production; improve yields on their existing plantations; and/or increase oil palm cultivation and yields among smallholder farmers. The basic problem of supplying raw material still plagues the efficiency and expansion of the sector.

6. COLLECTIVE ACTION AMONG INDUSTRY ACTORS

Important in making industries work, is the ability of firms to work together to address and solve industry-wide problems (or problems in certain segments of the industry) as well as to work with government to achieve policies which increase firms' capabilities for learning and innovating.

Ghana

In Ghana, there has never been a very strong industry association for the palm oil sector. The Ghana Oil Palm Development Association was established in 1985 and included the major and minor palm oil estates and processors, soap and cooking oil manufacturers (there were only four industrial buyers at that time), and representatives of a few domestic companies supplying inputs (other than the main raw material, fruit bunches) to palm oil mills. The Association was formed to set the price of crude palm oil, to serve as a platform to exchange ideas, and to lobby the government on matters affecting the industry. It did all these things, but the major concern was to negotiate the price of crude palm oil between the industrial producers and buyers, especially after the glut of 1990. But the Association was short-lived. After the privatization of the large estates, starting with GOPDC in 1994, the Association slowly became defunct. The new owners of GOPDC sought to work individually, TOPP and BOPP became vertically integrated into Unilever, and Norpalm was preoccupied with creating a commercially viable company. Furthermore, the chairman of the Association, which was the Ghanaian entrepreneur who owned the only medium-sized mill that was doing well, did not demonstrate much interest in thinking collectively and working together. Many of the other medium estates were strug-

gling and had little clout with the large estates or the Association chairman.

By 2010, there was almost no formal collective organizing or networking among palm oil producers. The only case of collective action to which producers themselves could point was their work together on a Ghana interpretation of the criteria and principles of the Roundtable on Sustainable Palm Oil, which could in the near future constitute new global standards for palm oil production. This process is being led by GOPDC. Otherwise, the estates seemed quite isolated from each other, outside of their networking through bilateral relationships. There was limited sharing of knowledge among estates. GOPDC management indicated that the Best Practices and Guidelines produced by the Malaysian palm oil is a dream for Ghanaian estates. As a result, there is a lack of information and 'knowing' in the industry, and there is no common research and development. Therefore, the knowledge and skills needed for upgrading is difficult to acquire.

Many of the challenges currently facing the Ghanaian palm oil sector cannot necessarily be overcome by the estates individually, but require collective action both among industry actors and with the government to address. Expanding the volume of palm oil produced in the industrial sub-sector depends on access to land, organization of smallholders and better integration with existing mills, mills accessing adequate raw materials, and ensuring that smallholders cultivate a higher-yielding variety of oil palm. These issues are more effectively addressed through industry-wide approaches based on collective action. For the medium-sized mills, issues also include access to finance (including working capital and capital investments) as many have poor financial records with the banks; increasing efficiency in management; and training and retaining skilled workers.

Access to land is also an issue, but in different ways. Existing large estates are constrained

in their ability to expand their nucleus plantations. Accessing land is more difficult for multinational companies due to sentiments in the traditional oil palm belt about past expropriations and about foreign companies: It is easier for Ghanaian entrepreneurs to access land, as indicated in the large landholdings of the medium mills (which are not cultivated due to insufficient working capital) and recent acquisitions by Ghanaians in the traditional oil palm belt. The establishment of new large-scale estates is difficult in the traditional oil palm belt, even for Ghanaians, due to increased competition for land. However, the currently ongoing establishment of a new large estate in the northern Volta region (to the northwest of the traditional oil palm belt, which apparently has good conditions for growing oil palm) indicates that companies (and even foreign companies, as in this case) buying large tracts of land for commercial agriculture purposes is not impossible in sections of the country where there are limited commercial agricultural activities and limited competition for land. Existing estates only can buy old state farms or state-owned land or large tracts owned by former private companies, but the amount of land available in those categories is limited. They can rent land under the local land tenure system (the *abusa* system), as some medium estates are doing, but this is not favourable, as the cost of land (given the amount of rent paid to the landlord) is high. These options are limited, which means expansion of the supply of raw materials has to come from small farmers (who own or rent land themselves), through moving into new regions such as northern Volta, or through changes to the land tenure system.

The requirements of setting up outgrower schemes, increasing the productivity of smallholders, and monitoring in order to reduce side-selling make such schemes expensive. There is also the need for improvements in rural roads in the oil palm areas to reduce costs incurred

from collecting fruits from smallholders. Price wars resulting from too many mills in the same area, and also keeping with small-scale processors for the consumption sub-sector, encourage side-selling among smallholders as well as create competition and distrust among the mills.

These issues need to be addressed, in order for the sector to increase its productivity and to expand. Solutions need to be found to promote collaboration rather than competition between the industrial and consumption sub-sectors. The Ghana palm oil industry is moving forward and expanding in recent times, but this expansion is not in an organized manner and not very efficient. Management staff of the medium and large estates realize the advantages of having an association that can analyze the needs of the industry as a whole, but yet they still do nothing. The advantages are to not only reduce the transaction costs for individual estates acting on an issue or liaising with the government, but also to design strategies for the industry on, for example, marketability of products, especially regarding ECOWAS markets, and on by-products; creating storage; and proposing an industry policy framework to government and promoting it with one voice.

The producers need a foundation of relations on which to build collective action, crucial to which is trust and a history of solving problems together. Cooperation around the Roundtable on Sustainable Palm Oil that began in late 2009 could lay the foundation for future collaboration, but nothing is certain. None of the large estates, including GOPDC, seem interested in taking the lead in strengthening an industry association, as this involves additional time and resources. They are complacent with the status quo and used to working individually.

There must be compelling forces driving the processors together, and these forces need to be transparent and move beyond the interest of individual actors and build trust. It has been

argued, using experiences from a number of cases in other developing country regions, that the state or external forces (such as changes in export markets) are key to compelling industry actors to act collectively, either through the provisions of incentives or through compulsion (see for example, Doner and Schneider 2000; Schneider 2004). The large and medium estates themselves point to the need for the government to monitor for success: to set targets, make sure they are met, and then leave the rest to the industry actors. However, in the 2000s, the government has not shown any interest in playing this role.

Malaysia

The palm oil sector in Malaysia is formally organized according to the functional constituencies in the various segments, i.e. plantations, millers, refiners, etc. This formal organization overlaps with corporate operations and strategies, as many companies have different interests in different segments. This partly explains why some organizations had a stronger position in discussions with state institutions on regulatory issues.

The plantation sector has a central position in research and development related to increased agricultural productivity, such as improved planting material and agronomic practices. In Malaysia some of the large plantation companies, private as well as state-owned, established their own research stations early on in the development of oil palm cultivation in Malaysia. In addition, the Palm Oil Research Institute of Malaysia (PORIM), a public research institution, was established in 1979 by an Act of Parliament. It was a result of pressure by the estate sector for more than a decade for a public research body modelled along the lines of the Rubber Research Institute (see above). PORIM's activities are financed by a duty paid by the crude palm oil produced in the country

in addition to a modest allocation from federal resources. The Institute's capacity gradually developed during the 1980s, so that activities now consist of in-house oil palm research as well as coordination of research through allocation of funds from the cess to private research stations (Jenkins & Lai 1989).

Traditionally, innovations from plantation companies were disseminated to other parts of the segment either through activities of their subsidiaries selling producer services or through other channels, formal as well as informal. For instance, virtual 'guidebooks' exist comprising all aspects on oil palm growing in its different phases (see for instance PORIM (1987)). Moreover, research staff and plantation management from Malaysian state organizations, parastatals and private companies meet at conferences and workshops organized by institutions with affiliation to the industry. Dispersion of technical and managerial knowledge in the industry has been nourished by a long tradition for exchange of information among the 'planters', i.e. estate managers and technical staff, although the ethnical composition of participants has changed in line with the ownership restructuring of the estate sector. The spirit of 'planter workmanship' is still prevailing today, clearly visible in the role of the Incorporated Society of Planters (ISP), an association of ISP-trained management staff employed in private as well as public companies in the estate sector.

The association that represented all the large plantation interests in the country, the Malaysian Oil Palm Growers' Council (MOPGC), was heavily dominated by state capital. Around the early 1990s members of MOPGC accounted for about three-quarters of the total oil palm area in Malaysia. However, the agricultural employers are represented by MAPA, the Malaysian Agricultural Producers Association in negotiations with the National Union for Plantation Workers (NUPW) on wage

and general working conditions for organized plantation workers. As the period for expansion and diversification of the palm oil industry coincided with the rapid industrialization of labour-intensive manufacturing industries in urban centres, the big issue throughout the period was the labour shortage in the estate sector. Due to the competitive situation on the world market for vegetable oils, increasing wages were out of the question according to the estate employer organizations who managed to maintain unity among the plantation interests despite the grave consequences: The labour shortage was estimated to constitute about 5-10 percent of total labour requirements of the estates.

The independent millers dominated the Palm Oil Millers' Association (POMA). POMA was established in 1985 as a joint organisation of three regional milling groups with the objective to promote and foster good relations among the millers in Malaysia, and to safeguard their interests through a national body officially representing them in negotiations with the government and suppliers of fresh fruit bunches. It is considered as a weak organisation due to the fragmented ownership structure of palm oil mills in the country. Besides, milling is a subsidiary segment in the corporate strategies of the large plantation companies serving agricultural production on the one hand and secondary processing facilities on the other.

In the early period of the establishment of secondary processing activities, nearly all existing refineries were organized in the Palm Oil Refiners Association of Malaysia (PORAM), established in 1975 to represent the interests of the refiners. Thus it was a fairly strong and homogeneous group of refining companies, most of them without direct links to crude palm oil production. Owing to pressure from PORAM, no more licenses were issued by the Malaysian Industrial Development Authority (MIDA) from 1978 onwards. MIDA, an agency under

the Ministry of Trade and Industry, monitored and regulated all manufacturing activities in the refining industry and beyond, including the issuance of license to produce. Capacity in existing refineries was allowed to expand on a quota system based on existing capacity and past performance. Later, PORAM pushed for a deregulation of the industry in parallel with the government's new mid-term Industrial Master Plan, which emphasized a strengthened cohesiveness and increased competitiveness of the palm oil industry along the lines of deregulation and vertical integration. Thus no restrictions were put on new entrants primarily consisting of vertically integrated plantation groups who went into the secondary processing industry.

This resulted in a tendency towards a dichotomization of the Malaysian palm oil industry into processors (refineries) and producers (plantation companies and groups). Capital operating in the Malaysian refining industry is basically of one of the two following forms: either downstream-expanded plantation capital with considerable state interest, or private (national or foreign) 'autonomous' capital without any financial interests in plantation activities. The autonomous refineries, particularly the foreign-owned, were by far the largest in terms of processing capacity (excluding FELDA) and they cover the major part of exported palm oil in bulk. Typically, they have expanded capacity in their efforts to obtain economies of scale while they rely on their marketing power in specific importing countries. One way to solve the clash of interests between raw material producers and processors was to organize the industry in a limited number of cartels, each consisting of plantation groups and refineries. Around 1990, conciliatory state policies were apparently stimulating initiatives taken by participants in the industry to implement such a construction among the major interests in the palm oil industry (Vijaya Bharathi 1990), but it did not materialize.

Collective action among all the actors on a higher level was manifest in the events that resulted in the creation of a new overall-industry association, the Malaysian Palm Oil Promotion Council, with the objective to protect and promote the interest of the entire palm oil sector. In 1987/88 the American Soyabean Association launched a new vehement campaign against 'tropical fats' based on nutritional issues. The organization claimed that oils primarily consisting of saturated fatty acids (like palm oil) increased the risk of cardiovascular illnesses and quoted numerous scientific experiments and results as documentation. The real reason for the American Soyabean Association's concern for the health of average American citizens, however, was caused by the fact that Malaysian palm oil in 1986 conquered a substantial share of the Pakistani market for vegetable oils at the expense of the US, and in the same year exports of palm oil to the US doubled. Backed by horror-advertisements in the media, the Association succeeded in reducing the imports of palm oil to the US back to the former level, but the importance of soybean oil in Pakistan was not regained, and imports of Malaysian palm oil increased.

The Malaysian industry was kept busy in the last years of the 1980s by efforts to counter the American Soyabean Association's campaign, not because of the importance of the US market, but apparently because of the possible negative effects of the campaign on other and far more important markets. Measures included the costly funding of 'independent' nutritional research at esteemed universities in the industrialized countries and hiring of US lawyers for lobbying. The activities were financed by increasing the research duty levied on palm oil exports by about 50 percent so that costs were born by the whole industry.

Other measures were implemented through industry-wide initiatives to counter the externally induced pressures. Activities were inten-

sified at the research institutions aiming at the development of new varieties of oil palms with lower content of saturated fatty acids. Also development of new products was intensified. In the light of earlier experience, development of process technology related to new products in cooperative arrangements between refineries and capital good producers may further strengthen the efforts towards increased diversification. Lastly, the role of well-prepared promotional efforts on potential new markets was realized, and a consensus-agency with representatives from the whole industry, the Malaysian Palm Oil Promotion Council, was established to deal with issues of a common nature.

CONCLUSIONS

The palm oil sectors in the two countries were set on very different pathways from the outset. In Malaysia, there was no 'land issue' for the colonial state, as it was possible to allocate vast tracts of land to plantation agriculture without significant social or political conflicts. An adequate infrastructure for plantation production, both physical and functional (i.e. administrative and regulatory capacity of the state), was quickly developed. In parallel with the gradual development of infrastructure and state regulatory capacity, a scientific and social network emerged among planters, in which dissemination and exchange of tacit and codified knowledge took place through various forms. At state level, there were no socio-political concerns to incorporate smallholders in the industry and hence no immediate organizational problems for sector integration. Instead, capitalist development within the agricultural production progressed with concentration and centralization of plantation capital while organizational efficiency increased substantially. Production, both of crude palm oil and palm kernels, was

fully geared towards the world market, particularly Europe, while the domestic market was insignificant.

In contrast, the palm oil sector in Ghana was from the very beginning dominated by smallholders, and the slender attempts during the colonial period to establish plantation-based production collapsed. A major cause for the failure for plantation agriculture was the dynamics of 'persistent' communal land tenure arrangements that constituted significant barriers for land alienation. In this environment, a 'society of planters' never developed and there were no mechanisms for exchange of knowledge on large-scale cultivation – not least because the number of plantations was so low. Palm kernels – and later palm oil – were originally exported to Europe, but around the First World War exports decreased and virtually disappeared. The importance of the domestic market for both products, however, continued its vibrancy after the start of world market integration. Palm oil (and palm wine for that matter) is a key element in the national diet, and smallholders have always been comprehensively involved in the processing and sale of both products.

Not only were the starting points and initial development paths significantly different, but later expansion and diversification processes both deepened and reinforced the different trajectories of the two national palm oil sectors. In Malaysia, expansion of the palm oil sector was stimulated by world market dynamics: Demand and prices on natural rubber was in free fall and collective action ensured favourable conditions for replacement with oil palms through experience-based policy responses such as re-planting grants and duty-financed research institutions. The industrial nature of the crop (required milling within 24 hours after harvesting) was included as an important (rural) element in a broader industrialization strategy, and smallholders were deliberately in-

cluded (in different organizational setups) as an important part of state policies targeting new socio-political objectives and diversification of export agriculture. In a wider perspective, the palm oil sector was incorporated in a hegemonic (ethnic) development project, in which state power was controlled by (Malay) elites in alliance with other (ethnic) groups. Eventually, the mobilization of state capital and regulatory capacity acted as a lever to break the traditional path dependency of commodity-exporting countries in the South: Production expanded, value added increased and new market opportunities in the South exploited by moving the industry into secondary processing from crude palm oil to refined and fractionated palm oil – and further on to oleochemicals. Of significant importance in this process was the strong coordination within and between agricultural sub-segments due to the dominant influence of state capital, the representation of most actors via business associations and regularized interaction with state institutions, and a shared conception of institutional solutions on common industry problems.

In Ghana, the conditions for the sector's second expansionary phase after Independence were more complex and less favourable than those prevailing in Malaysia. As in the initial phase, there was no ready stock of land for plantations, and expropriation was necessary – which almost immediately created serious problems for the management of plantations (including notoriously deficient infrastructure, in particular hampering transport to plantation areas), state administrative capacity and legitimacy of the sector. The problematic and fluctuating institutional setup of plantations right from the sector's establishment was further complicated by the organizational complexity inherent in mixed systems, where plantations and outgrower schemes with smallholders were combined. Side-selling by outgrowers has been an immanent problem for planning

and capacity utilization of processing equipment, and massive technical problems have hampered the milling process due to intake of smallholder supplies of fresh fruit bunches. On top of this, the size of the sector has remained limited, mainly due to the low volume of raw materials and the overwhelming market dominance of vertically integrated customers, notably Lever Brothers (Unilever), which have restrained independent processors from entering the sector. The degree of collective action is very low except for the crude palm oil pricing mechanism, while the fragmentation of the sector according to corporate interests is high. Perhaps this overwhelming complexity is the major reason why no capacity building (technological or managerial) has taken place in state institutions related to the palm oil sector, despite comprehensive involvement over the decades of state capital and international donor funds.

The industrial ('modern') and small-scale sub-sectors continued as almost separate entities, as efforts to incorporate independent smallholders into the industrial sub-sector through the PSI programme failed. The programme largely failed because its design and implementation were too heavily structured by political imperatives, which did not share a mutual interest with existing mills but rather ignored their interests. At the same time, the ruling elites – partly due to factional struggles – lacked a coherent strategy of state-led smallholder upgrading and inclusion, as occurred with FELDA in Malaysia.

The question remains what can be learned about upgrading and innovation from an assessment of the experiences of Ghana and Malaysia. It is not sensible to carry out a direct comparison of the two trajectories with the purpose of emphasizing the failures in the 'construction' of the palm industry in Ghana. The role of context must be acknowledged, such that learning starts with understanding

key points in the industries' trajectories that either break or accelerate path dependency. At least three policy and organizational issues affecting upgrading and innovation have been identified.

Firstly, policies need to address the problem of 'leaking' raw material supplies, whether the leak originates from commodity exports or side-selling, as both types are potentially destructive for upgrading in the traditional sense of processing and increasing the value added of raw materials and intermediate goods. Much can be learned about the impact on upgrading of policies that operate with variable and graduated export tariffs, according to a set of objectives concerning targets for value added products.

Secondly, and as a corollary of the above, commercial and socio-political concerns in small-holder cultivation of oil palms need to be realigned. The benefits and drawbacks of combining plantations and outgrower schemes need to be contextually examined to find out whether 1) plantation and outgrowers should be organizationally separated, and 2) dispersed outgrowers should be organized as participants of in-situ schemes. The two sets of concerns are not necessarily contradictory, but viable integration of smallholders in the (industrial) palm oil sector depends on basic conditions like possibilities for monitoring, enforcing and sanctioning production practices of participants in outgrower schemes.

Third and finally, policies need to foster collective action at a sector level. Research and development could act as a starting point for more comprehensive vertical and horizontal sector coordination. The mechanisms are not straightforward, however, but financing common research and advisory institutions by a modest duty paid by producers, processors and/or exporters (for instance on a tonnage basis) would be one place to start. Sector participants should be invited to set common

objectives and participate in management of the institution, in order to create a forum for dissemination, exchange and transfer of sector-relevant knowledge. A relatively cohesive coalition of sector participants is necessary to address latent and new problems, whether they are of external or internal origin. Examples of the latter are the immanent conflict between agricultural producers and processors over raw material prices, and among processors for raw material supplies.

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