Chapter 12

Agribusiness

From a strong agricultural base, Thai business supporting agricultural inputs, production, credit, processing, and marketing has grown to transcend Thailand's borders. Beginning as trading groups in the rice, teak, and rubber sectors, it has evolved into banks, finance companies, and agribusiness trading and investment houses. The first modern bank in Thailand, the Siam Commercial Bank, was founded in 1906 on agriculturally derived wealth, as were the Bangkok Bank of Commerce, the Bangkok Bank, the Bank of Ayutthaya, and the Thai Farmers' Bank. Over the period 1942 to 1945, timber, rice, sugar, and gunny sack[1] agribusiness houses linked agricultural production to international markets through processing, value-adding, financing, and clever negotiation. Thus the agribusiness component of Thai agriculture fuelled national economic growth over the past four decades.

Agribusiness has been unfairly blamed for rural poverty surrounding, for example, sugar cane factories, cassava processing points, large trading houses, and middlemen. The creation of landless peasants and destruction of a supposed egalitarian community centred on the temple[2] and religious law requires further analysis within the context of the economic structural adjustment necessitated by rapid population growth, and integration of Thailand into the global economy. Agribusiness is a logical outcome of modernisation; its profit orientation should be assumed, although the corollary, that effective government administration is maintaining social equity, requires more than such a simple assumption.

[1] Arbhabhirama, Anat et al (1987)
[2] Vallibhotama, Srisakra (1989)

Detailed listings of the capacity and sites of agro-industrial enterprises across the country[3] and analyses of each industry,[4] provide information often fragmented between manufacturing and industrial statistics. Thai agribusiness is a formidable component of the economy, and its development is epitomised through the largest and most successful multinational group, CP; the sector also includes many other large companies, government enterprises, and complex relationships between private groups, government, and small-holders. The source of agribusiness expansion, and incidentally government forays into input supply, was the modernisation of agriculture with its demands for inputs.

Agricultural Inputs

Supply of agricultural inputs provided the first new profitable business area for agribusiness expansion, and has consequently involved private groups, as well as government redistribution initiatives through such agencies as the Marketing Organisation of Farmers and the BAAC. The expansion of agriculture, and in particular, the adoption of Green Revolution technologies, increased volumes of pesticide and fertiliser use substantially, and provided a link between middleman services of the past and agribusiness-house growth post-1932, and post-1960. Pesticide use in Thailand has expanded from around 30,000 tons in 1981 to more than 40,000 tons in the 1990s, and over the same period, imports of pesticides have declined from 50 percent of the market in 1980 to around 30 percent in the 1990s. Local production and formulation have led to a tripling in Thai plants over the period.[5]

Similarly, fertiliser use expanded (Table 14.1), and desires to capture the supposed benefits of local manufacture of fertiliser led to restrictions placed on urea importation to support a monopoly Thai Central Chemical Company that made a lower grade nitrogen fertiliser, ammonium phosphate; higher fertiliser prices and one of the highest ratios of fertiliser to rice price in Asia resulted.[6]

[3] Asawsophonkul, Anan., Sirayaporn, Piyanuch., and Yakham, Nantha. (1997)
[4] BTI (1999)
[5] Chuapanich, V. et al (1984)
[6] Christensen, S. (1993)

Table 12.1 *Fertiliser Use for Rice and Other Crops (kg per rai)*

Crop Year	Fertiliser for Paddy	Fertiliser for Other Crops
1970	3.9	4.0
1980	7.0	8.8
1990	16.2	32.3

From this base, modern agribusiness expanded, although its antecedents from Ayutthaya times provide a broader understanding of the cultural and entrepreneurial aspects of Thai agribusiness which have made it an international phenomenon as an adjunct to the national agricultural base.

The Agribusiness Story

The history of agribusiness has technological and business aspects. Technological innovations in input supply, agro-processing, and marketing, have been integrally linked with the business acumen of Chinese-Thai entrepreneurs as the economy expanded.

Foreign contact spurred early Ayutthaya agribusiness through trade of forest products and rice, with foreigners providing services of credit, transportation of produce, establishment of mills and storage facilities, and forwarding. Chinese dominated domestic fields while Europeans dominated non-rice processing, until the Crown nationalised these new areas for its own revenue raising. Regional trade of valuable forest products including animal parts, herbs, barks, hides, resins, timber, thatch, and spices, followed trade routes which consolidated Ayutthaya as a major market force for much of the hinterland; trade routes linked Ayutthaya to Chiang Mai, Luang Prabang, Kengtung, Vientiane, and Sukhothai. As hinterland trade waned, immigrant Chinese traders[7] assumed its control, and forest product exports to China dominated trade until the 1840s. Meanwhile, European trade sought sugar, pepper, tobacco, and rice, which created a need for consolidators and entrepreneurs, roles at which the Chinese excelled.

[7] Phongpaichit, Pasuk. and Baker, C. (1998)

From Ayutthaya rice supplied to Malacca,[8] exports rose continuously, eventually attracting foreign investment in mechanised processing. Chinese provided increasing service in trade and government, obtaining monopolies and engaging in barter arrangements which placed them in a better position than the colonial Europeans. As tax agents, middlemen, and bankers, they came to dominate retail and rice trading[9] until, denounced by the King in 1915, they quickly became Thai.[10]

Thus Thai agribusiness arrived with trading, processing and vertically integrated industries, and was always associated with foreigners. Through to 1932, major European firms such as the Borneo Company, Windsor Redlich, Markwald, Arracan, and Franklin Blake thrived, while Chinese dominated rice processing and trading, until the 1920s' post-war depression. By the 1930s, new Chinese families emerged including those of; Wanglee, Lamsam, Bulasuk, Bulakun (later Mahboonkrong), Iamsuri, Setthapakdi, and Bunyarak.[11] Substituting for past arrangements of ancient Indian and Persian influence in the Court and Treasury, European and Chinese influence in the Thai economy and its development through schemes as the Rangsit Canal Project, suited Crown tax collection. Through such mechanisms, this open agriculturally-based country was unique in managing its political if not economic independence. Today, agribusiness in Thailand reflects these foreign origins, with government and business both investing in agribusiness.

The first investment in mechanisation of processing in Thailand was in rice mills, which were initially concentrated in Bangkok until railways penetrated the North and East. The first steam rice mill, introduced in 1858 by an American firm, failed and after several sales, came to Chinese-Thai ownership. By 1867, there were five rice mills in Bangkok, by 1889 23, by 1910 59, and by 1930 71. Outside Bangkok, the some 500 smaller rice mills in 1930 grew to some 800 by 1950, each with capacities of 30 to 40 ton per day compared to the 100 to 200 ton of the Bangkok steam-powered rice mills. Large mills provided economies of scale, including concentration of by-products, which were converted to animal feed through ever expanding feed mills. Large rice mills were eventually complemented

[8] Wyatt, D.K. (1984)
[9] Trocki, C.A. (1992)
[10] Vella, W.F. (1978)
[11] Phongpaichit, Pasuk. and Baker, C. (1998)

by smaller portable mills which suited the independent nature of rice farmers,[12] by which time agribusiness had secured its supplies of a range of feed ingredients.

In post-revolutionary Thailand, the socialist policies of Pridi culminated in a liaison with the large rice trading families of Bulasuk, Lamsam, and Wanglee, which led to the Thai Rice Company being managed by the first group, and the government leasing, rather than nationalising, mills owned by these families. The big five rice trading companies expanded through the post-revolutionary period until World War II. Significant benefits accrued to Thailand during the war albeit with some significant disruption from post-war reparation payment demands placed on Thailand.[13]

Large sugar mills began with government investment in Lampang in 1937 and Uttaradit in 1941. Both mills produced white sugar while four others produced brown sugar and molasses. Operated with the Ministry of Industries from 1946, sugar output was low and of variable quality; by 1950, total government sugar output was below that of small, simple, private factories. Even a heavy duty failed to make government mills profitable until sugar imports were banned in 1952.

The poor record of government agribusiness in sugar contrasts with the government tobacco monopoly created in 1941 to assume the properties of the British-American Tobacco Company. With the exclusive right to buy, sell, and manufacture all Virginia tobacco products, the monopoly operated buying stations and curing sheds throughout the North and Northeast, to provide a stable market for farmers taking production risks with the fickle tobacco crop. In the mood of the era and the wake of success of the tobacco monopoly, government in 1952 revealed plans for additional investments in the agro-industries of; rice milling, sugar refining, weaving, rubber manufacture, paper manufacture, salt manufacture, vegetable oil processing, tapioca production, fish storage, leather tanning, alcohol distillation, abattoirs, and gunny sack manufacture. However, government agribusiness was building on a small base where agribusiness manufacturing plants with more than 50 employees in 1949 numbered only 19 for rice mills, 18 for saw mills and eight for rubber and sugar plants.[14]

[12] Ingram, J.C. (1971)
[13] Phongpaichait, Pasuk and Baker C. (1997)
[14] Ingram, J.C. (1971)

As agribusinesses of the pre-World War II period generally failed to survive the hiatus until resumption of trade in the 1950s, government invested in agro-industrialisation as part of its modernisation policy. Continued reliance on the major export commodities of rice, rubber, and teak, with rice dominating although declining from 1950, confirmed the base from which lasting agribusiness would develop in Thailand, commodity trading. The post-World War II Chinese groups, utilising tightly knit community linkages, developed wholesale, rice milling and lending activities, which became a critical component of agriculture and agribusiness in Thailand.[15] Value-adding in agro-industry increased from ten percent of GNP to 15 percent over the period 1951 to 1969, mainly from food industries.

Freed from state control in the late 1950s, agribusiness groups expanded from their base of rice milling into a range of crop trading and processing activities. The Wanglee family grew to effectively control the cassava trade when it was one of Thailand's major export commodities; the Bulakun family expanded in cassava production, silos, and warehousing while the Metro group, which began from fertiliser imports, joint ventured with Japan to locally manufacture fertilisers while maintaining strong involvement in wheat flour silos and feed mills. The Sura Maharas distilling empire grew from a liquor wholesaling business of the Techaphaibun Family and the Thai Roong Ruang agribusiness conglomerate grew from the Asadathaon family sugar refining activity.[16]

The upland cropping expansion of the mid 1960s created opportunities for agribusiness, which led to the Bangkok Bank becoming a major financier of agro-processing companies, in particular Charoen Pokaphand. The Thai Farmers' Bank supported the Lamsam group in crop exporting, warehousing, and joint venturing with multinationals including Dole from the USA, and the Australian Dairy Industry. The Bank of Ayutthaya associated with the Rattanarak group in agro-processing, while the Techapaibun-Mahaguna group continued its expansion from distilling into brewing, sugar processing, glass manufacture, and chemicals associated with these industries.[17] From input supply, agribusiness had moved to focus on agro-processing with production management systems on one side complemented by marketing acumen on the other; some processed products and

[15] Ingram, J.C. (1971)
[16] Phongpaichait, Pasuk and Baker C. (1997)
[17] Phongpaichait, Pasuk and Baker C. (1997)

Table 12.2 *Agro-processing Exports (million baht), 1975 - 1993*[18]

Agro-Processed Export		1975	1980	1985	1990	1993
Sugar	value	7,353	3,357	6,247	17,694	12,185
	%	21	4.7	4.9	6.7	3.6
Frozen Fowl	value	7	656	1,408	7,590	8,886
	%	0.02	0.9	1.1	2.9	2.7
Canned Fruit and Vegetable	value	388	1,728	5,114	12,349	16,439
	%	1.1	2.4	4.0	4.7	5.0
Canned Seafood	value	-	2,267	7,732	24,762	20,035
	%	-	3.2	6.0	9.4	9.0
Others	value	3,233	2,652	7,220	15,920	24,354
	%	9.2	3.7	5.6	6.0	7.3

their export values of the past two decades are presented in Table 14.2.

Government policies of the 1950s and 1960s aimed to maintain agricultural expansion to provide income for continued urban growth. Government investments in rural roads and administrative infrastructures, for example, may have had security objectives yet incidentally and significantly assisted agribusiness. Continued urban growth led to Bangkok being some 35 times the size of the next largest town by 1960 although the agribusiness boom itself helped to marginally correct this imbalance and to create a new group of agribusiness-rich provincial businessmen.[19]

The agribusiness and agriculture sector today constitutes an estimated 50 percent of the Thai economy.[20] In general, Thai industries based on value-adding to agriculture derive their strength from the availability of primary product more than technological or managerial advantage.[21] Hence, policy links have been weak between agriculture and manufacturing. Value-added per agribusiness worker is low as a function of seasonality of production, high labour availability, and the relatively simple processing needs of the major crops of rice, maize, cassava, and sugar cane. Once these crops are processed into tradeable commodities, any additional comparative advantage for Thailand is limited to market access or

[18] Paopongsakorn, Nipon (1995)
[19] Phongpaichit, Pasuk and Baker, C. (1998)
[20] Trebuil, G. (1995)
[21] TDRI (1989)

transportation. Thailand may thus not appear to have comparative advantage in such sectors as corn milling or feeding cassava to livestock,[22] and yet has demonstrated success through trading acumen, labour rates, business contacts in the region, vertical integration, and use of unpriced natural resources.[23]

Charoen Pokaphand

Private sector Thai agribusiness is often a synonym for the Charoen Pokaphand (CP) group. While incomplete, this description indicates the agribusiness origins and *modus operandi* with government and the market place. From its origins in 1921, CP's history is best known through a Bangkok Chinatown seed shop in 1940 and three Chinese born brothers of the Chiaravanont family. Having attended Thai schools, the Chinese-Thai entrepreneurs expanded to importing animal feed and fertiliser, which led to the development of their first feed mill in 1954. This proved a stepping stone to foreign joint ventures to gain chicken production technology modified to suit Thai conditions of; low farmer incomes, availability of feed and materials, a domestic market, and suitable location for export to Japan. Their company, CP, continued to expand until it monopolised the modern poultry market by the 1970s, and owned over 60 companies by the 1980s across a range of agribusinesses relating to animal feeds, pigs, and poultry.

Adding pork and shrimp through now proven contract farming activities in the first instance, the CP Group was Asia's largest in the agro-industrial sector by 1993 when its annual sales exceeded $5.0 billion, its workforce 50,000 excluding contracted farmers, and its corporate group comprising 200 companies across 16 countries. Their Kentucky Fried Chicken franchise for Thailand and, to an extent, other retail outlets, grew from the logic of expansion based on products which the group controlled. Expansion into large Black Tiger Shrimp production in partnership with Mitsubishi Corporation of Japan,[24] and development of hybrid maize with Dekalb of the USA, led with other expansion measures, to the base of broiler production eventually being moved to China.

[22] Siamwalla, Ammar (1991)
[23] Christensen, S.R. (1992)
[24] Suehiro, Akira (1992)

Continued expansion followed a proven model of vertical integration and close association with government and essential financing and market entities, and allowed entry into Indonesia, Hong Kong, Malaysia, Singapore, and Taiwan. The profits of agribusiness allowed CP to enter telecommunications and retailing and, most notably, to become one of the largest foreign investors in mainland China. By 1996, CP had become the largest agro-industrial enterprise in China with more than 100 feed mills and more than 170 other involvements, which together produced 30 percent of total group turnover. With more than 80,000 employees in 300 companies in 20 countries,[25] CP is one of the world's great agribusiness houses.

Like government, CP assumed that growth of the 1980s and 1990s was sustainable. Potentially unserviceable loans, countered somewhat in Thailand by devaluation of the baht, were compounded by CP's China agribusiness operations which lost $18 million in the first half of 1998, an amount equal to its annual profit of 1997. Post-1997 consolidation around the agribusiness core has led to shedding of some extraneous businesses.[26] CP's time-proven strategy of lobbying government for favourable policies which link to national development objectives is again, in 2000, being employed to advocate lower interest rates to stimulate economic activity.[27]

CP's operations span animal feed, poultry, pigs, seafood, telephones, discount retail chains, polyvinylchloride manufacture, real estate, development, and motor vehicle manufacture, with major listed units on the stock exchanges of Bangkok, Shanghai, Hong Kong, and New York. Rationalisation of eleven Thai agribusiness operations under the company CP Feed Mill PLC,[28] and similar approaches in China and Indonesia, indicate a faith in continuing weak currencies and future economic growth which will favour vertically integrated agribusiness activities in Asia. Even in 1997, agribusiness operations across 12 countries contributed turnover of $7 billion, more than 75 percent of the group's total.[29]

[25] Phongpaichit, Pasuk and Baker, C. (1998)
[26] Biers, D and Vatikiotis, M. (1999)
[27] Vatikiotis, M. (1998)
[28] Biers, D and Vatikiotis, M. (1999)
[29] Vatikiotis, M. (1998)

The success of CP has provided Thailand with potential income and technology which has inspired other agribusiness groups, and some government policy. While Thai agribusiness is not just CP, the strong and not always transparent relations with government is a theme of Thai agriculture which has obvious business strengths revealed through profits, and some weaknesses associated with governmental responsibilities and small-holders. The small-holder agricultural base of Thailand necessitates close associations with business. Poultry, and to a extent pig, industries have refined contact and related farming arrangements in Thailand, and are discussed in chapter 9. CP has been the leader is such commercially successful arrangements, although it is noteworthy that the group was unable to successfully apply the same concept to rice.[30] Some of other variations in relationships are indicated in the shrimp, industrial forestry, rubber, and horticulture industries.

Shrimp Agribusiness

A new industry in its aquacultural form, Thai Black Tiger Shrimp production is almost twice that of Indonesia, which is the second largest producer. The industry's development was based on suitable investment conditions and environments,[31] particularly in the East and South gulf regions.[32] Upon full development,[33] intensification which relied on high capital to land ratios, and low labour intensities,[34] ignored sustainability principles[35] by introducing formulaic management systems.[36] Small-holders were integral to ultimate success, although overriding concerns have focussed on environmental issues, which themselves would possibly have been substantially less with adequate enforcement of existing laws by government, and slower development of a socially balanced small-holder cooperative approach. However, protection of remaining mangrove areas was claimed as a benefit of intensification,[37] and international development bank assistance[38] supported an industrial approach to further expansion in conjunction

[30] Phongpaichait, Pasuk and Baker C. (1997)
[31] Csavas, I. (1994)
[32] Department of Fisheries (1995)
[33] Flaherty, M. and Karnjanakesorn, Choomjet (1995)
[34] NACA (1995)
[35] Pathranarakul, Pairote (1995)
[36] Norgaard, R.B. (1994)
[37] Panayotou, T. and Sussengkarn, Chalongphob (1992)
[38] Skladany, M. and Harris, C. (1995)

with agribusiness.[39]

Through the fifth and sixth Plans, such groups as Cargill, for a time, were encouraged to invest in parallel with small-holder growers financed by the BAAC, Bangkok Bank, Bank of Asia, and Thai Farmers' Bank. Growers with contracts from agribusiness groups were considered better lending risks,[40] and more likely to access new technologies.[41] Aquastar Limited and CP Aquaculture Business dominated, with Aquastar ostensibly more oriented to social and environmental principles, and CP adapting its vertical integration model from the poultry industry. Aquastar worked with small-holders directly, providing larvae, feed, marketing, and extension services, and subsequently joined with Bechtel Engineering to expand on a standard pond design basis, eventually selling to BP Nutrition.

CP Aquaculture was the fastest growing division of the CP Group; CP's shrimp aquaculture extended from China, Indonesia, India, Vietnam, Mexico, to Australia. From 1991 strategies to use feed mills products and food market network, CP grew to control some 5,000 coastal hectares through shrimp contract farming agreements with small-holders. The group processes shrimp through four facilities in Thailand and two in Indonesia and continues to seek wider access to suitable areas in other Asian countries.[42] The apparently reasonable returns to small-holders have yet to be weighed against the cost of an unsustainable practice which leaves final risks with the small-holder, or the wider economic cost of this modern form of shifting agriculture.[43]

The CP Group funds 20 shrimp aquaculture extension centres throughout Thailand and a contract farming business involving some 10,000 farmers. Contracts limit costs of production from agribusiness' viewpoint, and cap returns from the growers'. Nevertheless, growers rejected cooperative approaches after experience with poor market prices, possibly due to inadequate quality control resulting in particular from simple feeding and chemical regimes. Improvements in management based rules to limit consolidation of ponds by large operators produced the

[39] USDC (1992)
[40] Gronski, R.T. (1997)
[41] Glover, D. J. and Kusterer, K.C. (1990)
[42] Gronski, R.T. (1997)
[43] Weber, M.L. (1996)

apparently viable income sharing arrangements in contracts. Processing, including ice water shocking for live restaurant delivery within hours of harvesting, links small-holders to a market which they could not otherwise access, inevitably disadvantaging growers remote from major shrimp processing and distribution facilities. Shrimp processing plants in the South, for example, are Caotiwat at Hadyai (40 ton); TPCC (CP Group) at Ranot (30 ton); Aquastar at Sathing (20 ton); Fortune at Ranot (20 ton), and Thai Fisheries at Songkhla (8 ton).[44]

Demand for shrimp feed increased from around 5,000 ton in the early 1980s to around 700,000 ton by 1997. CP produces some 70 percent of the total, seven times the second largest producer, thereby reflecting the main cost of feed, which constitutes about 70 percent of operating costs. CP's involvements in processing and marketing, coupled with its dominance of the feedmill sector has meant that Thai shrimp aquaculture, like poultry, has been effectively determined by one group.

Forest Agribusiness

Forest agribusiness concerns plantations of fast growing species and the processing of timber and pulp. It also includes logging, saw milling, and forest products. Saw milling capacity has reduced with the prohibition on logging and the location of new mills in border areas suggest utilisation of logs from outside Thailand.[45] *Eucalyptus* species introduced to Chiang Mai around 1950, were later promoted for afforestation of the harsh alternately wet and dry plains of Thung Kula Rong Hai of the Northeast. The Royal Forestry Department suspended promotion of the species in response to protests, although other arms of government separately promoted investment by agribusiness through lowered land rentals, and subsidised credit for small-holder growers to supply agribusiness.

Agribusiness interest in reforestation with fast growing tree species began in the late 1970s as government aimed to reduce the costs of importing of pulp and paper. The Royal Forestry Department determined *Eucalyptus camandulensis* to be the most suitable species and granted 30 year land concessions to agribusiness

[44] Gronski, R.T. (1997)
[45] Sadoff, C.W. (1992)

firms for rents of one baht per rai per year, later raised to 10 baht. Policies for reforestation showed a 40 percent total national forest cover with 25 percent being commercial plantations, a policy supported through tax privileges for investment in paper mills, pulp companies, and plantation development. Global rises in pulp prices attracted such companies as CP, Kaset Roong Ruang, and Shell, as well as at least 15 Japanese, and several Taiwanese joint ventures.[46]

Encroachment into forest reserves by the Kaset Roong Ruang group uncovered political linkages to a Minister of the time, which the rising resistance to commercial forestry used to invoke environmental arguments against *Eucalyptus* plantations. The environmental arguments of the time masked perhaps more serious social equity issues, where rural dwellers were excluded from traditional forest essential to their livelihood. In any case, *Eucalyptus* shortages prompted the Phoenix Pulp and Paper Company to contract small-holders to supply raw material.[47] Pulp from rice, straw, grasses, and bamboo produced inferior short fibre paper further stimulating the demand for fast growing trees for long fibre pulp.[48] Misgivings continued as small-holders remained ignorant of the wide changes occurring in the Thai economy, not the least of which was the end of agricultural expansion through opening of new lands. Value-adding and agribusiness disrupted the balance between land, labour, and capital, with capital gaining precedence, at times even subsidised by government.[49]

Now integrated as a component of reforestation policies of government, some 20 million rai (32,000 square kilometre) of *Eucalyptus* are expected to be planted for management on a rotational basis to supply the local pulp industry; demand is expected to grow to 55 million cubic metre by 2015. A proposed Chinese joint venture has advised of requirements for 200,000 rai of *Eucalyptus* grown through reforestation of degraded areas, to produce some 700,000 ton of pulp per annum.

The Sino-Thai Pulp and Paper Joint Venture Project suggest a continuation of government facilitation of small-holder grower support of agribusiness.

[46] Phongpaichait, Pasuk and Baker C. (1997)
[47] Bello, W., Cunningham, S. and Kheng Poh, L. (1998)
[48] Phantumvanit, Dhira (1988)
[49] Phongpaichait, Pasuk and Baker C. (1997)

Experience of its pioneering predecessor, the problem plagued Phoenix Pulp and Paper Plant in Khon Kaen, provides lessons concerning social equity, when company margins are squeezed and the only flexible contract is with the small-holder. Delivery of *Eucalyptus* logs to the Phoenix Pulp and Paper Plant includes costs of over 100 baht for tree cutting labour and 250 baht for daily rental of a truck, with trucks caused to queue for several days, and the company paying months in arrears. The role of government continues to evolve.

Rubber Agribusiness

First introduced in 1901,[50] rubber plantings emerged as an industry around 1918.[51] With colonial firms extending from Malaysia seeking land rights, the Thai government sought to exclude large foreign groups, thereby providing a financial advantage to Malaysia. However, beneficiaries of the policy were Thai small-holder rubber producers whose expansion created demand for inputs supply, credit, consolidation, and marketing, which again entrepreneurial immigrant Chinese filled. The absence of colonial laws that protected foreign investment which had led to Thailand failing to fully develop many of its agribusiness industries, did not constrain small-holder rubber development.[52]

The independence of operation in the South favoured innovative approaches which Chinese businessmen with planters from Malaysia built into a small-holder rubber industry, until entrepreneurial Chinese were ejected by government in the 1950s.[53] Initially receiving a lower price for poorer quality products, Thai rubber progressively improved while at the same time Thailand seized each opportunity to increase its export quota; by 1935, Thailand had achieved permission to export more than 30,000 ton, four times its 1934 allowance.[54] World War I allowed expansion, as British colonies were prohibited to trade rubber, and World War II and the Korean War similarly encouraged further increases in planting.[55] Competition from synthetic rubbers[56] finally stimulated government support for

[50] Ungphakorn, Puey and Yossundara, Suparb (1955)
[51] Thomson, V. (1967)
[52] Phongpaichait, Pasuk and Baker C. (1997)
[53] Silcock, T.H. (1970)
[54] McFadyean, A. (1944)
[55] Silcock, T.H. (1970)
[56] McHale, T.R. (1961)

replanting with Malaysian developed lines[57] through the 1950s and later.

The Thai rubber industry of the era was 80 percent managed through small-holdings of less than 50 rai; estates exceeding 250 rai represented less than 10 percent, and foreign ownership was negligible.[58] Government assistance to further improve came through international assistance from the 1950s,[59] which confirmed the further potential[60] and ultimately led to Thailand becoming the third largest producer by the early 1970s,[61] and the largest by the 1980s.

The relationship between small-holders and agribusiness allowed responsive expansion of planting, while the relationship between agribusiness and government allowed manipulation of the international agreements which culminated in the International Natural Rubber Organisation. The Organisation was wound up in 1999 by Thailand's withdrawal as it sought to raise rubber prices.[62] The success of the government-agribusiness-small-holder relationship in the rubber industry, included a political element related to the Muslim South, which served in part to maintain government attention to social equity.

Horticulture, Textiles, and Technology

Agribusiness also appears to have been critical in the success of horticulture exports, for example, in the Lam Nam Oon Contract Farming Project in Sakon Nakhon province in the Northeast. Central to that success was the provision of irrigation water to expand wet season production, the introduction of dry season agriculture, and the introduction of non-traditional crops of high marketability supported by technical advice. Based on such crops as asparagus, sweet corn, gherkins, string beans, peas, baby corn, tomatoes, and cantaloupe grown under contract, the scheme was particularly effective for the contract growing of tomatoes for a private processing plant, also supported through BAAC and other finance. Repayment of farmers' loans to the BAAC were settled through the processing firm

[57] Fisk, E.K. (1967)
[58] Ministry of Agriculture (1961)
[59] FAO (1954)
[60] Ministry of Agriculture (1961)
[61] FAO (1972b)
[62] FEE (1999)

upon sale of tomatoes.[63]

With expansion to four companies in tomato contract growing activities, one in tomato seed growing, one in fresh consumable tomatoes, and two in tomato paste, inevitable disputes about spoilages, factory shut-downs, and other unforeseen problems were resolved through mutual benefit contracts. The viability of the government-agribusiness-small-holder relationship in this case was ascribed to government investment in necessary infrastructure through road construction, a sound understanding by farmers of the contract farming concept, efficient coordination of government agencies operating in the area, transparency in the development of procedures involving farmers, and timely supervision and advice by staff of the firms and government officials.[64]

Less successful was an Agricultural Land Reform Office and BAAC program with the agribusiness company Maboonkrong Srichai Cashew Company Limited. BAAC supplied Northeast small-holders with credit for company-supplied cashew tree seedlings and grafted trees, some essential inputs, and technical advice. Aiming to cover 175,000 rai in 1990, and expanding through subsequent years to 300,000 rai and more than 31,000 farm households, initial planting targets were exceeded until the rapid spread of thrip and mealy bug and a drought reduced yields below targets, while farmers accumulated debt. Research conducted by the company and the Department of Agriculture had identified suitable sites in the wetter East, however, government programs targeted the Northeast, thus the combined inputs of agribusiness and government only seemed to be available for that region.[65] Poor feasibility analysis and an absence of regionally specific research thus introduced risks which unfairly accrued to small-holders.

Cotton and to an extent, silk and other fibres, might have been expected to follow the successful agribusiness models which acquire technology, build on domestic production or processing, and meet local demand in the first instance. However, import substitution in the textile and clothing sector has not been a success of agribusiness. The major foreign exchange earner since 1985, the textile

[63] Paopongsakorn, Nipon (1995)
[64] Paopongsakorn, Nipon (1995)
[65] Paopongsakorn, Nipon (1995)

and clothing sector exported some $6.4 billion of product made mainly from imported raw material in 1995. The relatively late development of Thailand's modern textile industry and open policies for the sale of foreign cloth in Thailand since Ayutthaya times has continued reliance on imported raw material. Government investment in 1936 in 72 looms and more than 3,000 spindles from Germany stimulated a 1946 private investment which rose to a capacity of some 43,000 spindles by 1952. Low-cost imports from Pakistan in the 1950s stimulated government protection through the mid- and late-1950s, until joint venture companies with Japanese and Chinese entrepreneurs introduced blends with artificial fibres. Inadequate supply of domestic product has been addressed less successfully than use of low cost labour under protected conditions, producing an industry of high apparent value which masks the potential foregone for something akin to the vertical integration of the poultry industry.[66]

A common reason for such failures as the textile industry has been the inability to reliably produce quality raw material in Thailand. This conclusion is not supported by the evidence which contains only experience from inadequate research funding and uncoordinated polices. In fact, the ability of agribusiness to acquire new technology has been a key to its continued growth, when supported by appropriate government policies, long term planning, and reliable government regulatory services. High levels of technology acquisition and innovation by agribusiness have been shown for aquaculture and animal feeds, seeds, dairy, and ornamental plants. An estimate of the potential for impact of new bio-technology indicates the highest likely returns to plants and seeds (75 percent), and insecticides and herbicides (50 percent), above pharmaceutical and chemical sectors.[67] Realising such potential relies on higher levels of education than current agriculture and agribusiness emphasis on bachelor rather than higher degrees.[68]

Small-holders have acquired and applied new technology through contract farming more than traditional extension mechanisms in many instances. Beginning in the sugar cane and tobacco industries, contracts schedule deliveries of specified quality raw material to processing facilities.[69] Vegetable processing

[66] Suphachalasai, Suphat (1997)
[67] Smithson, L.H. (1988)
[68] TDRI (1989)
[69] Siamwalla, Ammar et al (1986)

successfully adopted the approach; for example, potato processing introduced in Chiang Mai in 1979 expanded to larger processing companies such as United Foods through contract farming. High prices attracted growers through a phase of competing processing companies until one company, Food Processing, dominated and contract prices consolidated.[70] Small-holders gained new skills through the demands of contracts, although research remains underfunded and uncoordinated.

Contract farming has been shown to provide similar returns to the adoption of a new successful technology; as Thai adoption rates have traditionally been low, government support to agribusiness may seem justified as an alternative extension arm through provision of stability, infrastructure development, and access to information.[71] Nevertheless, the role of government to control exploitation of agribusiness' superior bargaining position with farmers, particularly when contracts are renewed and farmers are committed to long term debt, precludes major or uncontrolled reliance on agribusiness as the means of developing small-holder agriculture. Compounding government's deliberations over these conflicting interests are those government agribusiness institutions created for political or development reasons of the past.

Government Agribusiness

Government use of agribusiness in development can appear anomalous with respect to government enterprises which act as agribusiness houses. Board of Investment privileges which link government to supporting business can also be a form of protection where it results in some non-agricultural sectors being subsidised by agriculture, and some agribusiness being subsidised by the agricultural production sector.[72] The separation of manufacturing from agriculture also exposes producers to export market risks without apparent influence over the price they receive when international prices rise.[73] Reform of the Ministries of Agriculture and Cooperatives, and Finance, as well as the Bank of Thailand[74] as a result of the crisis of 1997, provides an opportunity to revisit the State enterprises related to agriculture, and

[70] Ornberg, L. (1998)
[71] Dolinsky, D.J. (1992)
[72] Jutsuchon, Somchai (1989)
[73] Siamwalla, Ammar (1991)
[74] Christensen, S.R. (1992)

other sectors.

State enterprises, although supervised by a relevant Ministry, enjoy a high degree of operational autonomy with limited accountability. Those supervised by the Ministry of Agriculture and Cooperatives indicated a small profit of 355 million baht from a revenue of 5.3 billion in 1982, and a loss of 64 million baht from a revenue base of 6.4 billion in 1988.

Within the top 20 profit making public enterprises over the period 1979 to 1988, those related to agriculture and agribusiness, although not necessarily supervised by the Ministry of Agriculture and Cooperatives were: the Thailand Tobacco Monopoly, Forest Industry Organisation, Bank for Agriculture and Agricultural Cooperatives, Thai Plywood Company Limited, and Marketing Organisation for Farmers. Public enterprises relating to the agriculture sector in general include:[75]

- Bank for Agriculture and Agricultural Cooperatives
- Dairy Farming Promotion Organisation of Thailand
- Fish Marketing Organisation
- Forest Industry Organisation
- Government Cold Storage Organisation
- Lampoon Provincial Company Limited
- Marketing Organisation
- Marketing Organisation for Farmers
- Northeast Jute Mill Company Limited
- Office of Rubber Replanting Aid Fund
- Prachin Buri Provincial Company Limited
- Preserved Food Organisation
- Public Warehouse Organisation
- Rubber Estate Organisation
- Sugar Factory, Department of Industrial Works
- Surin Provincial Company Limited
- Tanning Organisation
- Thai Plywood Company Limited
- Thailand Tobacco Monopoly

[75] Dhiratayakinant, Kraiyudht (1993)

Government participation in agribusiness can confuse the role of government; for example, in the seed industry government provides services of foundation seed, multiplication, distribution of improved seeds and selected crops, quality control, investment privileges, and export-import control. The vegetable seed market is dominated by the private sector while the public sector has concentrated on open-pollinated crops such as rice, soya beans, and ground nuts. However, it is now seeking to expand into the vegetable seed market. Patent legislation, global trends of privatisation of benefits, and government regulatory roles may lead to a reconsideration of the extent of government participation in production fields.[76]

Fertiliser and pesticide procurement and distribution by government agencies also overlaps with private agribusiness. Government has procured and distributed fertilisers through the Bank of Agriculture and Agricultural Cooperatives, the Rubber Replanting Aid Fund, and the Marketing Organisation for Farmers. It became involved in fertiliser production through the unsuccessful Mae Moh plant which aimed to use lignite as a fuel; initially 49.9 percent government owned, continued losses and lack of confidence led to public ownership rising to 98 percent until its bankruptcy in 1978. Again in 1982, the National Fertiliser Corporation was established with 45.9 percent government ownership to utilise the newly discovered natural gas of the Gulf of Thailand. High domestic prices for natural gas affected the company's viability and the project was abandoned in 1991. By 1992, the Thai Central Chemical Company Limited dominated the local industry mixing 90 percent of fertiliser product. By contrast, pesticide demand, which increased with fertiliser use, was profitably met with private sector establishing local mixing plants.

A tidy separation between government and private agribusiness may not be necessary, although some review of the ongoing utility of organisations created for purposes which may no longer exist is warranted. Agricultural credit through the BAAC, irrigation, water allocation and charges, and agricultural cooperatives, among other fields, span the two production sectors of Thai agriculture and hence possibly confuse the role of government.[77] The essential role of government in

[76] Setboonsarng, Suthad et al (1990)
[77] Siamwalla, Ammar (1992)

regulation, and provision of services of public benefit is providing a clearer guideline in the gradual improvement of institutions. Economic planning and foreign support appears to emphasise commercial agriculture more than self-sufficiency. Recognition that these two types of agriculture are likely to continue for the foreseeable future will assist government reorganisation to meet social, environmental, and economic objectives.

Future Agribusiness

The two Thai agricultural production sectors, non- or semi-commercial and requiring government's broader attention, and the commercial with which agribusiness identifies, cannot be served by single policies. For the commercial sector, the emergence of agribusiness houses such as CP may be seen as both a policy and Chinese-Thai commercial success. Success is evident in profits; however, the economic benefits are wider. From no inherent advantage in processing most primary products,[78] agribusiness has created efficiencies through linking primary production advantages to such fields as processing of cereal products, raising and processing of chickens, and marketing of chicken products. The major chicken feed ingredient, maize was also a significant export commodity until boneless chicken exports to Japan allowed value-adding at a time when cereals showed a long term downward price trend, such that maize exports of 45 percent of production in 1980 declined to 20 percent in 1989,[79] while chicken exports rose. Success in the self sufficient small-holder sector is less easily quantified, and its importance is emphasised in the next chapter.

The role of government in maintaining an appropriate legislative and regulatory environment remains an issue when development requires close relations with agribusiness. This concern, raised by foreign financiers in the post-1997 crisis period, is linked to resolve in policing of regulations as a step towards improved effectiveness of governance. Past assumptions that agribusiness will seek to avoid such regulations, and that government is a more responsible owner of economic facilities, have been shown to be false. For example, an examination of the reasons for abatement of polluting practices by paper mills in four Asian countries including

[78] Siamwalla, Ammar (1991)
[79] Siamwalla, Ammar et al (1992)

Thailand concluded that:[80]

- action is stimulated by technical and economic information, and external pressure
- competitiveness is positively correlated to state of the art environmental practices
- government ownership is negatively correlated to pollution abatement
- community participation facilitates abatement procedures, especially in poor areas
- there is no difference between local and foreign ownership.

With such experience and a free market philosophy among international financiers of Thailand post-1997, agricultural development plans are utilising $1.2 billion of international funds to enhance three Thai agribusiness areas. These are oriented to improved government services for the food and animal feed, rubber and rubber products, and wooden products and furniture industries. Assistance in the form of provision of high quality rice seed is expected to lead to increased export of high quality Thai rice. The major Thai rice exporters in 1997, Soon Hua Seng Rice, Chaiyaporn Rice, Thai Fah, Kamolkij, Jiameng, Rice International, Siam Rice, Thai Mapan, and Uthai Produce which export 70 percent of the total Thai export of 5.2 billion tons, will be major beneficiaries. Cassava improvement based on higher yielding varieties, rubber price enhancement, improved environmental management of coastal shrimp farms, and greater use of domestically produced animal feeds,[81] will similarly benefit private agribusiness. Government revenue raising through taxation clearly forms part of other foreign packages to ensure viability of these loans. Inputs to research, education, import substitution, and value adding complement the agricultural plan.

Thai agribusiness is one of the nation's success stories, which when considered together with the strength of the agricultural production sector, represents the source of Thailand's wealth from the past, as it does today, and into the immediate future. The future of agribusiness involves a clearer separation of government from private sector roles, and recognition of the role of small-holders, as discussed further in the next chapter.

[80] Hartman, R.S. (1997)
[81] Lebel, L. (1998)

Summary

Key points pertinent to Thai agriculture which may be elicited form this discussion of agribusiness include:

- Agribusiness growth from private input suppliers built on Ayutthaya's reliance on colonial European groups until contemporaneous Chinese traders proved more adaptable in remote areas and as Crown agents, gaining ownership of the first European rice mill and other processing facilities, with government following suit.
- Government agribusiness enterprises established after World War II showed variable outcomes, while private agribusiness expanded rapidly in the 1960s with upland cropping through bank and agribusiness alliances which soon transcended Thailand's markets, such that the wider agriculture sector forms more than half of the economy.
- Government supported private agribusiness to contract small-holder production which highlighted conflicts with government's social and environmental objectives, and with anomalous State agribusiness enterprises, thereby clarifying the need to view future agribusiness as part of commercial agriculture, and for separate policies for self-sufficient agriculture.